

## **VersaUV LEF2-300**

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# Revision History

| Revision | Date               | Description                                                                                                               | Approver | Author |
|----------|--------------------|---------------------------------------------------------------------------------------------------------------------------|----------|--------|
| 0        | July 31, 2019      | First edition                                                                                                             | Nimura   | Saito  |
| 1        | November 27, 2019  | Special Tools<br>Chapter 2 Adjustment [UV Lamp Illuminance Measurement]                                                   | Nimura   | Saito  |
| 2        | January 6, 2020    | Special Tools<br>Chapter 3 Supplement [Sensor Map], [Wiring Map]<br>Chapter 4 Service Activities [Installation Checklist] | Nimura   | Saito  |
| 3        | April 1, 2020      | Chapter 1 Replacement of Main Parts [Feed Motor Replacement]<br>Chapter 4 Service Activities [Installation Checklist]     | Nimura   | Saito  |
| 4        | April 30, 2020     | Chapter 2 Adjustment [Grease Up Maintenance]<br>Chapter 4 Service Activities [Maintenance Checklist]                      | Nimura   | Saito  |
| 5        | September 25, 2020 | Chapter 1 Replacement of Main Parts [Board Replacement] Contents of adjustments after main board replacement corrected.   | Nimura   | Saito  |
| 6        | August 10, 2023    | Chapter 2 Adjustment [Service Mode] Sensors related to drain bottle added to Sensor check menu.                           | Nimura   | Saito  |
| 7        | March 1, 2024      | Chapter 3 Supplement [Wiring Map] Serial No. added<br>New wiring map added (weight sensor added)                          | Nimura   | Saito  |
| 8        |                    |                                                                                                                           |          |        |
| 9        |                    |                                                                                                                           |          |        |
| 10       |                    |                                                                                                                           |          |        |
| 11       |                    |                                                                                                                           |          |        |
| 12       |                    |                                                                                                                           |          |        |
| 13       |                    |                                                                                                                           |          |        |
| 14       |                    |                                                                                                                           |          |        |
| 15       |                    |                                                                                                                           |          |        |
| 16       |                    |                                                                                                                           |          |        |
| 17       |                    |                                                                                                                           |          |        |
| 18       |                    |                                                                                                                           |          |        |
| 19       |                    |                                                                                                                           |          |        |
| 20       |                    |                                                                                                                           |          |        |

Service parts

For information on service parts required for the replacement of parts or adjustment, refer to Parts Finder Web.

<https://365rolanddg.sharepoint.com/sites/extranet/Work-SitePages/GSV-PartsFinder.aspx>

 This machine uses ultraviolet light

 **CAUTION**



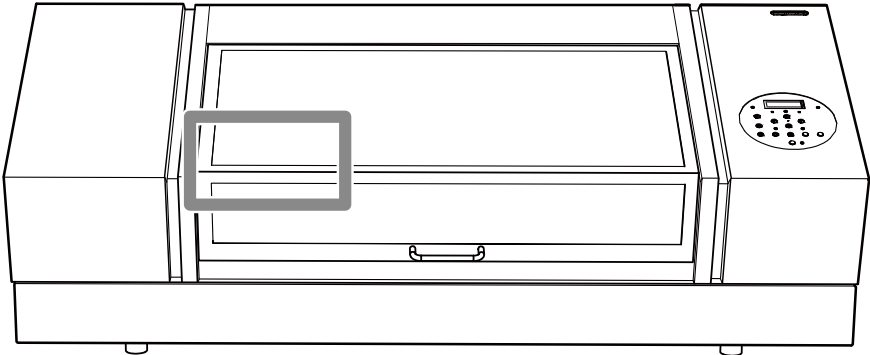
Never look at the blue-white (ultraviolet) light emitted from the print-head area for an extended time.  
Looking directly at the ultraviolet light from up close for an extended period may result in eye injury.

 **Caution: Ultraviolet Light**

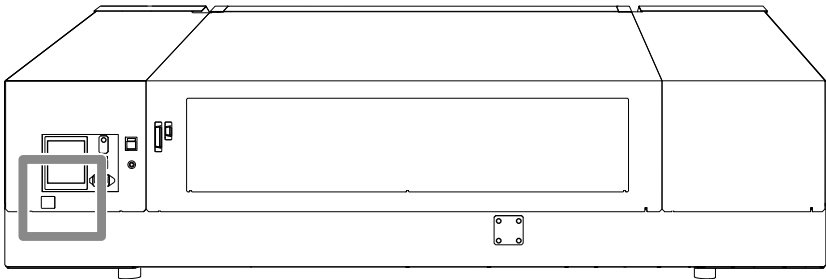
This machine is fitted with covers to keep external leakage of ultraviolet light at low levels, but incorrect handling or operation can lead to physical injury due to ultraviolet light. The extent of injury depends on the intensity and wavelength of the ultraviolet light, and the length of time of exposure. Prolonged exposure to strong ultraviolet light of hazardous wavelengths can cause injury to the eyes or skin. Exercise caution.

 **Warning Labels**

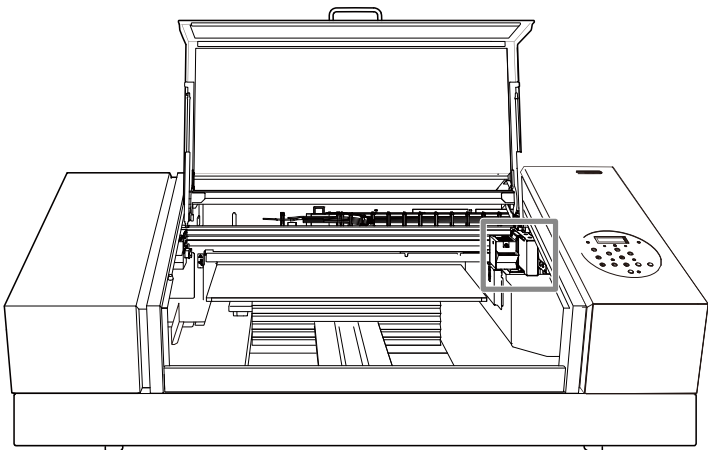
Warning labels are affixed to the machine to make areas of danger immediately clear. The meanings of these labels are as follows. Be sure to heed their warnings. Also, never remove the labels or allow them to become dirty.



|                                                                                     |                                                                                                                                                               |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>Caution: Ultraviolet Light</b><br>When the cover is open, check that the UV lamp is off.                                                                   |
|  | <b>Caution: Pinching Hazard</b><br>Be careful not to allow the fingers to become pinched when closing covers.                                                 |
|  | <b>Caution: Moving Print Heads</b><br>The print heads inside the cover move at high speed and pose a hazard. Never insert your hands or fingers into the gap. |

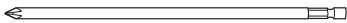
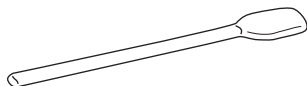
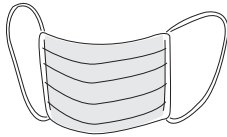
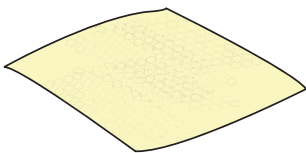


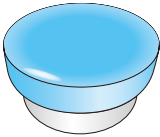
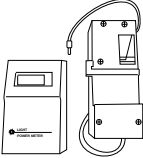
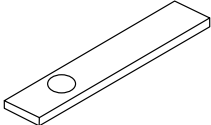
|                                                                                   |                                                                                                       |
|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
|  | <p><b>Caution: High Voltage</b><br/>Removing the cover may result in high-voltage electric shock.</p> |
|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|



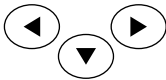
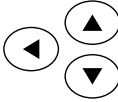
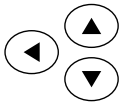
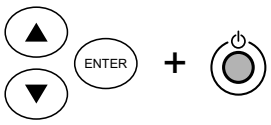
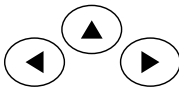
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                          |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p><b>Ink, cleaning fluid, and discharged fluid are flammable and toxic.</b><br/>If these fluids come into contact with the eyes or skin, it may be hazardous to the health. When performing maintenance work, for example when disposing of discharged fluid, wear protective eyewear and protective gloves (refer to the safety data sheet [SDS]).</p> |
|  | <p><b>Caution: High Temperature</b><br/>Certain areas become hot. Exercise caution to avoid burns.</p>                                                                                                                                                                                                                                                   |
|  | <p><b>Caution: Pinching Hazard</b><br/>Hands or fingers may be pinched or become caught in certain areas. Use care when performing operations.</p>                                                                                                                                                                                                       |

# Special Tools

|                  |                                                               |                                                                                       |
|------------------|---------------------------------------------------------------|---------------------------------------------------------------------------------------|
| <b>Part No.</b>  | ST-056                                                        |     |
| <b>Part Name</b> | TORQUE DRIVER N6                                              |                                                                                       |
| <b>Purpose</b>   | Head alignment<br>(Use it to secure the print head.)          |                                                                                       |
| <b>Part No.</b>  | 1000005463                                                    |     |
| <b>Part Name</b> | TOOL,BIT PHILLIPS NO.1 L150MM ST-107                          |                                                                                       |
| <b>Purpose</b>   | Head alignment<br>(Use it to secure the print head.)          |                                                                                       |
| <b>Part No.</b>  | ST-001                                                        |     |
| <b>Part Name</b> | TENSION GAUGE 2000GF/2000CN                                   |                                                                                       |
| <b>Purpose</b>   | Belt tension adjustment                                       |                                                                                       |
| <b>Part No.</b>  | 1000003138                                                    |     |
| <b>Part Name</b> | SET,CLEANER STICK TX712A 10PCS.                               |                                                                                       |
| <b>Purpose</b>   | Head cleaning                                                 |                                                                                       |
| <b>Part No.</b>  | 6702419050                                                    |  |
| <b>Part Name</b> | CLEANING LIQUID(ESL5) 500ML                                   |                                                                                       |
| <b>Purpose</b>   | Head cleaning (ESL5)                                          |                                                                                       |
| <b>Part No.</b>  | 1000005467                                                    |  |
| <b>Part Name</b> | TOOL,GLASSES UV COATING ST-111                                |                                                                                       |
| <b>Purpose</b>   | Protective goggles                                            |                                                                                       |
| <b>Part No.</b>  | 1000006676                                                    |  |
| <b>Part Name</b> | TOOL,DEODORANT MASK DPM-FM ST-116                             |                                                                                       |
| <b>Purpose</b>   | Activated carbon mask                                         |                                                                                       |
| <b>Part No.</b>  | 1000005829                                                    |   |
| <b>Part Name</b> | TOOL,VINYL YE UV RESISTANT ST-113                             |                                                                                       |
| <b>Purpose</b>   | Replacement when the ink line is exposed to the outside light |                                                                                       |

|           |                                                                                 |                                                                                     |
|-----------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Part No.  | 6000004129                                                                      |  |
| Part Name | GREASE,FLOIL G-902 10ML_02                                                      |                                                                                     |
| Purpose   | Scan motor replacement<br>Carriage belt replacement<br>Greasing for maintenance |                                                                                     |
| Part No.  | 1000021605                                                                      |  |
| Part Name | SET,PWR-M C6080-385-NF,E15348-01 SV                                             |                                                                                     |
| Purpose   | UV lamp illuminance measurement                                                 |                                                                                     |
| Part No.  | 1000021760                                                                      |  |
| Part Name | SCRAPER,UV LAMP GLASS LEF2-200                                                  |                                                                                     |
| Purpose   | UV lamp cleaning                                                                |                                                                                     |

# Key Combinations

| For service engineers                                    | Panel key combination                                                                                                                                                     | Description                                                                                                                                                                                                     |
|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Service mode                                             |  +      | Press the [MENU] [▶] keys to enter the service menu.                                                                                                                                                            |
| Firmware upgrade                                         |  +      | [UPDATE FIRMWARE?] is displayed.<br>Press the [ENTER] key to upgrade firmware.                                                                                                                                  |
| Firmware installation<br>(When replacing the main board) |  +      | Use this key combination to install firmware after replacing the main board.                                                                                                                                    |
|                                                          |  →      | In case of a brand-new main board without firmware installed, [SUM-ERROR] is displayed when the sub power switch is turned on.<br>Press the [ENTER] key so that the printer will become ready to load firmware. |
| System parameter initialization                          |  +  | All parameters will be initialized.<br>Press the [ENTER] key to start initializing.                                                                                                                             |
| Limit/Max. scan width position                           |  +  | Press [▲] key while aligning carriage to cap heads, and press [ENTER] key. Set up Max. Scan Width Pos., and press the [ENTER] key.                                                                              |
| Service Report                                           |  +  | Service Report (Adjustment value) is printed.<br>It is the same as the service report in the service menu.                                                                                                      |

| For users               | Panel key combination                                                                                                                                                     | Description                                          |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|
| Language/unit selection |  +  | Press the [▲] [▼] keys to select language/unit type. |

# Chapter 1 Replacement of Main Parts

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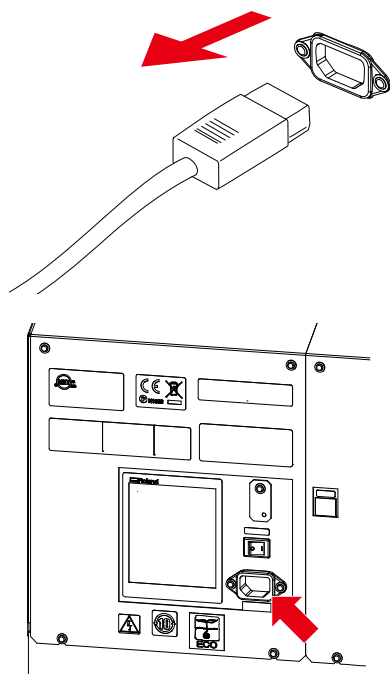


# Important Points

## To Ensure Safe Work

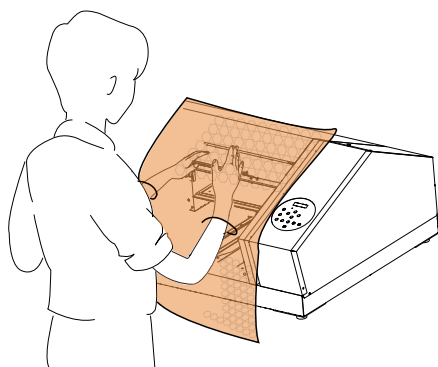


Turn off the sub power switch and main power switch, and unplug the power cord of the printer and deodorization equipment before performing parts replacement. Performing the parts replacement while the power is on may result in injury due to the unexpected operation of the printer.



Always use the UV protection sheet when the ink line is exposed to the light\* during the replacement, or ink will harden and clog in the ink line. And it will affect the condition of a machine.

\*The light means the light which includes the ultraviolet light. Consider that most of the light including fluorescent light includes the ultraviolet.



Use rubber gloves to prevent direct contact with the skin.  
Contact with the ink may cause skin irritation.



Use deodorizing mask with activated carbon when necessary. When you carry the parts which are stained with ink such as head or damper, put these parts into a bag (for example aluminum bag of ECO-UV INK) or container that has a sealing capability. Current leakage may cause electrical shock, electrocution, or combustion and fire. Otherwise, you might feel sick because of the evaporated ECO-UV INK.



Wear protective goggles when turning on the UV Lamp without covers and when replacing the heads.



Static electricity can harm some electronic devices. To prevent static damage, discharge static electricity from your body before you touch any of the electronic parts. You can do so by touching an unpainted metal surface on the chassis.

We also recommend that you take the following steps to prevent damage from electrostatic discharge (ESD):

- When unpacking a static-sensitive device from its shipping carton, do not remove the device from the antistatic packing material until you are ready to install the part to the printer. Just before removing the antistatic packaging, be sure to discharge static electricity from your body.
- When transporting a static-sensitive part, first place it in an antistatic container or package.
- Handle all static-sensitive parts in a static-safe area. If possible, use antistatic floor pads and workbench pads.

# Print Head Replacement

## Information

### Necessary tools

#### General tools

No. 2 Phillips screwdriver

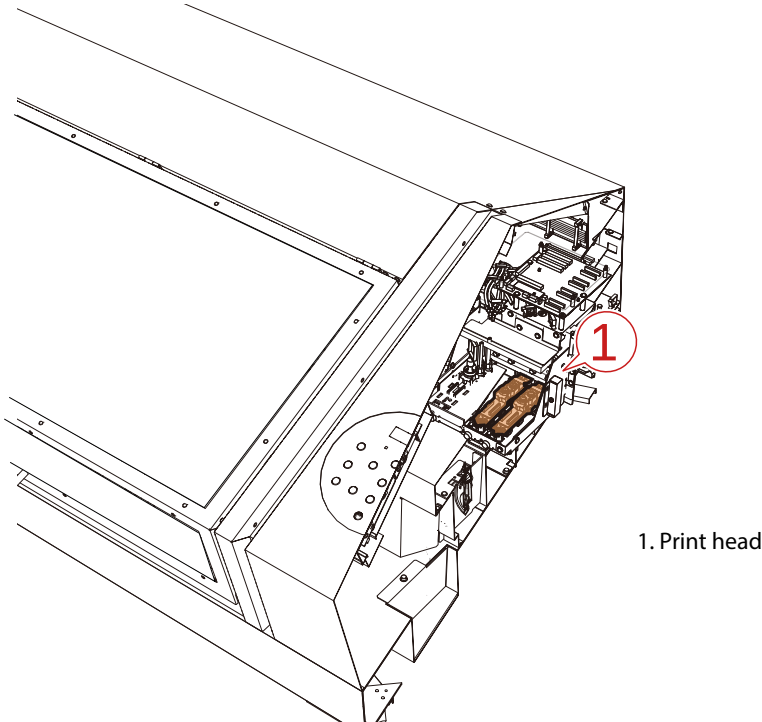
#### Special tools

|            |                                       |
|------------|---------------------------------------|
| ST-056     | TORQUE DRIVER N6                      |
| 1000005463 | TOOL, BIT PHILLIPS NO.1 L150MM ST-107 |
| 1000005829 | TOOL,VINYL YE UV RESISTANT ST-113     |

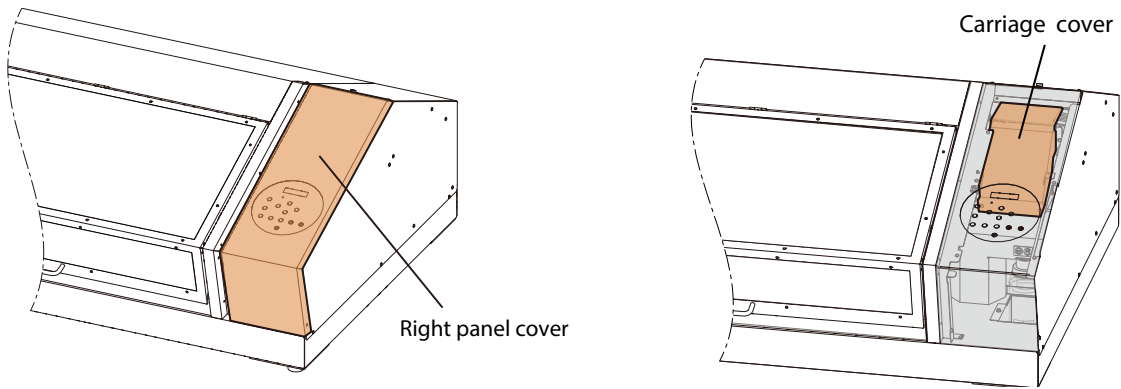
### Typical work time

| Contents of work                    | Time    |
|-------------------------------------|---------|
| Print head replacement (1 piece)    | 20 min. |
| Thermistor check                    | 1 min.  |
| Print head alignment                | 40 min. |
| Clearing the print head information | 1 min.  |

## Outline Diagram



Cover That Needs to Be Removed



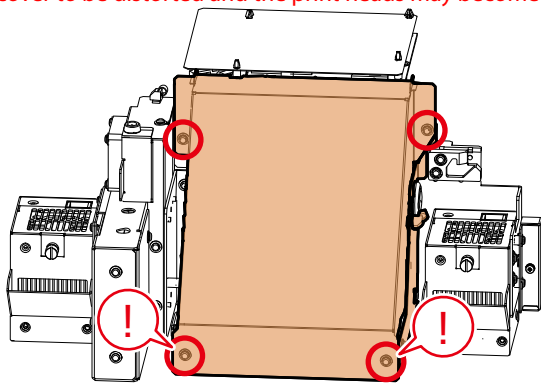
Notes when attaching carriage cover

NOTE

When attaching the carriage cover, tighten four screws loosely first, then tighten them fully to secure the cover.

CAUTION

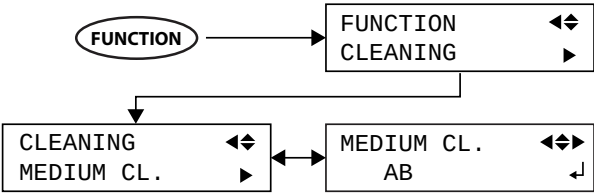
When tightening the two screws on the front, be careful not to tighten them too hard. Doing so may cause the carriage cover to be distorted and the print heads may become shifted.



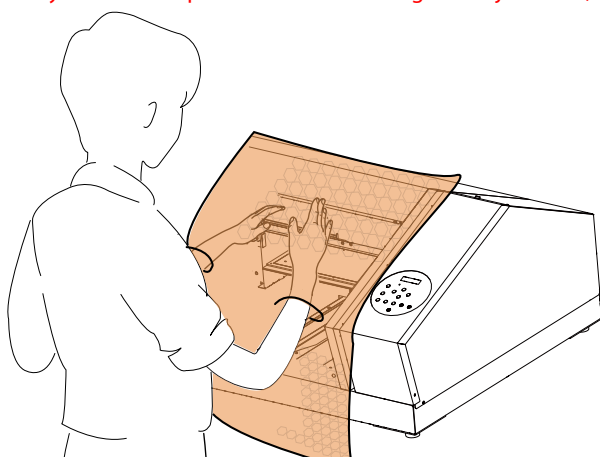
Workflow

CAUTION

- To prevent hardened ink from entering into the nozzle, refresh print head before the adjustment. Perform medium cleaning on all print heads if 20 minutes passes.



- Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.



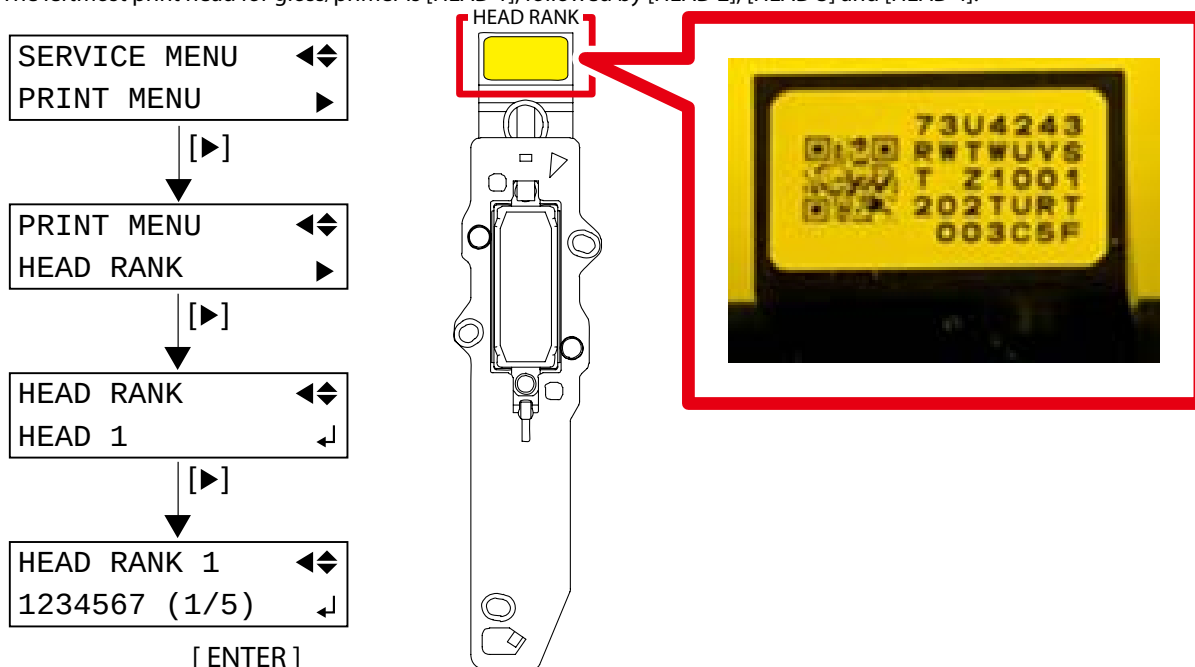
1. Turn on the power switch and enter the service mode.
2. Select [SERVICE MENU] > [PRINT MENU] > [HEAD RANK]. Select the No. of the print head you are going to replace, and input the head rank written on the sticker on the new print head. Select digits with [◀][▶] keys, and change the parameter with [▲][▼] keys. Press the [ENTER] key to save the setting.

## CAUTION

Make sure to input the head rank before installing the print head. You will not be able to see the head rank written on the sticker after you have installed the print head to the machine. Head rank of the print head of LEF2-300 does not have..., but contains only alphanumeric characters.

## NOTE

The leftmost print head for gloss/primer is [HEAD 1], followed by [HEAD 2], [HEAD 3] and [HEAD 4].



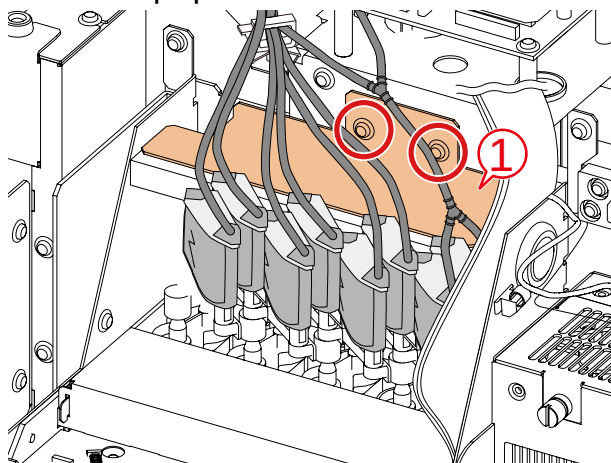
3. Turn off the power switch, and open the front cover. Then, unlock the print-head carriage, and move it to the left by hand.

## CAUTION

Make sure to turn off the main power switch before replacing the print head. If it is not turned off, the print head or the main board could break. Replacing the print head with the power cord unplugged is recommended.

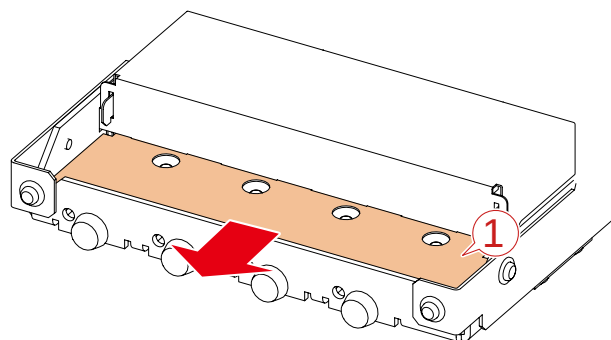
4. Remove the carriage cover.

5. Remove the damper plate.



1. Damper plate

6. Pull the head shield to the front and remove it.

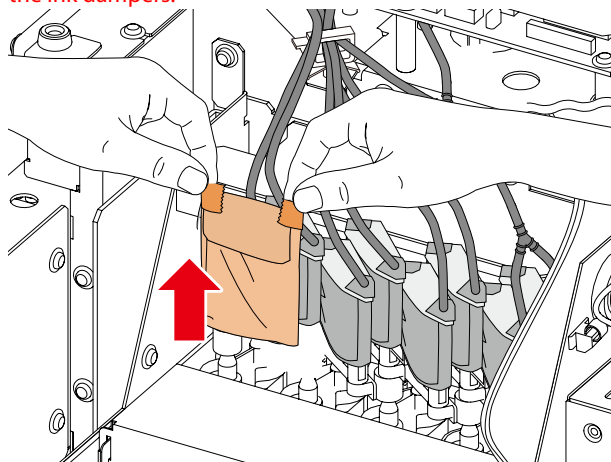


1. Head shield

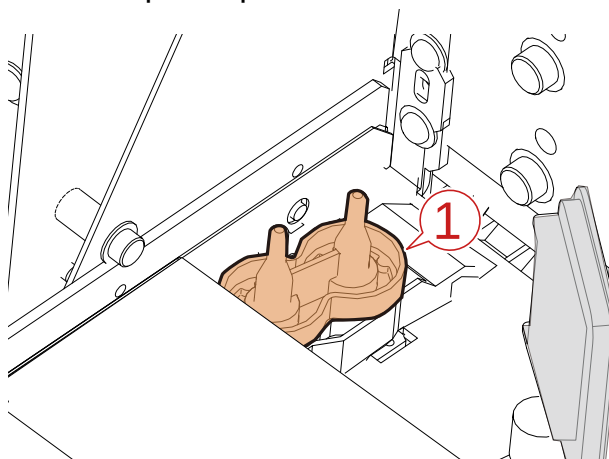
7. Remove two ink dampers by pulling the print head you are going to replace.

### CAUTION

- Ink dampers may break if you grasp them too hard.
- Remove the ink dampers with the head board cover attached. It prevents ink from dripping on the head board. If ink drips on the head board, the print head or the head driving IC will break. Pull the upper end of the damper shield when removing the ink dampers.



- 8.** Remove the adapter damper.



1. Adapter damper

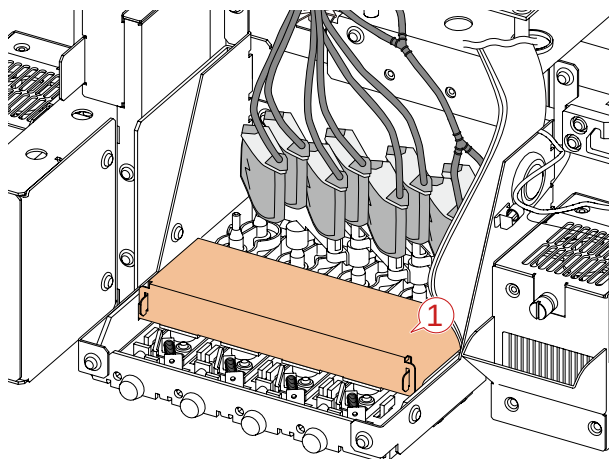
- 9.** Move the print-head carriage to the lock position.

**NOTE**

Do not lock the print-head carriage.

- 10.** Close the front cover, and then remove the panel cover.

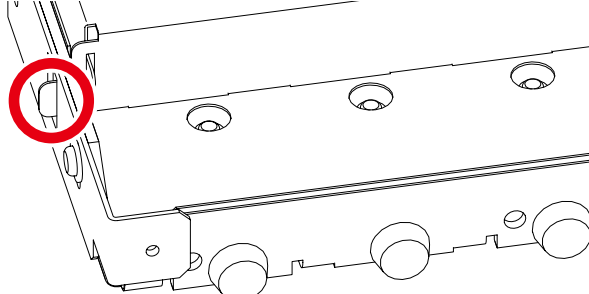
- 11.** Remove the head board cover.



1. Head board cover

**NOTE**

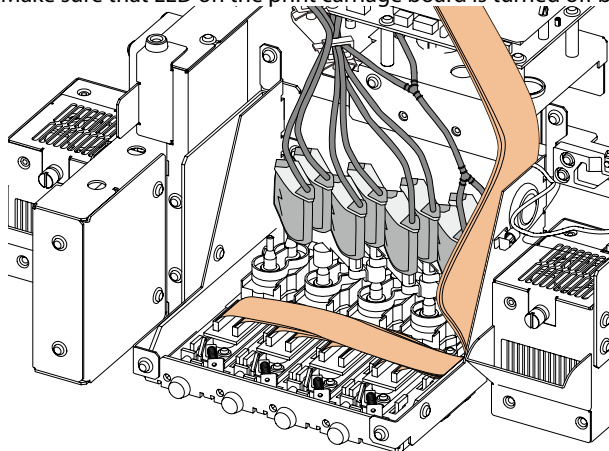
There is a tab on the left side of the head board cover.



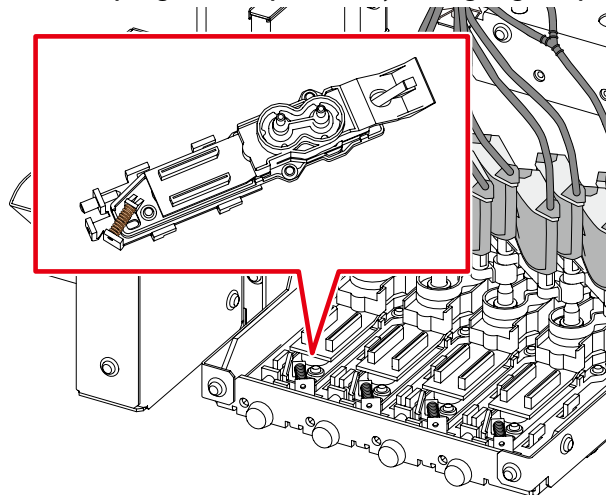
### 12. Disconnect the ribbon cables from the print heads.

#### NOTE

Make sure that LED on the print carriage board is turned off before disconnecting the ribbon cables.



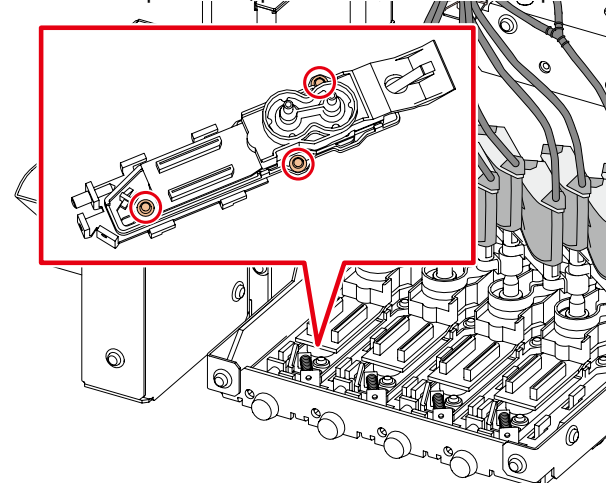
### 13. Remove the spring from the print head you are going to replace.



### 14. Remove the print head.

#### NOTE

To remove the print head, pull it to the front and pull up.

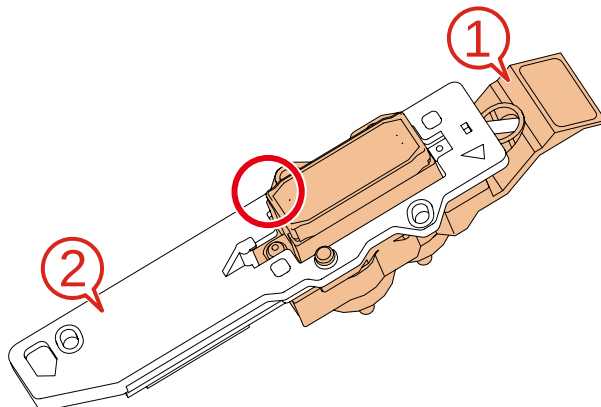




- 15.** Remove the print head from the head adapter. Then, install a new print head using a torque driver.

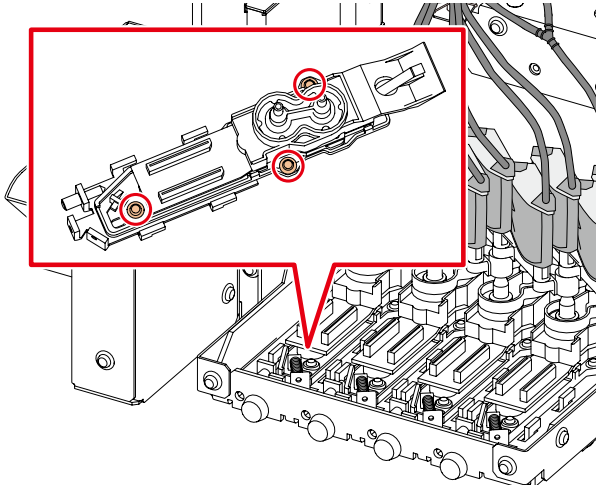
**CAUTION**

- Install the new print head by pressing it against the bottom left corner of the adapter.
- Use a 20 cN•m torque driver (ST-056) for tightening the screws.



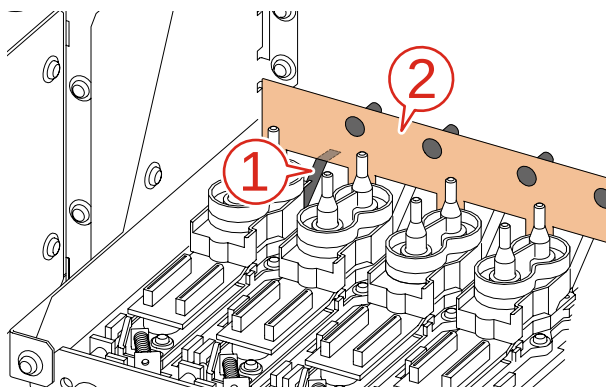
1. Print head  
2. Head adapter

- 16.** Temporarily fix the print head to the carriage with three screws.



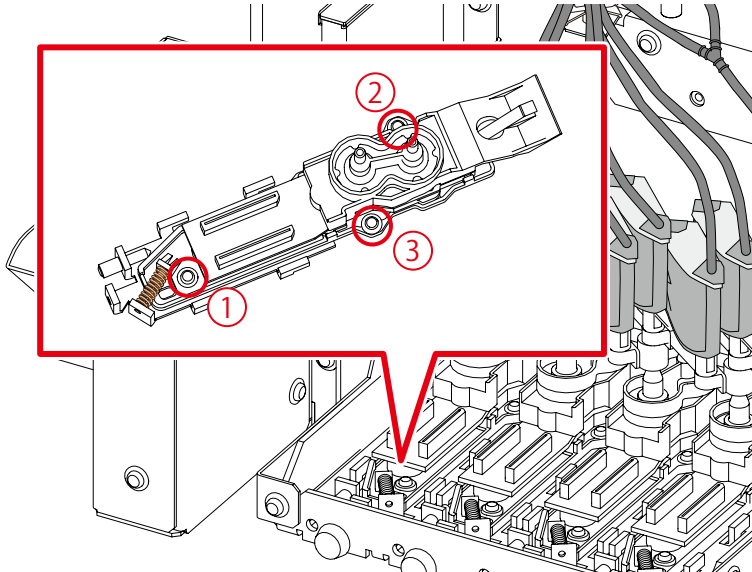
**CAUTION**

- Before fixing the print head, make sure that the earth terminal is placed under the head shield.
- Use a 20 cN•m torque driver (ST-056) for tightening the screws.



1. Earth terminal  
2. Head shield

17. Attach the spring. Then, fully tighten the screws using a torque driver in the order shown in the figure.



18. Connect the ribbon cables to the print heads.

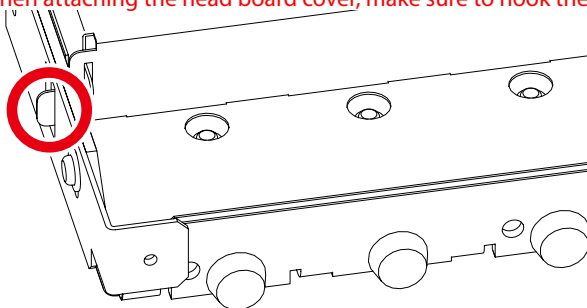
**CAUTION**

Be careful not to connect a wrong ribbon cable.

19. Attach the head board cover.

**CAUTION**

When attaching the head board cover, make sure to hook the tab to the carriage base.



20. Attach the adapter damper.

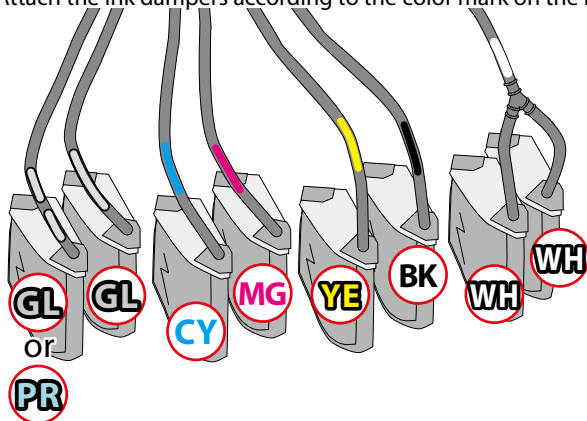
21. Attach the ink dampers to the adapter damper.

**CAUTION**

- Ink dampers may break if you grasp them too hard.
- Attach the ink dampers with the head board cover attached. If ink drips on the head board, the print head or the head driving IC will break.

## NOTE

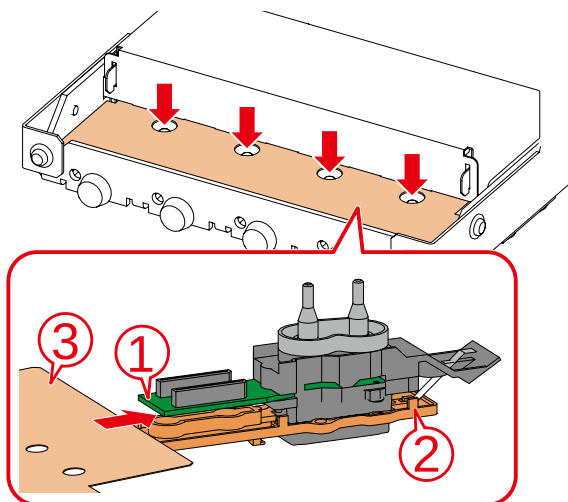
Attach the ink dampers according to the color mark on the ink tubes.



## 22. Attach the head shield.

### NOTE

Insert the head shield between the head board and the head adapter. Place it so that the screws can be seen from the screw holes.

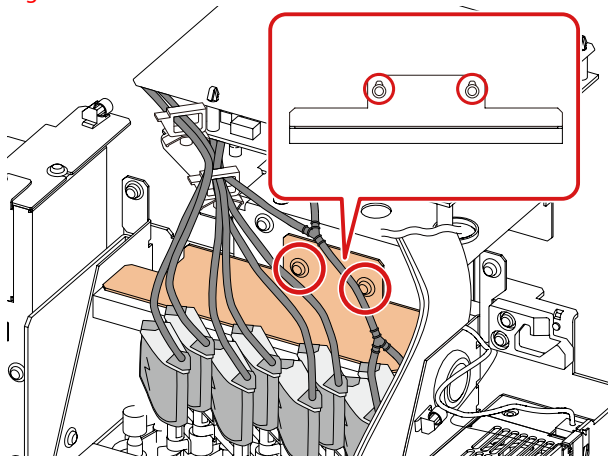


1. Head board
2. Head adapter
3. Head shield

## 23. Attach the damper plate.

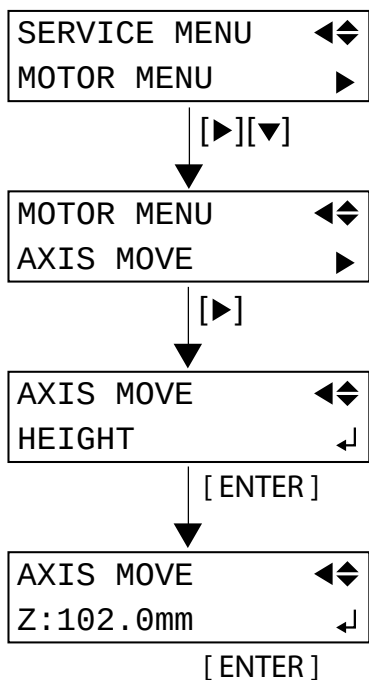
### CAUTION

- Fix the damper plate with screws while pressing it lightly with your hand. Be careful not to press it down to the dampers. Dampers could break.
- Tighten the screws at the bottom of the slotted holes.



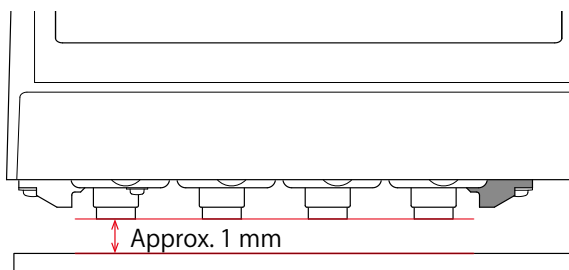
**24.** Turn on the power switch and enter the service mode.

**25.** Select [SERVICE MENU] > [MOTOR MENU] > [AXIS MOVE] > [HEIGHT], and set the value to [102.0 mm].



**26.** Unlock the print-head carriage, and move it to the left by hand.

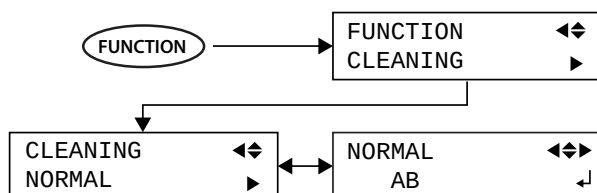
**27.** Check that the gap between the head surface and the table top is around 1 mm.



## NOTE

If the print head height is not around 1 mm, perform Chapter 2 "[Print Head Height Adjustment](#)".

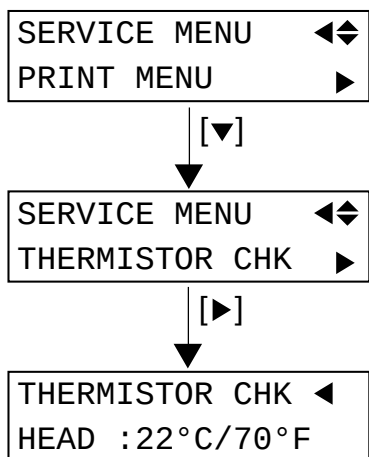
**28.** Perform normal cleaning twice.



## 29. Perform the following adjustments.

### 29-1. Thermistor check

Select [SERVICE MENU] > [PRINT MENU] > [THERMISTOR CHK], and confirm that the print head temperature is not abnormal.



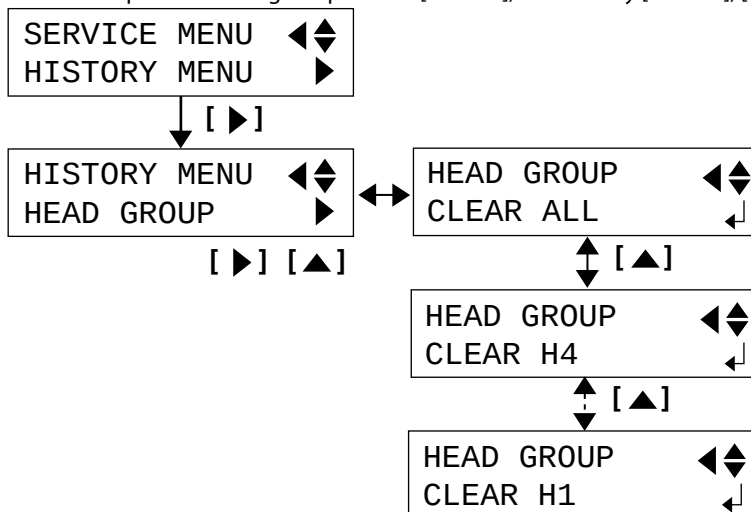
### 29-2. Chapter 2 "[Print Head Alignment](#)"

## Clearing the print head information

## 30. After thermistor check and head alignment, select [SERVICE MENU] > [HISTORY MENU] > [HEAD GROUP] and clear the head information. Select the print head you replaced and press the [ENTER] key.

### NOTE

The leftmost print head for gloss/primer is [HEAD 1], followed by [HEAD 2], [HEAD 3] and [HEAD 4].



# Wiper Replacement

## Information

### Necessary tools

#### General tools

Tweezers

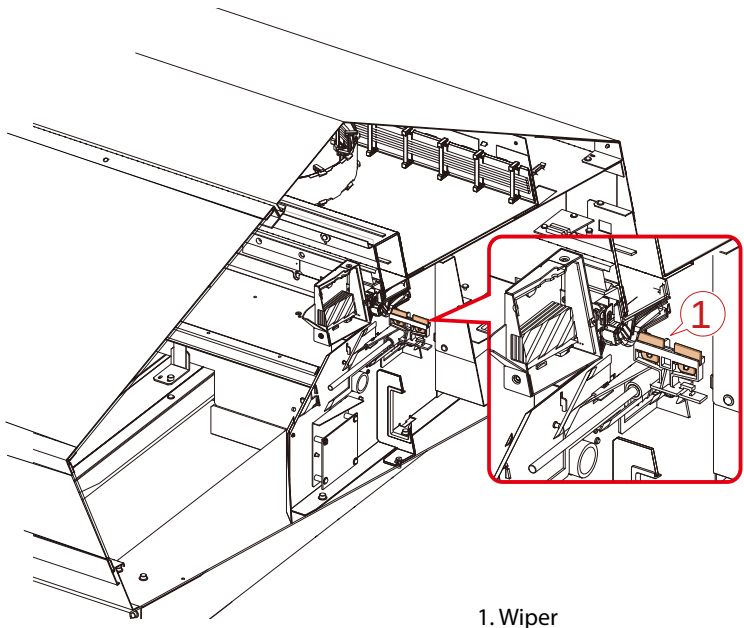
#### Special tools

|            |                                   |
|------------|-----------------------------------|
| 1000005829 | TOOL,VINYL YE UV RESISTANT ST-113 |
|------------|-----------------------------------|

### Typical work time

| Contents of work  | Time    |
|-------------------|---------|
| Wiper replacement | 10 min. |

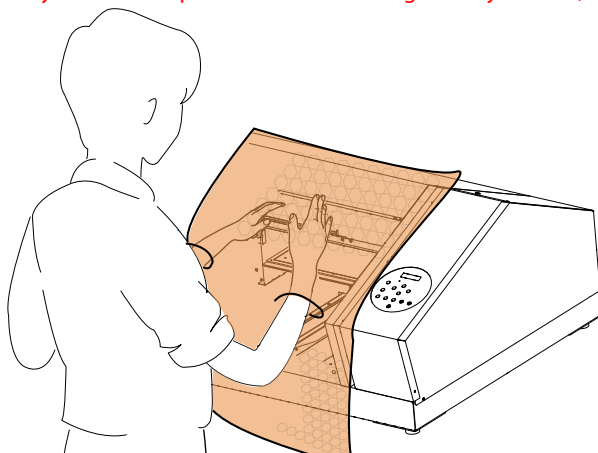
## Outline Diagram



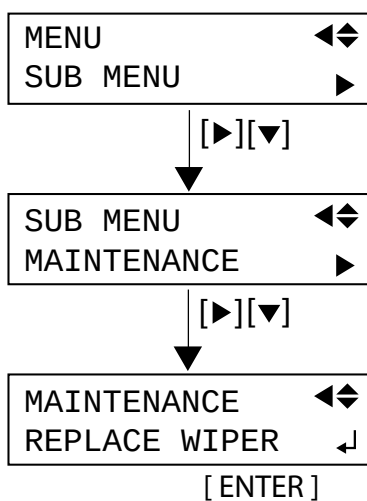
## Workflow

### CAUTION

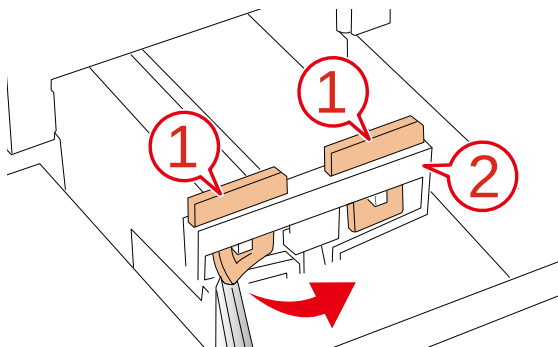
Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.



1. Select [SUB MENU] > [MAINTENANCE] > [REPLACE WIPER] in the user menu, and press the [ENTER] key.



2. When [OPEN FRONT COVER] message appears, open the front cover and press the [ENTER] key.
3. After [FINISHED?] message is displayed, grasp the bottom portion of the wipers with tweezers and disconnect them from the hooks.



1. Wiper

2. Wiper carriage

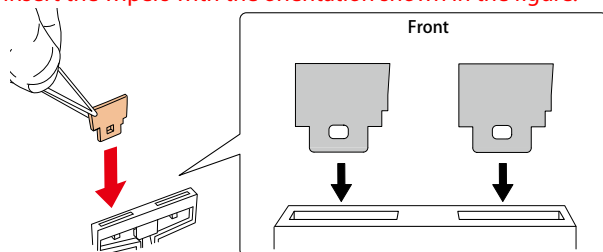
### NOTE

Clean ink on the wiper frame and the scraper with a cleaning stick.

### 4. Attach new wipers.

### CAUTION

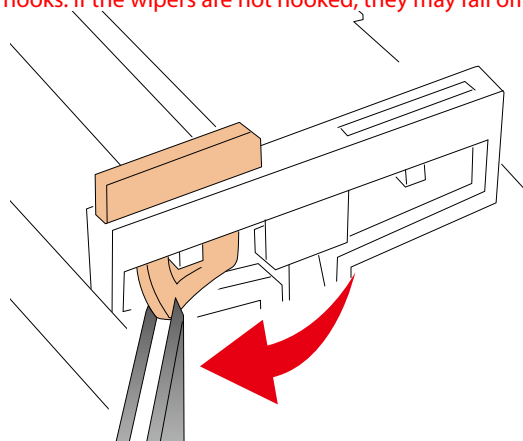
Insert the wipers with the orientation shown in the figure.



### 5. Insert the wipers with the orientation shown in the figure.

### CAUTION

Use tweezers to press the area shown in the figure, and attach the wipers to the hooks. Make sure the wipers catch on the hooks. If the wipers are not hooked, they may fall off during operation.



### 6. Close the front cover. Press the [ENTER] key.

### 7. The print-head carriage moves back to the standby position, and the print head cleaning starts automatically. When the cleaning is finished, the screen shown in the figure appears.





# Cap Top Replacement

## Information

### Necessary tools

#### General tools

No. 2 Phillips screwdriver

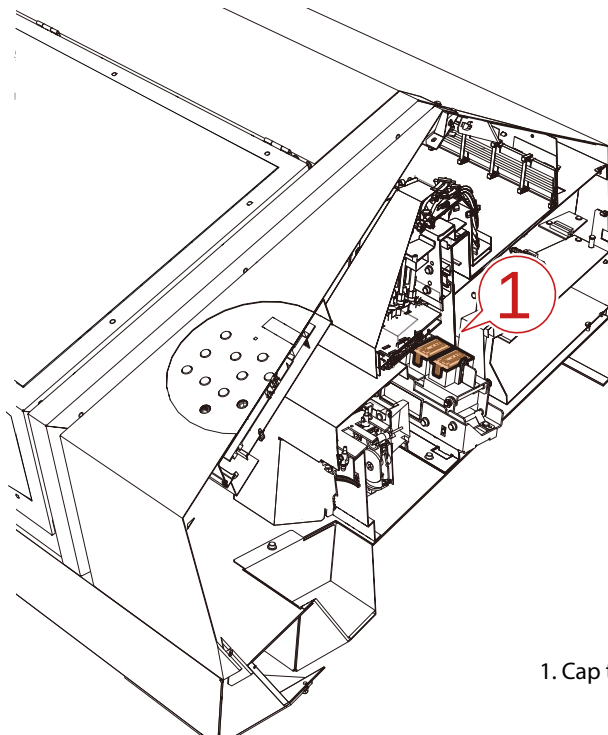
#### Special tools

|            |                                   |
|------------|-----------------------------------|
| 1000005829 | TOOL,VINYL YE UV RESISTANT ST-113 |
|------------|-----------------------------------|

### Typical work time

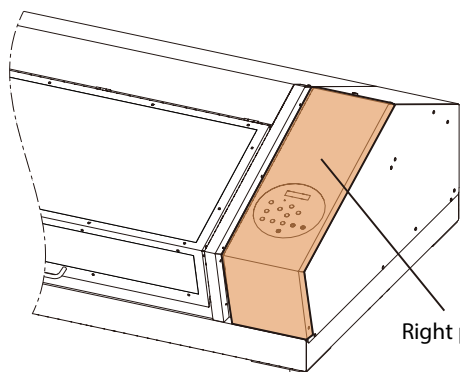
| Contents of work              | Time    |
|-------------------------------|---------|
| Cap top replacement (1 piece) | 20 min. |

## Outline Diagram

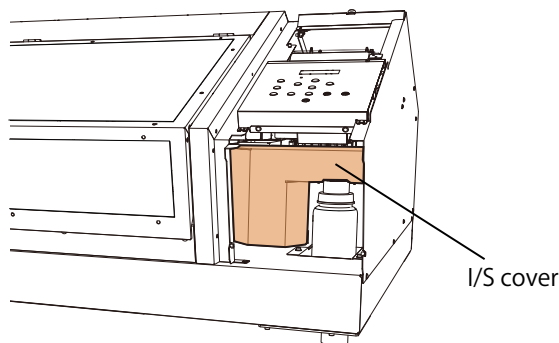


1. Cap top

## Cover That Needs to Be Removed



Right panel cover

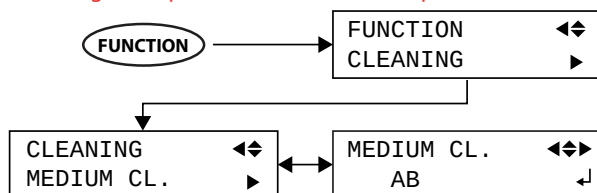


I/S cover

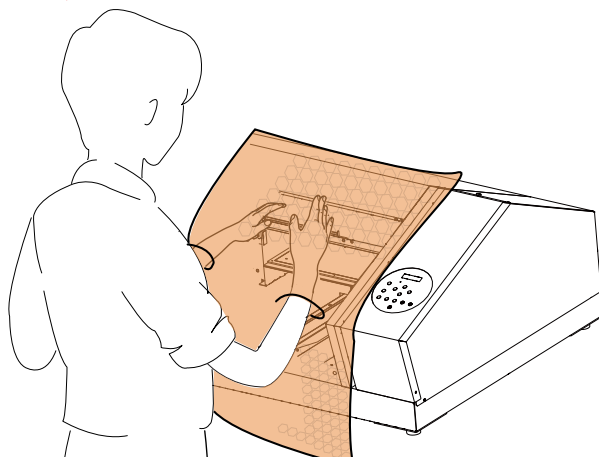
## Workflow

### CAUTION

- To prevent hardened ink from entering into the nozzle, refresh print head before the adjustment. Perform medium cleaning on all print heads if 20 minutes passes.

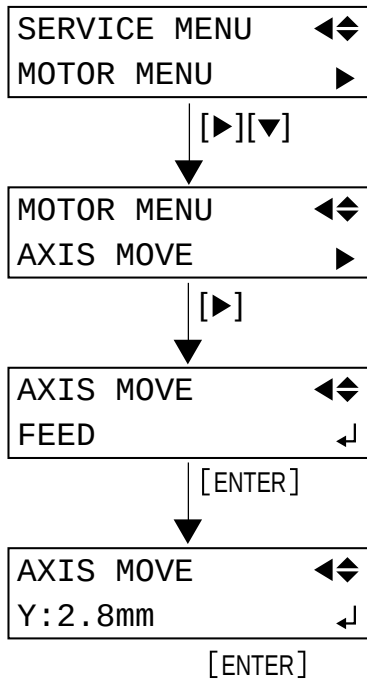


- Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.



1. Turn on the power switch and enter the service mode.

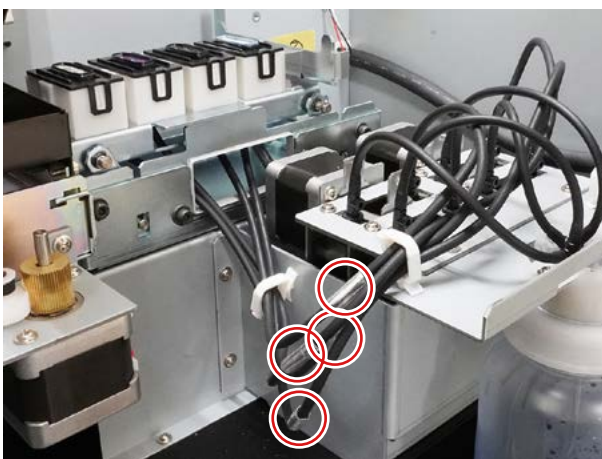
2. Select [SERVICE MENU] > [MOTOR MENU] > [AXIS MOVE] > [FEED] and set the feed to [Y: 2.8 mm] to move the table to the backward.



3. Turn off the power switch and remove the covers.
4. Unlock the print-head carriage, and move it to the left by hand.
5. Remove the light shielding tape from the adapter, which connects ink tube from the cap top and the ink tube from the pump. Then remove the ink tube connected to the cap top from the adapter.

### CAUTION

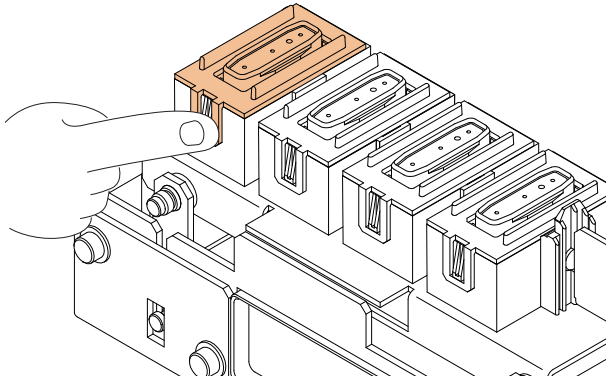
You may connect an ink tube with a wrong pump, if you remove ink tubes connected to the different pumps at the same time. Remove the ink tubes one at a time.



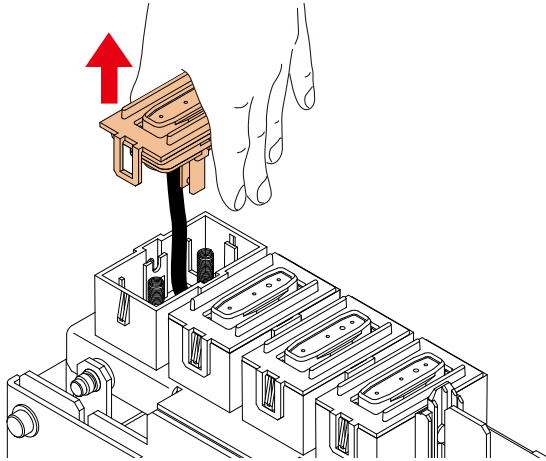
- Unhook the cap frame while holding it. Then, remove it carefully.

**CAUTION**

There is a spring under the cap top. If you do not hold the cap frame while unhooking it, the cap top may jump out.



- Remove the cap top together with the tube.

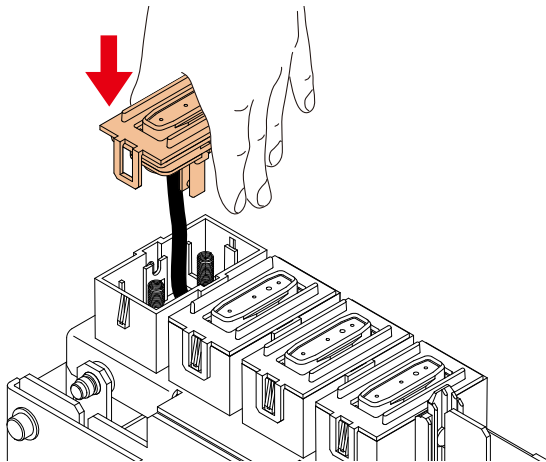


- Attach a new cap top. Make sure to attach it so that the tube side faces the front.

**CAUTION**

Make sure to observe the following points:

- Do not touch the tip of the rubber.
- Make sure that the spring is properly attached under the cap top.
- Do not bend the ink tube.



- Attach the cap frame.

10. Connect the ink tube from the cap top to the adapter, and wrap the adapter with the light shielding tape. Replace the other pump in the same way.

**CAUTION**

Insert the ink tubes firmly.



11. Move the cap top left and right with your hand, and confirm that the cap top does not move up and down by the cap top tube being pulled.

# Scan Motor Replacement

## Information

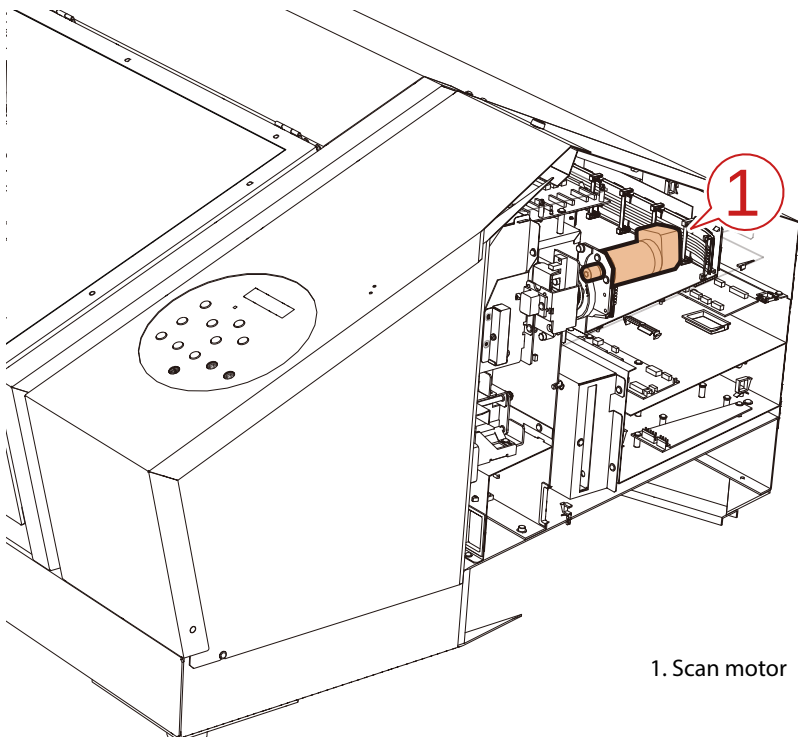
### Necessary tools

| General tools              |                                   |
|----------------------------|-----------------------------------|
| 3.0 mm hexagonal wrench    |                                   |
| No. 2 Phillips screwdriver |                                   |
| Special tools              |                                   |
| 6000004129                 | GREASE,FLOIL G-902 10ML_02        |
| 1000005829                 | TOOL,VINYL YE UV RESISTANT ST-113 |

### Typical work time

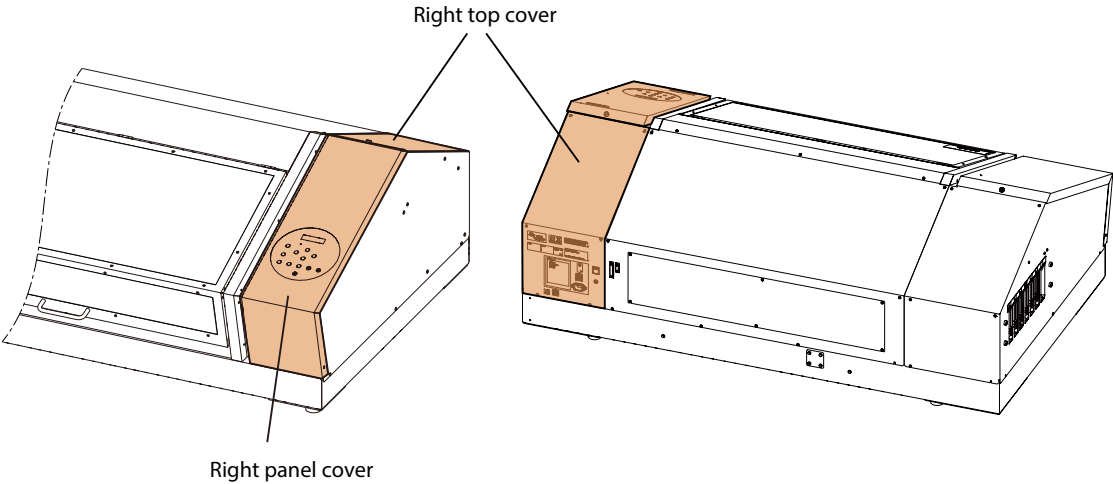
| Contents of work       | Time    |
|------------------------|---------|
| Scan motor replacement | 20 min. |
| Servo lock check       | 1 min.  |
| Aging check            | 5 min.  |
| Motor time clear       | 1 min.  |

## Outline Diagram



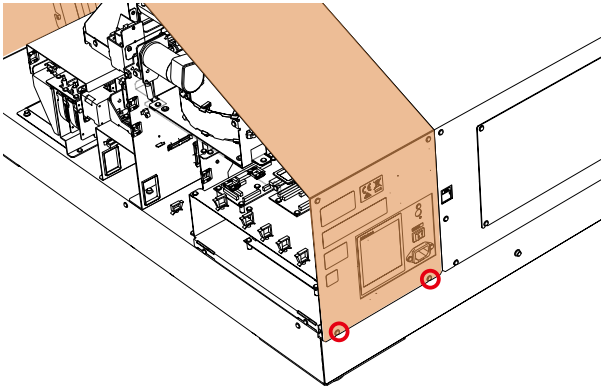
1. Scan motor

Cover That Needs to Be Removed



CAUTION

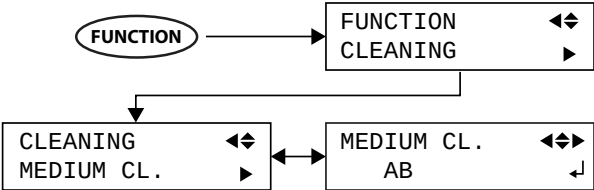
Do not remove the two screws that secure the top cover. Just loosen them.



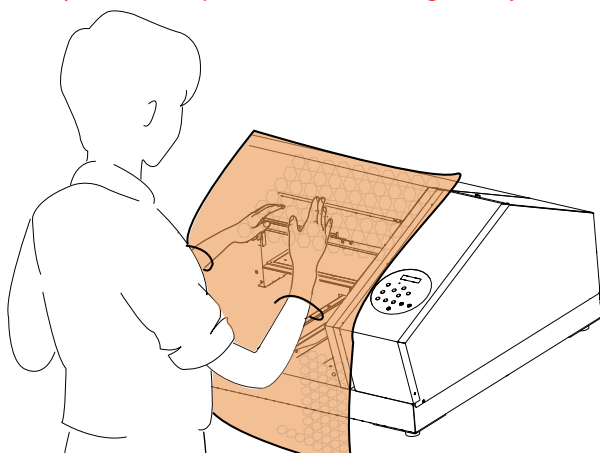
Workflow

CAUTION

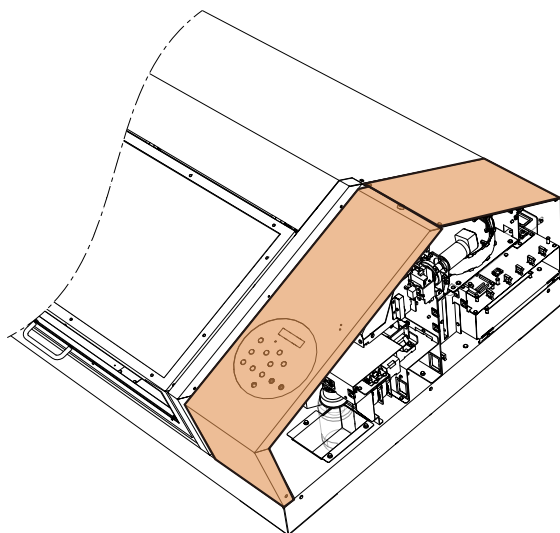
- To prevent hardened ink from entering into the nozzle, refresh print head before the adjustment. Perform medium cleaning on all print heads if 20 minutes passes.



- Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.

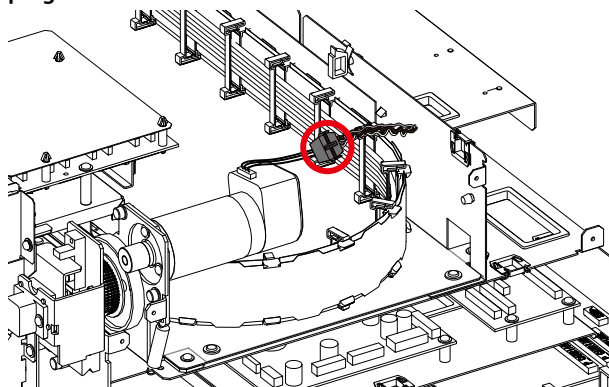


1. Remove the covers, and put back the right panel cover and right top cover temporarily.

**NOTE**

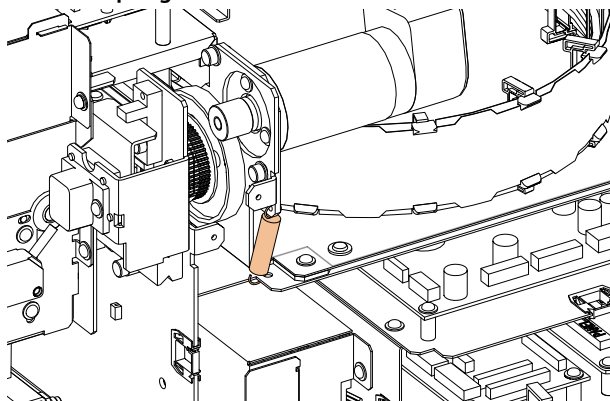
You do not need to tighten the screws.

2. Unplug the connectors.

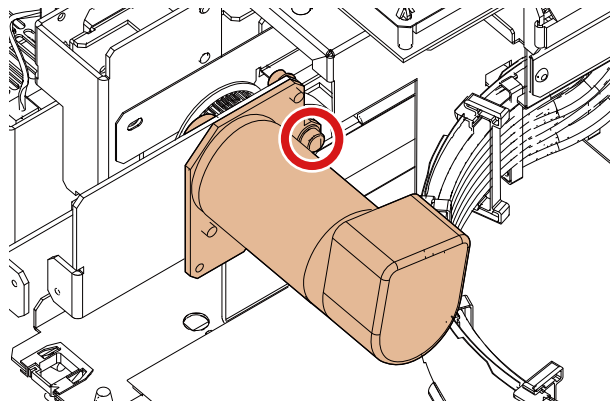
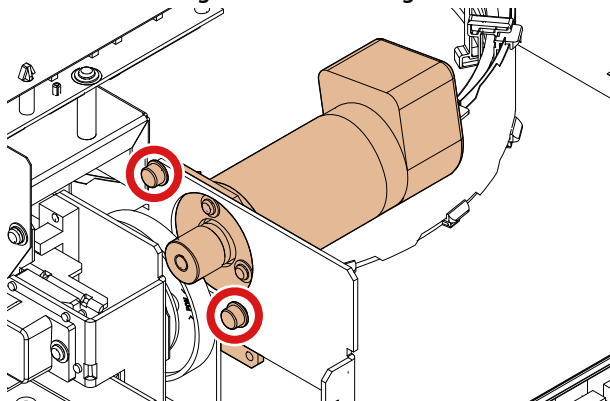




### 3. Remove the spring.



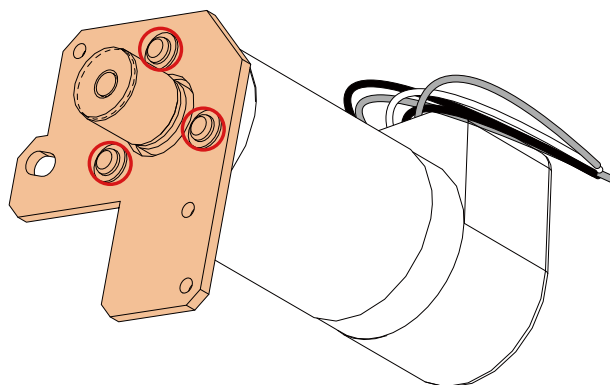
### 4. Remove the motor together with the flange.



### 5. Attach the new motor to the flange.

#### CAUTION

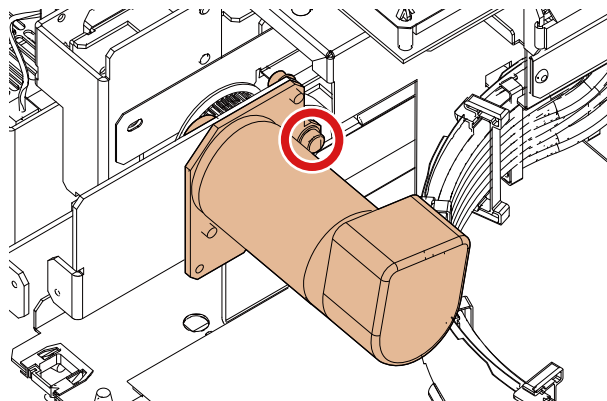
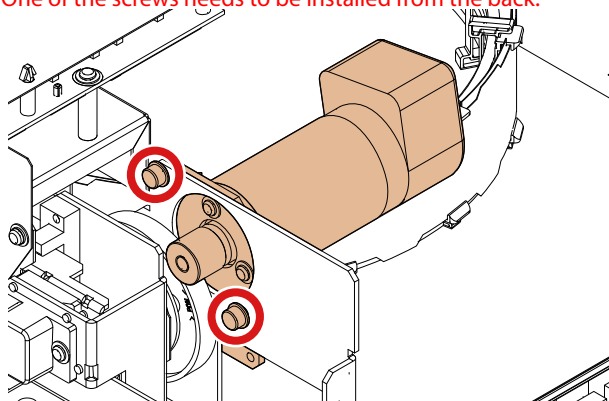
- Bundle the motor cable of the new motor with a cable tie. Be careful not to bend the cable root.
- Be careful to correctly orient the flange in relation to the motor cables.



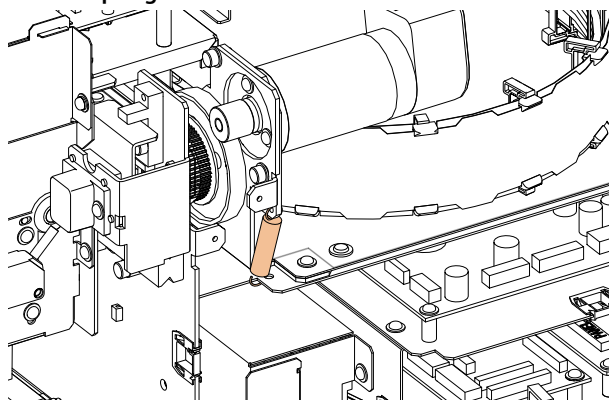
6. Loosely tighten three screws.

### CAUTION

One of the screws needs to be installed from the back.

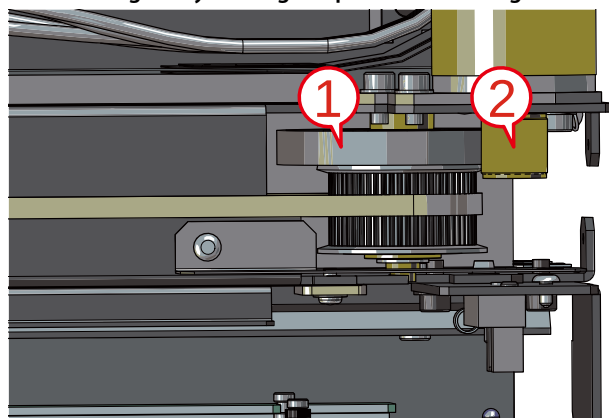


7. Attach the spring.



8. Unlock the print-head carriage.

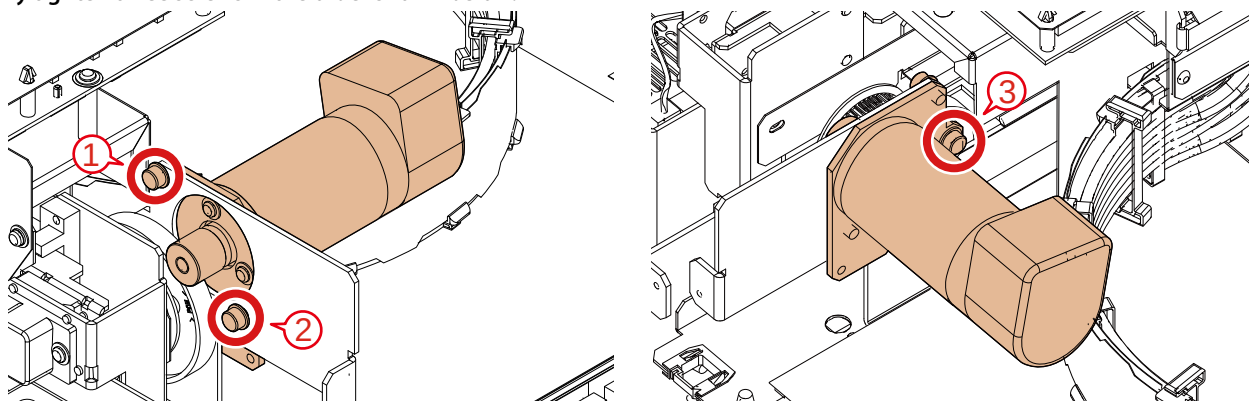
9. Turn the drive gear by moving the print-head carriage left and right, and check that the gears mesh together.



1. Drive gear

2. Motor gear

10. Fully tighten three screws in the order shown below.

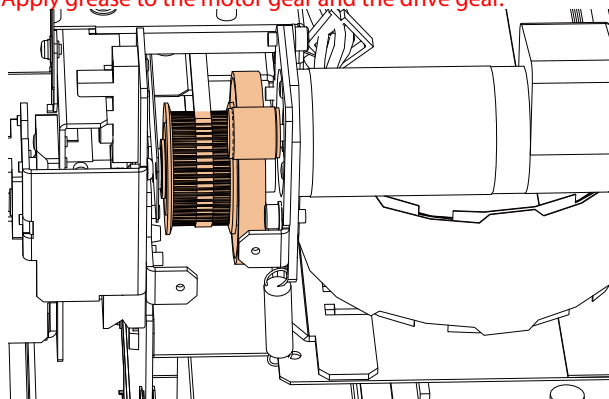


11. Turn the drive gear little by little by hand by moving the print-head carriage, and check that there is no backlash.

- Grease: FLOIL G-902 10ML\_02
- Volume: as needed

## CAUTION

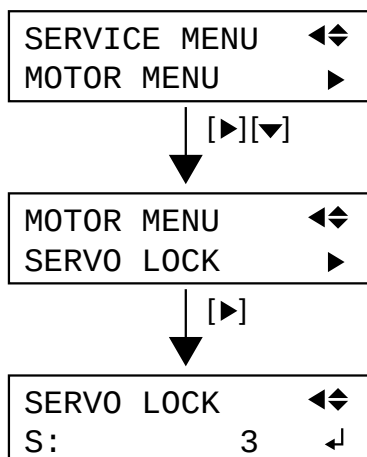
Apply grease to the motor gear and the drive gear.



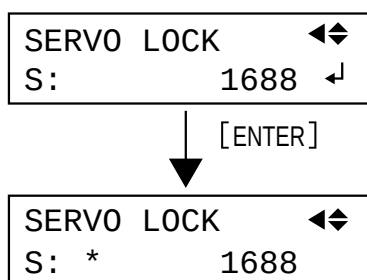
12. Plug the connector, and move the print-head carriage to the lock position. Then, remove the cover.

## Servo lock check

13. Attach the cover, and turn on the main power switch. Then enter the service mode.
14. Select [SERVICE MENU] > [MOTOR MENU] > [SERVO LOCK] > [S]. Confirm that the value changes as you move the print-head carriage left and right by hand.



15. Press the [ENTER] key to energize the motor. Check that the print-head carriage can not be moved easily by hand and the value on the LCD doesn't change.

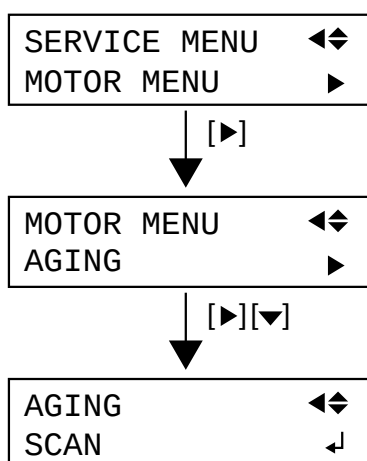


### Aging check

16. Go back to [MOTOR MENU]. Select [AGING] > [SCAN], and press the [ENTER] key. Check that the machine performs aging, then exit the menu.

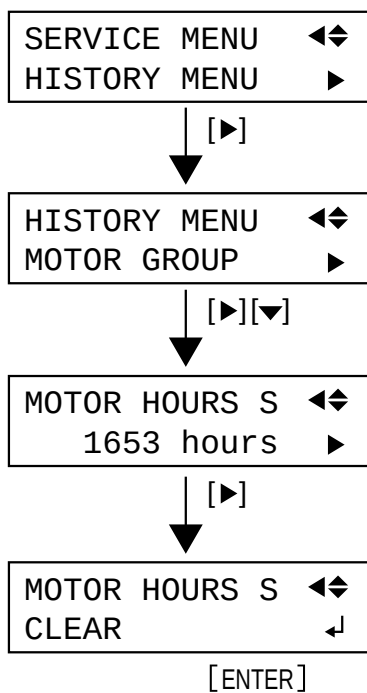
#### CAUTION

Remove media before performing aging.



### Clearing the motor time

- 17.** Go back to [SERVICE MENU]. Select [HISTORY MENU] > [MOTOR GROUP] > [MOTOR HOURS S] > [CLEAR], and press the [ENTER] key. The motor working hours will be reset to 0.



# Pump Replacement

## Information

### Necessary tools

#### General tools

No. 2 Phillips screwdriver

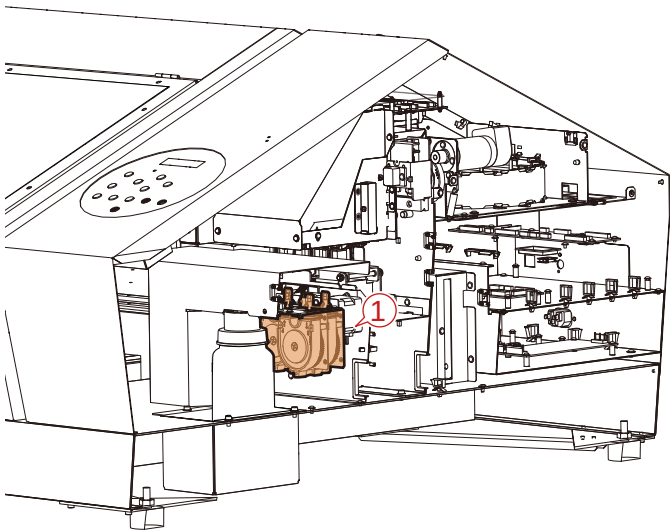
#### Special tools

|            |                                   |
|------------|-----------------------------------|
| 1000005829 | TOOL,VINYL YE UV RESISTANT ST-113 |
|------------|-----------------------------------|

### Typical work time

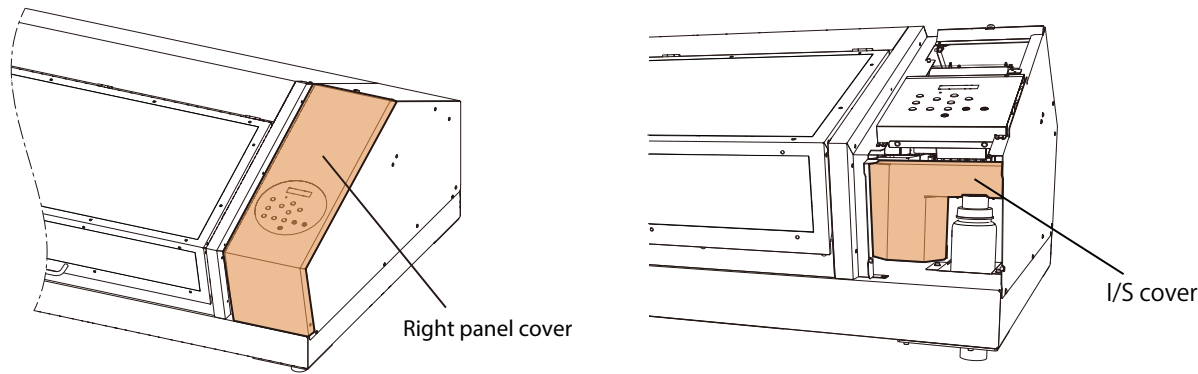
| Contents of work                | Time    |
|---------------------------------|---------|
| Pump replacement (1 piece)      | 20 min. |
| Pump check                      | 1 min.  |
| Clearing the pump rotation time | 1 min.  |

## Outline Diagram



1. Pump

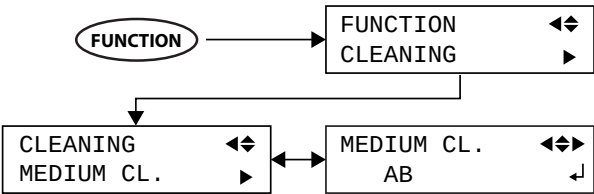
Cover That Needs to Be Removed



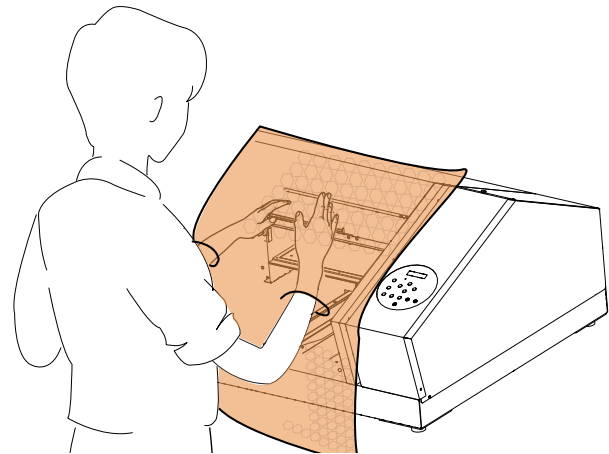
Workflow

CAUTION

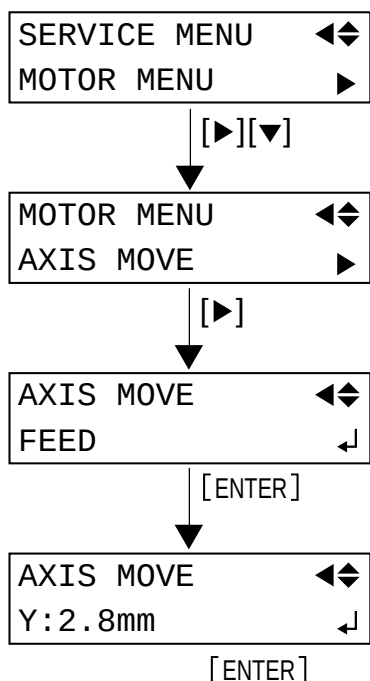
- To prevent hardened ink from entering into the nozzle, refresh print head before the adjustment. Perform medium cleaning on all print heads if 20 minutes passes.



- Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.



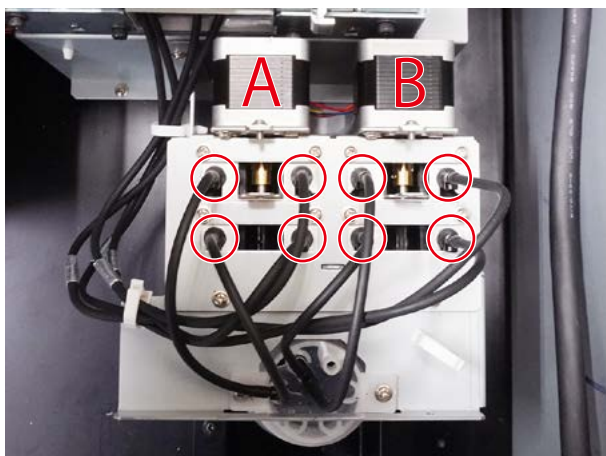
1. Turn on the power switch and enter the service mode.
2. Select [SERVICE MENU] > [MOTOR MENU] > [AXIS MOVE] > [FEED] and set the feed to [Y: 2.8 mm] to move the table to the backward.



3. Turn off the power switch, and move the print-head carriage to the lock position.
4. Remove all the ink tubes from the pumps.

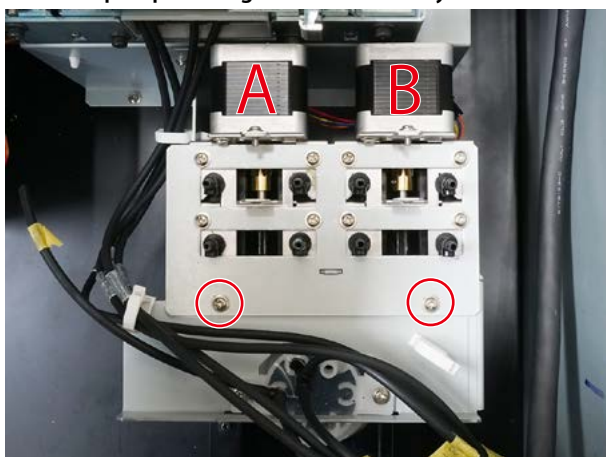
**CAUTION**

Put labels on the ink tubes to identify which ink tube is connected to which adapter.

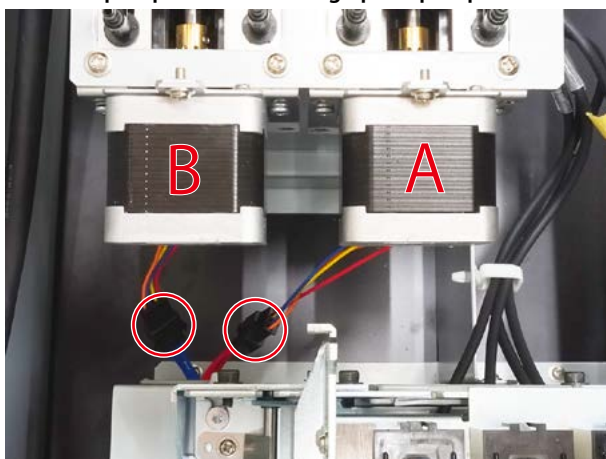




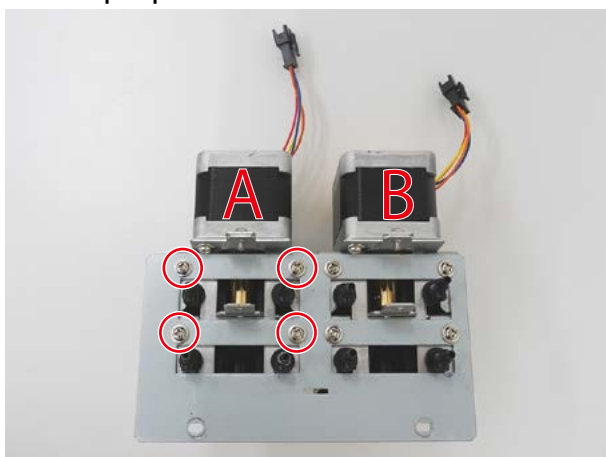
5. Remove the pump unit together with the stay.



6. Remove the pump unit while lifting up the pump unit.



7. Remove the pump unit.



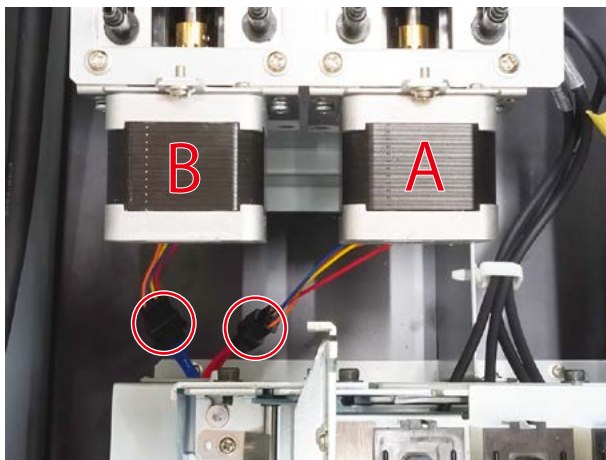
8. Attach a new pump unit to the motor. Replace the other pump in the same way.



9. Attach the pump unit to the stay, and attach them to the machine.
10. Connect all the ink tubes to the pumps. Then, plug in the connector.

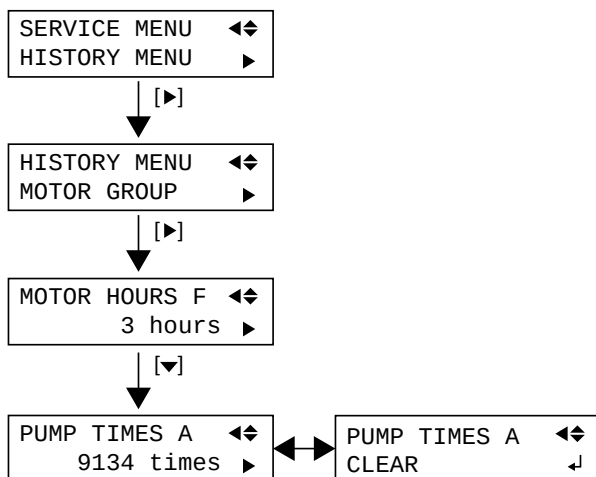
**CAUTION**

- Connect the ink tubes from the cap top to the right joint, and connect the ink tubes from the drain side to the left joint.
- Insert the ink tubes firmly. Make sure that the ink tubes at the drain side are inserted into the bottle cap.
- Be careful not to connect a wrong cable. Connect the red cable to the pump A, and the blue cable to the pump B.

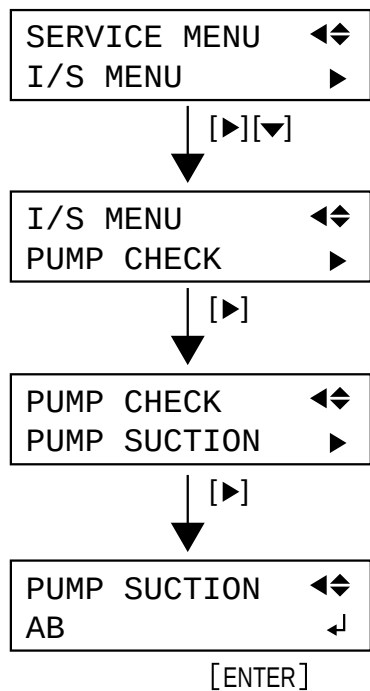


11. Turn on the power switch and enter the service mode.

- 12.** Select [SERVICE MENU] > [HISTORY MENU] > [MOTOR GROUP] > [PUMPTIMES] > [CLEAR], and press the [ENTER] key.



- 13.** Select [SERVICE MENU] > [I/S MENU] > [PUMP CHECK] > [PUMP SUCTION] > [AB], and press the [ENTER] key. Visually check that the pump works properly.



# Circulation Pump Replacement

## Information

### Necessary tools

#### General tools

No. 2 Phillips screwdriver

#### Special tools

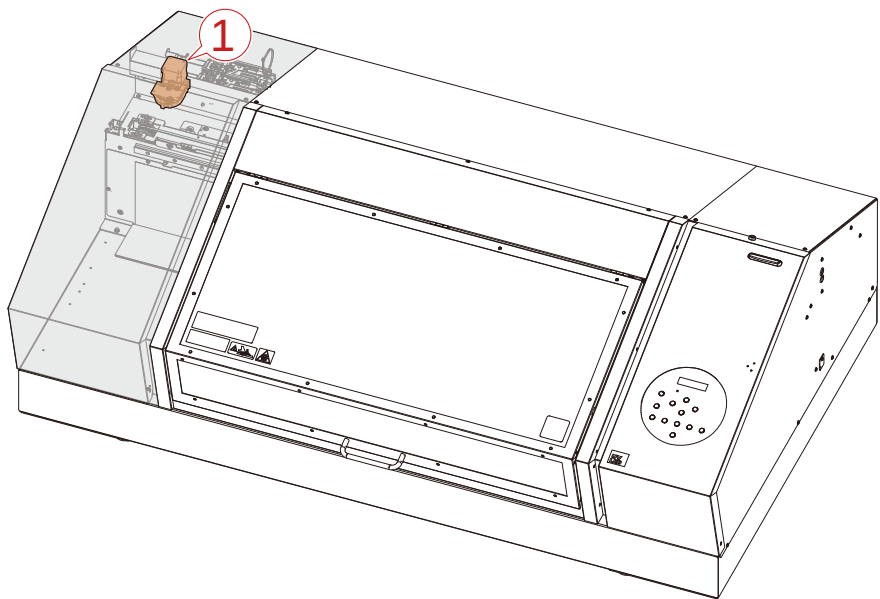
1000005829 TOOL,VINYL YE UV RESISTANT ST-113

### Typical work time

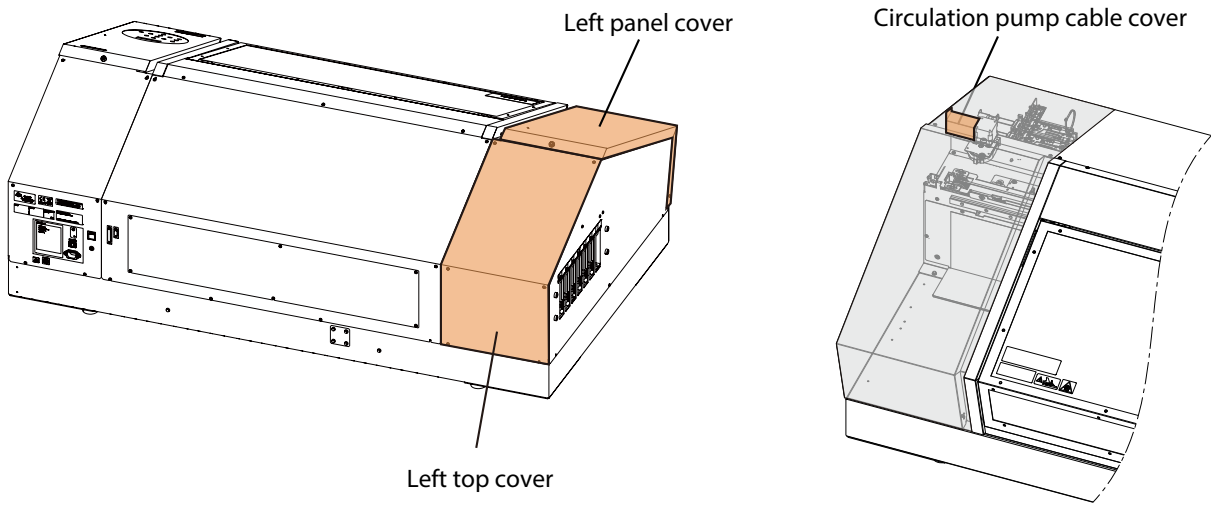
| Contents of work                | Time    |
|---------------------------------|---------|
| Circulation pump replacement    | 20 min. |
| Clearing the pump rotation time | 5 min.  |

## Outline Diagram

1. Circulation pump



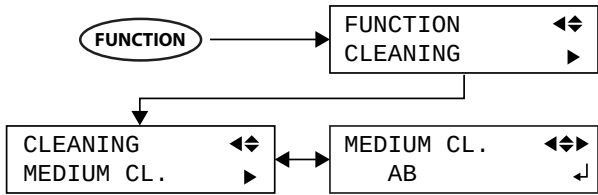
Cover That Needs to Be Removed



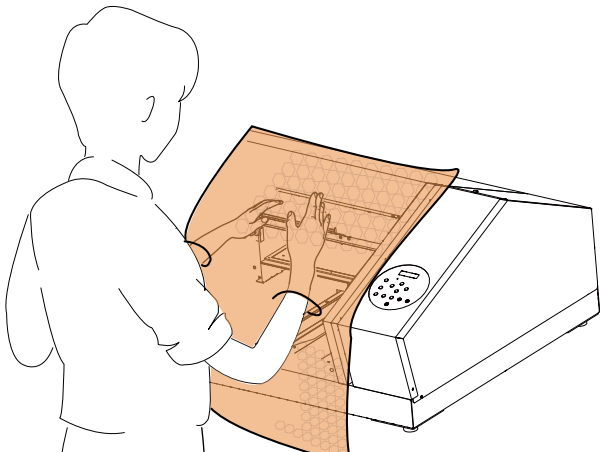
Workflow

CAUTION

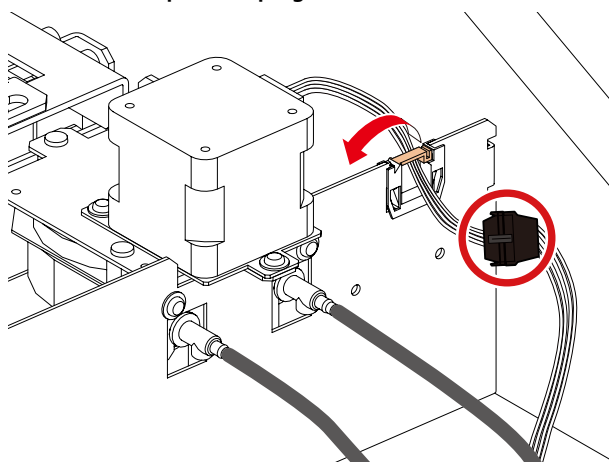
- To prevent hardened ink from entering into the nozzle, refresh print head before the adjustment. Perform medium cleaning on all print heads if 20 minutes passes.



- Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.



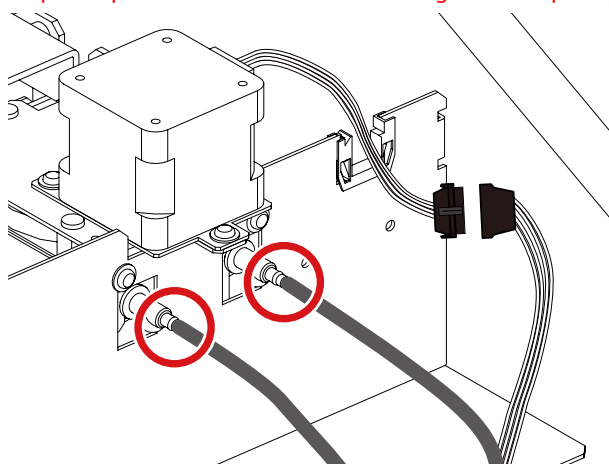
1. Unfasten the clamp and unplug the connector.



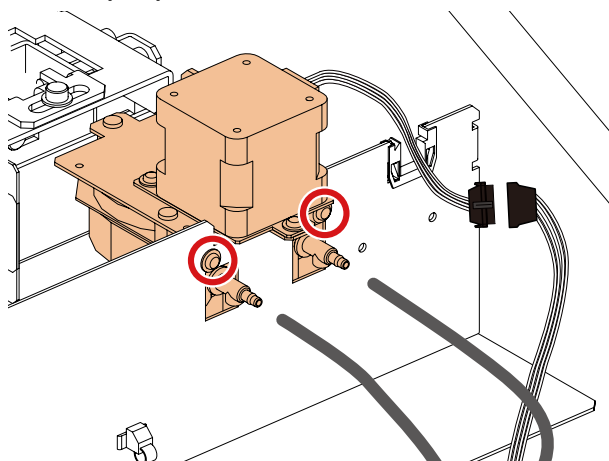
2. Remove the ink tubes from the pump.

**CAUTION**

Wrap the tip of the ink tubes with something such as tape to prevent ink from coming out.

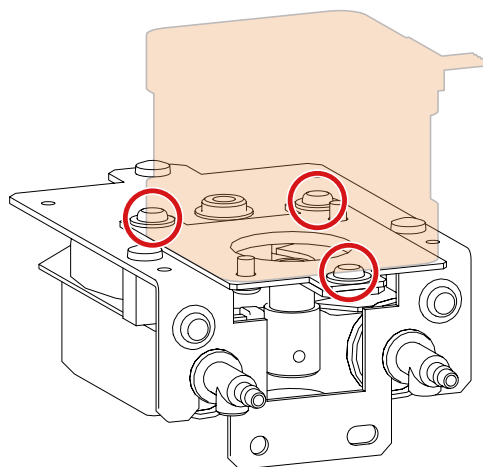


3. Remove the pump unit.



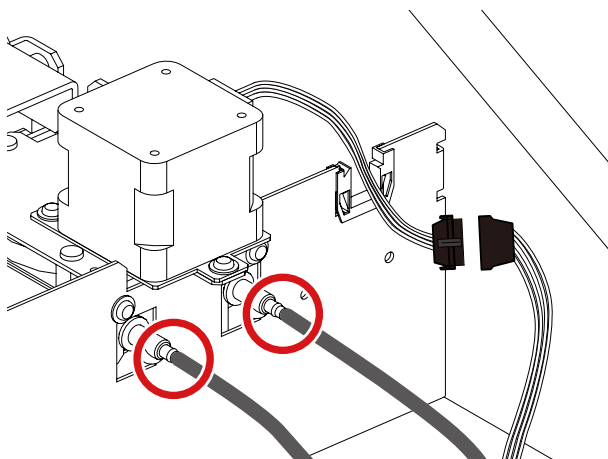
### Circulation pump replacement

4. Attach the new pump to the motor.



5. Attach the pump unit to the machine.

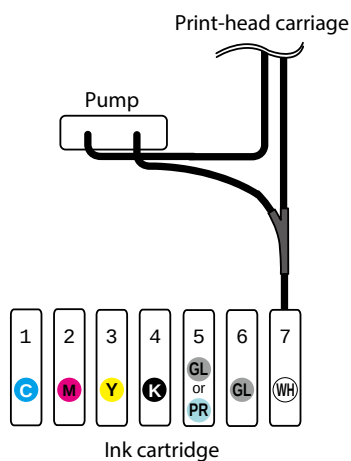
6. Connect the ink tubes from the ink cartridge and the ink tubes from the print-head carriage to the pump.



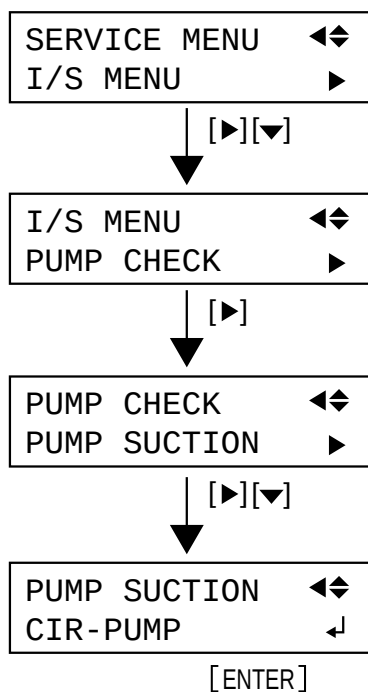
#### CAUTION

- Insert the ink tubes firmly.
- Refer to the figure and connect the ink tubes. Wrongly connected tube does not circulate the ink correctly.
- As indicated in the rear and top view, connect the tube from the print-head carriage to the right connector of the pump, and connect the tube from the Y tube joint to the left connector of the pump.

#### Rear view



7. Plug the connector of the motor.
8. Turn on the power switch and enter the service mode.
9. Select [SERVICE MENU] > [I/S MENU] > [PUMP CHECK] > [PUMP SUCTION] > [CIR-PUMP], and press the [ENTER] key. Visually check that the pump works properly.





# Ink Tube Replacement

## Information

### Necessary tools

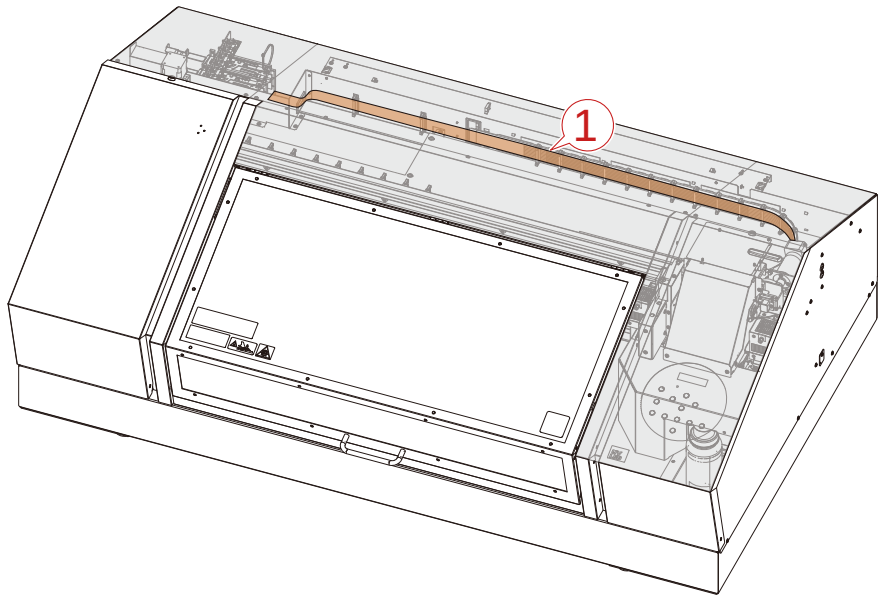
| General tools              |                                   |
|----------------------------|-----------------------------------|
| No. 2 Phillips screwdriver |                                   |
| Waste cloth                |                                   |
| Tape                       |                                   |
| Scissors                   |                                   |
| Special tools              |                                   |
| 1000005829                 | TOOL,VINYL YE UV RESISTANT ST-113 |

### Typical work time

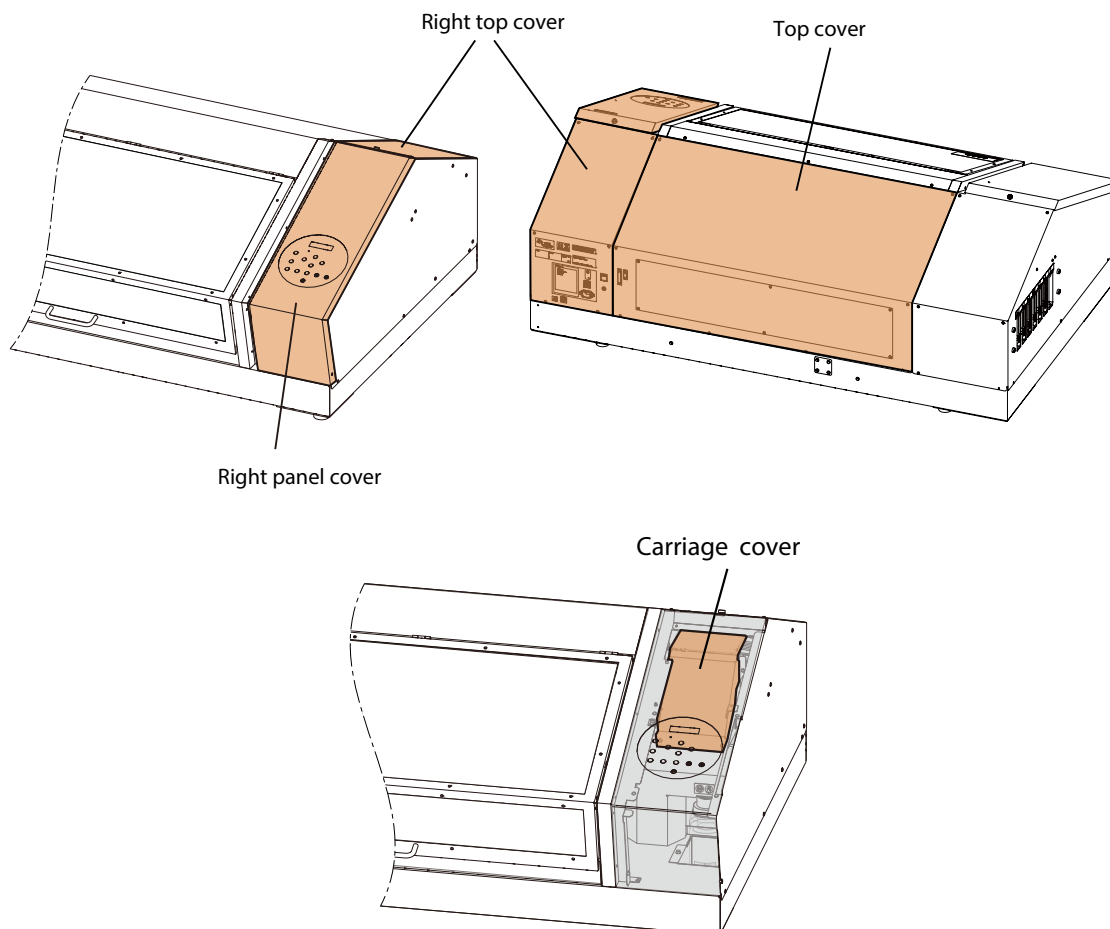
| Contents of work     | Time    |
|----------------------|---------|
| Ink tube replacement | 90 min. |

## Outline Diagram

1. Ink tube



## Cover That Needs to Be Removed



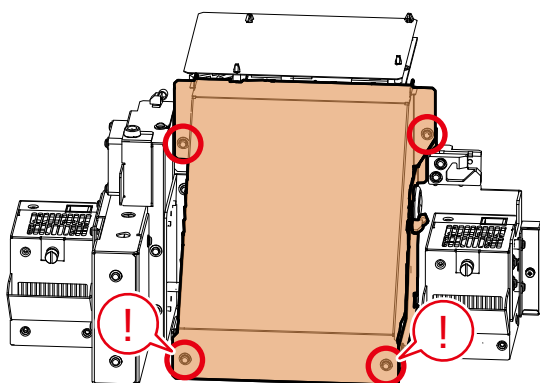
### Notes when attaching carriage cover

#### NOTE

When attaching the carriage cover, tighten four screws loosely first, then tighten them fully to secure the cover.

#### CAUTION

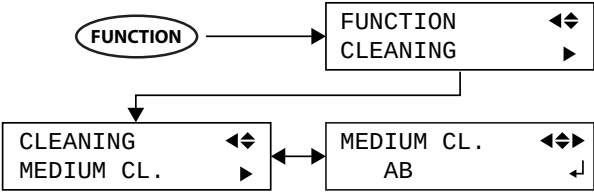
When tightening the two screws on the front, be careful not to tighten them too hard. Doing so may cause the carriage cover to be distorted and the print heads may become shifted.



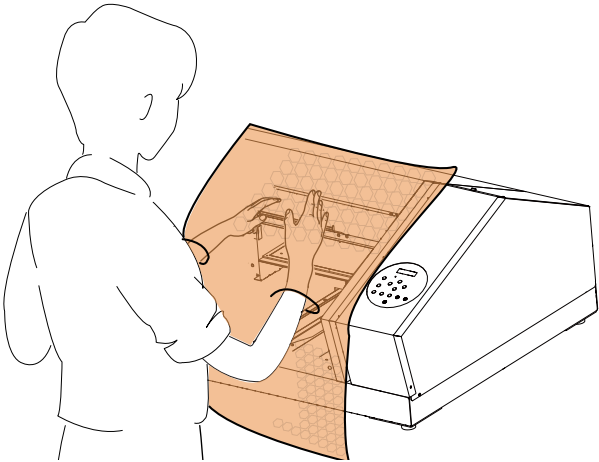
Workflow

CAUTION

- To prevent hardened ink from entering into the nozzle, refresh print head before the adjustment. Perform medium cleaning on all print heads if 20 minutes passes.



- Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.



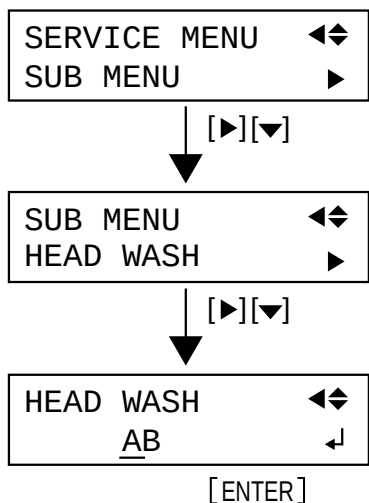
- Cut the ink tubes to the following length. Put a color label on the end of each ink tube so that you will know which ink tube to connect to which damper.

Ink tube length

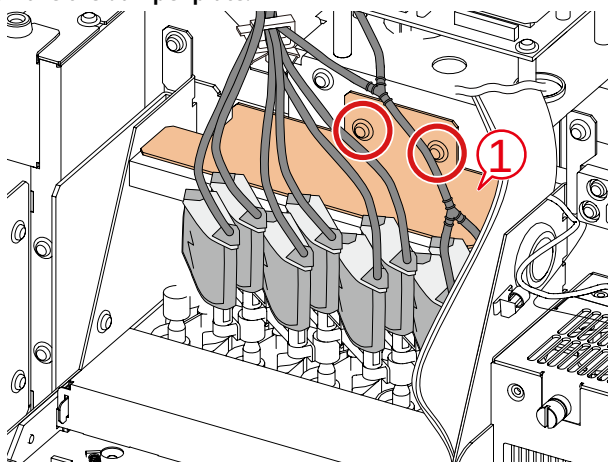
- No. 1: 1967±5 mm
- No. 2: 1990±5 mm
- No. 3: 1965±5 mm
- No. 4: 1630±5 mm
- No. 5: 1945±5 mm
- No. 6: 1997±5 mm
- No. 7: 1985±5 mm
- No. 8: 2015±5 mm



1. Turn on the power switch and enter the service mode.
2. Select [SERVICE MENU] > [SUB MENU] > [HEAD WASH]. Select the group of the target ink tube, then perform head wash.

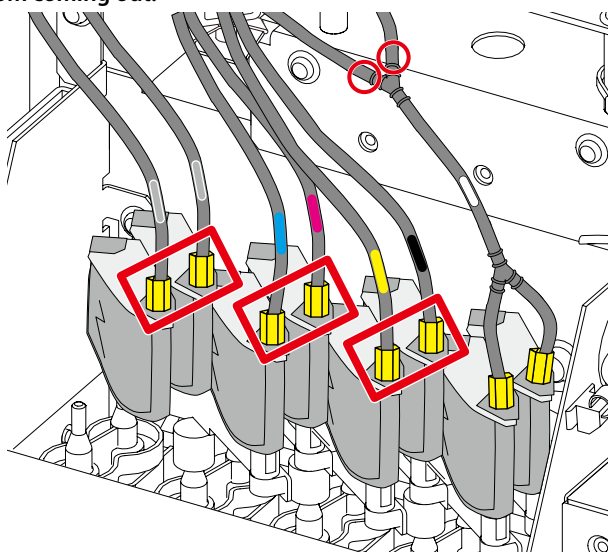


3. Turn off the power switch, and remove the cover.
4. Remove the damper plate.

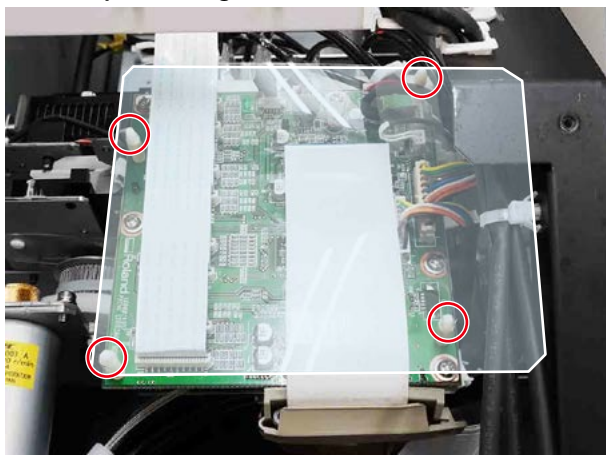


1. Damper plate

5. Remove the ink tubes from the damper joints and the Y-tube joints. Put tape on the tip of the ink tubes to prevent ink from coming out.



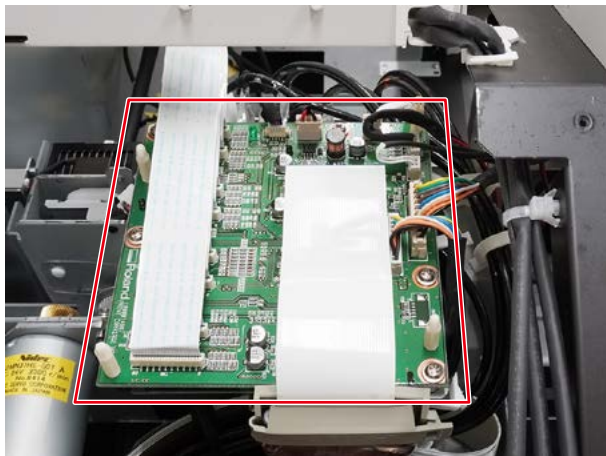
6. Remove the print carriage board cover.

**CAUTION**

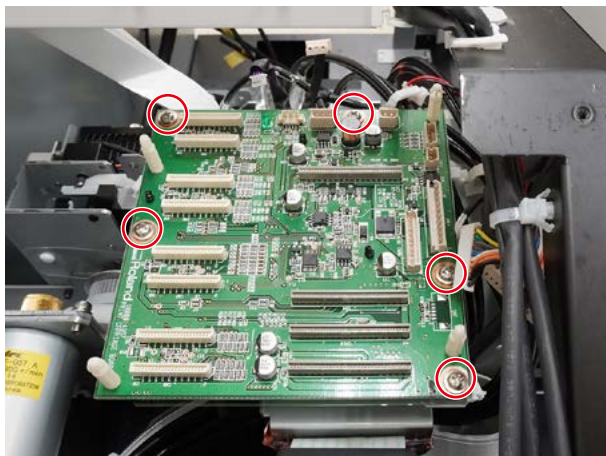
Remove the print carriage board cover by pushing the part indicated by the arrows because the top part of the support is easy to break.



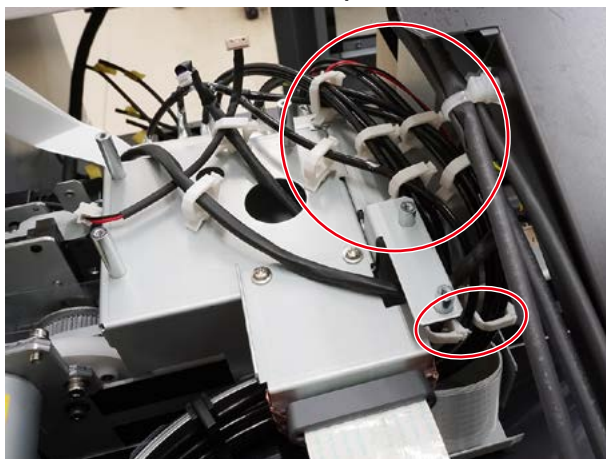
7. Disconnect all the cables from the print carriage board.



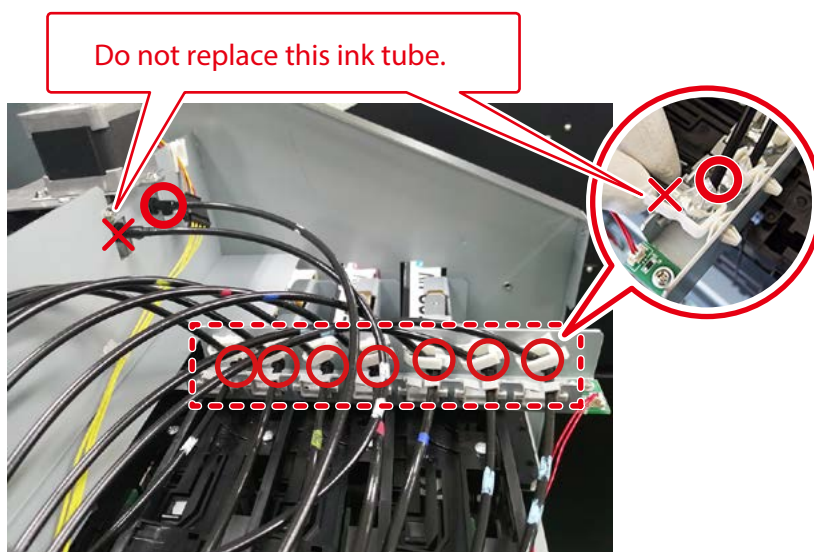
8. Remove the print carriage board.



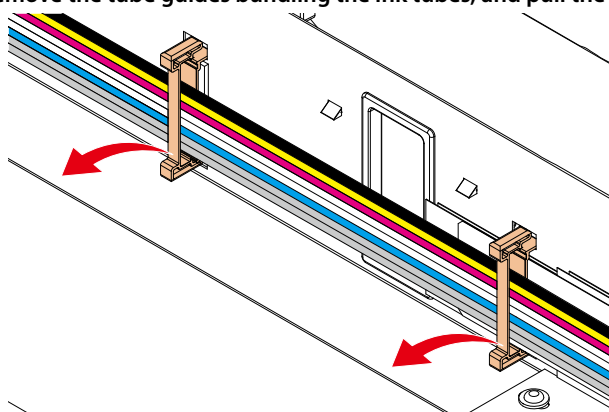
9. Release the ink tubes from the clamps.



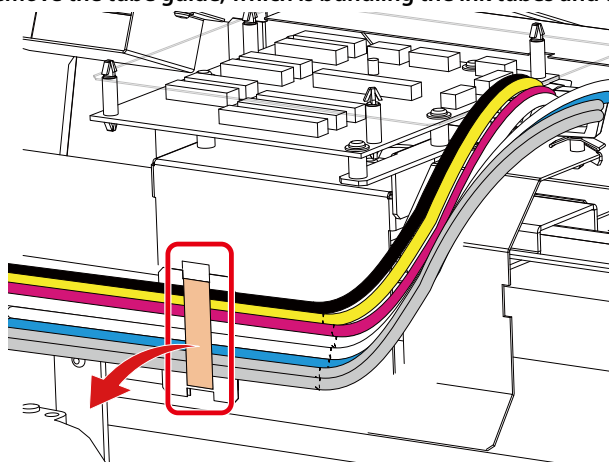
10. Remove the ink tubes from the damper joints and the Y-tube joints. Then, put clear tape on the tip of the ink tubes to prevent ink from coming out.



11. Remove the tube guides bundling the ink tubes, and pull the ink tubes.



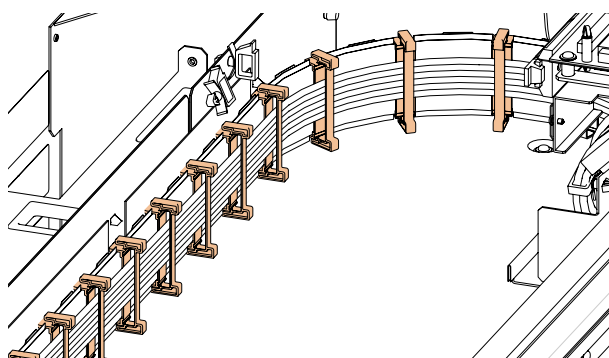
12. Remove the tube guide, which is bundling the ink tubes and the ribbon cables, from the print-head carriage.



13. Remove the ink tubes and the tube guides from the holder cable plate and the support rail frame.

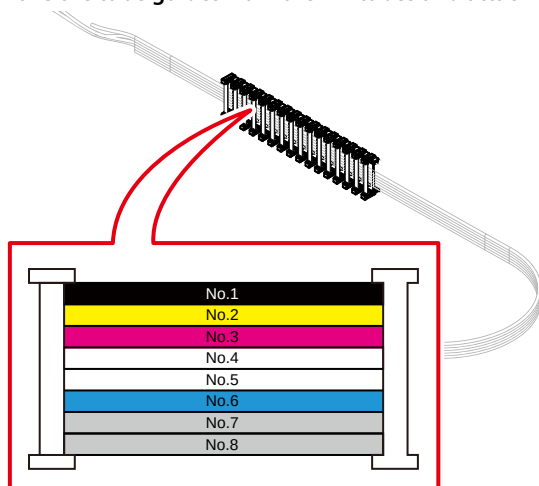
**NOTE**

Moving the print-head carriage to the right side of the machine will make it easier to remove the ink tubes.

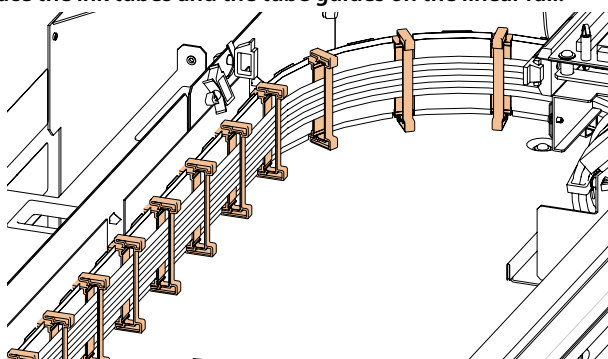




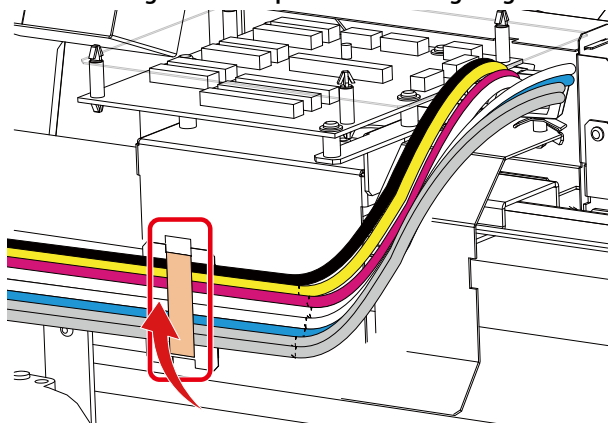
14. Remove the tube guides from the ink tubes and attach them to the new ink tubes.



15. Place the ink tubes and the tube guides on the linear rail.



16. Attach the tube guide to the print-head carriage together with the ink tubes.



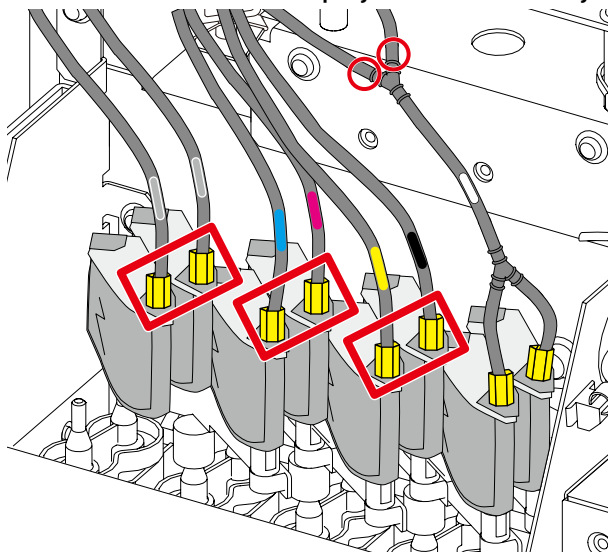
## NOTE

The ink tube length between the tube guide in the figure and the damper should be as follows.

|      |       |
|------|-------|
| No.1 | 335mm |
| No.2 | 330mm |
| No.3 | 310mm |
| No.4 | 230mm |
| No.5 | 250mm |
| No.6 | 345mm |
| No.7 | 330mm |
| No.8 | 350mm |

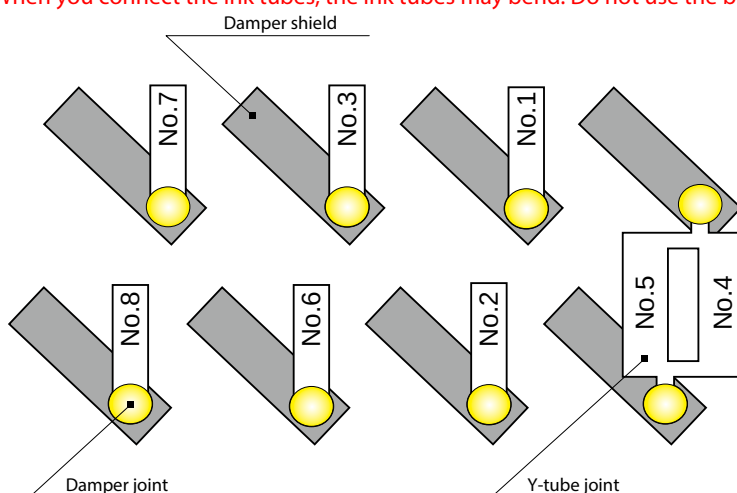


## 17. Connect the ink tubes to the damper joints and the Y-tube joints.



### CAUTION

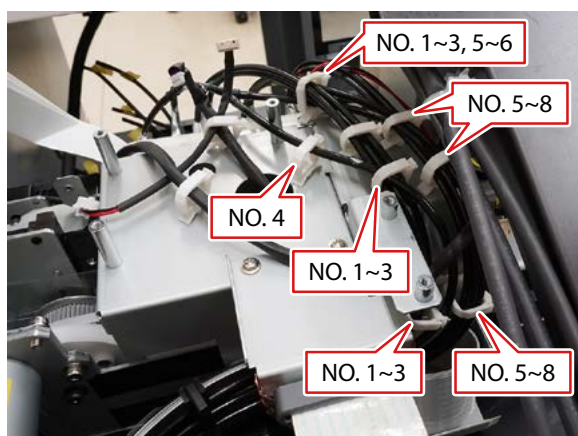
When you connect the ink tubes, the ink tubes may bend. Do not use the bent ink tube.



## 18. Bundle the ink tubes with the clamps.

### CAUTION

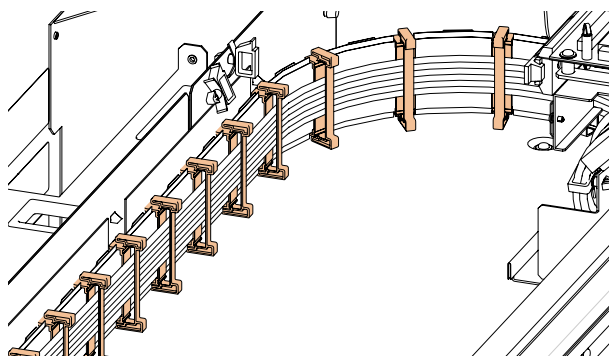
- Bundle the ink tubes with the clamps while pushing the ink tubes backward so as not to locate the front of the print-head carriage.
- If you do not bundle the ink tubes, they will pull up the print head, and the print head will be tilted.



19. Attach the ink tubes and the tube guides to the holder cable plate and the support rail frame.

## NOTE

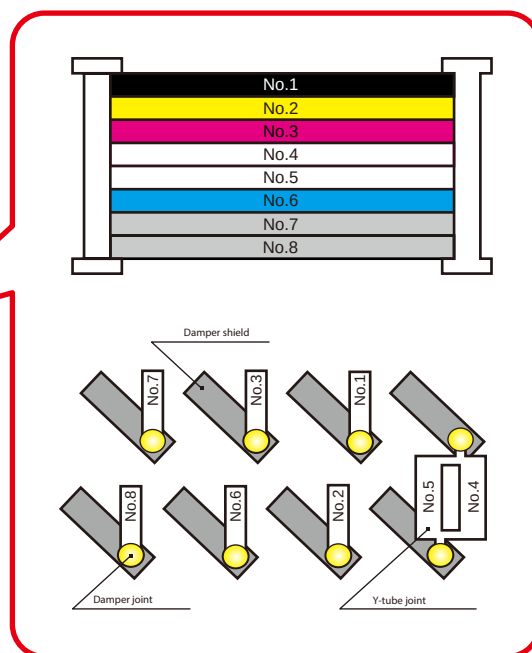
Moving the print-head carriage to the right side of the machine will make it easier to remove the ink tubes.



20. Bundle the ink tubes with the tube guides.
21. Connect the ink tubes to the L-shaped tube joint, the Y-shaped tube joint, and the circulation pump referring to the figure.

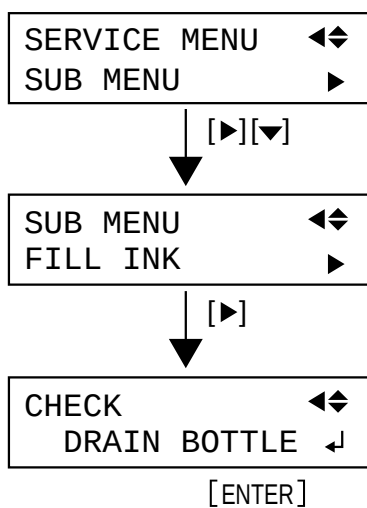
## CAUTION

When you connect the ink tubes, the ink tubes may bend. Do not use the bent ink tube.



22. Turn on the power switch and enter the service mode.

- 23.** Select [SUB MENU] > [FILL INK], and perform the ink filling in accordance with the on-screen instructions.



# Ribbon Cable (Main Board to Print Carriage Board) Replacement

## Information

### Necessary tools

#### General tools

No. 2 Phillips screwdriver

#### Special tools

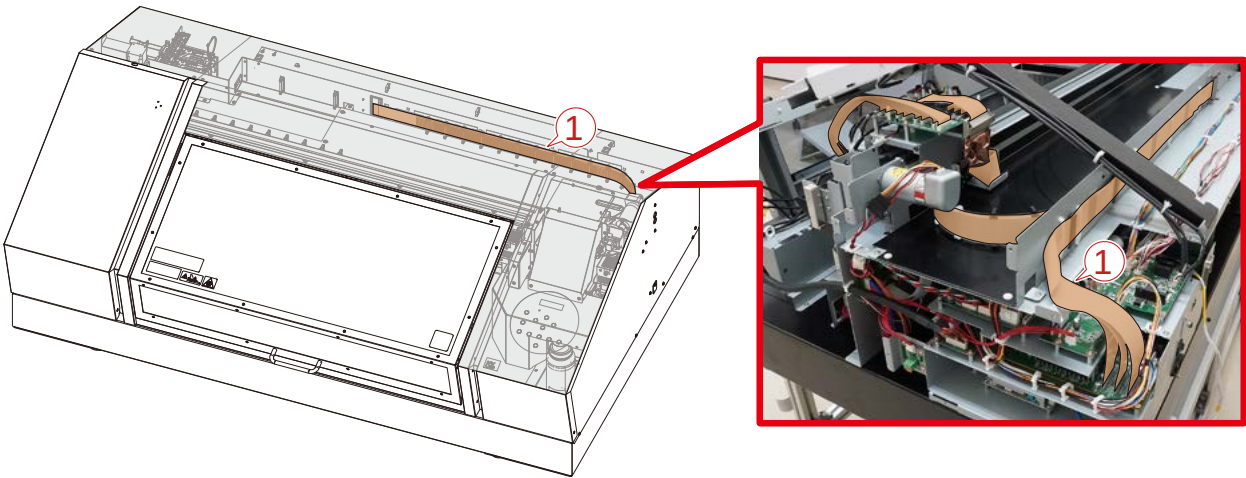
|            |                                   |
|------------|-----------------------------------|
| 1000005829 | TOOL,VINYL YE UV RESISTANT ST-113 |
|------------|-----------------------------------|

### Time

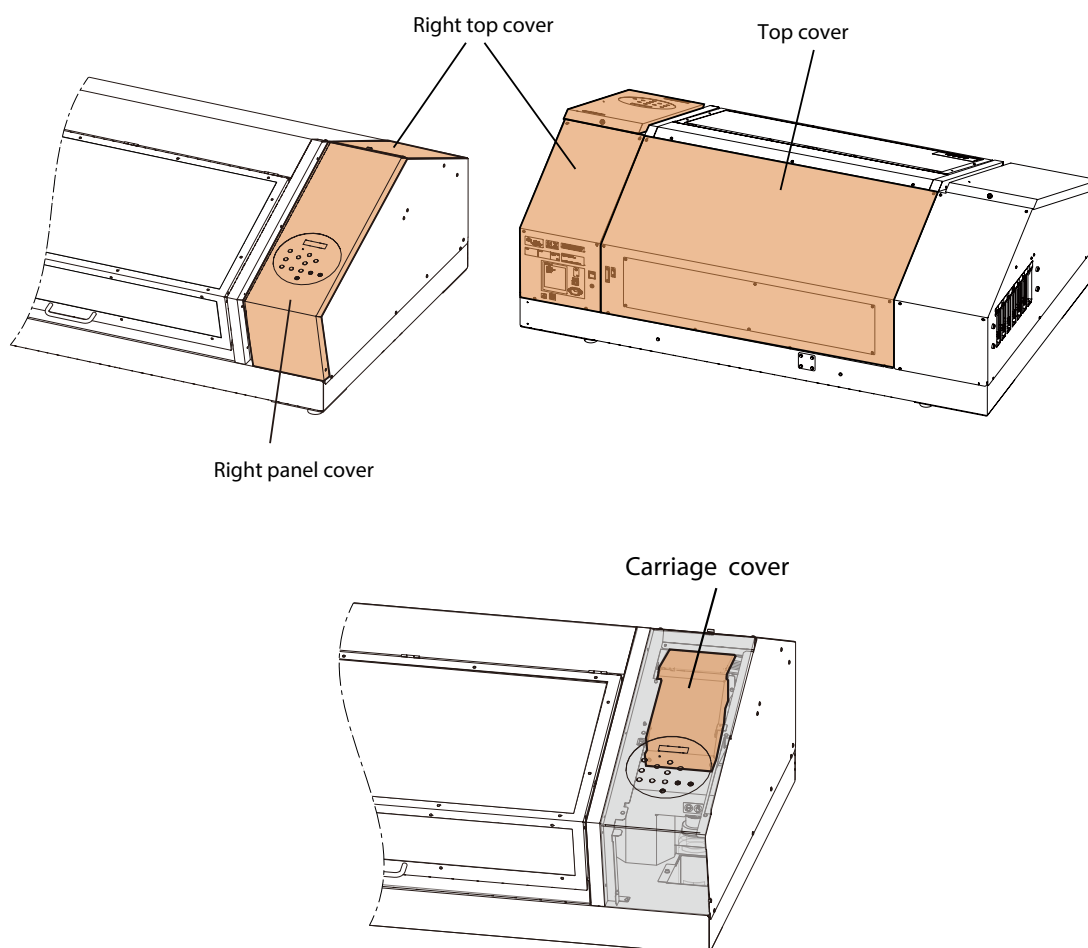
| Contents of work                                              | Time    |
|---------------------------------------------------------------|---------|
| Ribbon cable (main board to print carriage board) replacement | 40 min. |
| Linear encoder setup                                          | 3 min.  |

## Outline Diagram

### 1. Ribbon cable



## Cover That Needs to Be Removed



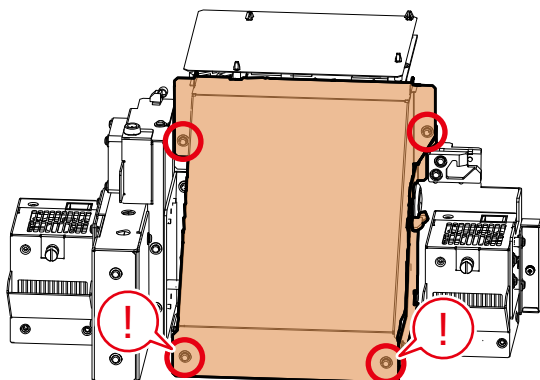
### Notes when attaching carriage cover

#### NOTE

When attaching the carriage cover, tighten four screws loosely first, then tighten them fully to secure the cover.

#### CAUTION

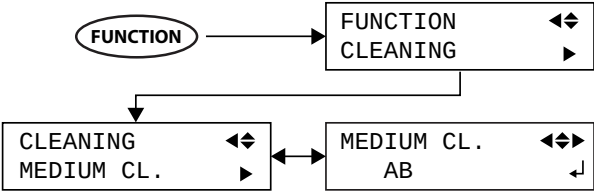
When tightening the two screws on the front, be careful not to tighten them too hard. Doing so may cause the carriage cover to be distorted and the print heads may become shifted.



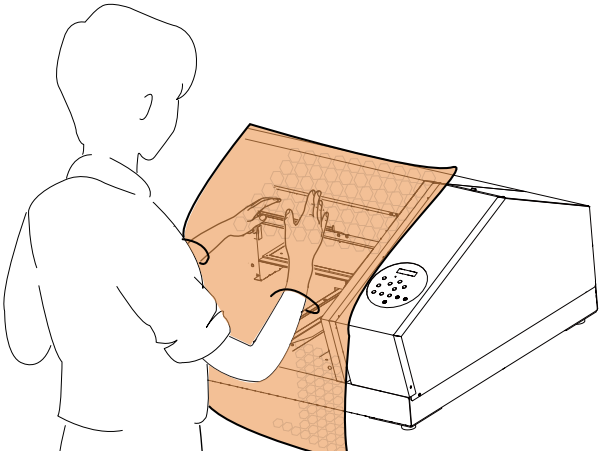
Workflow

CAUTION

- To prevent hardened ink from entering into the nozzle, refresh print head before the adjustment. Perform medium cleaning on all print heads if 20 minutes passes.



- Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.

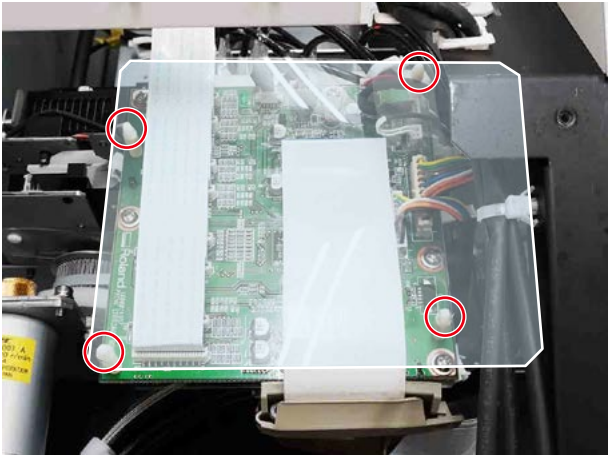


1. Turn off the power, and remove the cover.

CAUTION

You do not need to perform [PUMP UP].

2. Remove the print carriage board cover.

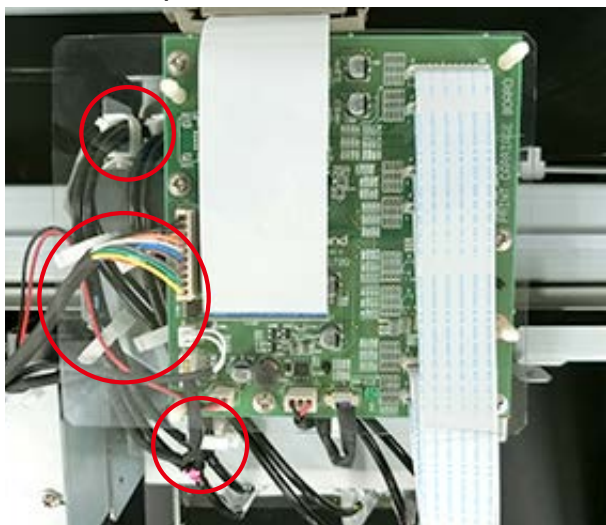


### CAUTION

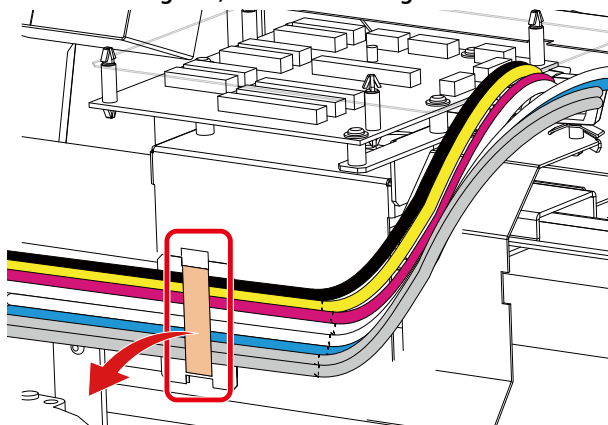
Remove the print carriage board cover by pushing the part indicated by the arrows because the top part of the support is easy to break.



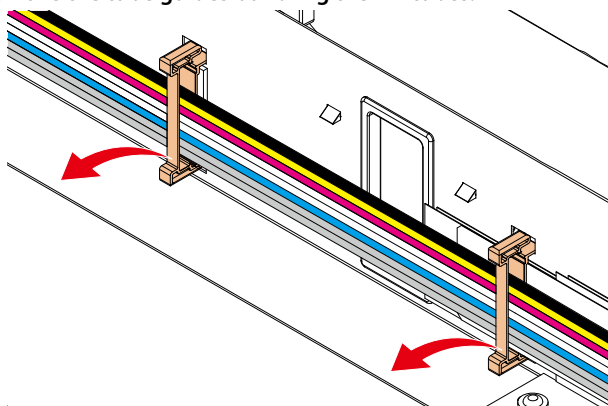
3. Unfasten the clamp.



4. Remove the tube guide, which is bundling the ink tubes and the ribbon cables, from the print-head carriage.

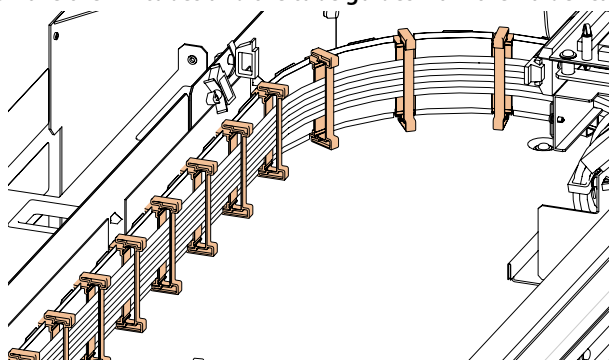


5. Remove the tube guides bundling the ink tubes.





- 6.** Remove the ink tubes and the tube guides from the holder cable plate and the support rail frame.

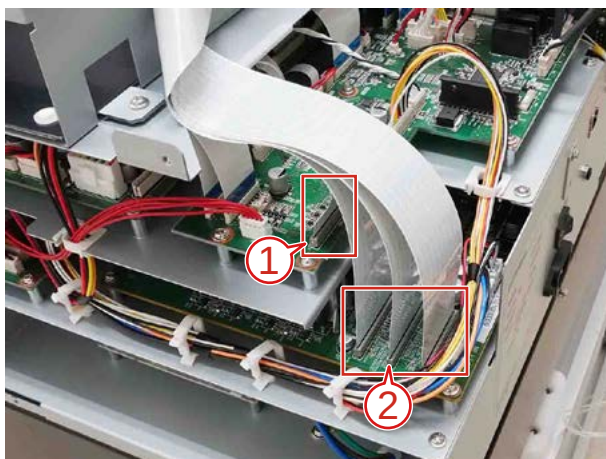


- 7.** Disconnect the ribbon cables from the print carriage board.



- 8.** Disconnect the ribbon cables from the signal junction board and the main board.

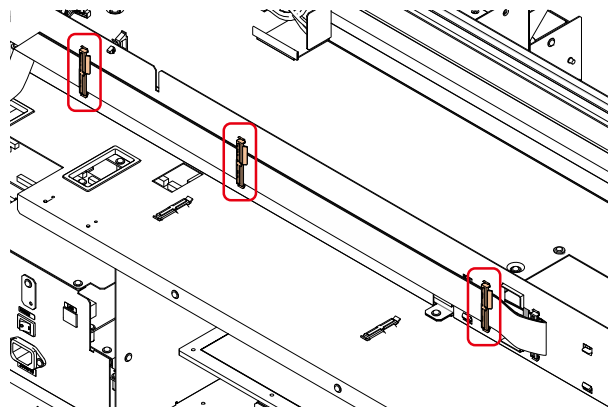
1. Signal junction board CN25
2. Main Board CN14, CN15, CN17



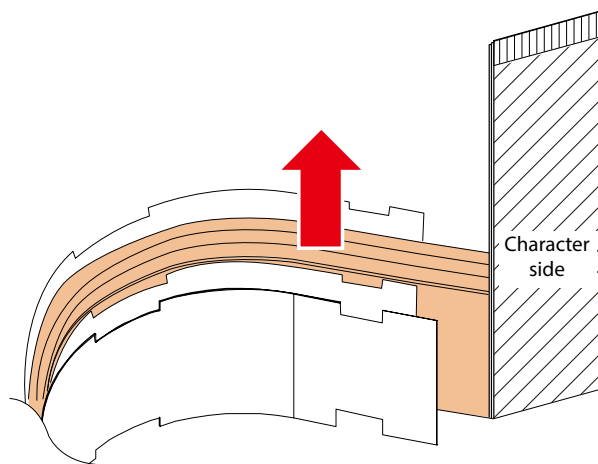


9. Open the clamps.

Rear view



10. Disconnect the ribbon cables from the machine.



11. Fold the new ribbon cable by referring to the figure below.

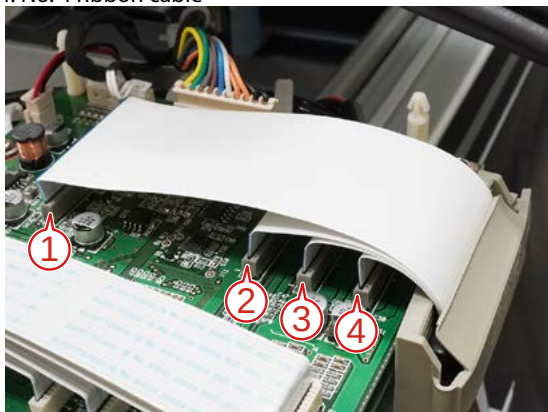
**NOTE**

The position to fold the ribbon cable is different depending on the position to connect the ribbon cable to the print carriage board.

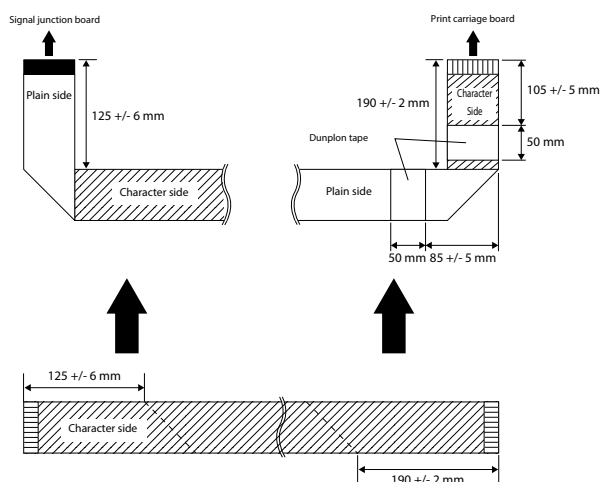
## CAUTION

There is no difference between left and right direction.

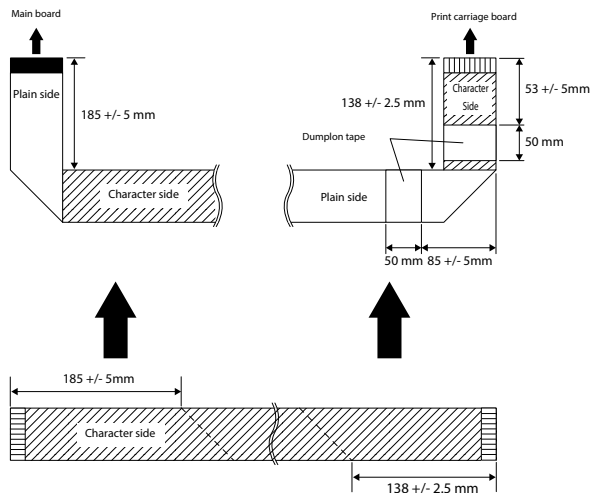
1. No. 1 ribbon cable
2. No. 2 ribbon cable
3. No. 3 ribbon cable
4. No. 4 ribbon cable



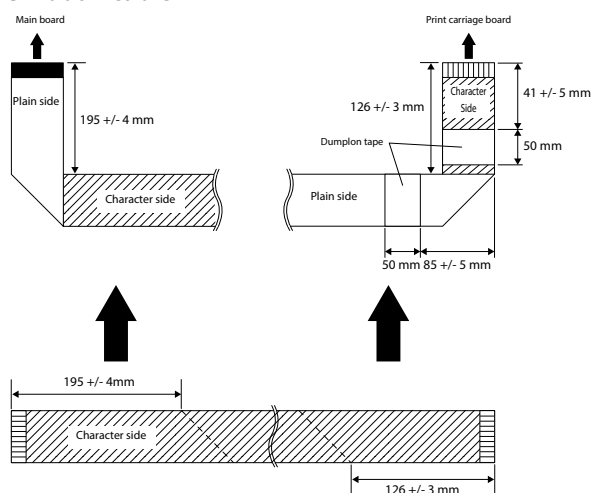
### No. 1 ribbon cable



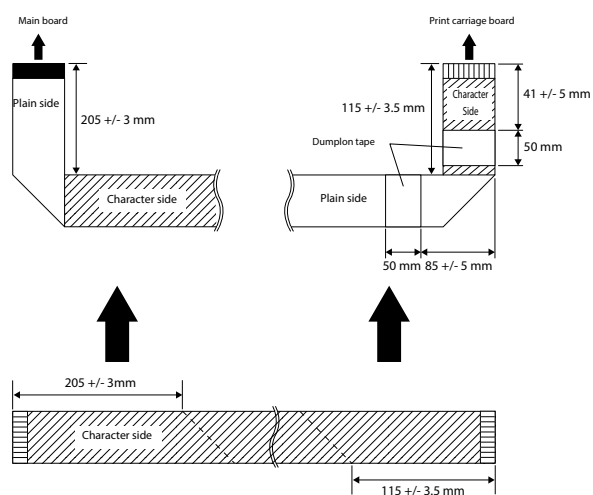
### No. 2 ribbon cable



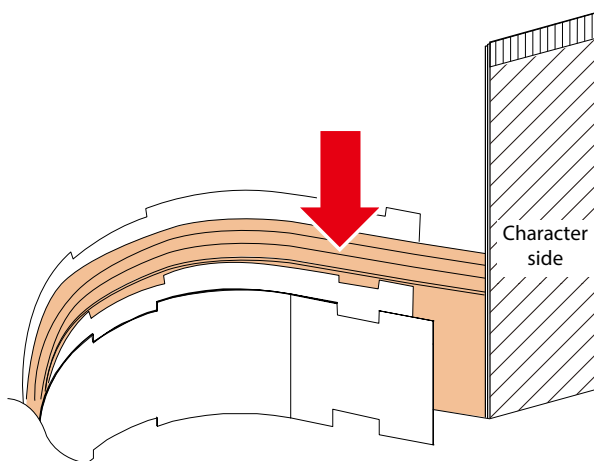
## No. 3 ribbon cable



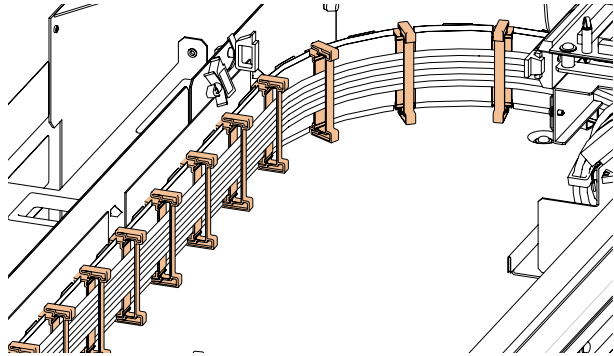
## No. 4 ribbon cable



## 12. Locate the ribbon cables between the cable holders.



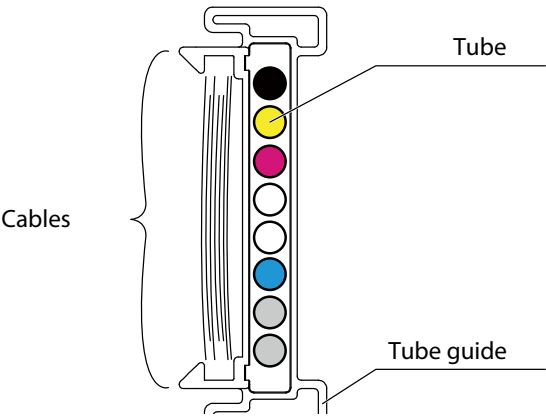
13. Attach the ink tubes and the tube guides to the holder cable plate and the support rail frame.



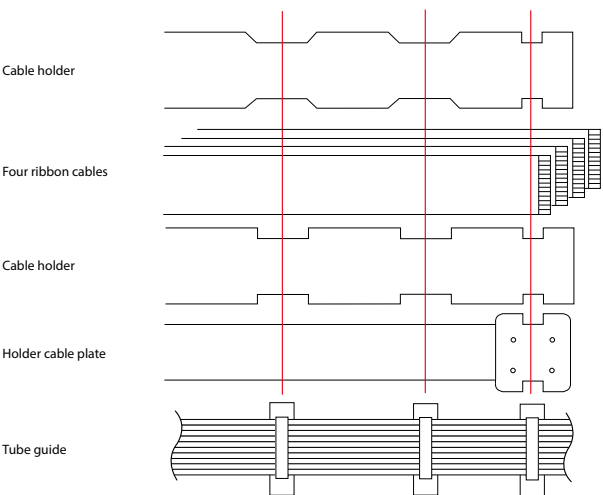
CAUTION

Confirm that the cables fit in the grooves of the tube guides.

Cross-section diagram

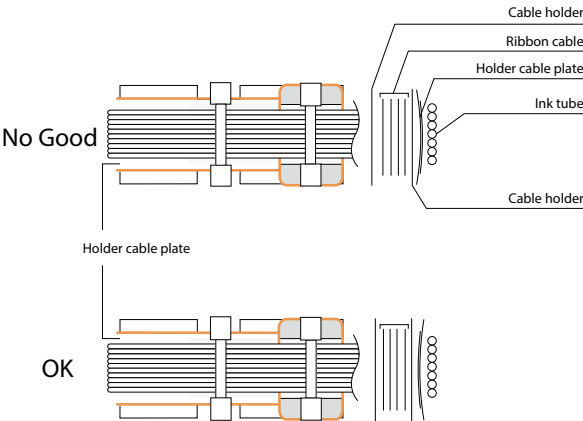


14. Confirm that the ribbon cables, the cable holders, the holder cable plate and the tube guides are in the order shown in the figure.

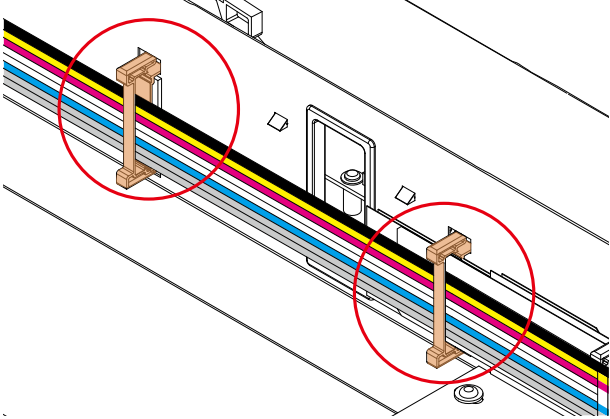


15. Confirm that the attaching direction of the holder cable plate is correct.

Cross-section diagram

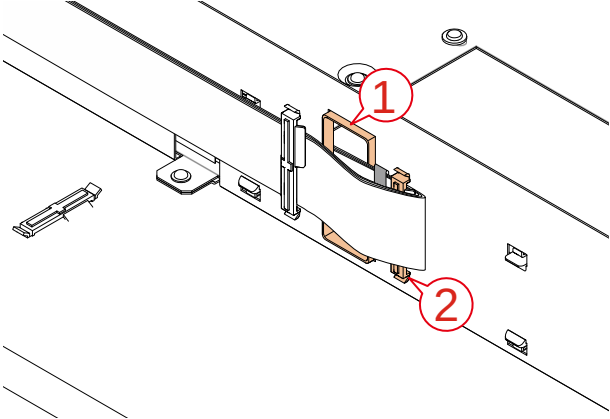


16. Bundle the ink tubes with the tube guides.



17. Pull out the ribbon cables from the bush and bundle them with the clamp.

Rear view

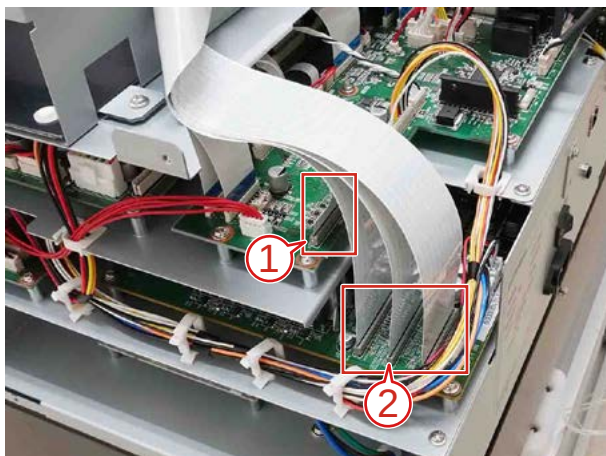


1. Bush

2. Clamp

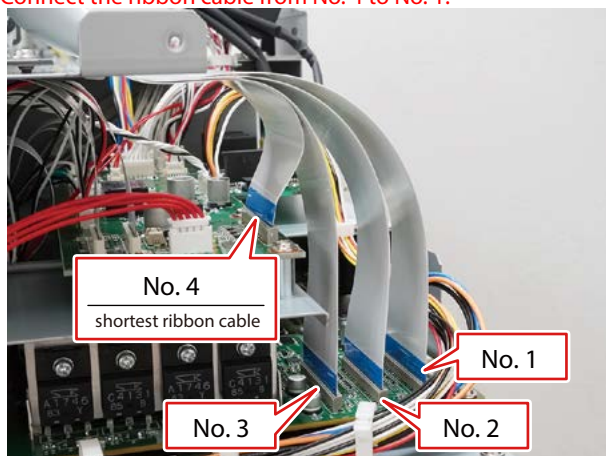
### 18. Connect the ribbon cables to the main board and signal junction board.

1. Signal junction board CN25
2. Main Board CN14, CN15, CN17



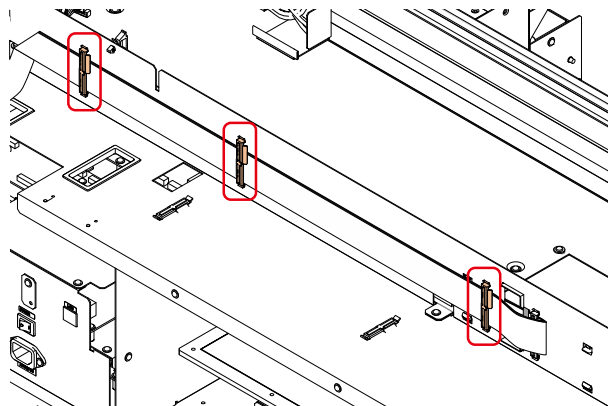
#### CAUTION

Connect the ribbon cable from No. 4 to No. 1.



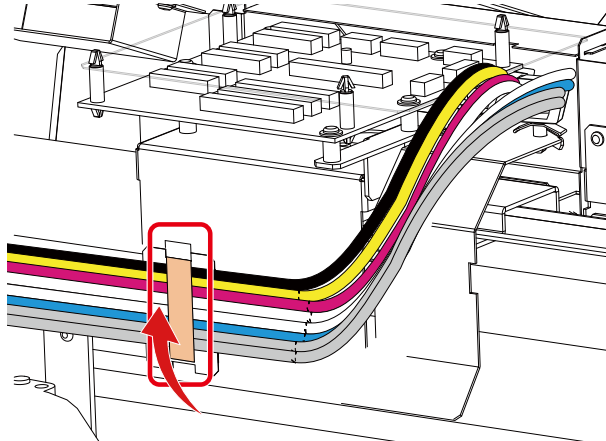
### 19. Bundle the cables with the clamps.

Rear view



### 20. Connect the ribbon cables to the print carriage board.

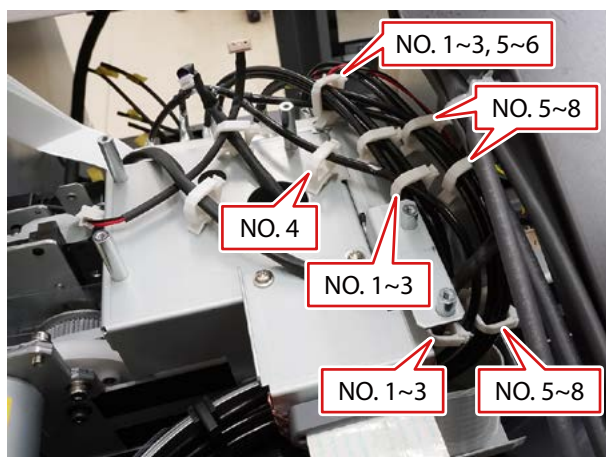
### 21. Attach the tube guide to the print-head carriage together with the ink tubes.



### 22. Bundle the ink tubes with the clamps.

#### CAUTION

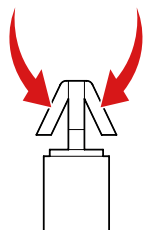
- Bundle the ink tubes with the clamps. Bundle the ink tubes with the clamps while pushing the ink tubes backward so as not to locate the front of the print-head carriage.
- If you do not bundle the ink tubes as shown in the figure, the ink tubes would pull up the print-head carriage and the print-head carriage would be tilted.



### 23. Attach the print carriage board cover.

#### CAUTION

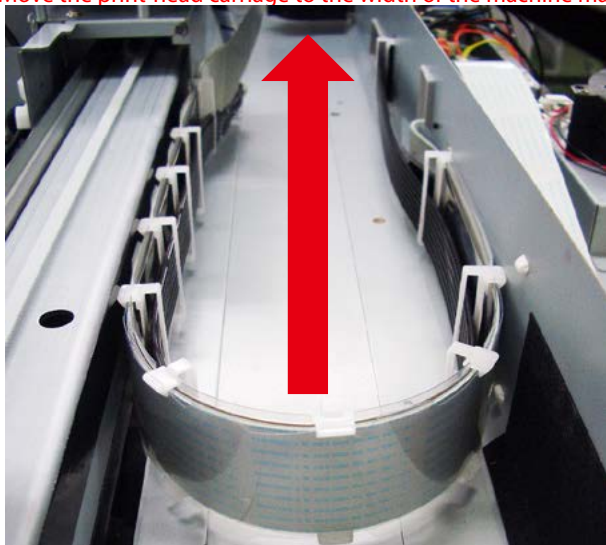
Remove the print carriage board cover by pushing the part indicated by the arrows because the top part of the support is easy to break.



- 24.** Move the print-head carriage across the whole width of the guide rail several times and confirm that the tube guides are securely attached and are not coming off.

**CAUTION**

Move the print-head carriage to the width of the machine manually to see if the tube guides move smoothly.





## Information

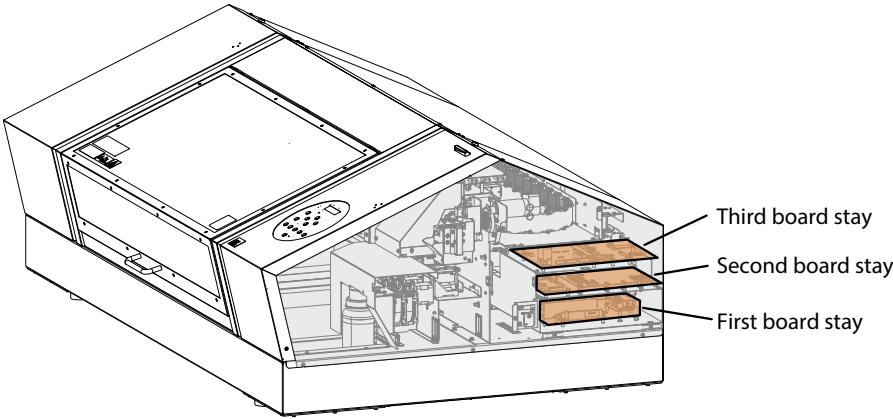
### Necessary tools

| Software                   |                                   |
|----------------------------|-----------------------------------|
| Peck                       |                                   |
| General tools              |                                   |
| No. 2 Phillips screwdriver |                                   |
| Longnose pliers            |                                   |
| Special tools              |                                   |
| 1000005829                 | TOOL,VINYL YE UV RESISTANT ST-113 |

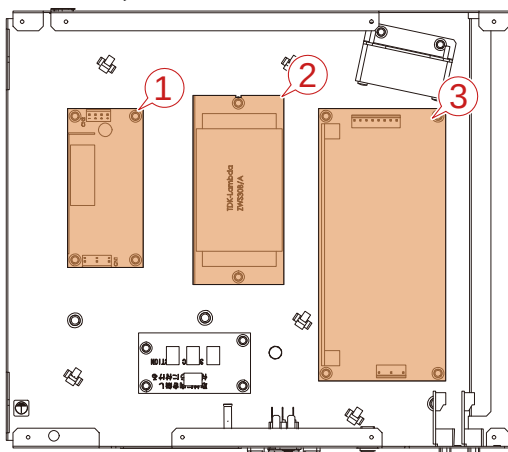
### Typical work time

| Contents of work                         | Time    |
|------------------------------------------|---------|
| Main board replacement                   | 40 min. |
| Servo board replacement                  | 30 min. |
| Switching power supply replacement (41V) | 50 min. |
| Switching power supply replacement (5V)  | 50 min. |

## Outline Diagram

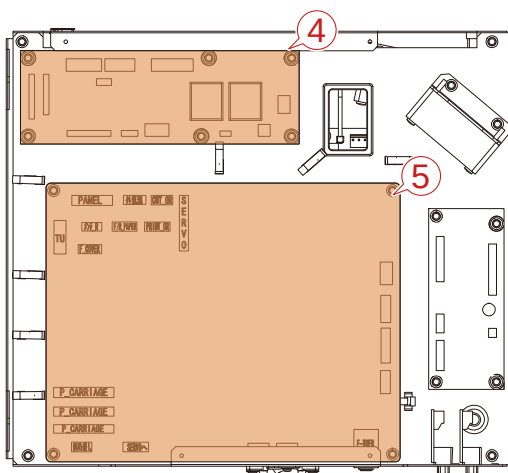


### First board stay



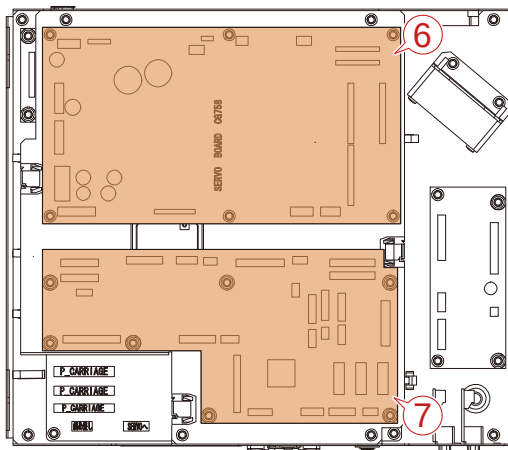
1. SW power supply (5V)
2. SW power supply (24V)
3. SW power supply (41V)

## Second board stay



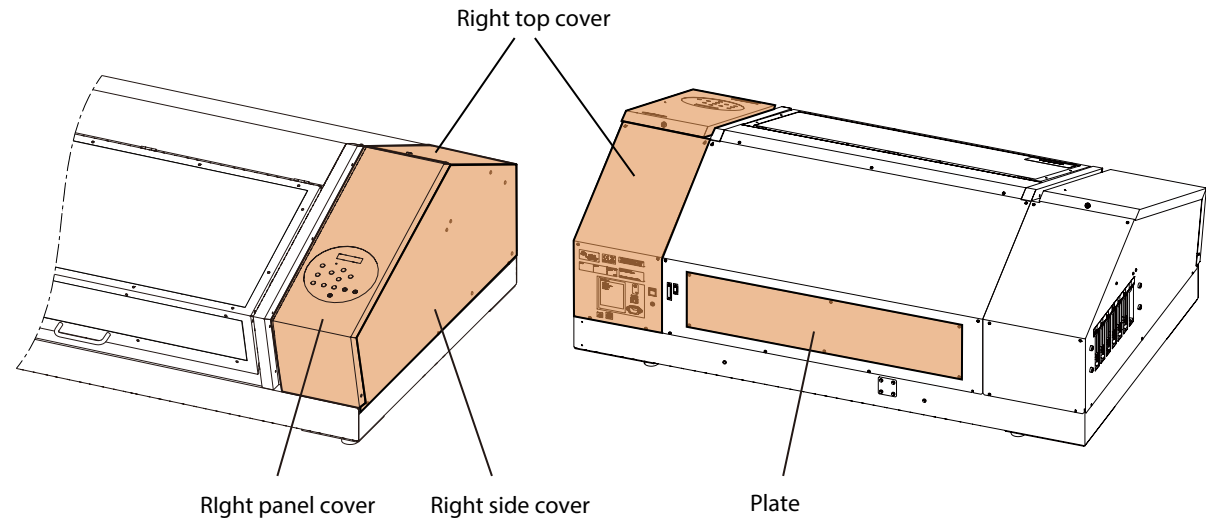
4. DC junction board
5. Main board

### Third board stay



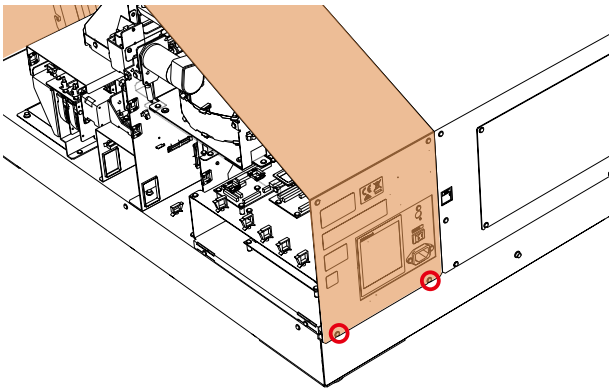
6. Servo board
7. Signal junction board

Cover That Needs to Be Removed



CAUTION

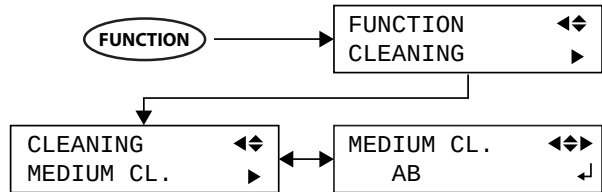
Do not remove the two screws that secure the top cover. Just loosen them.



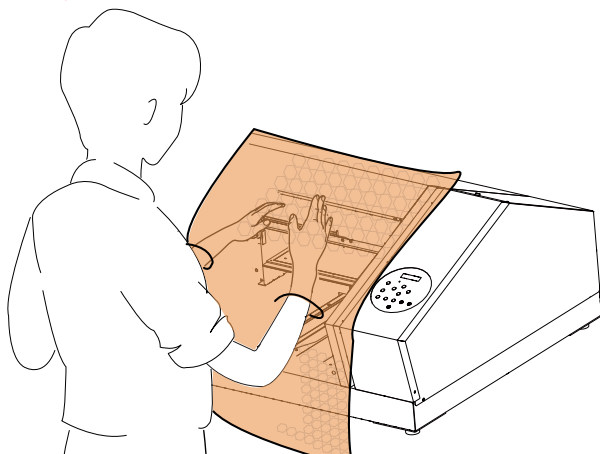
Workflow

CAUTION

- To prevent hardened ink from entering into the nozzle, refresh print head before the adjustment. Perform medium cleaning on all print heads if 20 minutes passes.



- Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.



### Removing the chassis

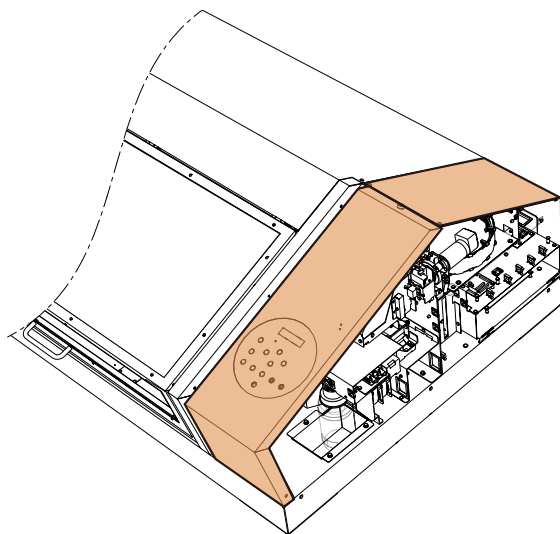
---

1. Turn on the main power switch and start Peck.
2. Click [Get Report] and [Get Parameters], and save the service report and the parameters.

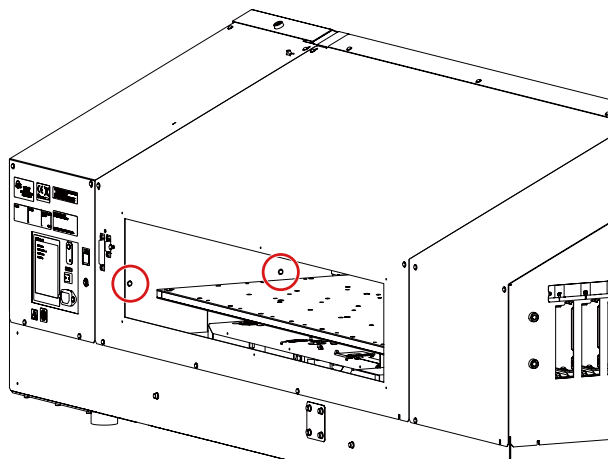


3. Turn off the main power switch, and remove the panel cover, right top cover and side cover.

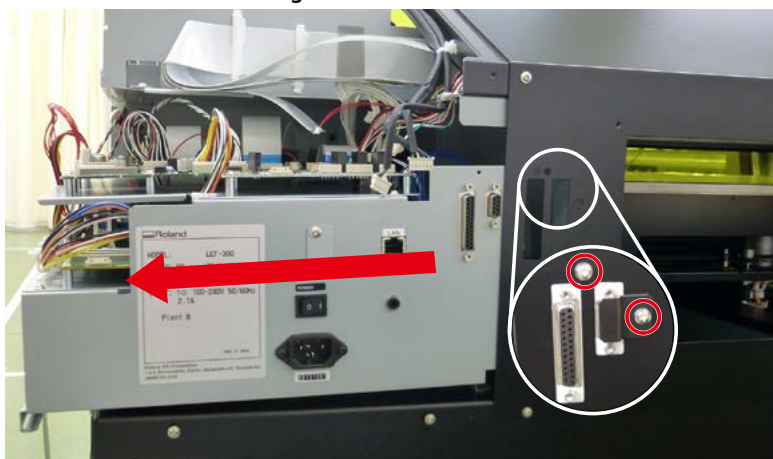
4. Position the panel cover and right top cover temporarily without securing it with screws.



5. Remove two screws.

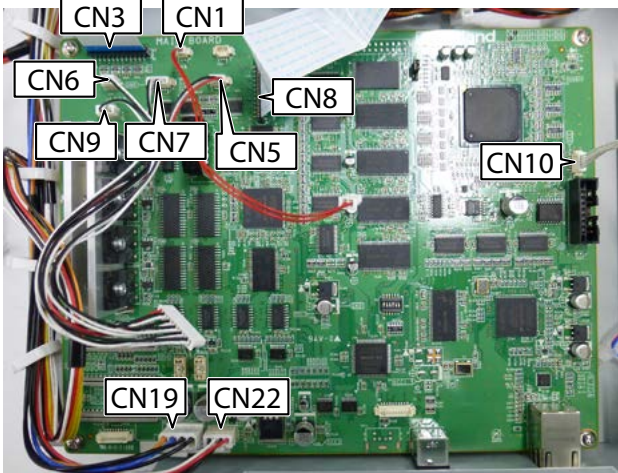


6. Pull out the Chassis from the right side cover side.

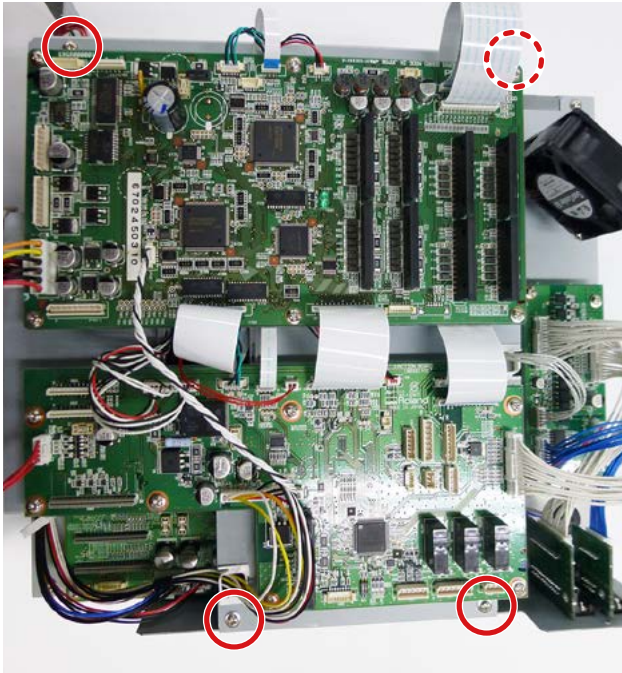


Main Board Replacement

Main board connector layout



7. Unplug the connectors and disconnect the ribbon cable from the servo board and the signal junction board. Then pull out the third board stay.

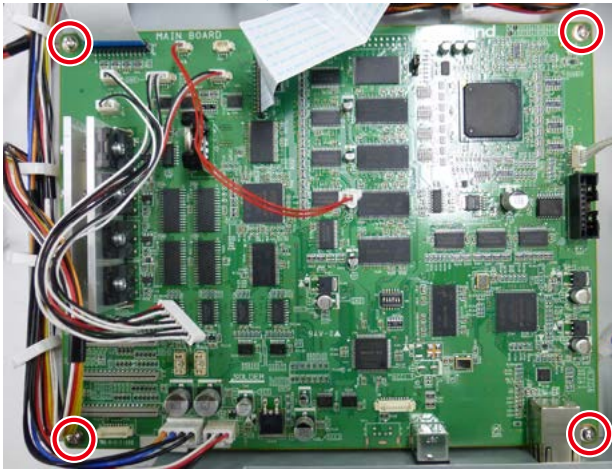


8. Change DIP switch of the new main board.

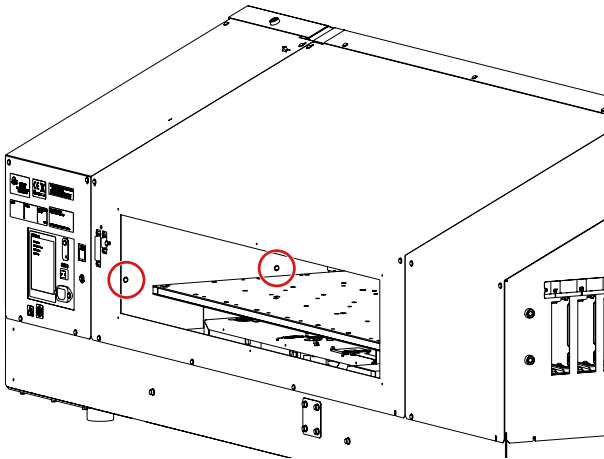
| DIP SW | Bit 1 | Bit 2 | Bit 3 | Bit 4 | Bit 5 | Bit 6 |
|--------|-------|-------|-------|-------|-------|-------|
|        | OFF   | ON    | ON    | ON    | OFF   | OFF   |

- 9.** Remove the main board and replace it with a new one. Attach the battery to the new main board.

☞ Refer to Chapter 1 "[Battery Replacement](#)".



- 10.** Tighten two screws.



- 11.** Attach the chassis and the covers, and perform the following adjustment.

**11-1.** Firmware installation

☞ Refer to Chapter 2 "[Firmware Upgrade](#)", "[Firmware Installation](#)".

**11-2.** System parameter initialization

☞ Refer to Chapter 2 "[Firmware Upgrade](#)", "[Firmware Installation](#)".

**11-3.** IP address setting

\* Start the machine with the service mode and set in the user menu.

**11-4.** Put parameters

☞ Refer to Chapter 2 "[Firmware Installation](#)".

**11-5.** Time and date setting

\* Set the date and time in [SUB MENU] > [CLOCK] > [DATE] > [TIME].

\* Set [DATE] in the order of [Year/Month/Day].

**11-6.** Sensor check

\* [SERVICE MENU] > [SENSOR CHECK]

### 12. Perform the following if the parameters have not been transferred by Peck.

#### 12-1. Firmware installation

- \* Refer to Chapter 2 "[Firmware Upgrade](#)", "[Firmware Installation](#)".

#### 12-2. System parameter initialization

- \* Refer to Chapter 2 "[Firmware Installation](#)".

#### 12-3. Time and date setting

- \* Set the date and time in [SUB MENU] > [CLOCK] > [DATE] > [TIME].
- \* Set [DATE] in the order of [Year/Month/Day].

#### 12-4. IP address setting

- \* Start the machine with the service mode and set in the user menu.

#### 12-5. Head rank setting

- \* Set in [PRINT MENU] > [HEAD RANK].

#### 12-6. Serial number input

- \* Set in [SUB MENU] > [SERIAL NO.].

#### 12-7. Ink type setting

- \* Set in [SUB MENU] > [CHANGE INKTYPE].

#### 12-8. Cap & wiper check

- \* [IS MENU] > [IS CHECK]

#### 12-9. Sensor check

- \* [SERVICE MENU] > [SENSOR CHECK]

#### 12-10. Limit position & maximum scan position initialization

- ☞ Refer to chapter 2 "[Limit position & maximum scan width position initialize](#)".

#### 12-11. Flushing position adjustment

- ☞ Refer to chapter 2 "[Flushing Position Adjustment](#)".

#### 12-12. Linear encoder setup

- ☞ Refer to Chapter 2 "[Linear Encoder Setup](#)".

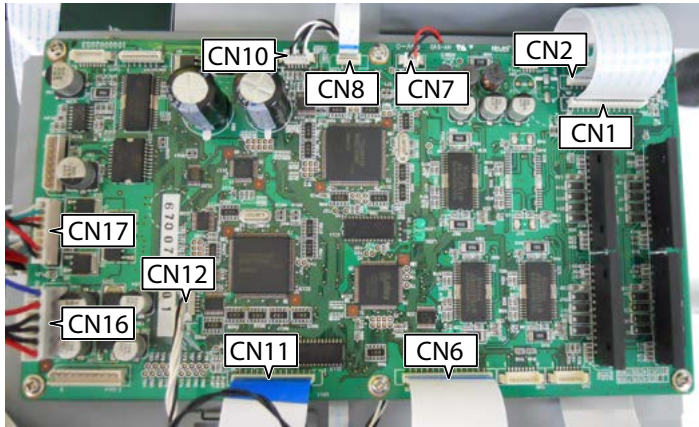
#### 12-13. Print head alignment

- ☞ Refer to Chapter 2 "[Print Head Alignment](#)".
- \* Only horizontal adjustment is required.

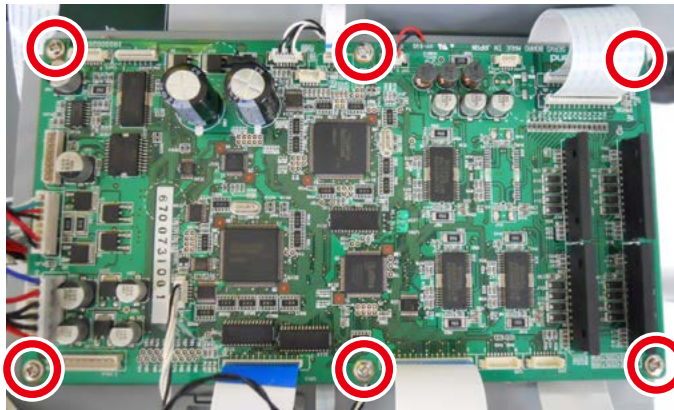


### Servo Board Replacement

#### Servo board connector layout



- 13.** Remove the servo board and replace it with a new one.



- 14.** Perform the following works.

**14-1.** I/S check

\* Perform in [I/S MENU] > [I/S CHECK].

**14-2.** IC Check

\* Perform in [I/S MENU] > [CARTRIDGE] > [IC CHECK].

**14-3.** Fan check

\* Perform in the [SUB MENU] > [MIST FAN] to check that there is a operation sound of the Rear Fan, and check that the Front Fan is operated correctly.

**14-4.** Pump check

\* Perform in the [I/S MENU] > [PUMP CHECK] > [PUMP SUCTION] to check the pumps work correctly.

**14-5.** Sensor check

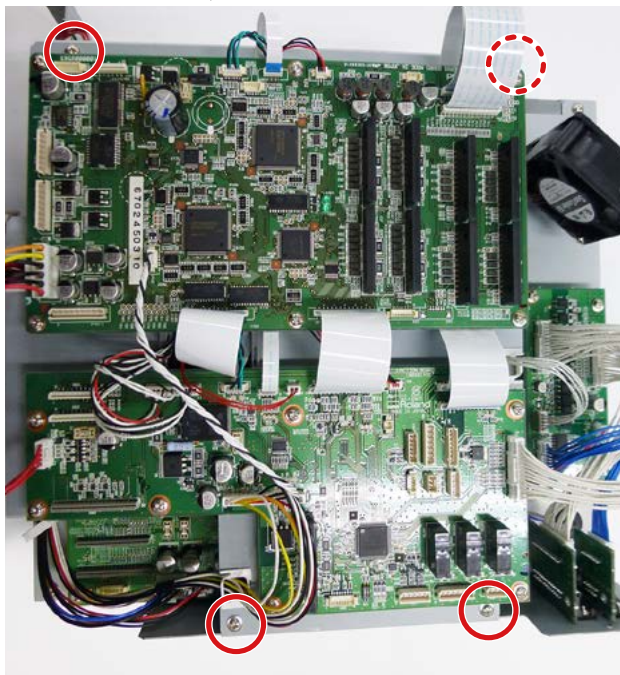
\* Perform in [SENSOR CHECK].

**14-6.** Aging check

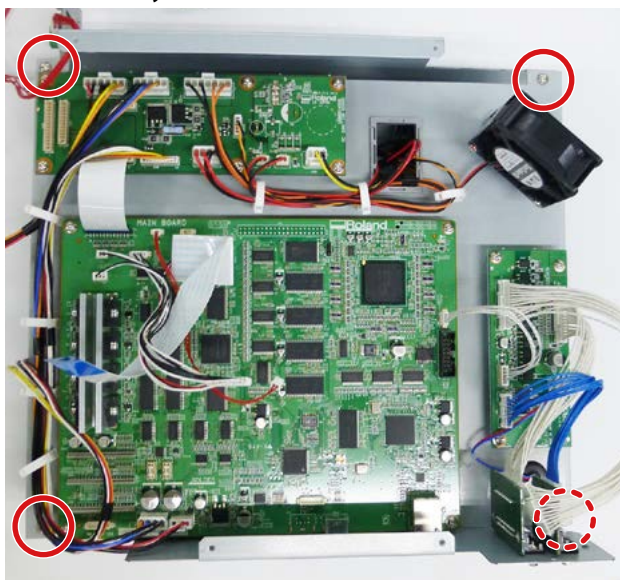
\* Perform in [MOTOR MENU] > [AGING] > [SCAN], [FEED], [HEIGHT].

### SW Power Supply Replacement

- 15.** Unplug the connectors and disconnect the ribbon cable from the servo board and the signal junction board. Then pull out the third board stay.



- 16.** Unplug the connectors and disconnect the ribbon cable from the main board and DC junction board, and remove the second board stay.

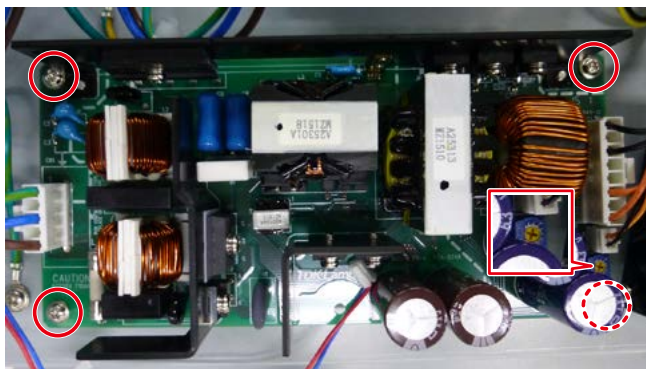


### SW Power supply (41V) Replacement

17. Remove SW power supply (41V), and replace it with a new one.

#### CAUTION

In the case that the volume is accidentally turned, adjust the output voltage value to +41 +/- 0.1.

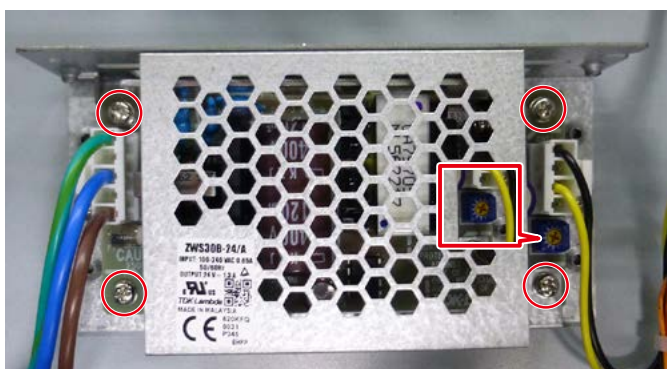


### SW Power supply (24V) replacement

18. Remove SW power supply (24V), and replace it with a new one.

#### CAUTION

In case you accidentally turn the potentiometer, adjust the output voltage value to +24 +/- 0.1V.



### SW Power supply (5V) replacement

19. Remove SW power supply (5V), and replace it with a new one.

#### CAUTION

In case you accidentally turn the potentiometer, adjust the output voltage value to +5 +/- 0.1.



# Battery Replacement

## Information

### Necessary tools

#### General tools

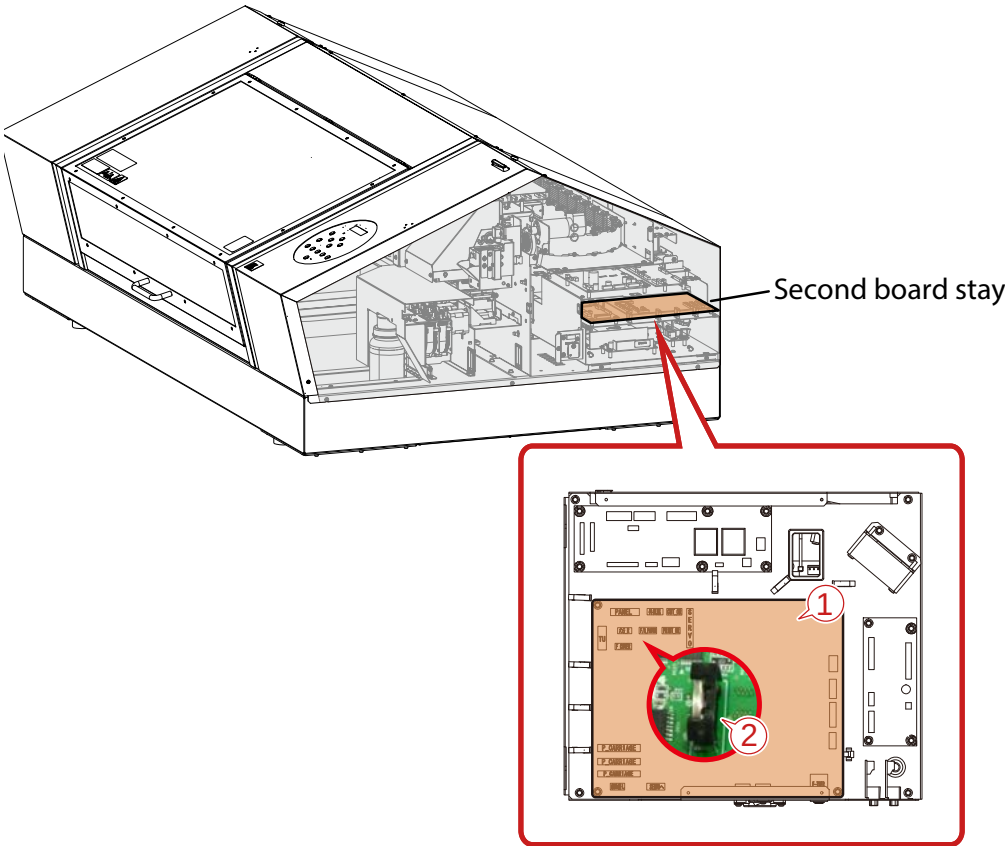
No. 2 Phillips screwdriver

### Typical work time

| Contents of work      | Time   |
|-----------------------|--------|
| Battery replacement   | 7 min. |
| Time and date setting | 2 min. |

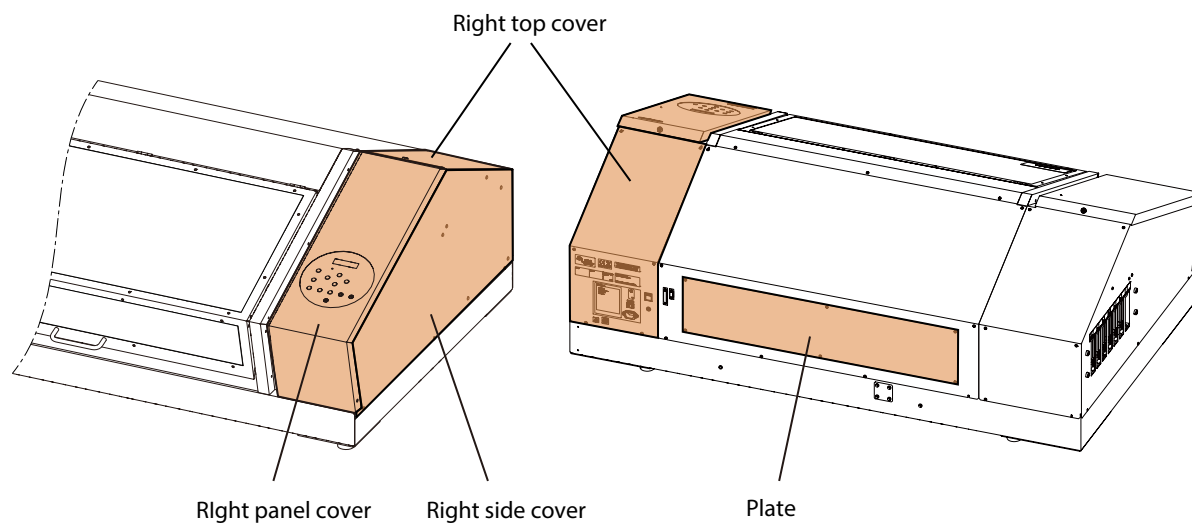
## Outline Diagram

- 1. Main Board
- 2. Battery



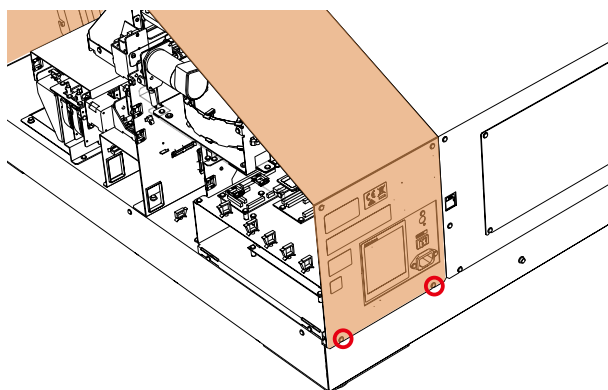


## Cover That Needs to Be Removed



### CAUTION

Do not remove the two screws that secure the top cover. Just loosen them.



## Workflow

### CAUTION

Danger of explosion if the lithium battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacture. Dispose of used batteries according to the manufacturer's instructions.

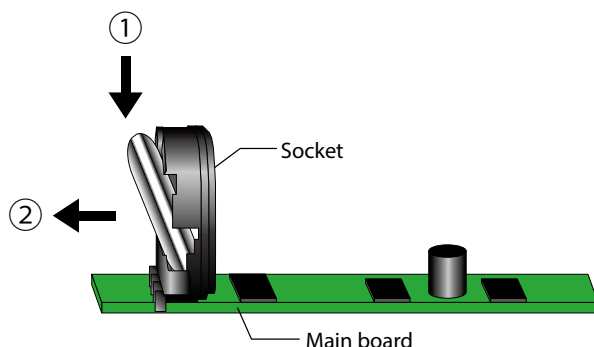


Do not recharge, short-circuit, disassembly the lithium battery, nor put it into fire. It may cause heat, explosion and fire.



Put tape around the lithium battery for insulation for disposal or preservation. It may cause heat, explosion and fire.

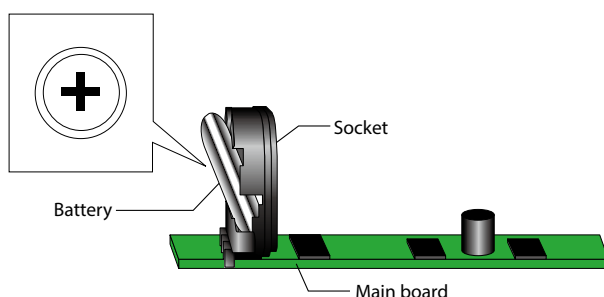
1. Remove the third board stay from the bottom from the chassis referring to Chapter 1 "[Board Replacement](#)" so that you can access the main board which is on the second board stay from the bottom.
2. Remove the battery on the main board by pushing it down and tilting it towards left.



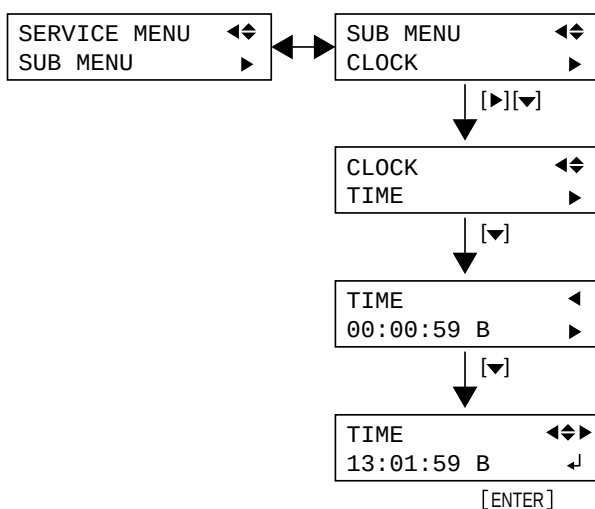
3. Replace the battery with a new one.

### CAUTION

Be sure to correctly orient the battery.



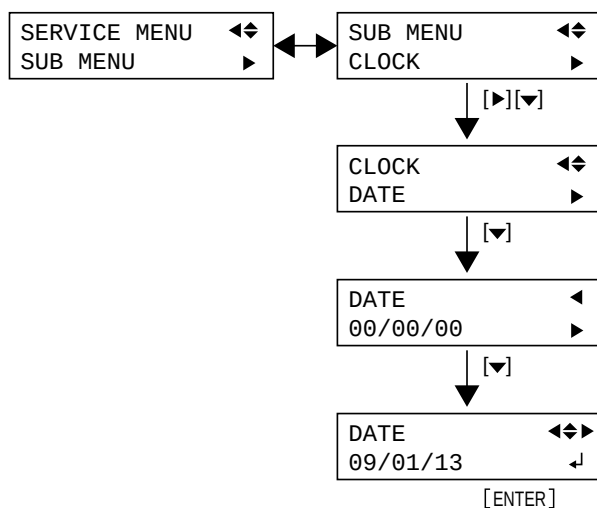
4. Attach the third board stay to the chassis referring to Chapter 1 "[Board Replacement](#)". Then turn on the main power switch and enter the service mode.
5. Select [SERVICE MENU] > [SUB MENU] > [CLOCK] > [TIME]. Set the time, and press the [ENTER] key.



### CAUTION

The display of [B] which shows a battery exhaustion disappears by this step.

6. Select [SERVICE MENU] > [SUB MENU] > [CLOCK] > [DATE]. Set the date, and press the [ENTER] key.



7. Turn off the power, and dispose the removed battery.

# Carriage Belt Replacement

## Information

### Necessary tools

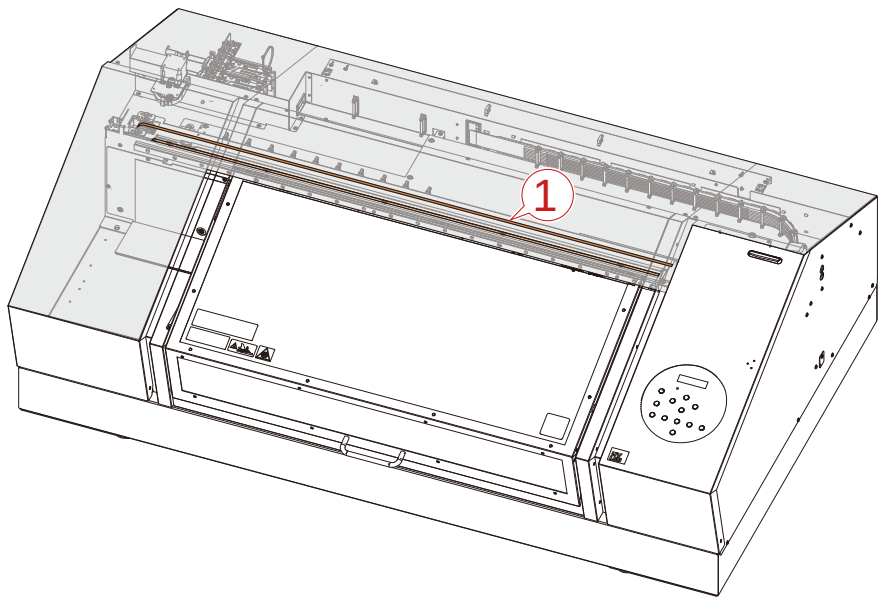
| General tools              |                                   |
|----------------------------|-----------------------------------|
| No. 2 Phillips screwdriver |                                   |
| Tape                       |                                   |
| Special tools              |                                   |
| 6000004129                 | GREASE,FLOIL G-902 10ML_02        |
| 1000005829                 | TOOL,VINYL YE UV RESISTANT ST-113 |

### Typical work time

| Contents of work                                        | Time    |
|---------------------------------------------------------|---------|
| Carriage belt replacement                               | 30 min. |
| Belt tension adjustment                                 | 20 min. |
| Belt position adjustment                                | 30 min. |
| Limit position & maximum scan width position initialize | 3 min.  |

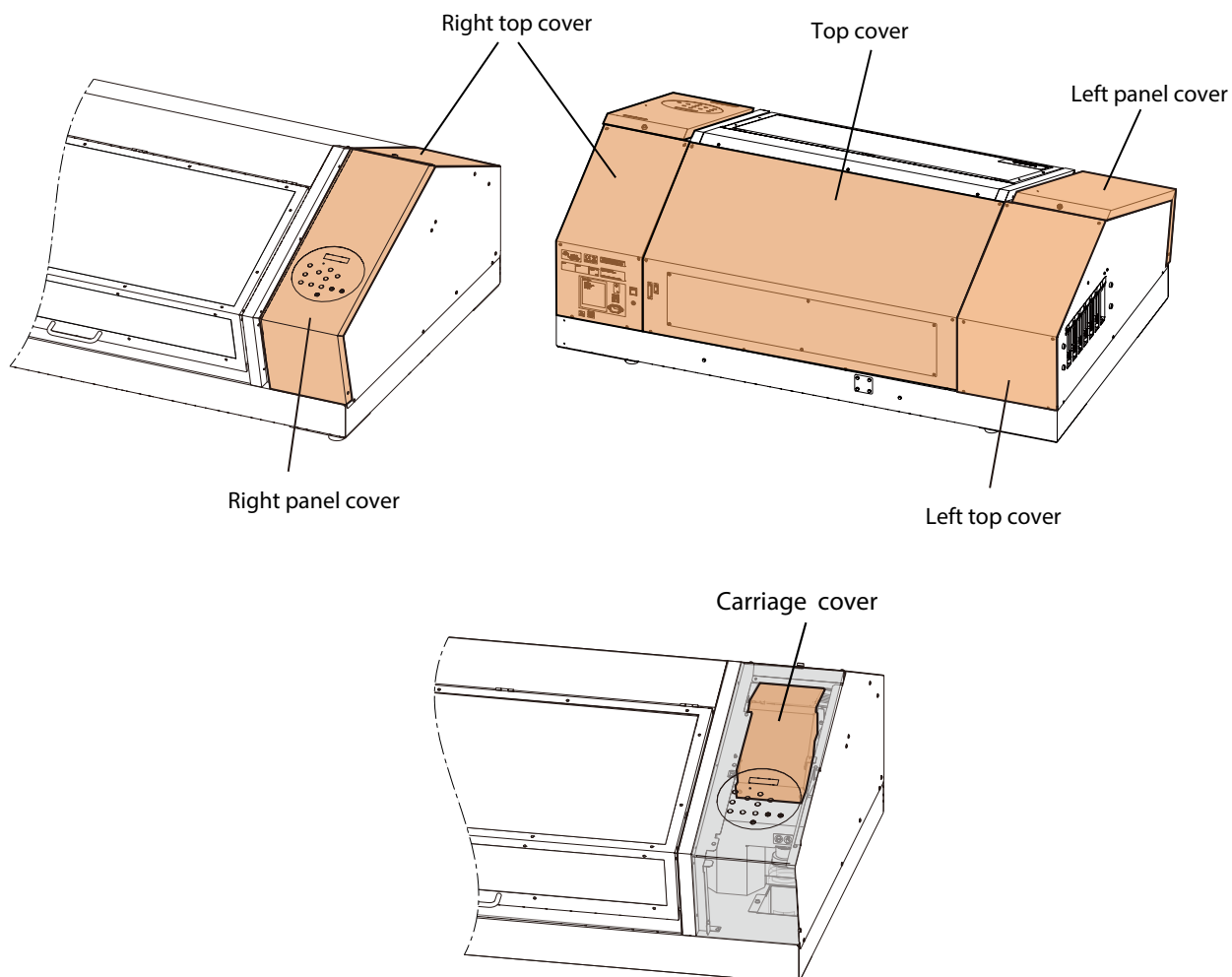
## Outline Diagram

1. Carriage belt





## Cover That Needs to Be Removed



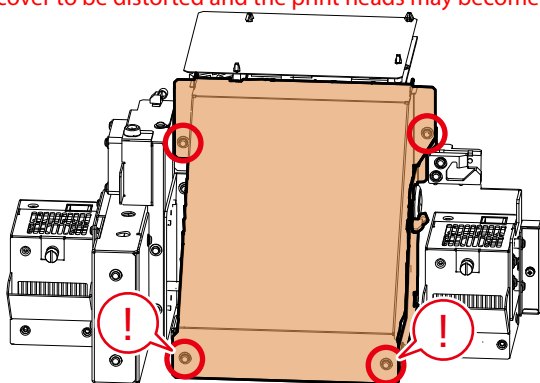
### Notes when attaching carriage cover

#### NOTE

When attaching the carriage cover, tighten four screws loosely first, then tighten them fully to secure the cover.

#### CAUTION

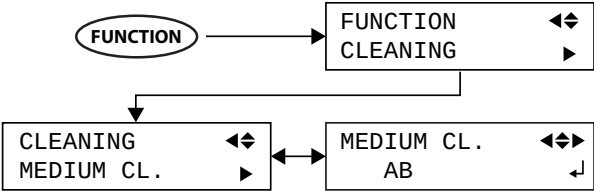
When tightening the two screws on the front, be careful not to tighten them too hard. Doing so may cause the carriage cover to be distorted and the print heads may become shifted.



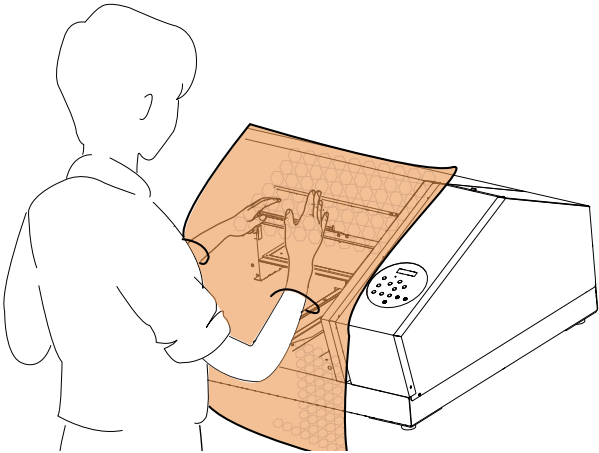
Workflow

CAUTION

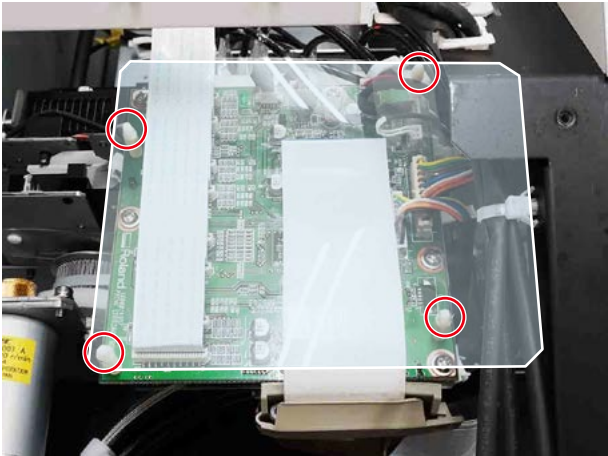
- To prevent hardened ink from entering into the nozzle, refresh print head before the adjustment. Perform medium cleaning on all print heads if 20 minutes passes.



- Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.



1. Remove the print carriage board cover.

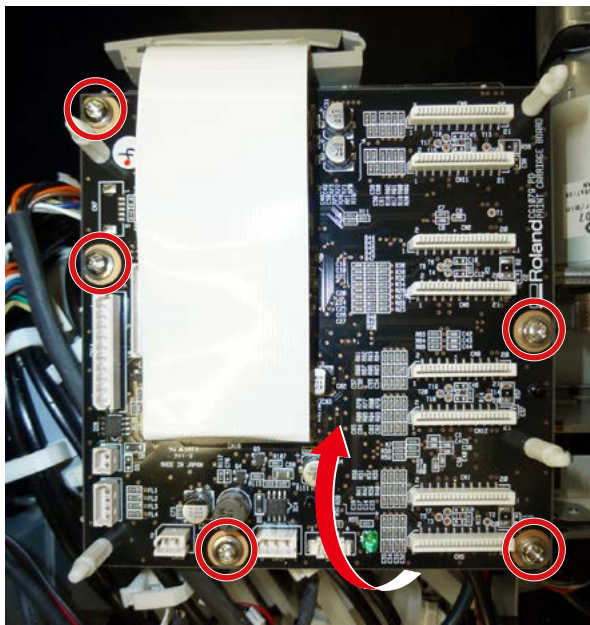


CAUTION

Remove the print carriage board cover by pushing the part indicated by the arrows because the top part of the support is easy to break.



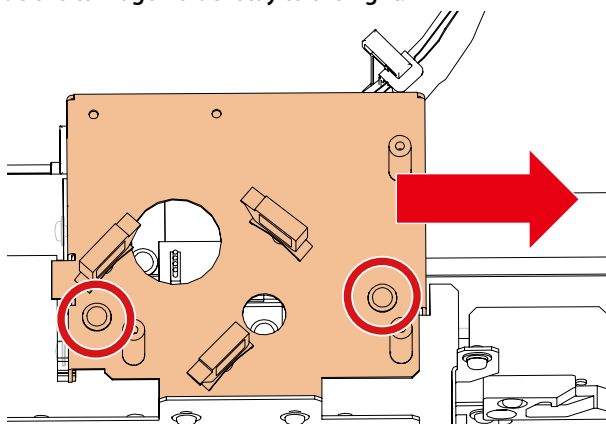
2. Remove five screws. Then, turn over the print carriage board.



3. Unfasten the clamp.

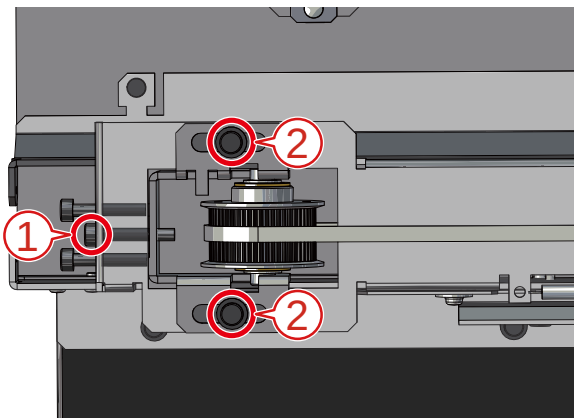


4. Slide the carriage holder stay to the right.

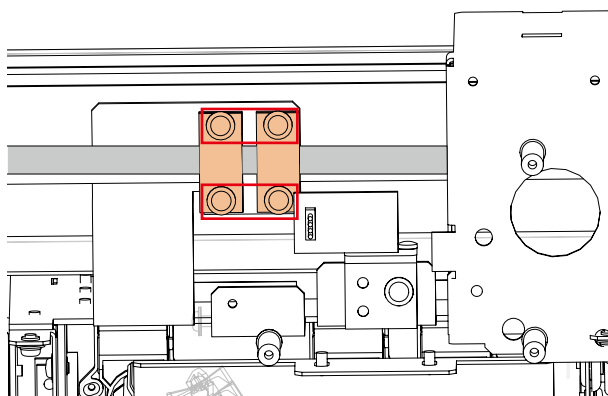


### 5. Loosen the fixing screw and two adjustment screws.

1. Fixing screw
2. Adjustment screw



### 6. Loosen four screws that secure the belt stay.

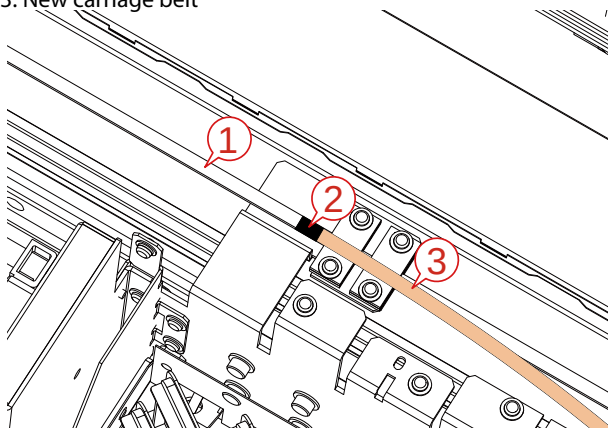


### 7. Remove the carriage belt from the belt stay. Then, tape the old carriage belt and the new one together.

#### CAUTION

When replacing the carriage belt, make sure to connect the new belt to the old belt, and then thread the new belt into place as you remove the old belt. Failure to follow this procedure may make it impossible to install the new belt.

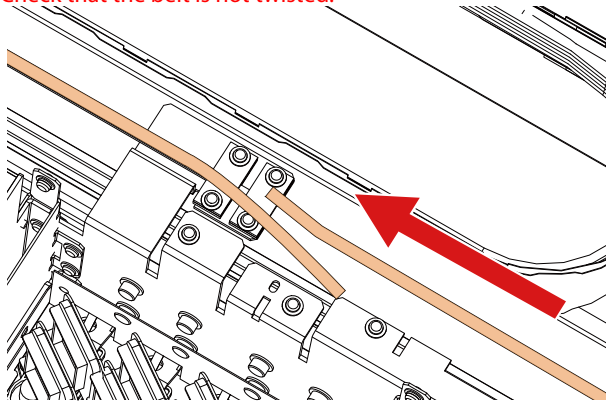
1. Old carriage belt
2. Tape
3. New carriage belt



8. Slowly pull the end of the old belt that is not connected to the new belt until the new belt reaches the belt stay.

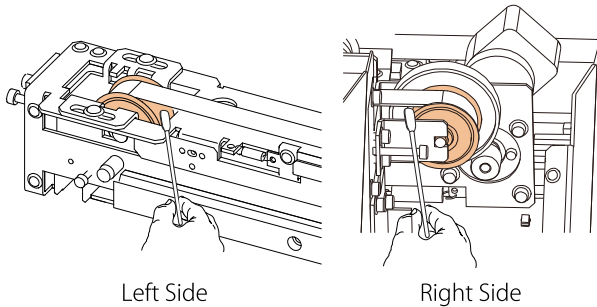
**CAUTION**

Check that the belt is not twisted.



9. Apply grease to the pulleys.

- Grease: FLOIL G-902 10ML\_02
- Volume: as needed



10. Peel off the tape, and then tighten two screws as shown in the figure to fasten both ends of the carriage belt to the belt holder with the plastic plate and the metal plate.

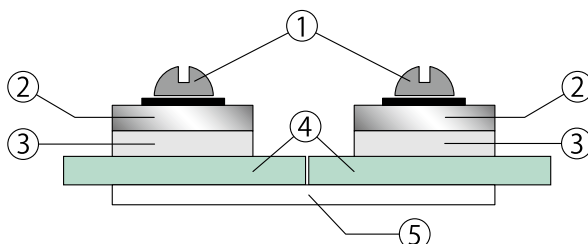
**CAUTION**

- When fastening the carriage belt, make sure the ends of the carriage belt are not overlapped.
- Be careful with the orientation in which you affix the plastic plate and the order in which you affix the plates.

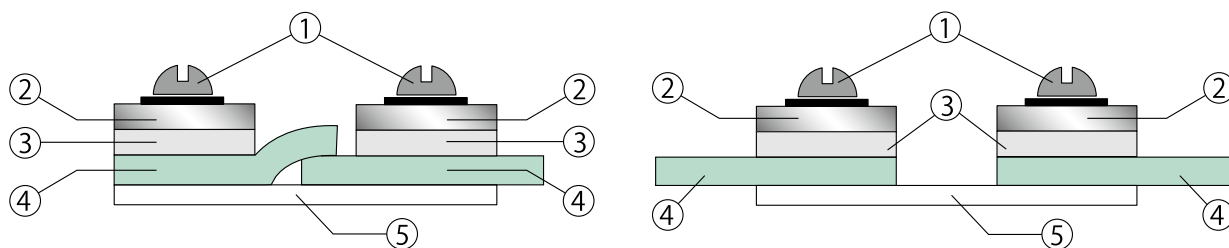
1. Screw
2. Metal plate
3. Plastic plate
4. Carriage belt
5. Belt holder

**Cross-section diagram**

OK



No Good

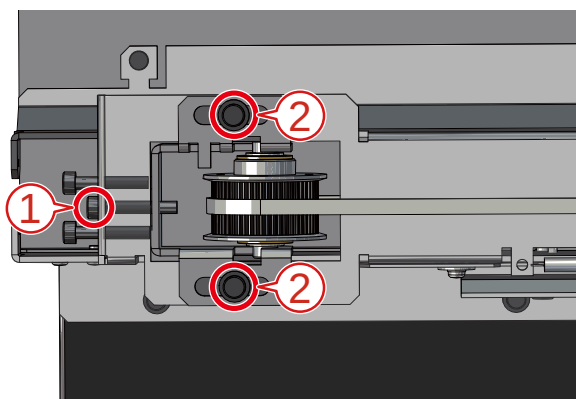


- 11.** Tighten two adjustment screws to remove the slack of the belt. Then, tighten the fixing screw.

**CAUTION**

Be careful not to tighten the adjustment screws too hard.

1. Fixing screw
2. Adjustment screw

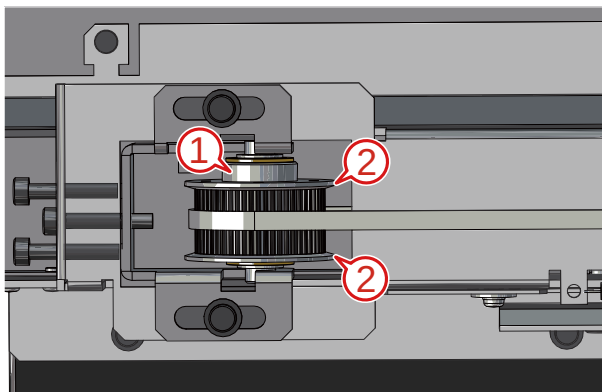


- 12.** Make sure that the belt is not making contact with the flanges of the drive pulley and the idle pulley.

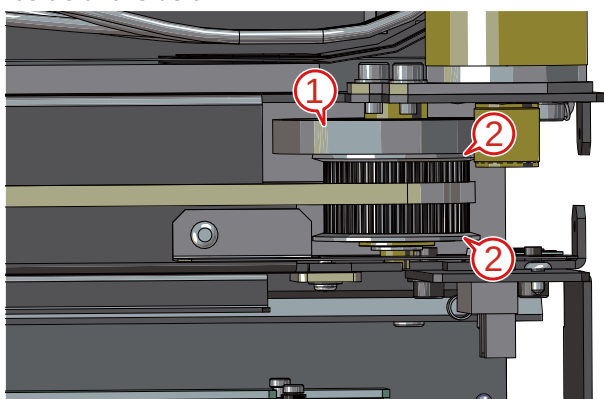
Top view

1. Idle Pulley
2. Flange

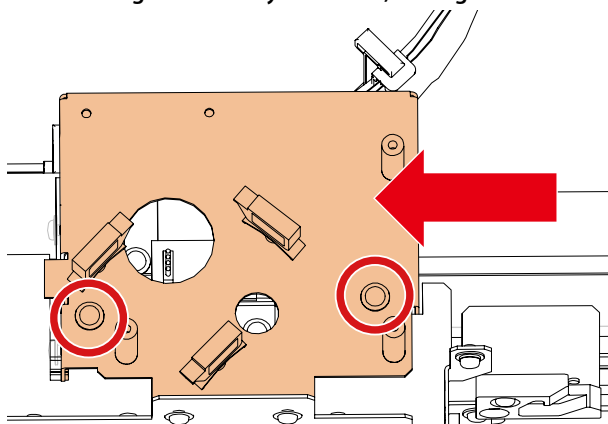
Left side of the belt



Right side of the belt



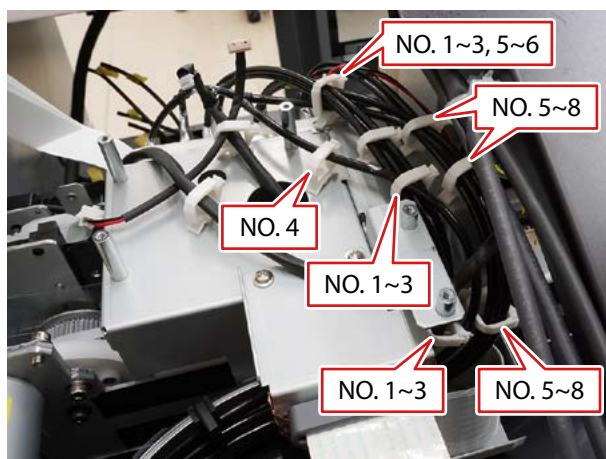
- 13.** Slide the carriage holder stay to the left, and tighten the screws.



- 14.** Bundle the ink tubes with the clamps.

**CAUTION**

- Bundle the ink tubes with the clamps while pushing the ink tubes backward so as not to locate the front of the print-head carriage.
- If you do not bundle the ink tubes, they will pull up the print head, and the print head will be tilted.

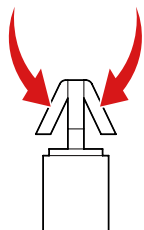


- 15.** Attach the print carriage board, and plug the connectors and connect the ribbon cables.

### 16. Attach the print carriage board cover.

#### CAUTION

Remove the print carriage board cover by pushing the part indicated by the arrows because the top part of the support is easy to break.



### 17. Perform the following adjustments.

17-1. Chapter 2 "[Belt Tension Adjustment](#)"

17-2. Chapter 2 "[Belt Position Adjustment](#)"

17-3. Chapter 2 "[Limit position & maximum scan width position initialize](#)"



## Information

### Necessary tools

#### General tools

No. 2 Phillips screwdriver

#### Special tools

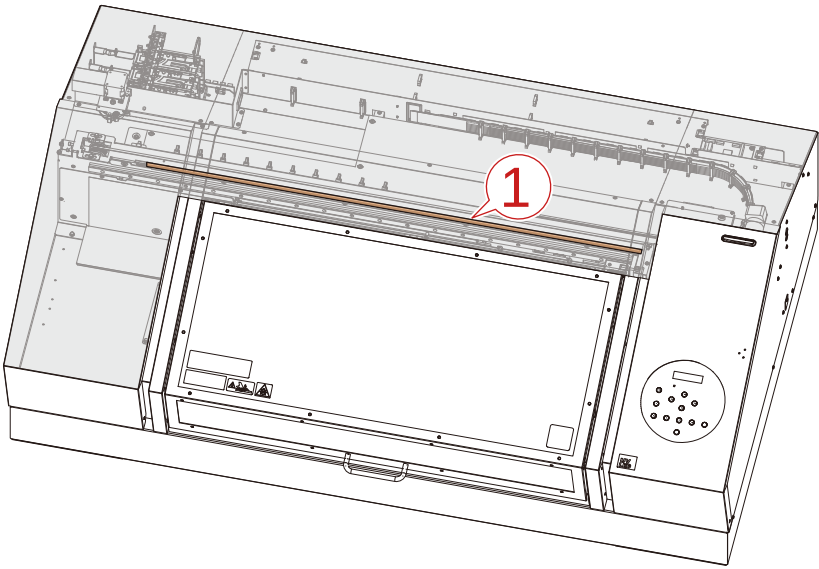
|            |                                   |
|------------|-----------------------------------|
| 1000005829 | TOOL,VINYL YE UV RESISTANT ST-113 |
|------------|-----------------------------------|

### Typical work time

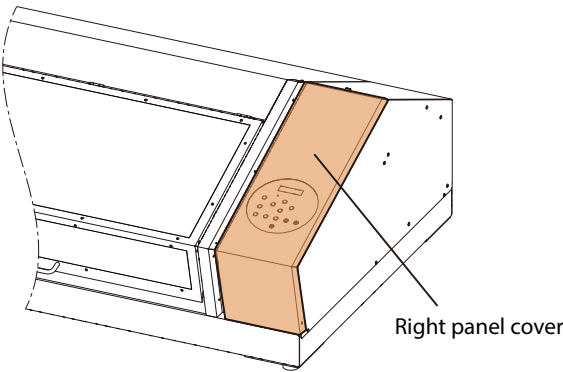
| Contents of work          | Time    |
|---------------------------|---------|
| Encoder scale replacement | 25 min. |
| Linear encoder setup      | 5 min.  |

## Outline Diagram

1. Encoder scale



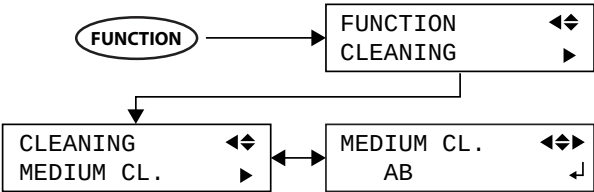
Cover That Needs to Be Removed



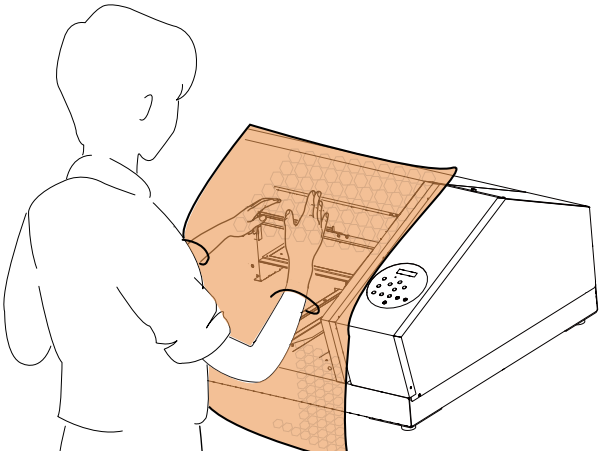
Workflow

CAUTION

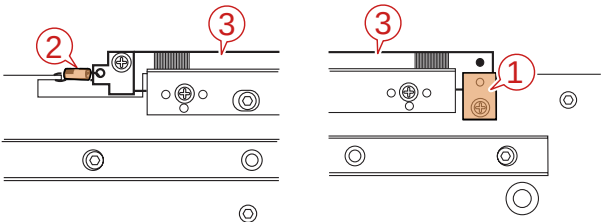
- To prevent hardened ink from entering into the nozzle, refresh print head before the adjustment. Perform medium cleaning on all print heads if 20 minutes passes.



- Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.

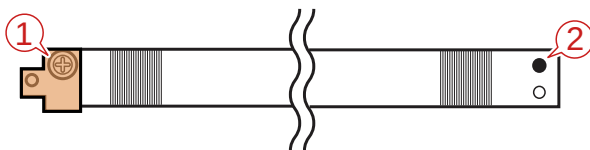


1. Remove the plate that secures the right side of the encoder scale. Also, remove the spring on the left side. Then, remove the encoder scale.



- 1. Plate
- 2. Spring
- 3. Encoder scale

- Remove the spring plate from the encoder scale and attach it to the encoder scale where there is no black dot written on it.



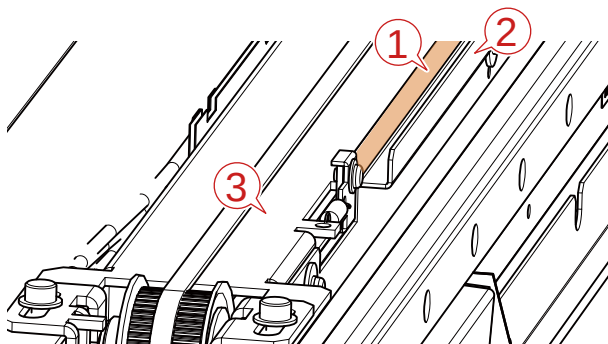
1. Spring plate

2. Black dot

### CAUTION

Make sure not to make scratches or put grease on the encoder scale when attaching it. Do not touch the surface of the encoder scale.

- Put the encoder scale in between the encoder plate and the guide rail.



1. Encoder scale

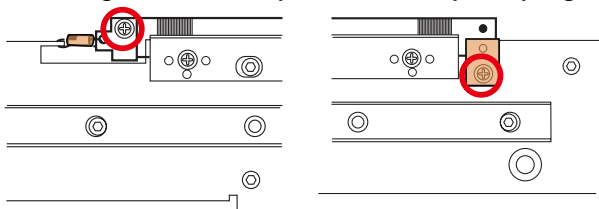
2. Encoder plate

3. Guide rail

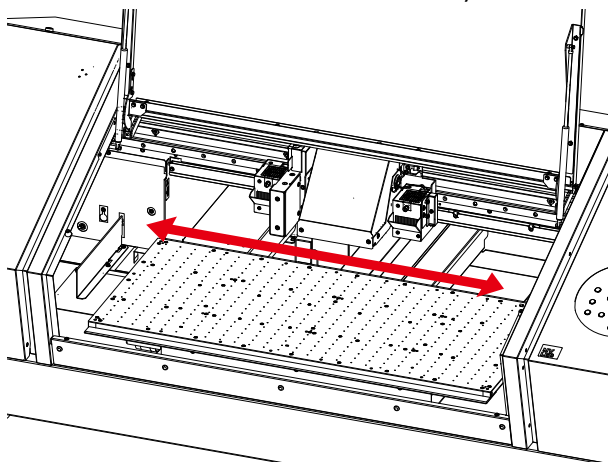
### CAUTION

- Do not loosen or fasten the screws that secure the encoder plate.
- The encoder scale is covered with protective film. Peel it off carefully.

- Attach the right end with the plate and hook up the spring on the left end. Make sure that the encoder scale fits in place.



- Move the print-head carriage across the whole width of the machine manually and confirm that the encoder scale does not make contact with the encoder sensor. Also, check that the encoder scale is in between the slit of the encoder sensor.



- Perform Chapter 2 "[Linear Encoder Setup](#)".

# Linear Encoder Board Replacement

## Information

### Necessary tools

#### General tools

No. 2 Phillips screwdriver

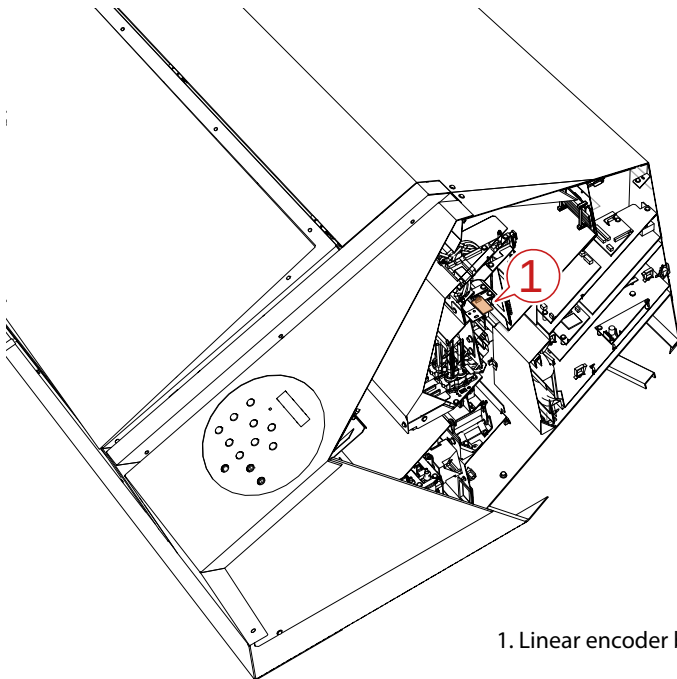
#### Special tools

|            |                                   |
|------------|-----------------------------------|
| 1000005829 | TOOL,VINYL YE UV RESISTANT ST-113 |
|------------|-----------------------------------|

### Typical work time

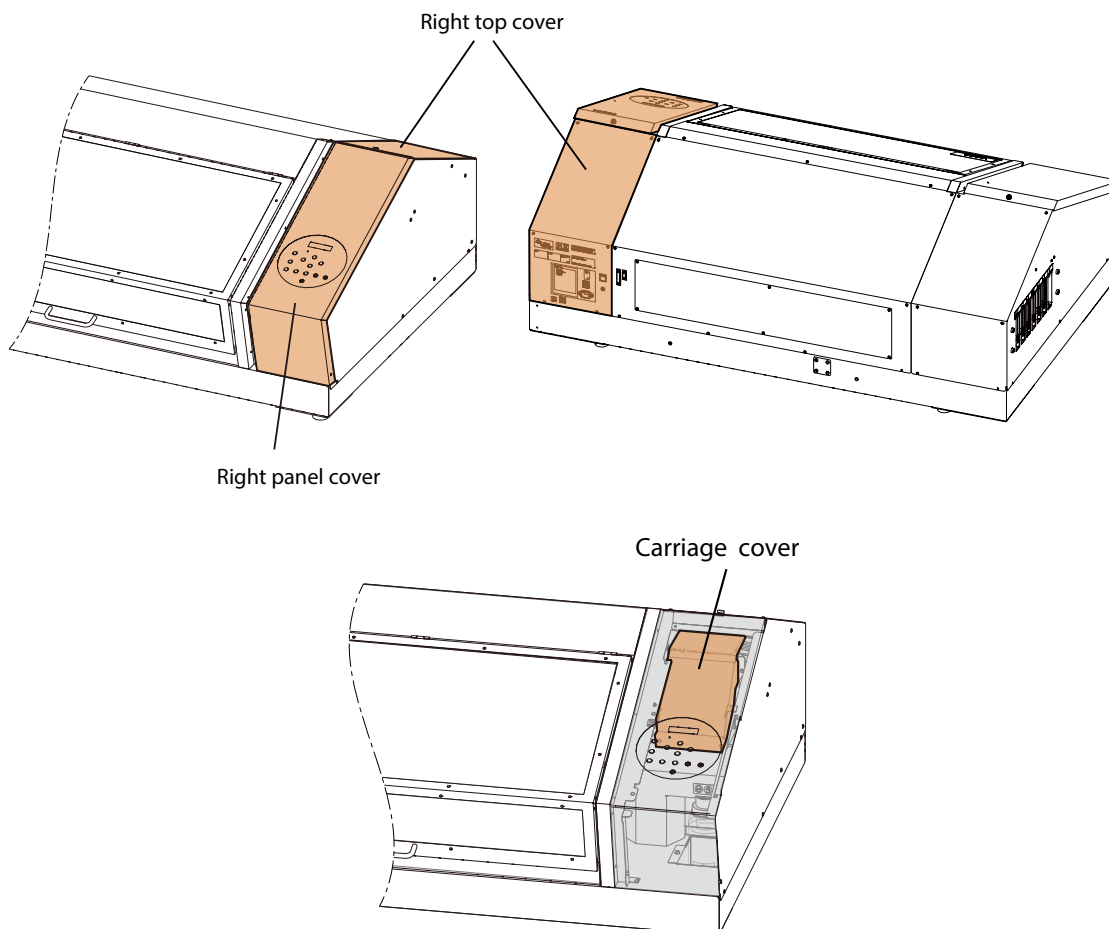
| Contents of work                 | Time    |
|----------------------------------|---------|
| Linear encoder board replacement | 30 min. |

## Outline Diagram



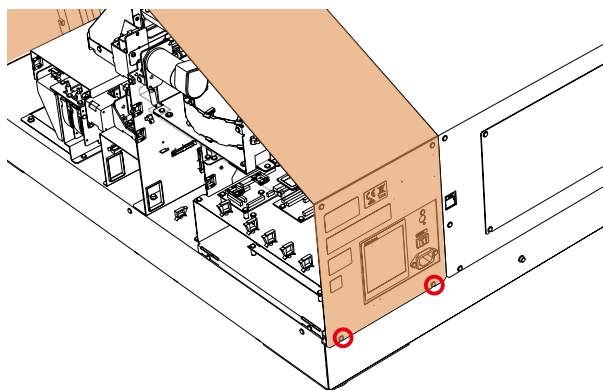
1. Linear encoder board

## Cover That Needs to Be Removed



### CAUTION

Do not remove the two screws that secure the top cover. Just loosen them.



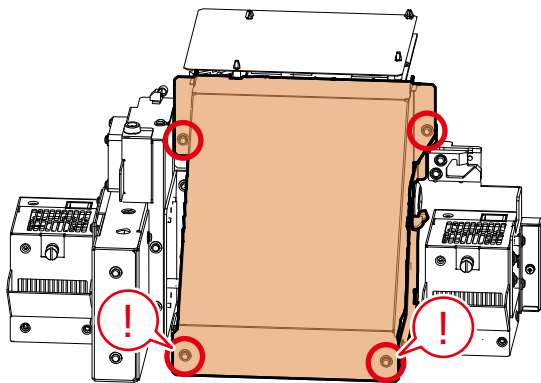
Notes when attaching carriage cover

NOTE

When attaching the carriage cover, tighten four screws loosely first, then tighten them fully to secure the cover.

CAUTION

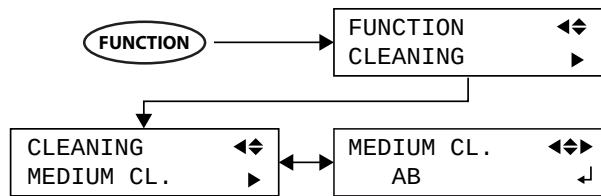
When tightening the two screws on the front, be careful not to tighten them too hard. Doing so may cause the carriage cover to be distorted and the print heads may become shifted.



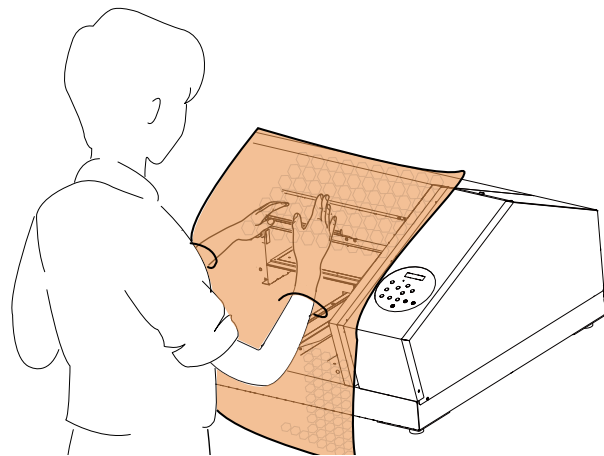
Workflow

CAUTION

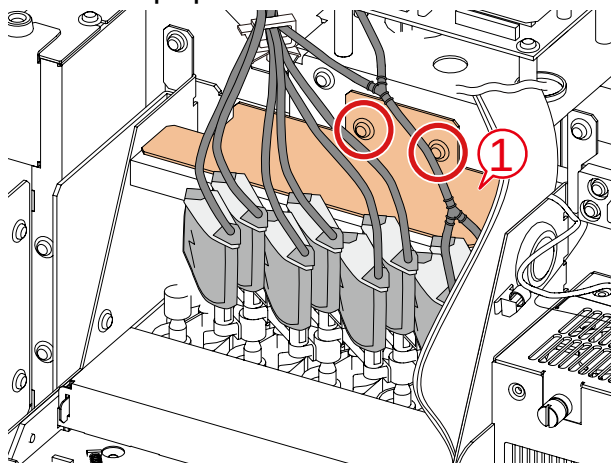
- To prevent hardened ink from entering into the nozzle, refresh print head before the adjustment. Perform medium cleaning on all print heads if 20 minutes passes.



- Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.



1. Move the print-head carriage to the left by hand, and remove the carriage cover.
2. Remove the damper plate.



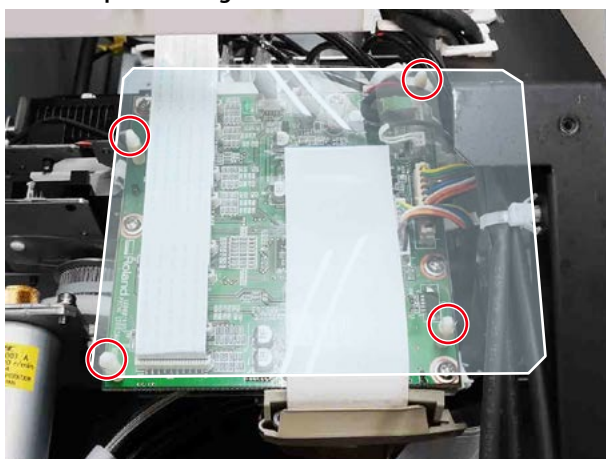
1. Damper plate

3. Move the print-head carriage to the lock position.

**CAUTION**

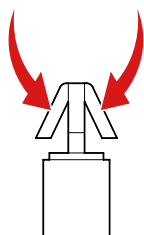
Do not lock the print-head carriage.

4. Remove the covers.
5. Remove the print carriage board cover.

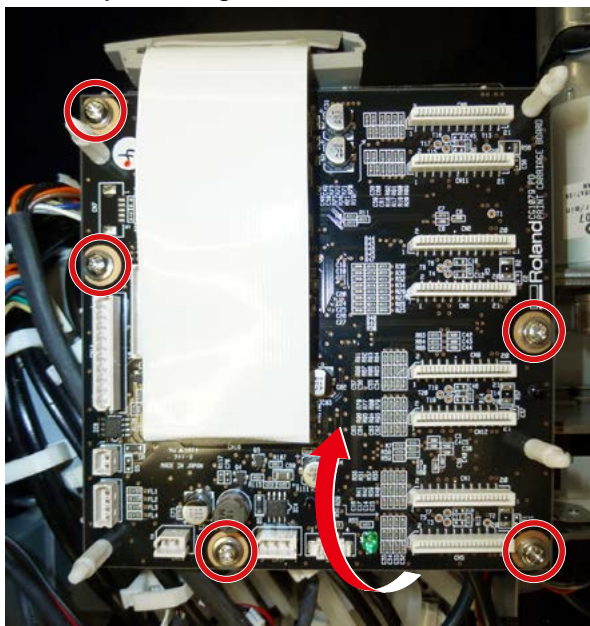


**CAUTION**

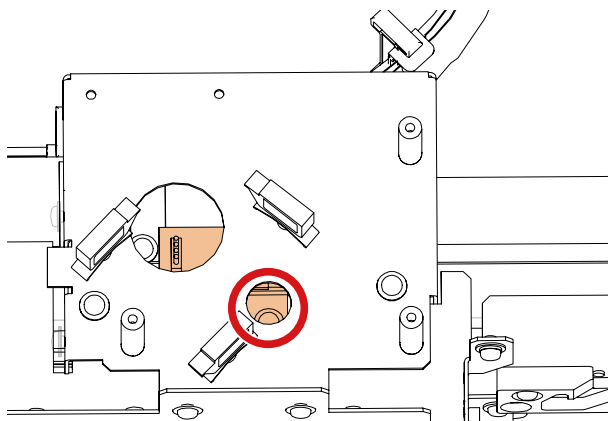
Remove the print carriage board cover by pushing the part indicated by the arrows because the top part of the support is easy to break.



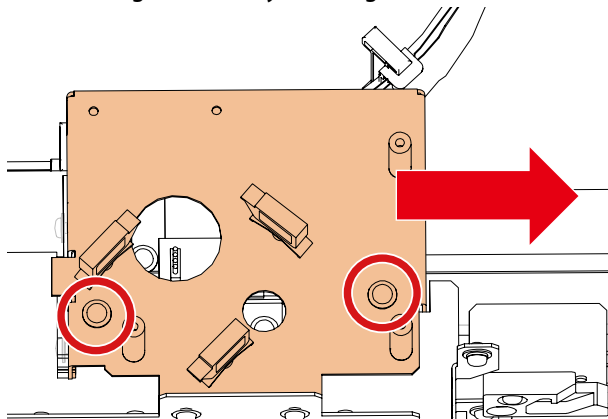
- 6.** Remove the print carriage board.



- 7.** Remove the screw.

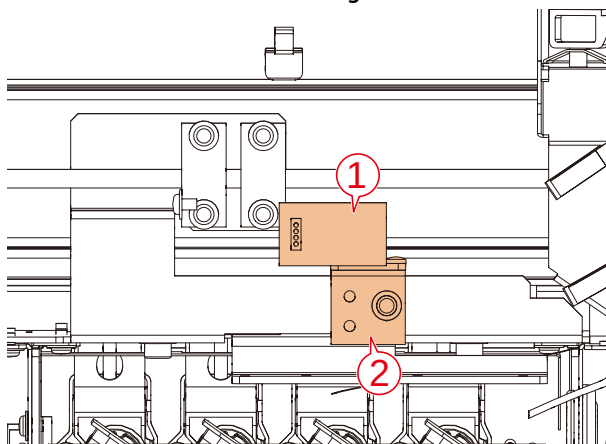


- 8.** Slide the carriage holder stay to the right.



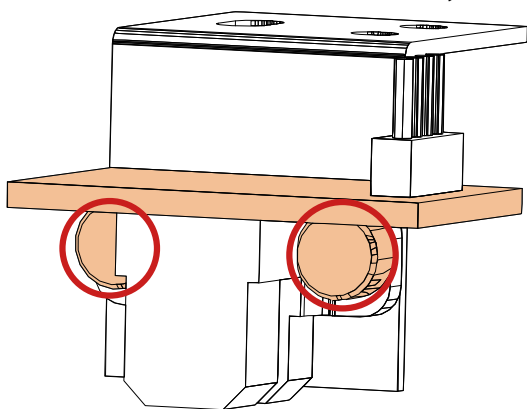


- 9.** Remove the linear encoder board together with the encoder sensor stay.

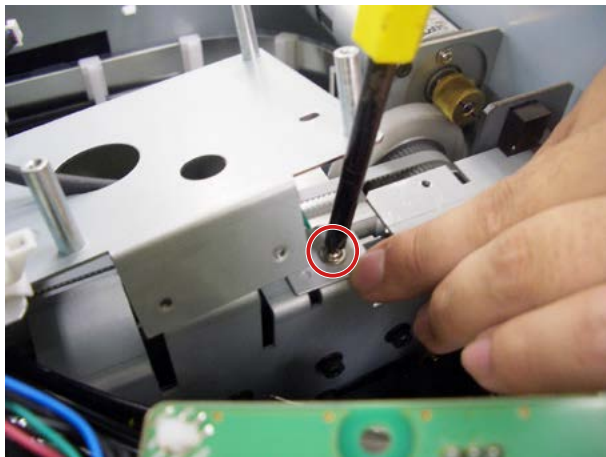


- 1. Encoder sensor stay
- 2. Linear encoder board

- 10.** Remove the linear encoder board from the stay, then attach a new board.



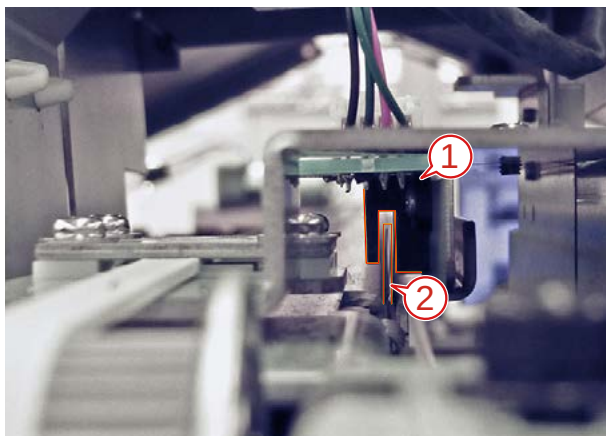
- 11.** Fix the linear encoder board and the carriage holder stay to the machine.



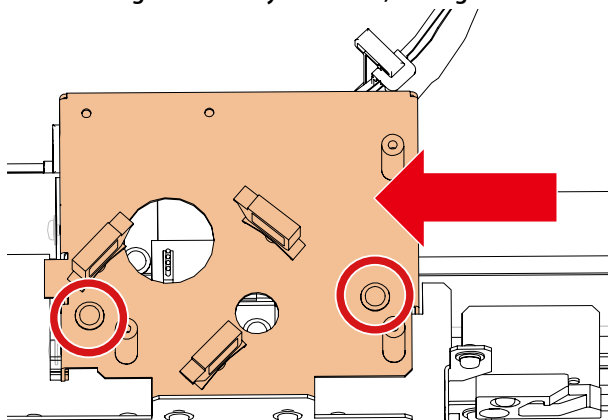
### CAUTION

Make sure that the encoder scale does not make contact with the encoder sensor and also encoder scale is between the slit of the encoder sensor.

1. Encoder sensor
2. Encoder scale



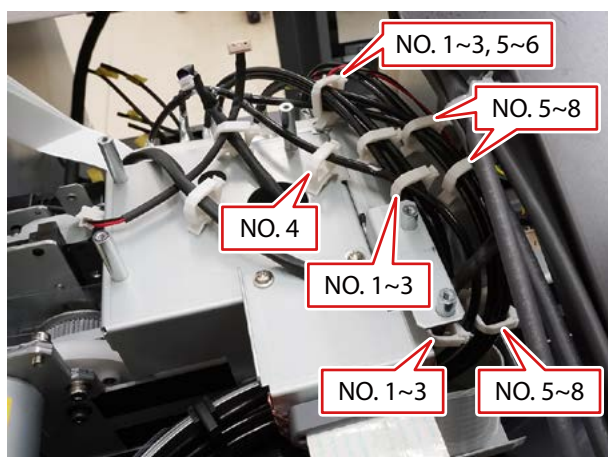
12. Slide the carriage holder stay to the left, and tighten the screws.



13. Bundle the ink tubes with the clamps.

### CAUTION

- Bundle the ink tubes with the clamps while pushing the ink tubes backward so as not to locate the front of the print-head carriage.
- If you do not bundle the ink tubes, they will pull up the print head, and the print head will be tilted.



14. Attach the print carriage board, and plug the connectors and connect the ribbon cables.
15. Attach the print carriage board cover.

**CAUTION**

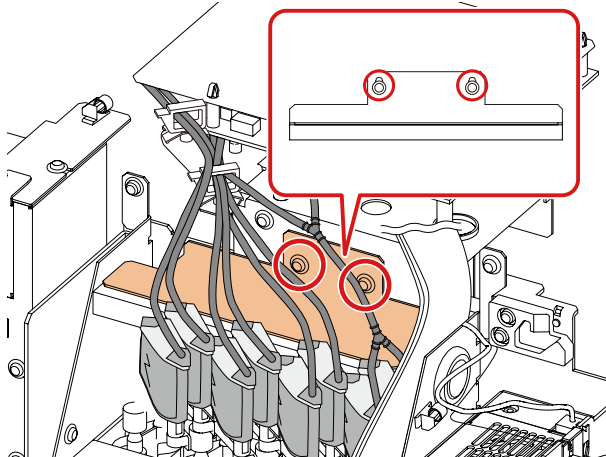
Remove the print carriage board cover by pushing the part indicated by the arrows because the top part of the support is easy to break.



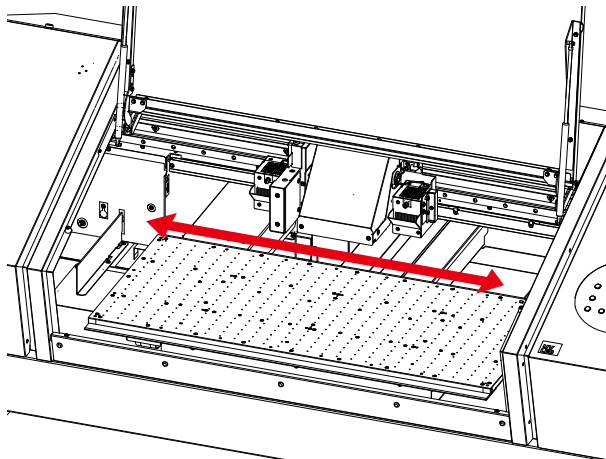
16. Open the front cover, and move the print-head carriage to the left by hand.
17. Attach the damper plate.

**CAUTION**

- Fix the damper plate with screws while pressing it lightly with your hand. Be careful not to press it down to the dampers. Dampers could break.
- Tighten the screws at the bottom of the slotted holes.



18. Move the print-head carriage in a whole width of the machine. Make sure that the encoder scale does not make contact with the encoder module and also encoder scale is between the slit of the encoder module.



19. Perform Chapter 2 "[Linear Encoder Setup](#)".

# UV Lamp Replacement

## Information

### Necessary tools

#### General tools

No. 2 Phillips screwdriver

#### Special tools

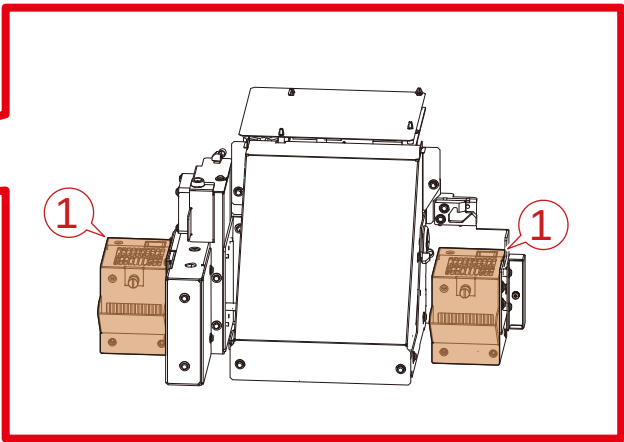
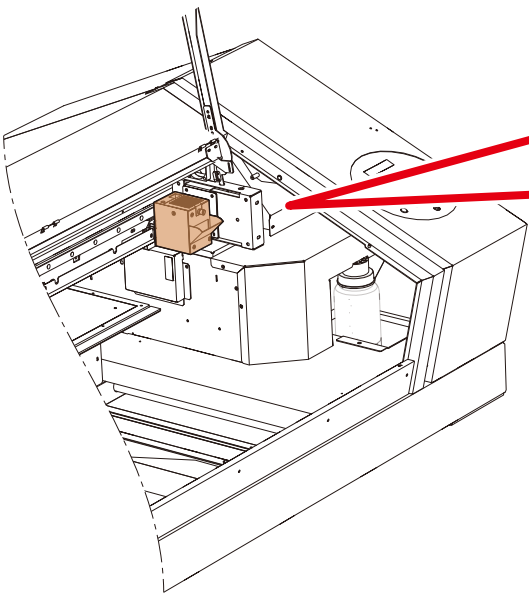
|            |                                   |
|------------|-----------------------------------|
| 1000005829 | TOOL,VINYL YE UV RESISTANT ST-113 |
|------------|-----------------------------------|

### Typical work time

| Contents of work          | Time    |
|---------------------------|---------|
| UV lamp replacement       | 10 min. |
| UV lamp check             | 5 min.  |
| UV lamp height adjustment | 20 min. |

## Outline Diagram

1. UV lamp



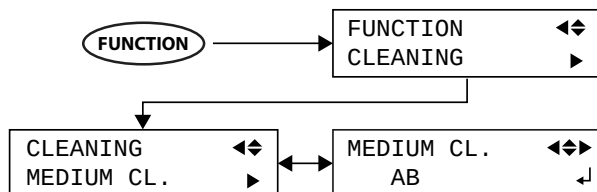
I

REPLACEMENT

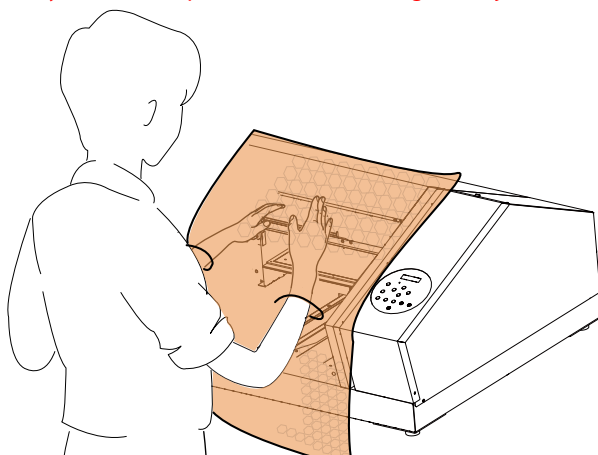
## Workflow

### CAUTION

- To prevent hardened ink from entering into the nozzle, refresh print head before the adjustment. Perform medium cleaning on all print heads if 20 minutes passes.



- Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.



1. Turn on the power switch and enter the service mode.
2. Perform [SERVICE MENU] > [MOTOR MENU] > [AXIS MOVE] > [HEIGHT] to set the Height to 103 mm.

### CAUTION

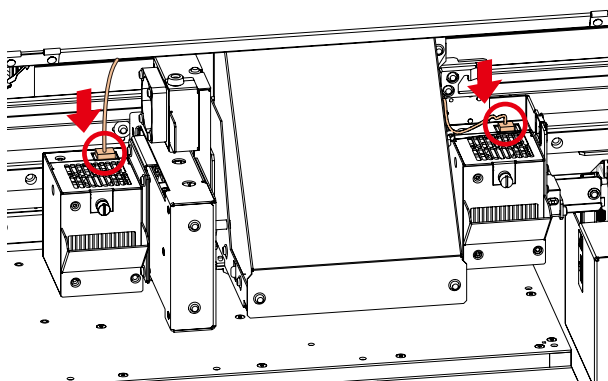
Be sure that the table unit is in a position anterior to the head gap sensor plate. When the table unit hits the plate, the table unit stops rising at 102 mm, not rising to 103 mm.

3. Turn off the power switch, and open the front cover. Then, move the print-head carriage to the left by hand.

### CAUTION

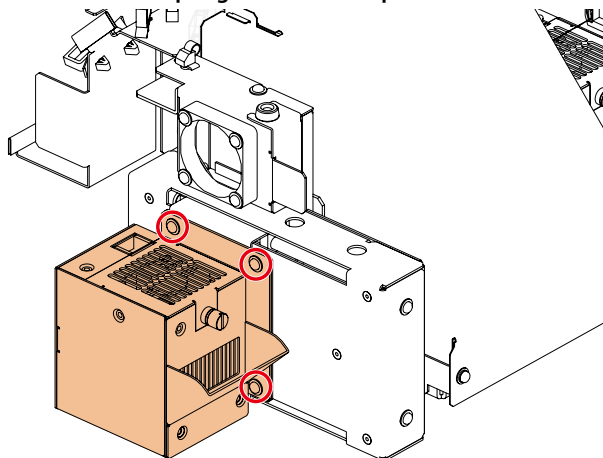
Move the print-head carriage to the position where the print head surface does not hit the table.

4. Unplug the connectors.

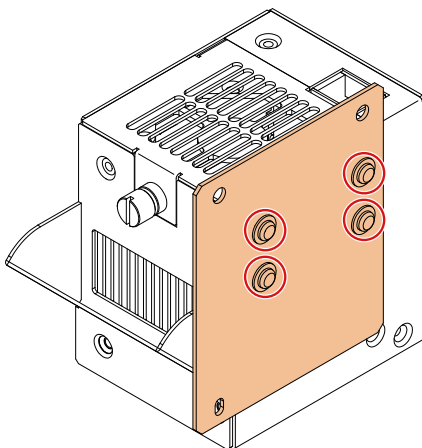


### Left UV lamp replacement

5. Remove the UV lamp together with the plate.



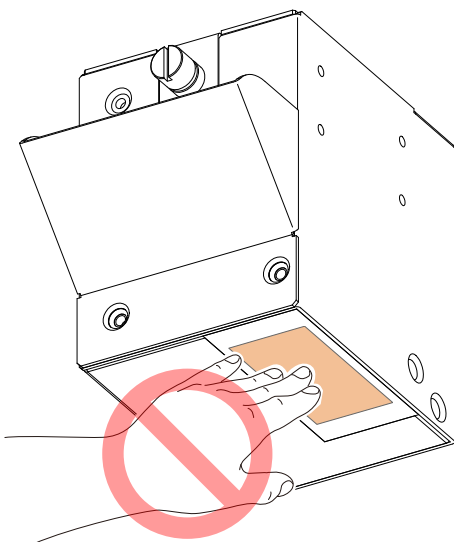
6. Attach the new UV lamp to the plate, and attach them to the machine.



#### CAUTION

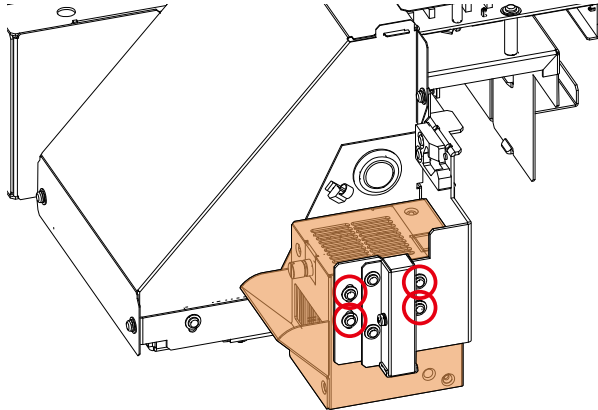
Do not touch the light emitting face.

#### Bottom view



### Right UV lamp replacement

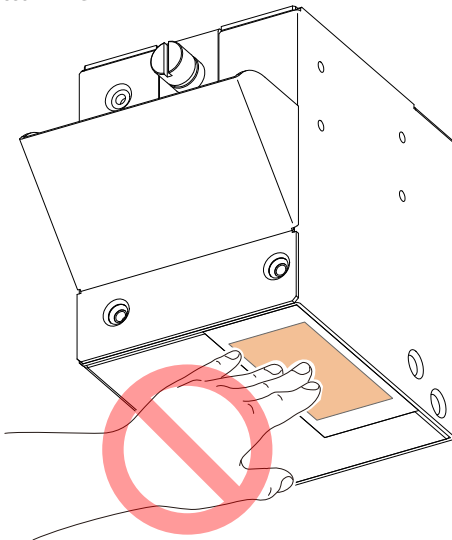
7. Remove the right UV lamp, and attach a new one.



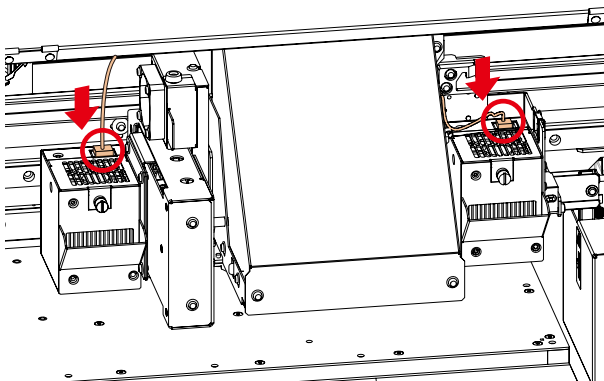
#### CAUTION

Do not touch the light emitting face.

#### Bottom view



8. Plug in the connectors.



9. Perform the following adjustments.

9-1. Chapter 2 "[UV Lamp Check](#)"

9-2. Chapter 2 "[UV Lamp Height Adjustment](#)"

# Ink Damper Replacement

## Information

### Necessary tools

#### General tools

No. 2 Phillips screwdriver

#### Special tools

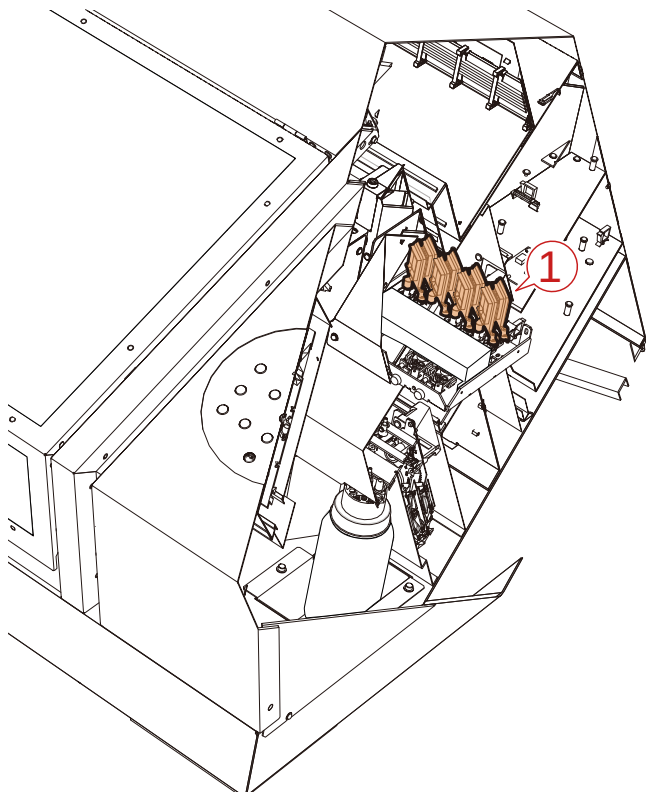
1000005829 TOOL,VINYL YE UV RESISTANT ST-113

### Typical work time

| Contents of work       | Time    |
|------------------------|---------|
| Ink damper replacement | 30 min. |

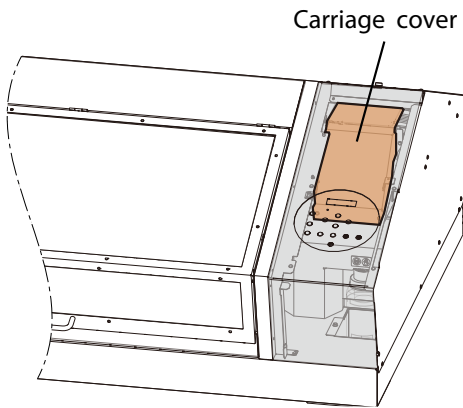
## Outline Diagram

1. Ink damper





# Cover That Needs to Be Removed



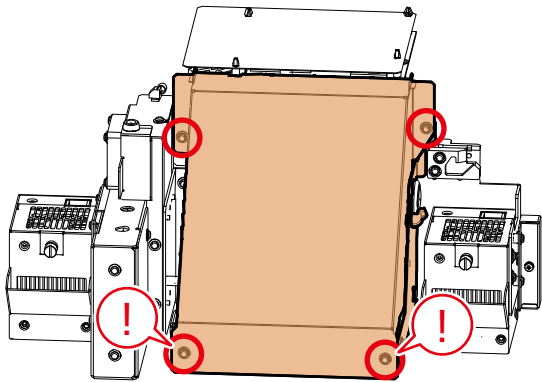
## Notes when attaching carriage cover

**NOTE**

When attaching the carriage cover, tighten four screws loosely first, then tighten them fully to secure the cover.

**CAUTION**

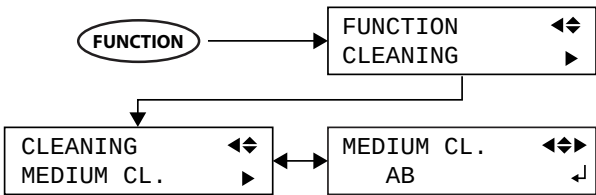
When tightening the two screws on the front, be careful not to tighten them too hard. Doing so may cause the carriage cover to be distorted and the print heads may become shifted.



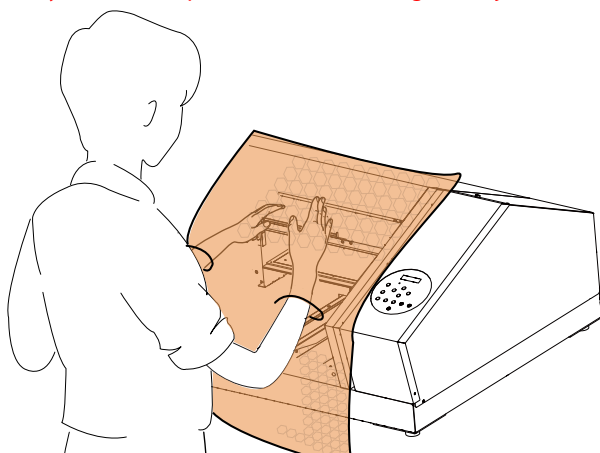
# Workflow

**CAUTION**

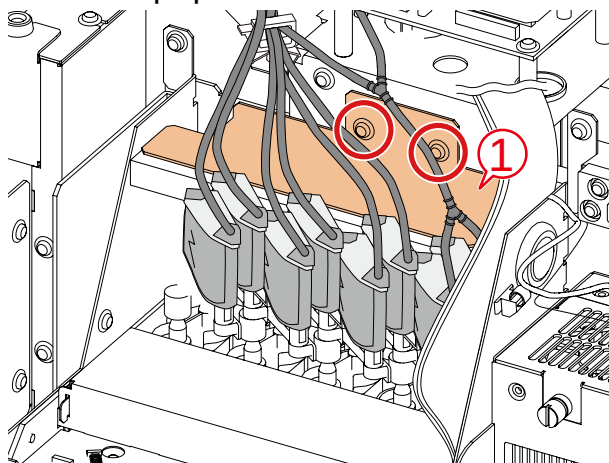
- To prevent hardened ink from entering into the nozzle, refresh print head before the adjustment. Perform medium cleaning on all print heads if 20 minutes passes.



- Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.

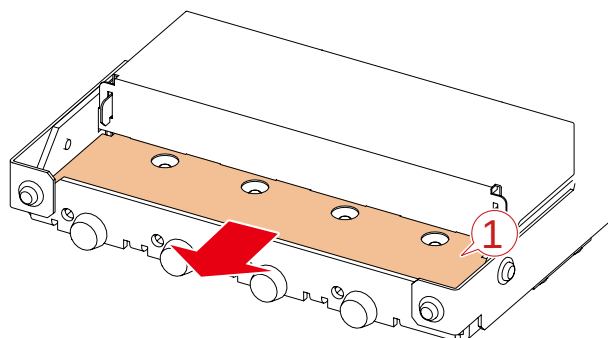


1. Unlock the print-head carriage, and move it to the left by hand. Then remove the carriage cover.
2. Remove the damper plate.



1. Damper plate

3. Pull the head shield to the front and remove it.

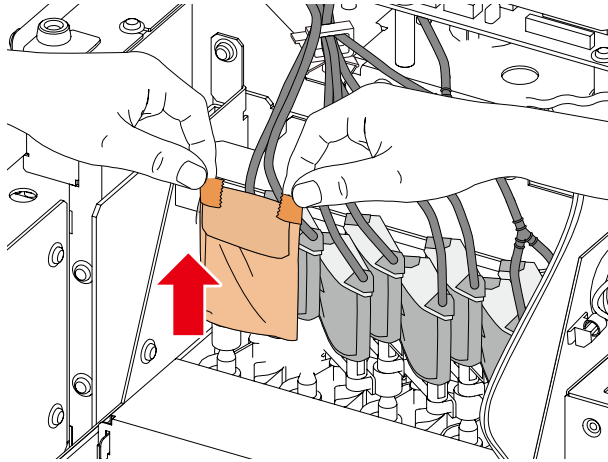


1. Head shield

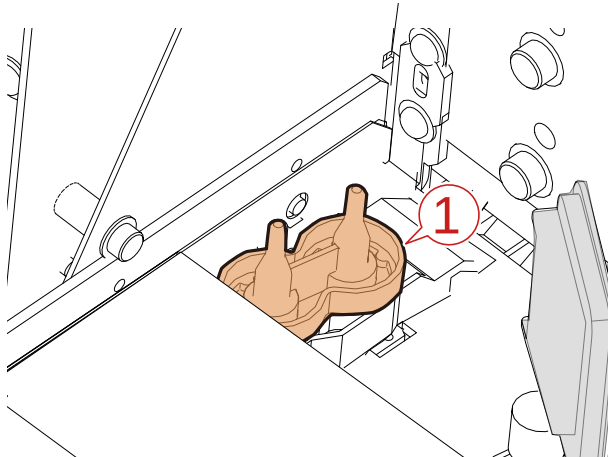
4. Remove ink dampers you are going to replace from the adapter damper of the print head.

**CAUTION**

- Ink dampers may break if you grasp them too hard.
- Remove the ink dampers with the head board cover attached. It prevents ink from dripping on the head board. If ink drips on the head board, the print head or the head driving IC will break. Pull the upper end of the damper shield when removing the ink dampers.



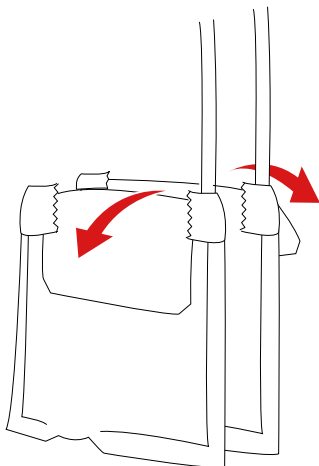
5. Pull out the ink damper from the damper shield and set a new ink damper in the damper shield.



1. Adapter damper

**Completion drawing**

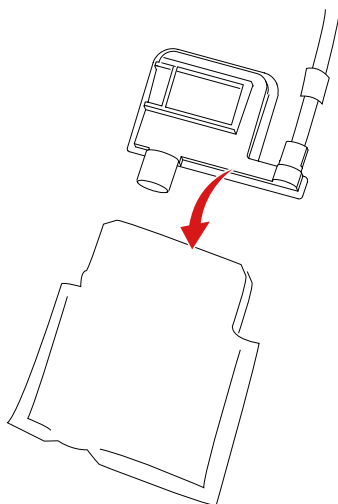
- 5-1. The cover part should be outside.



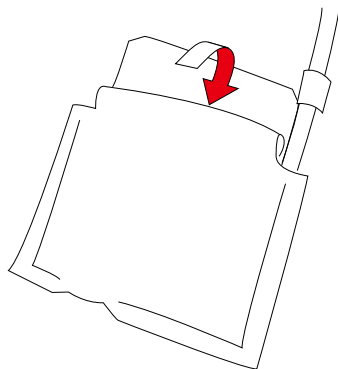
### How to set the damper shield

---

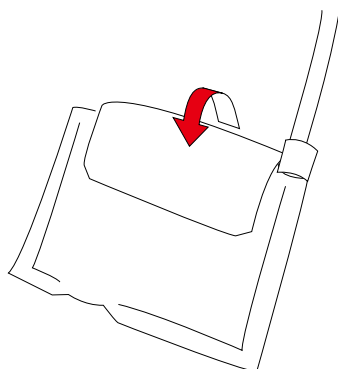
5-2. Put the ink damper in the damper shield.



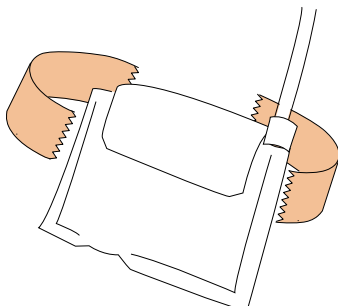
5-3. Fold the cover part to wrap the ink damper.



5-4. Fold the other side.



5-5. Close the two gaps with tape.



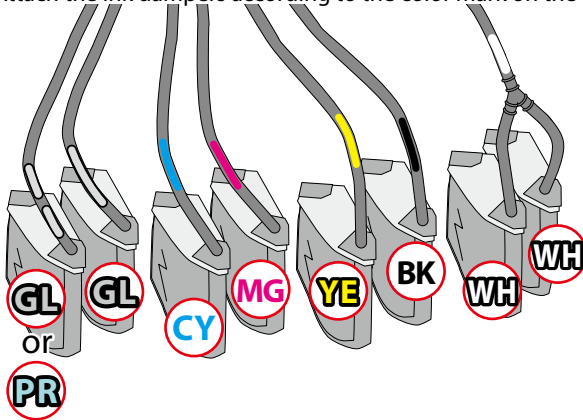
### 6. Attach the ink dampers to the adapter damper of the print head.

#### CAUTION

- Ink dampers may break if you grasp them too hard.
- Attach the ink dampers with the head board cover attached. If ink drips on the head board, the print head or the head driving IC will break.

#### NOTE

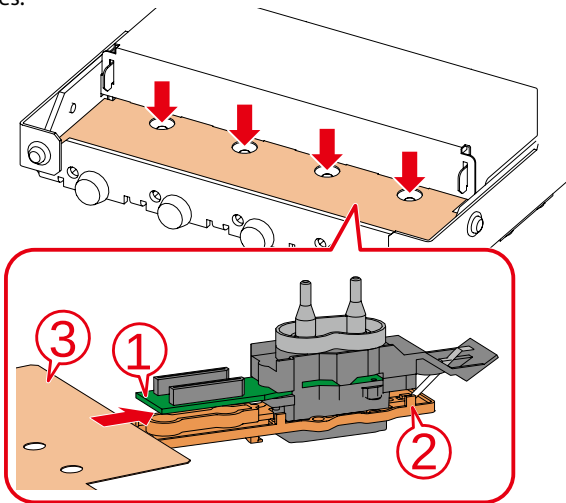
Attach the ink dampers according to the color mark on the ink tubes.



### 7. Attach the head shield.

#### NOTE

Insert the head shield between the head board and the head adapter. Place it so that the screws can be seen from the screw holes.

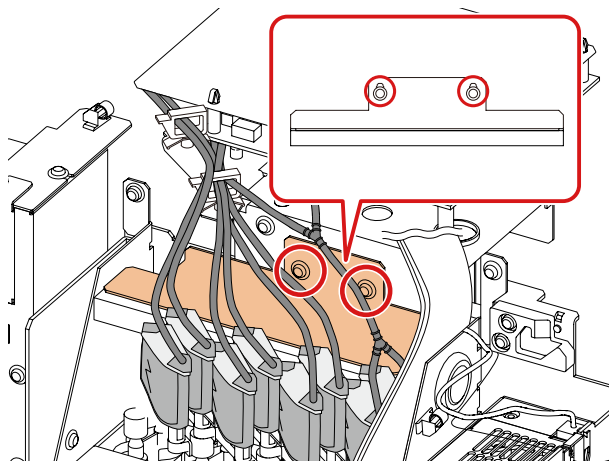


1. Head board
2. Head adapter
3. Head shield

### 8. Attach the damper plate.

#### CAUTION

- Fix the damper plate with screws while pressing it lightly with your hand. Be careful not to press it down to the dampers. Dampers could break.
- Tighten the screws at the bottom of the slotted holes.



# LED Pointer Replacement

## Information

### Necessary tools

#### General tools

No. 2 Phillips screwdriver

#### Special tools

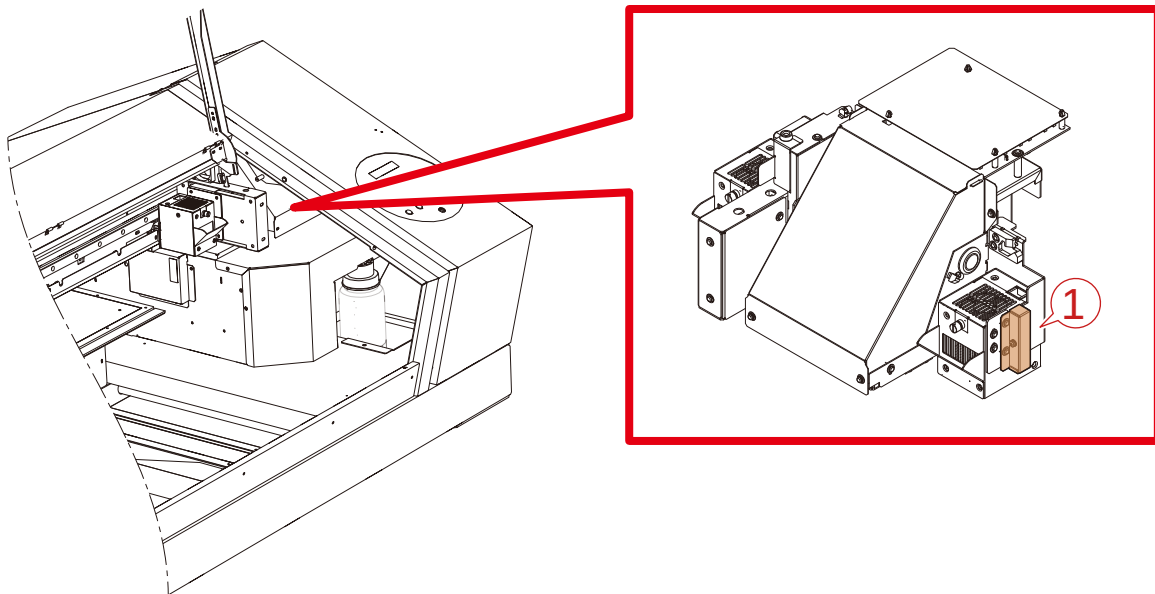
1000005829 TOOL,VINYL YE UV RESISTANT ST-113

### Typical work time

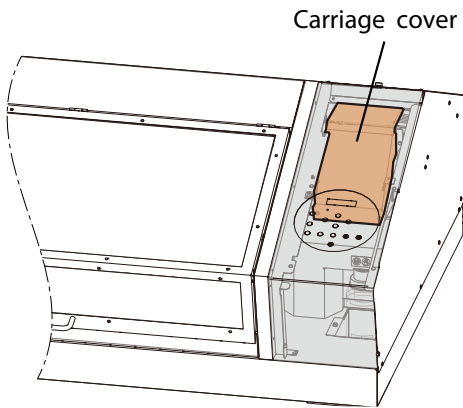
| Contents of work                | Time    |
|---------------------------------|---------|
| LED pointer replacement         | 10 min. |
| LED pointer position adjustment | 5 min.  |
| Print area adjustment           | 15 min. |

## Outline Diagram

1. LED pointer



# Cover That Needs to Be Removed



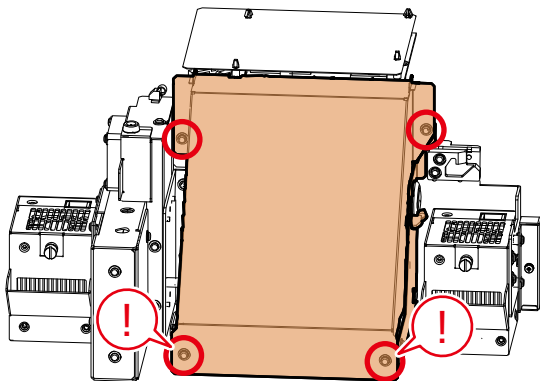
## Notes when attaching carriage cover

**NOTE**

When attaching the carriage cover, tighten four screws loosely first, then tighten them fully to secure the cover.

**CAUTION**

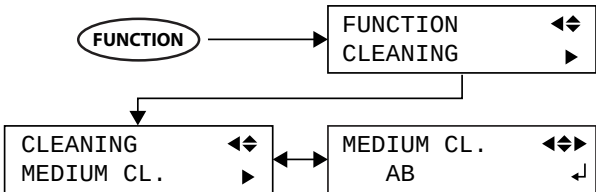
When tightening the two screws on the front, be careful not to tighten them too hard. Doing so may cause the carriage cover to be distorted and the print heads may become shifted.



# Workflow

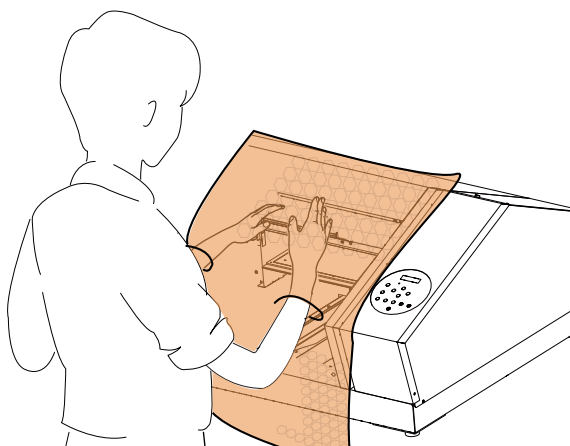
**CAUTION**

- To prevent hardened ink from entering into the nozzle, refresh print head before the adjustment. Perform medium cleaning on all print heads if 20 minutes passes.

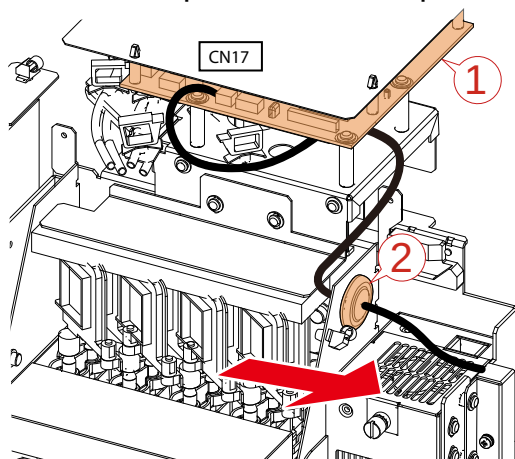




- Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.



1. Move the print-head carriage to the left by hand, and remove the carriage cover.
2. Disconnect the LED pointer cable from the print carriage board, and pull out the cable from the grommet.



1. Print carriage board

2. Grommet

3. Unplug the LED pointer.



4. Replace the LED pointer with a new one, and pass the cable through the grommet to connect the LED pointer cable to the print carriage board.
5. Perform the following adjustments.
  - 5-1. Chapter 2 "[LED Pointer Position Adjustment](#)"
  - 5-2. Chapter 2 "[Print Area Adjustment](#)"

# Head Gap Sensor Replacement

## Information

### Necessary tools

#### General tools

No. 2 Phillips screwdriver

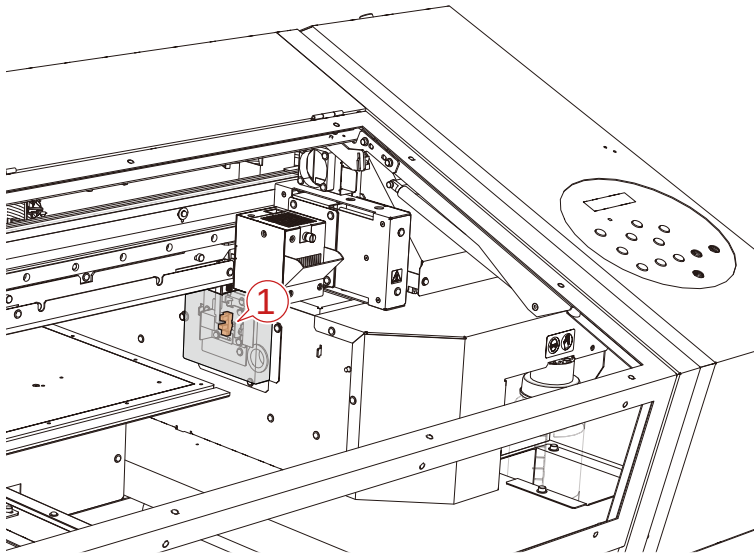
#### Special tools

|            |                                   |
|------------|-----------------------------------|
| 1000005829 | TOOL,VINYL YE UV RESISTANT ST-113 |
|------------|-----------------------------------|

### Typical work time

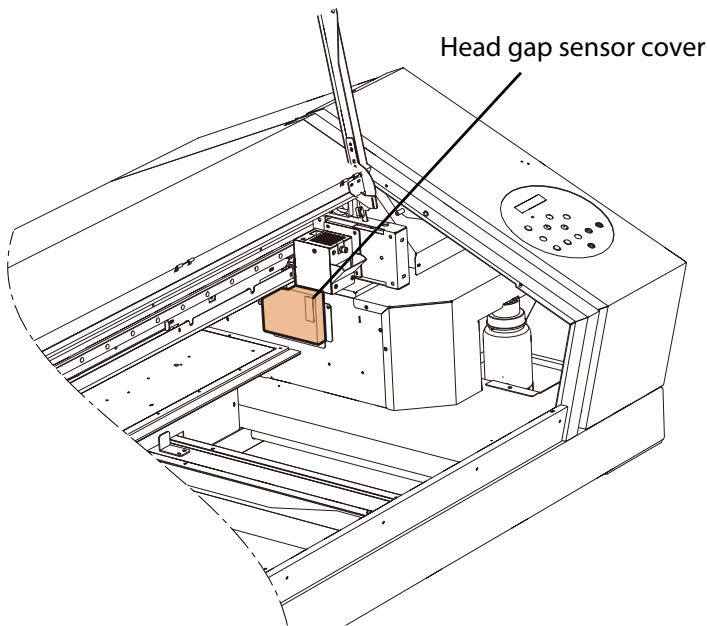
| Contents of work            | Time    |
|-----------------------------|---------|
| Head gap sensor replacement | 15 min. |

## Outline Diagram



1. Head gap sensor

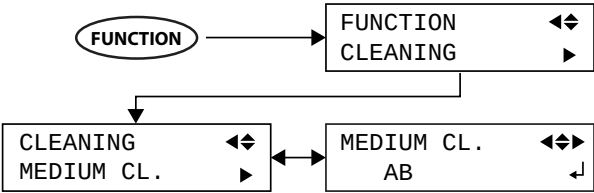
Cover That Needs to Be Removed



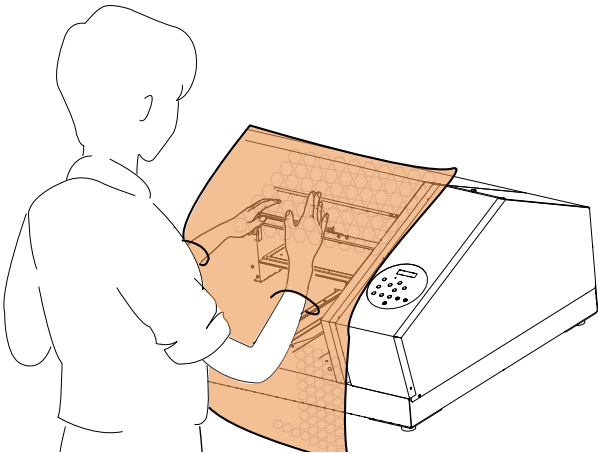
Workflow

CAUTION

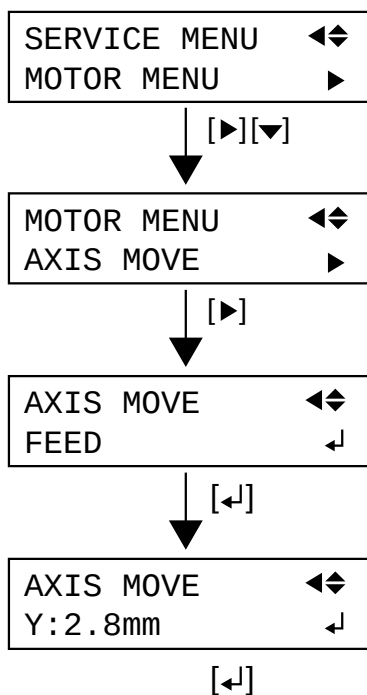
- To prevent hardened ink from entering into the nozzle, refresh print head before the adjustment. Perform medium cleaning on all print heads if 20 minutes passes.



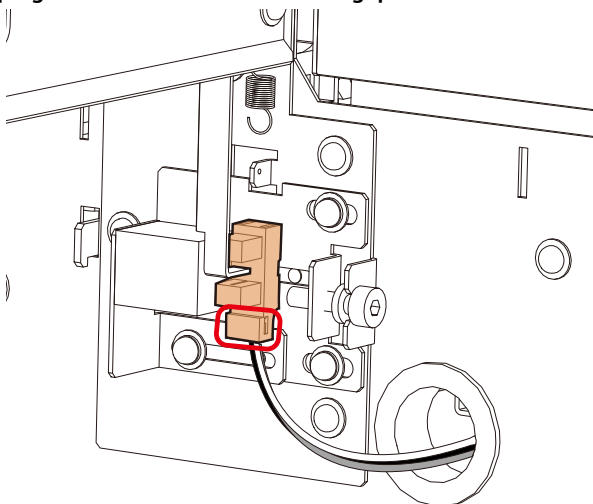
- Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.



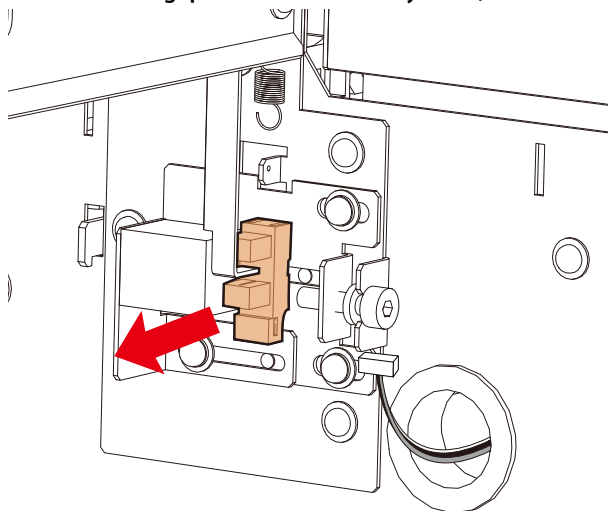
1. Turn on the power switch and enter the service mode.
2. Select [SERVICE MENU] > [MOTOR MENU] > [AXIS MOVE] > [FEED] and set the feed to [Y: 2.8 mm] to move the table to the backward.



3. Turn off the power switch and open the front cover. Then remove the cover.
4. Unplug the connector from the head gap sensor.



5. Remove the head gap sensor from the stay. Then, fix a new head gap sensor to the stay.



6. Perform chapter 2 "[Head Gap Sensor Position Adjustment](#)".

## Information

### Necessary tools

#### General tools

No. 2 Phillips screwdriver (Length: 200 mm or more)

2.0 mm hexagonal wrench

(2.0 mm pin)

#### Special tools

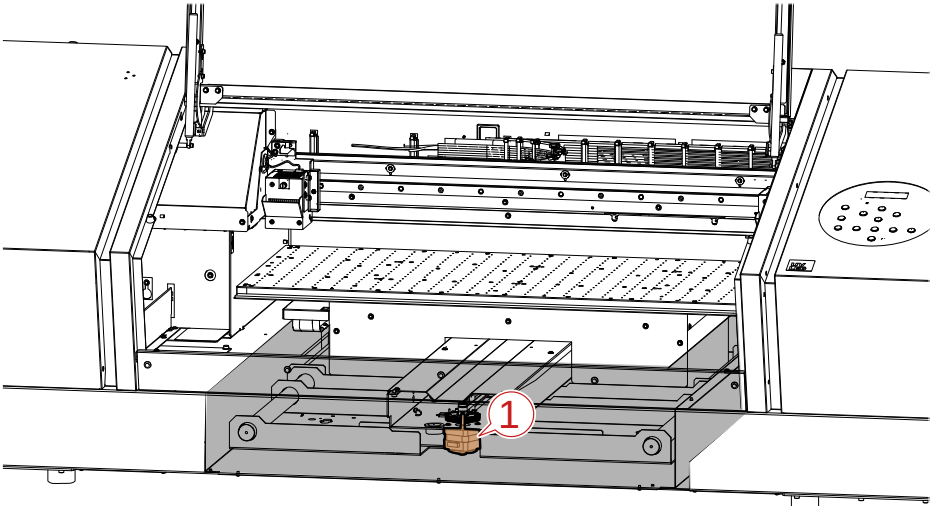
1000005829 TOOL,VINYL YE UV RESISTANT ST-113

### Typical work time

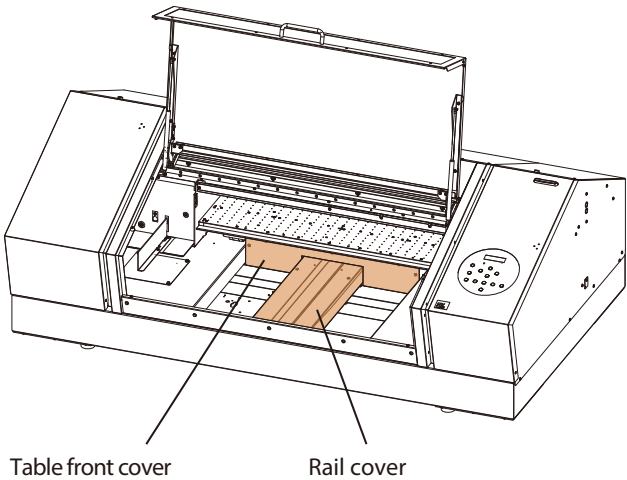
| Contents of work        | Time    |
|-------------------------|---------|
| Feed motor replacement  | 25 min. |
| Aging check             | 5 min.  |
| Clearing the motor time | 1 min.  |
| Print area adjustment   | 15 min. |

## Outline Diagram

### 1. Feed motor



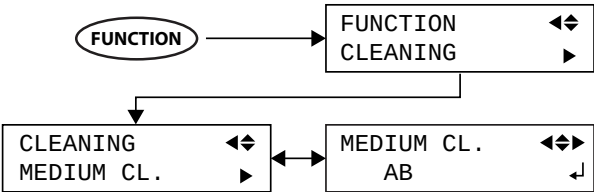
Cover That Needs to Be Removed



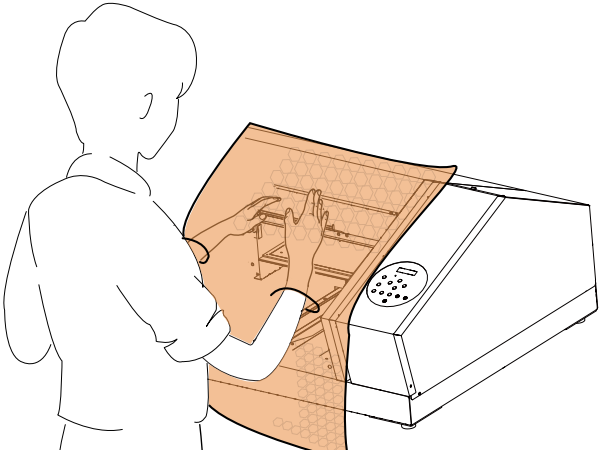
Workflow

CAUTION

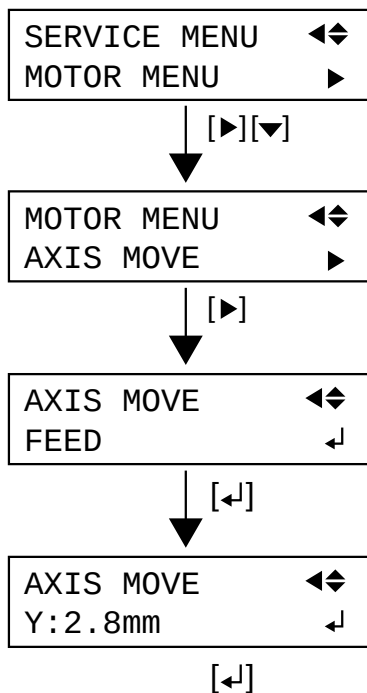
- To prevent hardened ink from entering into the nozzle, refresh print head before the adjustment. Perform medium cleaning on all print heads if 20 minutes passes.



- Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.



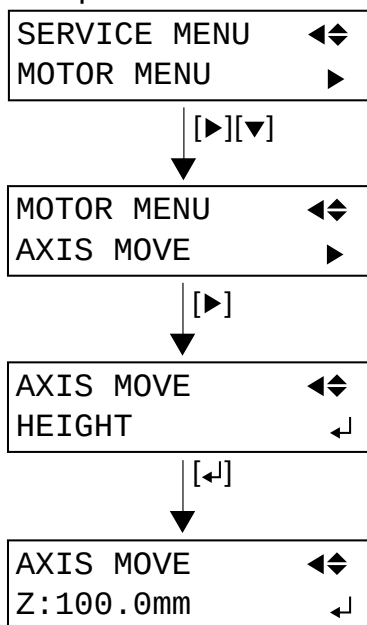
1. Turn on the power switch and enter the service mode.
2. Select [SERVICE MENU] > [MOTOR MENU] > [AXIS MOVE] > [FEED] and set the feed to [Y: 2.8 mm] to move the table to the backward.



### NOTE

If the model is LEF2-300D, perform the following also after step 2.

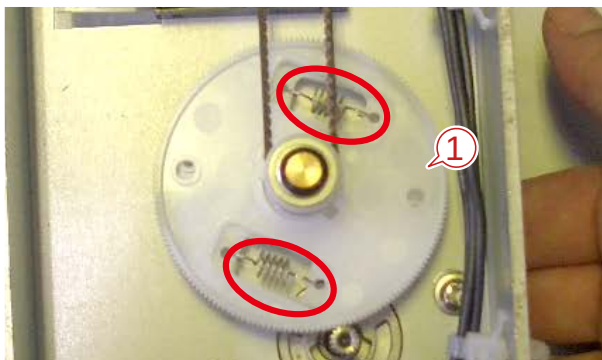
Select [SERVICE MENU] > [MOTOR MENU] > [AXIS MOVE] > [HEIGHT] and set the height to [Z: 100.0 mm] to move the table upward.



3. Turn off the power switch, and remove the cover.

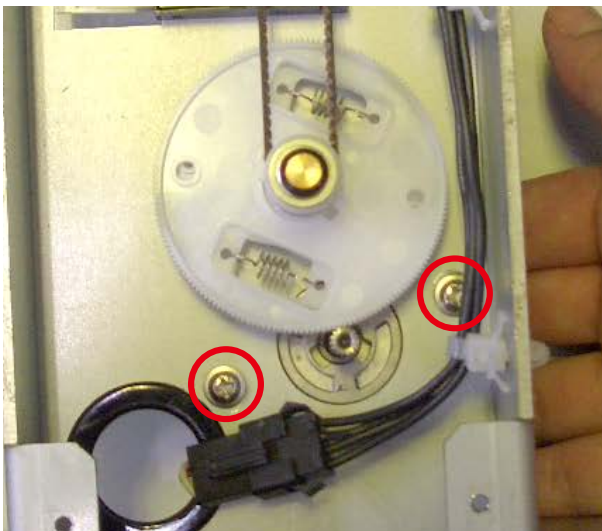


4. Remove the spring that secure the double-gear.



1. Double gear

5. Remove the feed motor.



**NOTE**

Put your hand through under the rail, remove the Y motor, and pull it out.

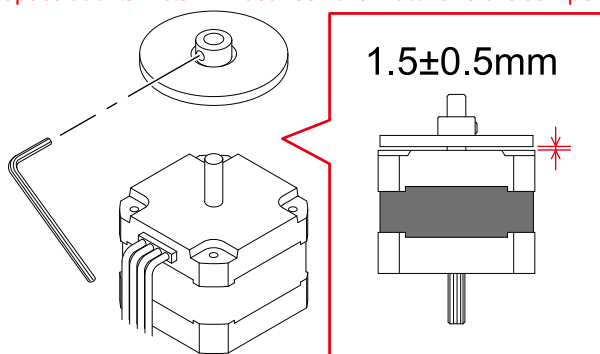


6. Attach a new damper to a new feed motor.

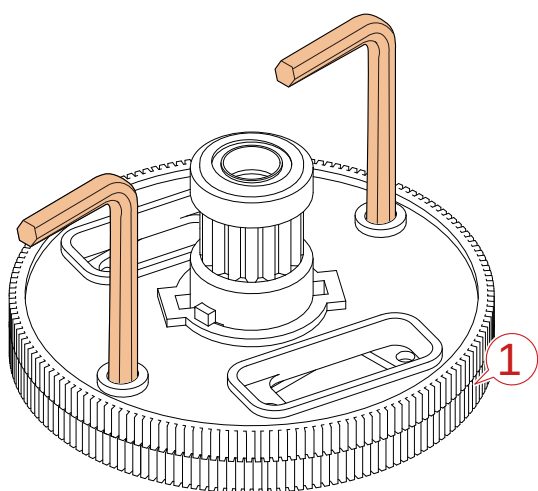
**CAUTION**

- Replace the damper and the motor together. The damper cannot be removed once it is attached.

- Space out  $1.5 \pm 0.5$  mm between the motor and the damper.

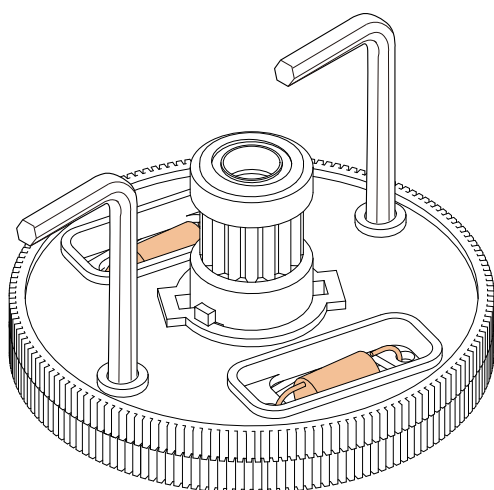


7. Turn the double-gear by hand and align the holes of the upper gear and the lower gear. Then, insert hexagonal wrenches (or 2 mm pins) into the holes.



1. Double gear

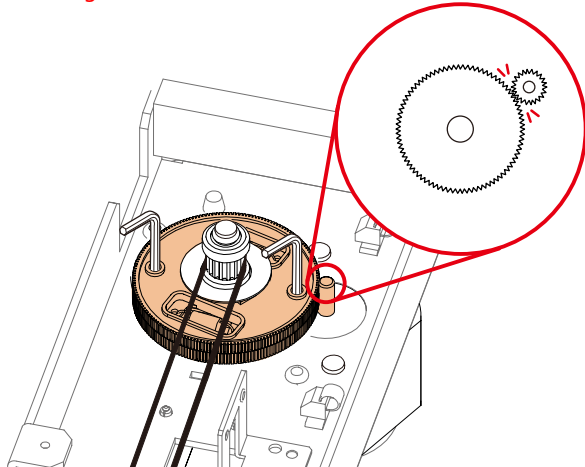
8. Attach the spring.



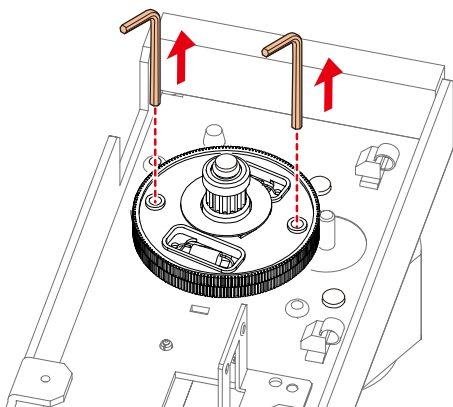
9. Attach the new feed motor.
10. Make sure that the gears mesh properly.

## CAUTION

When fixing the motor, make sure that there is no backlash.



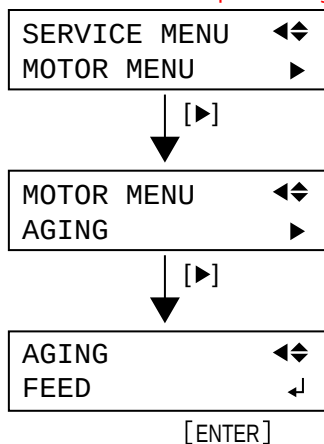
11. Remove the hexagonal wrenches (or pins).



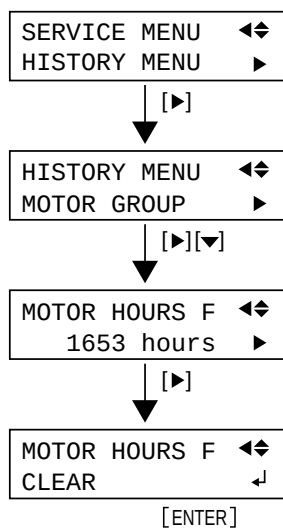
12. Attach the rail cover, and turn on the main power switch. Then enter the service mode.
13. Select [SERVICE MENU] > [MOTOR MENU] > [AGING] > [FEED], and press the [ENTER] key. Confirm that the machine performs aging, then exit the menu.

## CAUTION

Remove media before performing aging.



- 14.** Go back to [SERVICE MENU]. Select [HISTORY MENU] > [MOTOR GROUP] > [MOTOR HOURS F] > [CLEAR], and press the [ENTER] key. The motor working hours will be reset to 0.



- 15.** Perform Chapter 2 "[Print area adjustment](#)".

# Table Unit Replacement

## Information

### Necessary tools

#### General tools

No. 2 Phillips screwdriver (length: 200 mm or more)

2.5 mm hexagonal wrench

(2.0 mm pin)

#### Special tools

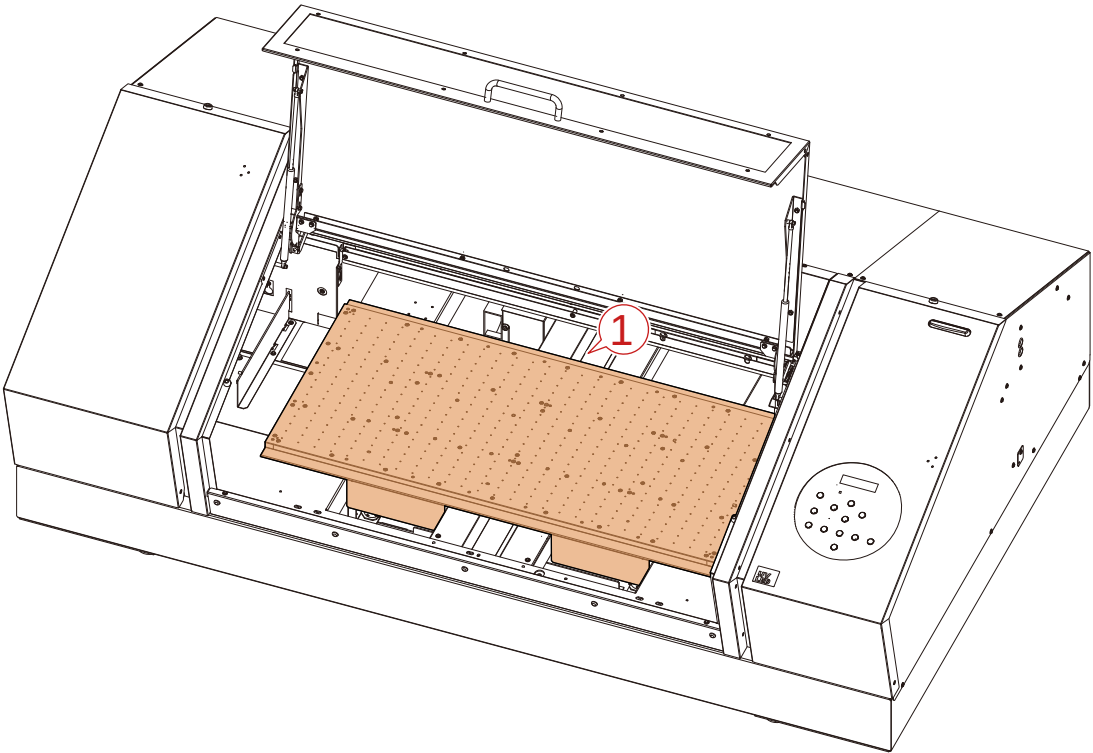
3000000188      SPACER,SHIM RING RF004010010

### Typical work time

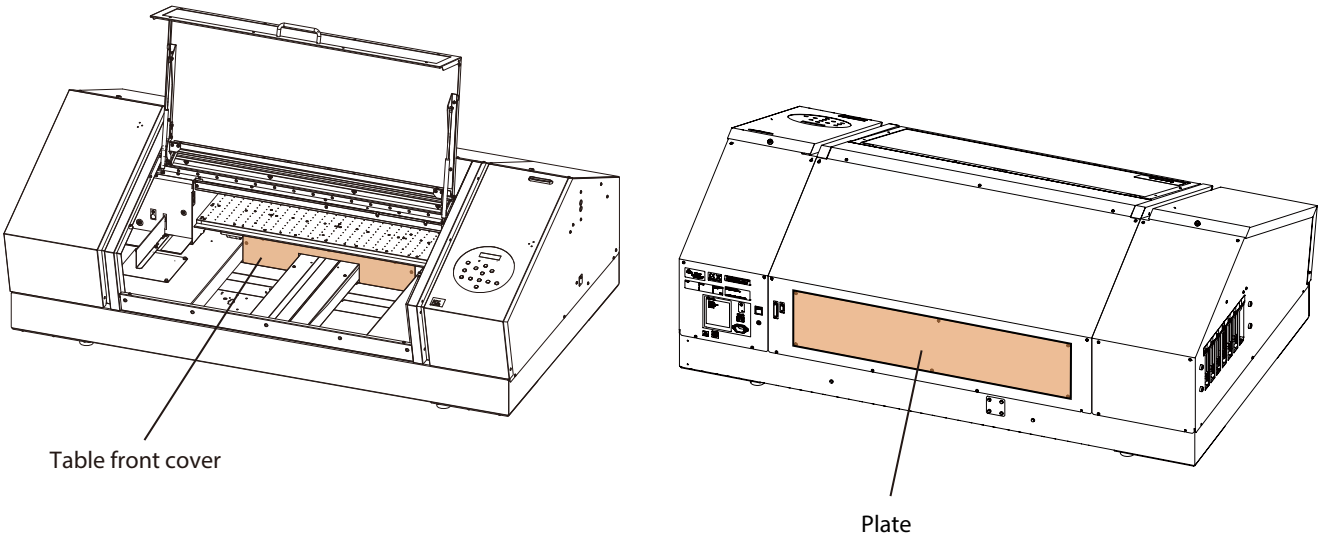
| Contents of work       | Time    |
|------------------------|---------|
| Table unit replacement | 15 min. |

## Outline Diagram

1. Table unit



# Cover That Needs to Be Removed



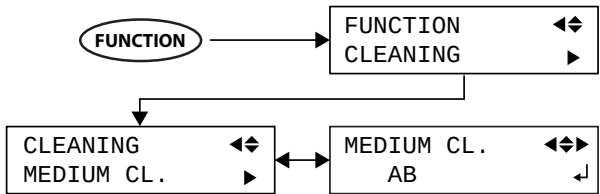
## Procedure

### CAUTION

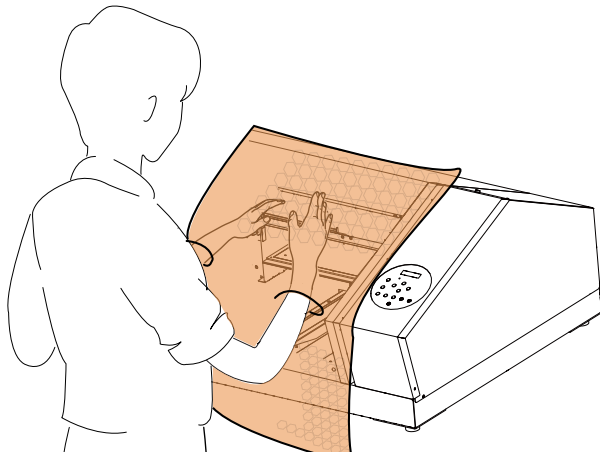
- You need a No. 2 Phillips screw driver with a length of 200 mm or more in addition to the ordinary tools.



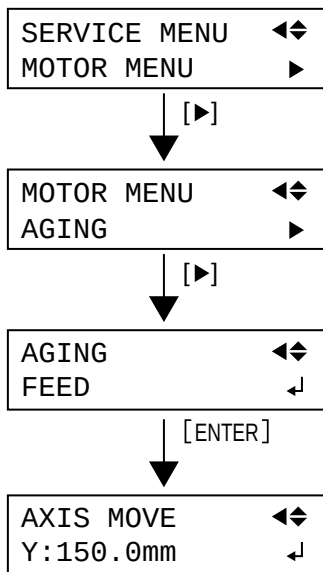
- To prevent hardened ink from entering into the nozzle, refresh print head before the adjustment. Perform medium cleaning on all print heads if 20 minutes passes.



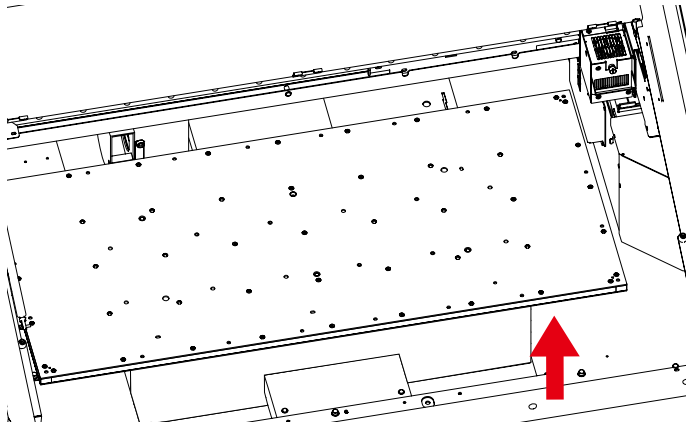
- Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.



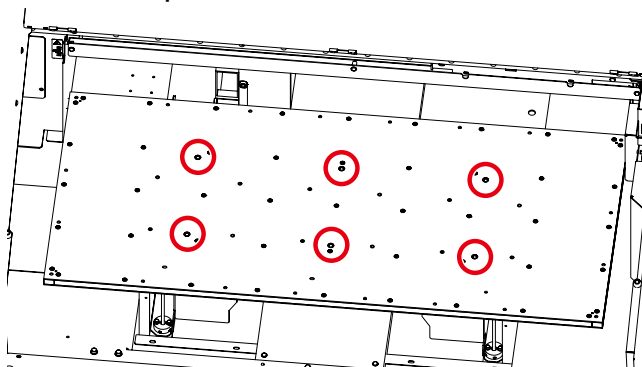
1. Turn on the power switch and enter the service mode.
2. Select [SERVICE MENU] > [MOTOR MENU] > [AXIS MOVE] > [FEED] and set the value to [150.0 mm] to move the table to the center of the machine.



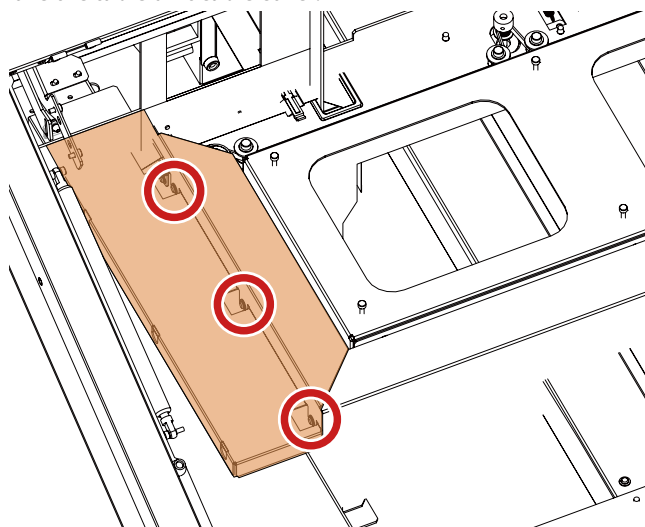
3. Press the [TABLE UP] key, and move the table up to the highest position.



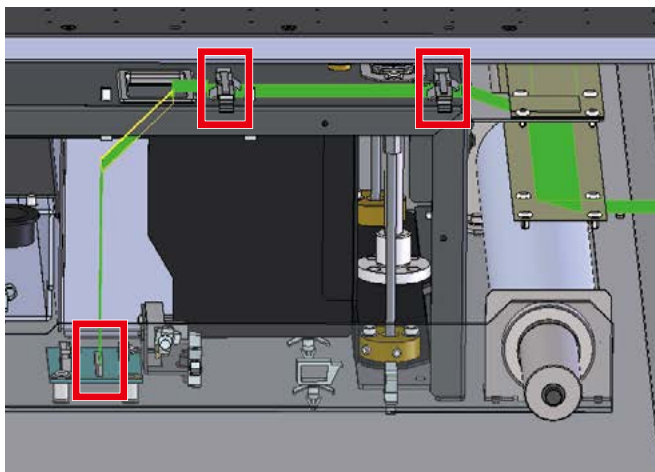
4. Select [SERVICE MENU] > [MOTOR MENU] > [AXIS MOVE] > [HEIGHT] and set the height to [102 mm]. Then move the table to the front end with [▼] key.
5. Turn off the power switch, and then unplug the power cord.
6. Remove the table plate.



- 7.** Remove the table unit cable cover.



- 8.** Remove the ribbon cables.



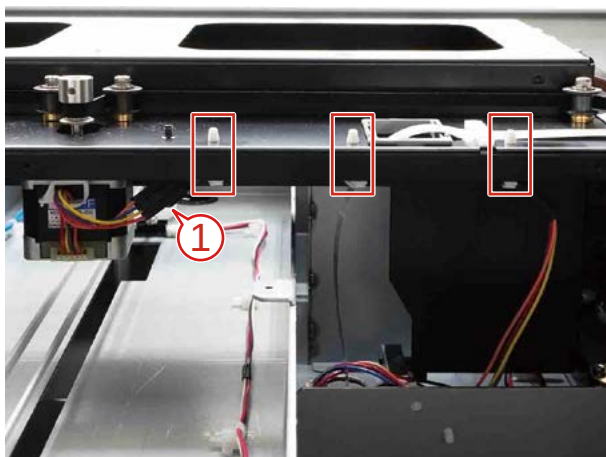
- 9.** Remove the plate that fixes the ribbon cables.



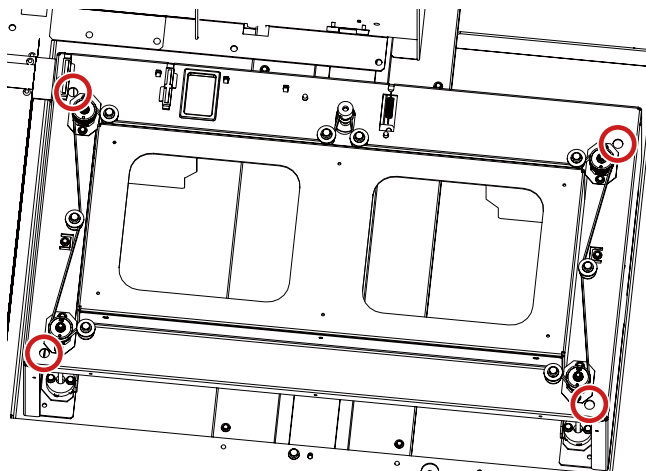


### 10. Unplug the connector of the motor.

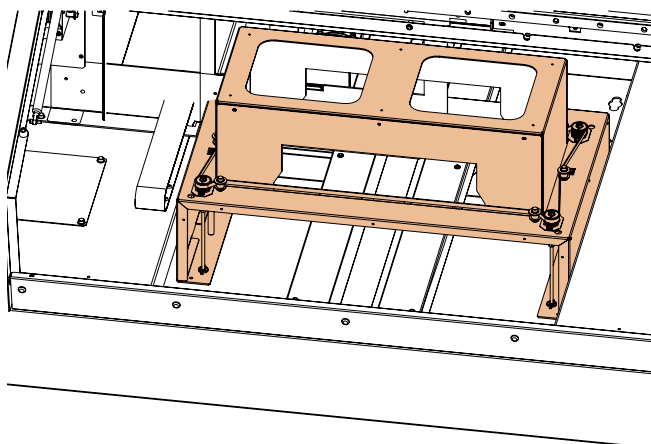
1. Connector



### 11. Remove the screws that secure the table unit using a No. 2 Phillips screw driver 200 mm or more in length to remove the table unit.



### 12. Attach a new table unit.

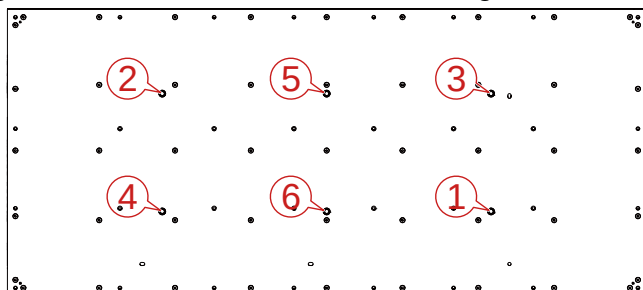


### 13. Attach the connector of the motor, and fasten the clamps.

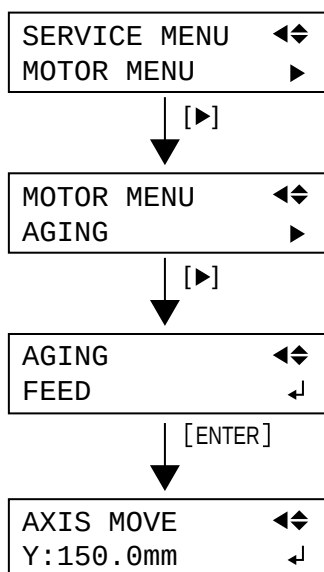
14. Attach the plate that secures the ribbon cables.



15. Connect the ribbon cables and fasten the clamps.
16. Attach the cable cover of the table unit.
17. Turn on the power switch and enter the service mode.
18. Select [SERVICE MENU] > [MOTOR MENU] > [AXIS MOVE] > [HEIGHT] and set the height to [102 mm]. Then move the table to the front end with [▼] key.
19. Attach the screws that secure the table unit using a No. 2 Phillips screw driver 200 mm or more in length.
20. Tighten the screws in the order as shown in the figure to fix the table plate.



21. Select [SERVICE MENU] > [MOTOR MENU] > [AXIS MOVE] > [FEED] and set the value to [150.0 mm] to move the table to the center of the machine.



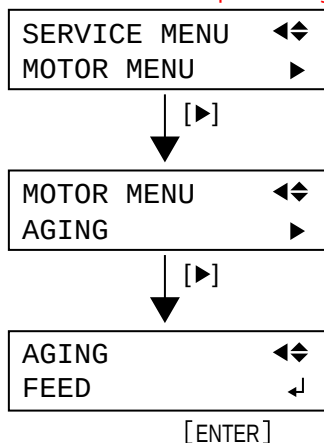
22. Press the [TABLE UP] key, and move the table up to the highest position.

### Aging check

23. Select [SERVICE MENU] > [MOTOR MENU] > [AGING] > [FEED], and press the [ENTER] key. Check that the machine performs aging, then exit the menu.

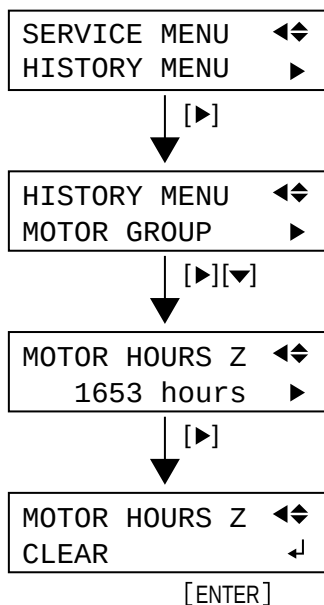
#### CAUTION

Remove media before performing aging.



### Clearing the motor time

24. Go back to [SERVICE MENU]. Select [HISTORY MENU] > [MOTOR GROUP] > [MOTOR HOURS Z] > [CLEAR], and press the [ENTER] key. The motor working hours will be reset to 0.



25. Perform the following adjustments.
- 25-1. Chapter 2 "[Table Height Adjustment](#)"
  - 25-2. Chapter 2 "[Print Head Height Adjustment](#)"
  - 25-3. Chapter 2 "[Print Head Alignment](#) (HORIZONTAL only)"

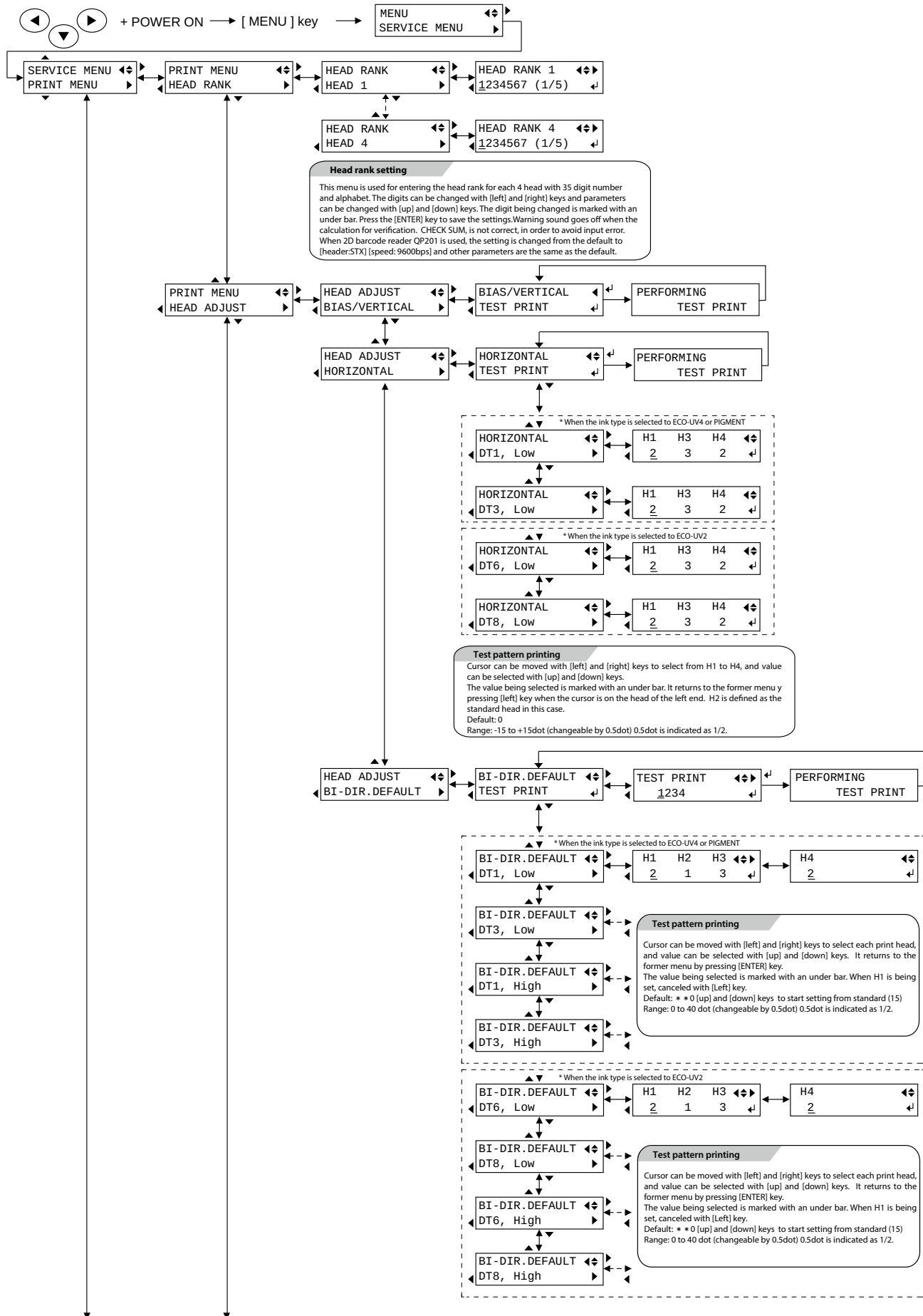
25-4. Chapter 2 "[UV Lamp Height Adjustment](#)"

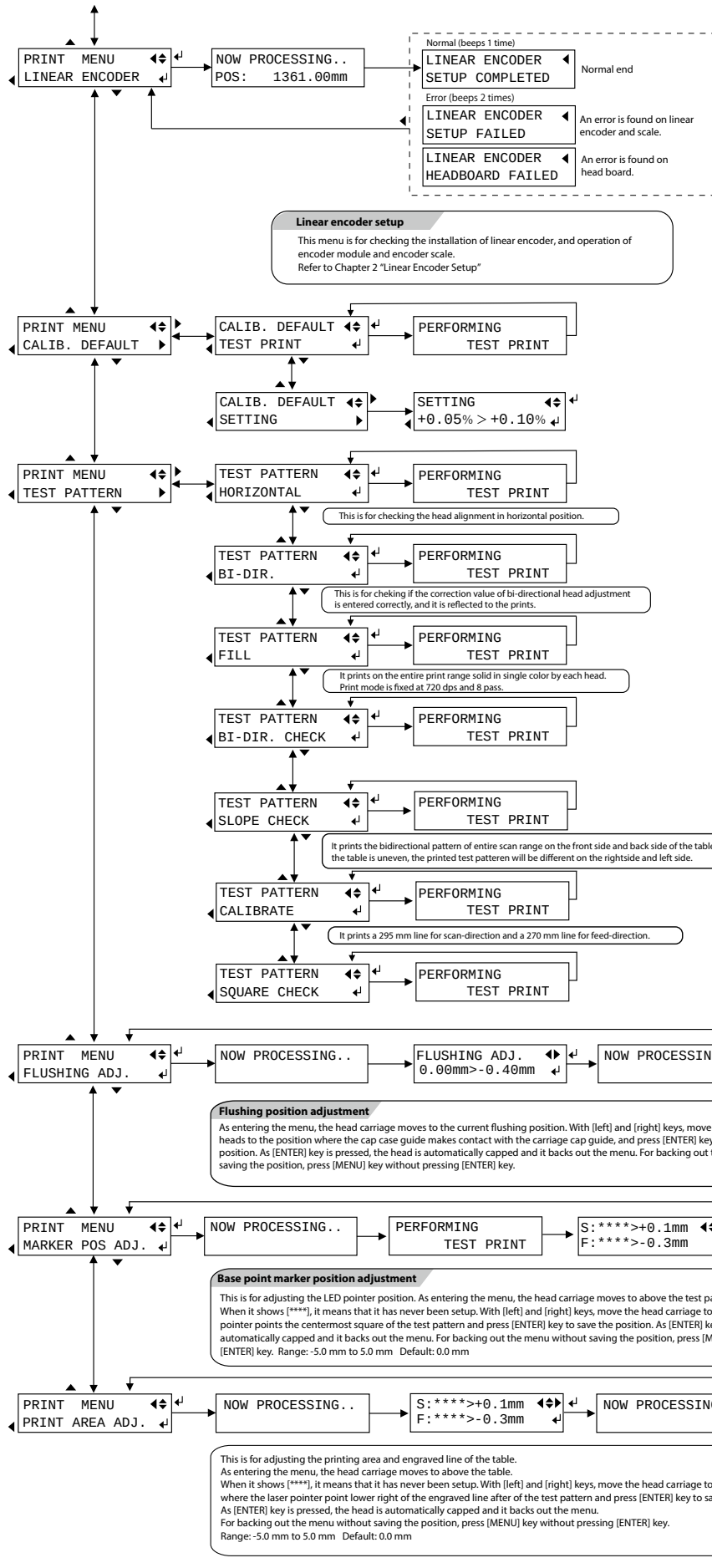
25-5. Chapter 2 "[Head Gap Sensor Position Adjustment](#)"

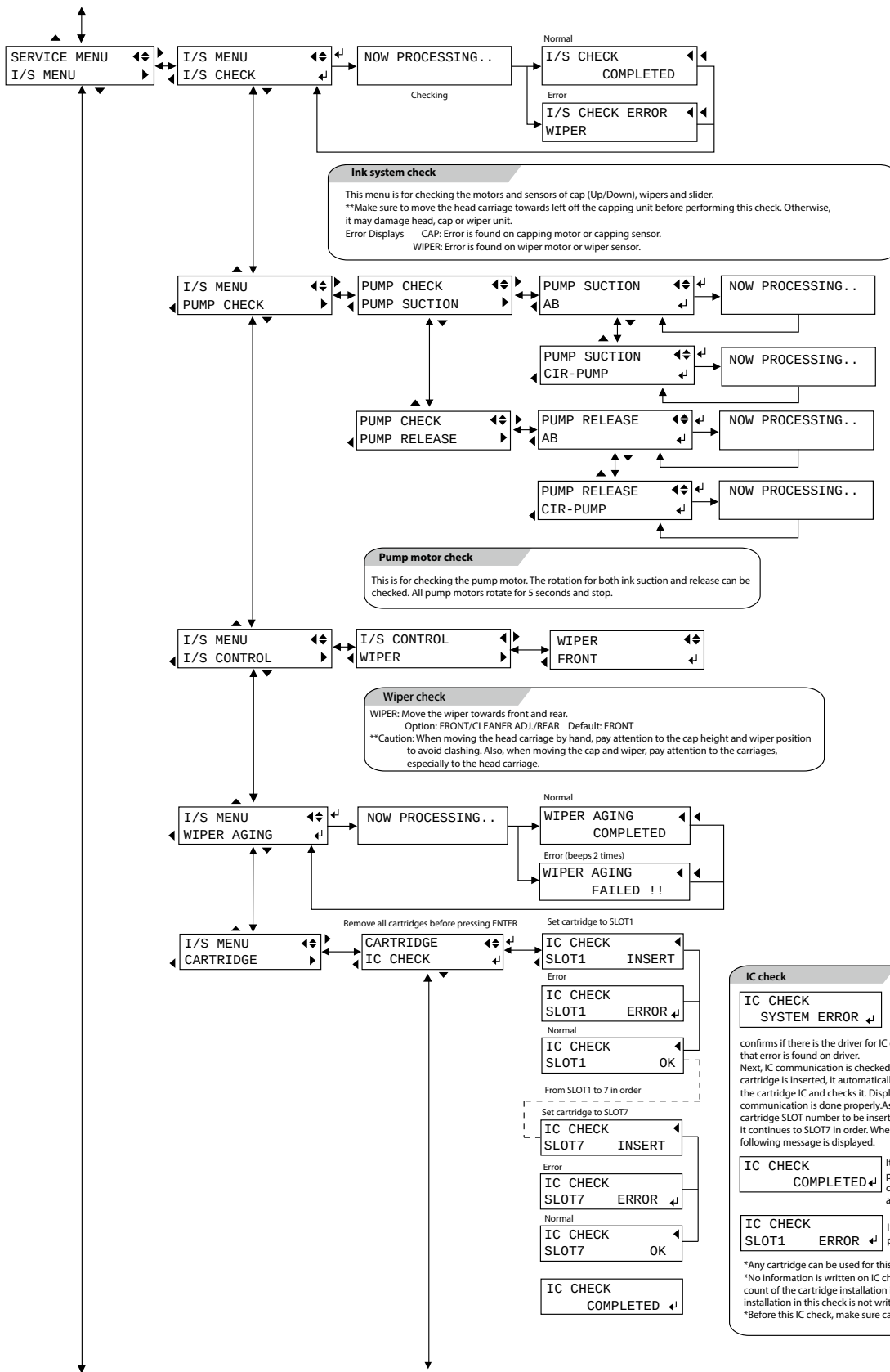
25-6. Chapter 2 "[Print Area Adjustment](#)"

# Chapter 2 Adjustment

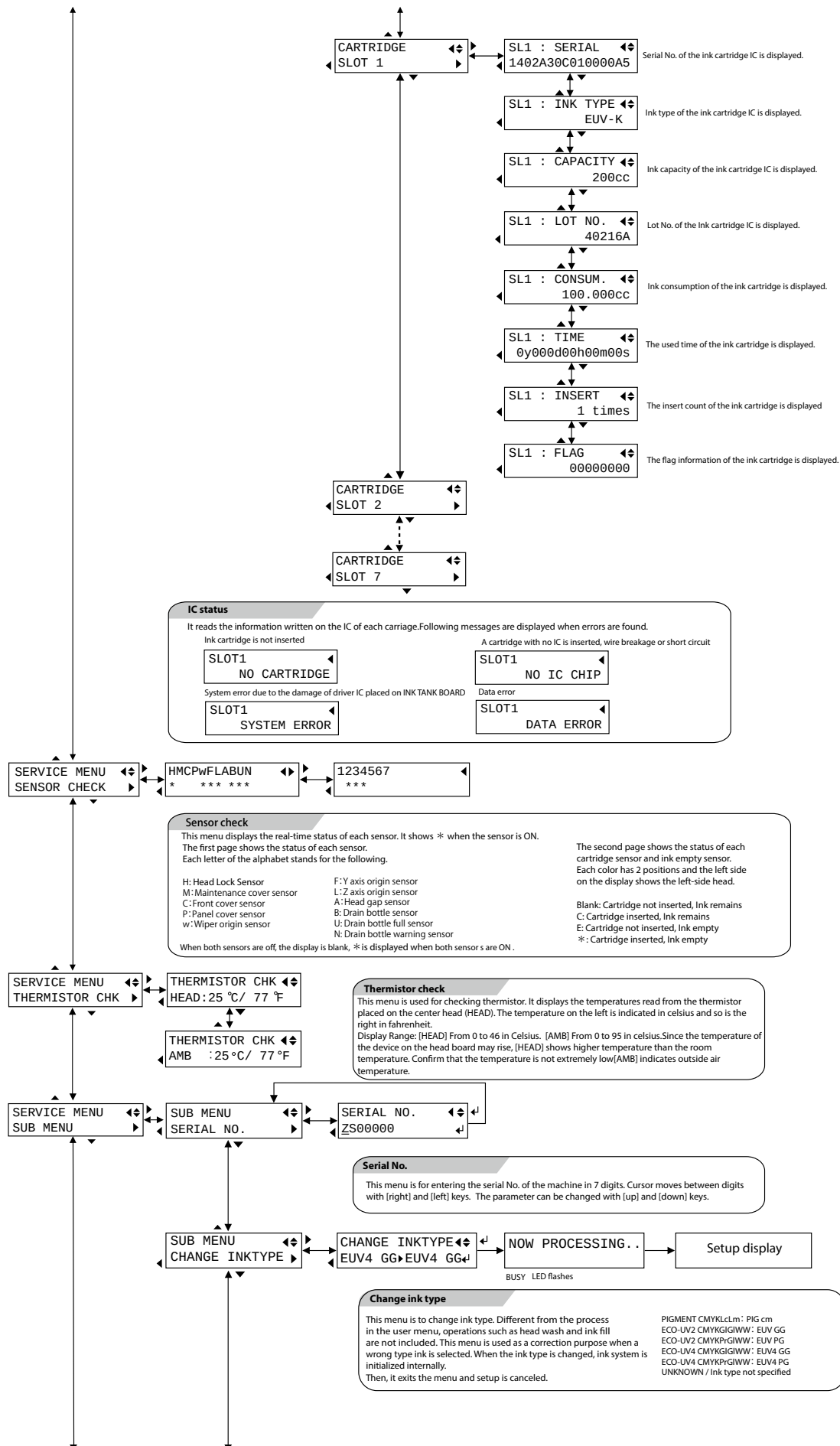
|                                                |      |                                                  |      |
|------------------------------------------------|------|--------------------------------------------------|------|
| <b>Service Mode</b> .....                      | 2-2  | <b>UV Lamp Check</b> .....                       | 2-52 |
| <b>History Menu</b> .....                      | 2-10 | Information .....                                | 2-52 |
| <b>Firmware Upgrade</b> .....                  | 2-13 | Workflow .....                                   | 2-52 |
| Information .....                              | 2-13 | <b>UV Lamp Illuminance Measurement</b> .....     | 2-55 |
| Workflow .....                                 | 2-13 | Information .....                                | 2-55 |
| <b>Firmware Installation</b> .....             | 2-16 | Workflow .....                                   | 2-55 |
| Information .....                              | 2-16 | <b>LED Pointer Position Adjustment</b> .....     | 2-59 |
| Workflow .....                                 | 2-16 | Information .....                                | 2-59 |
| <b>Print Head Alignment</b> .....              | 2-22 | Workflow .....                                   | 2-59 |
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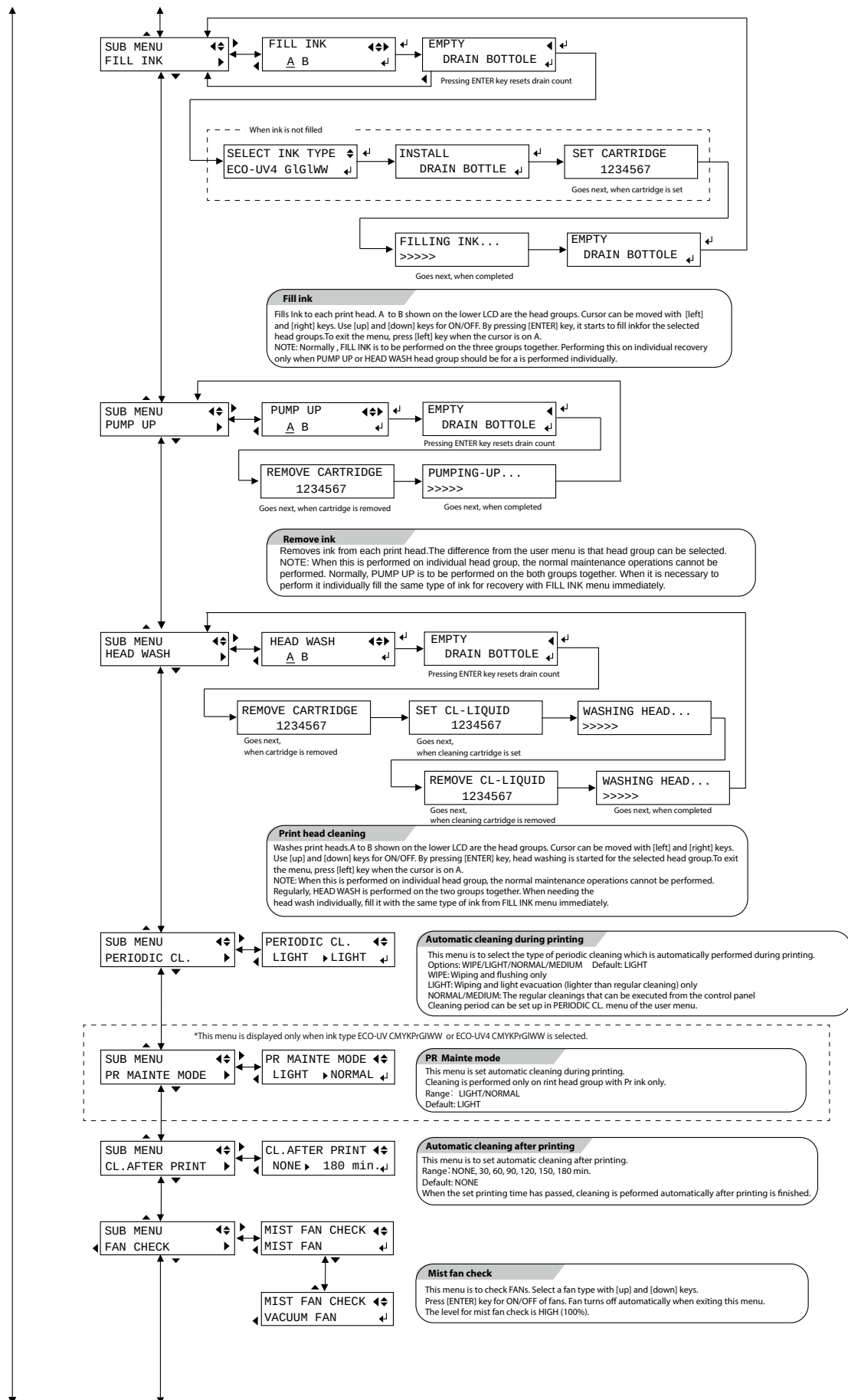


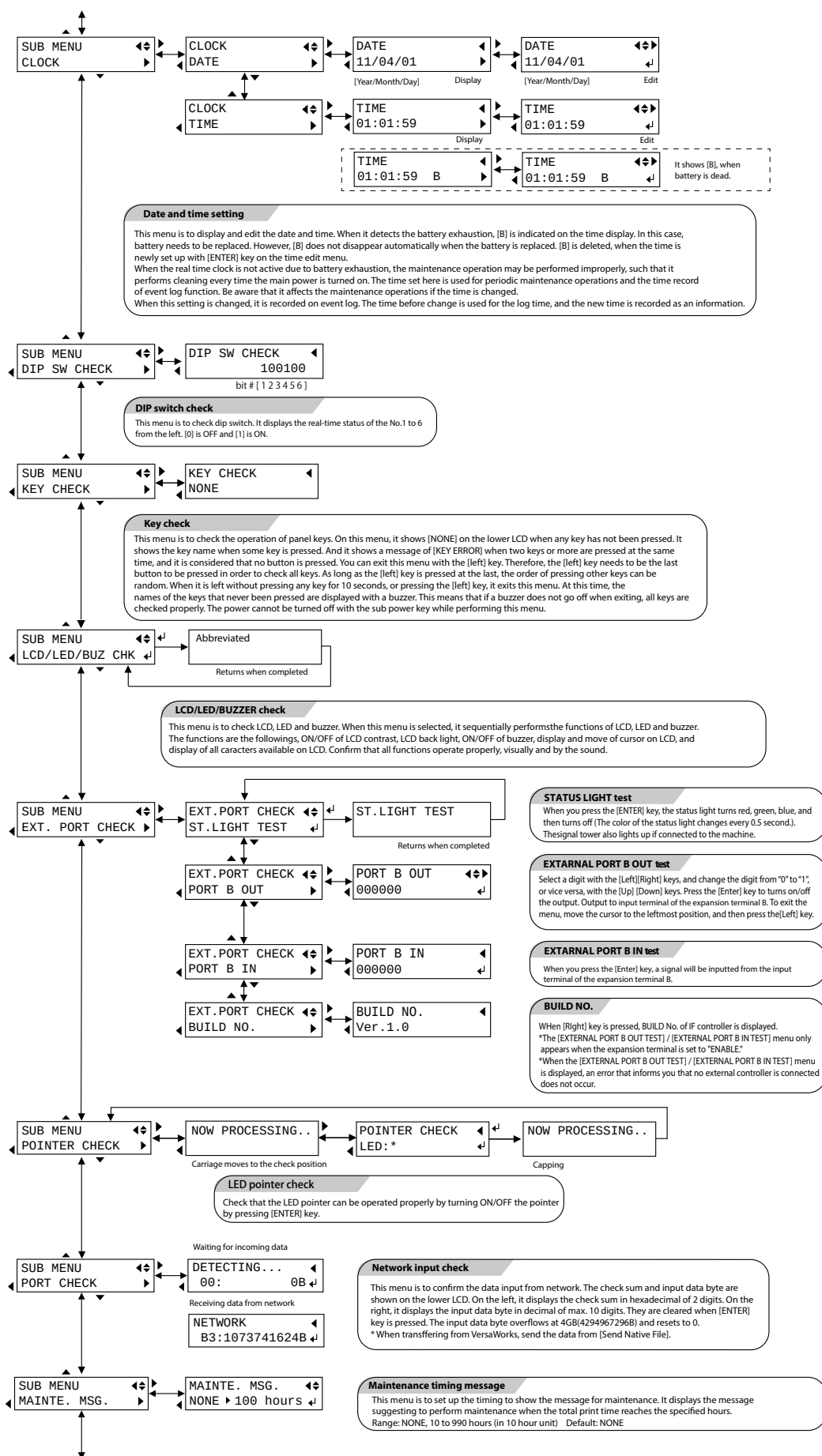


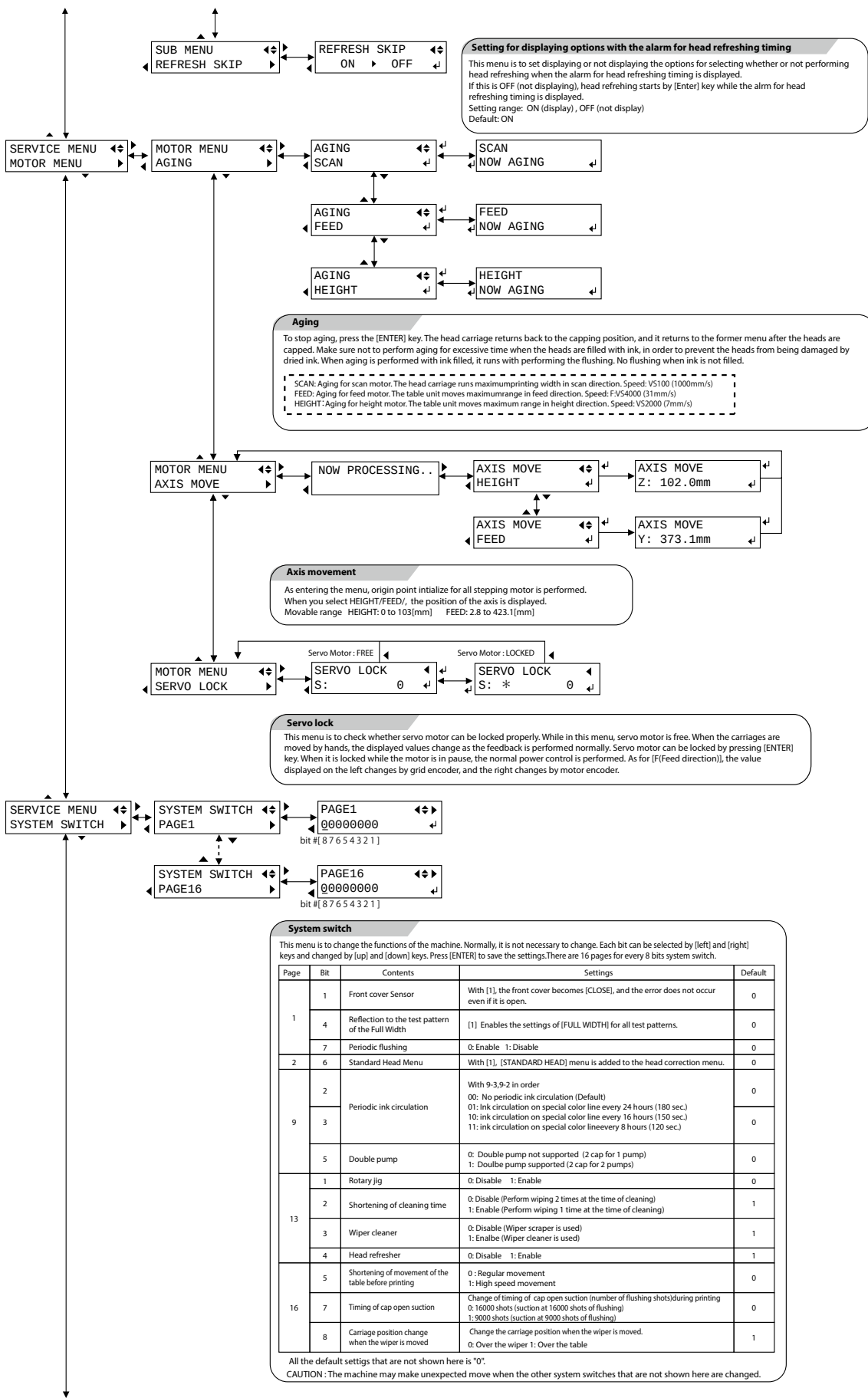


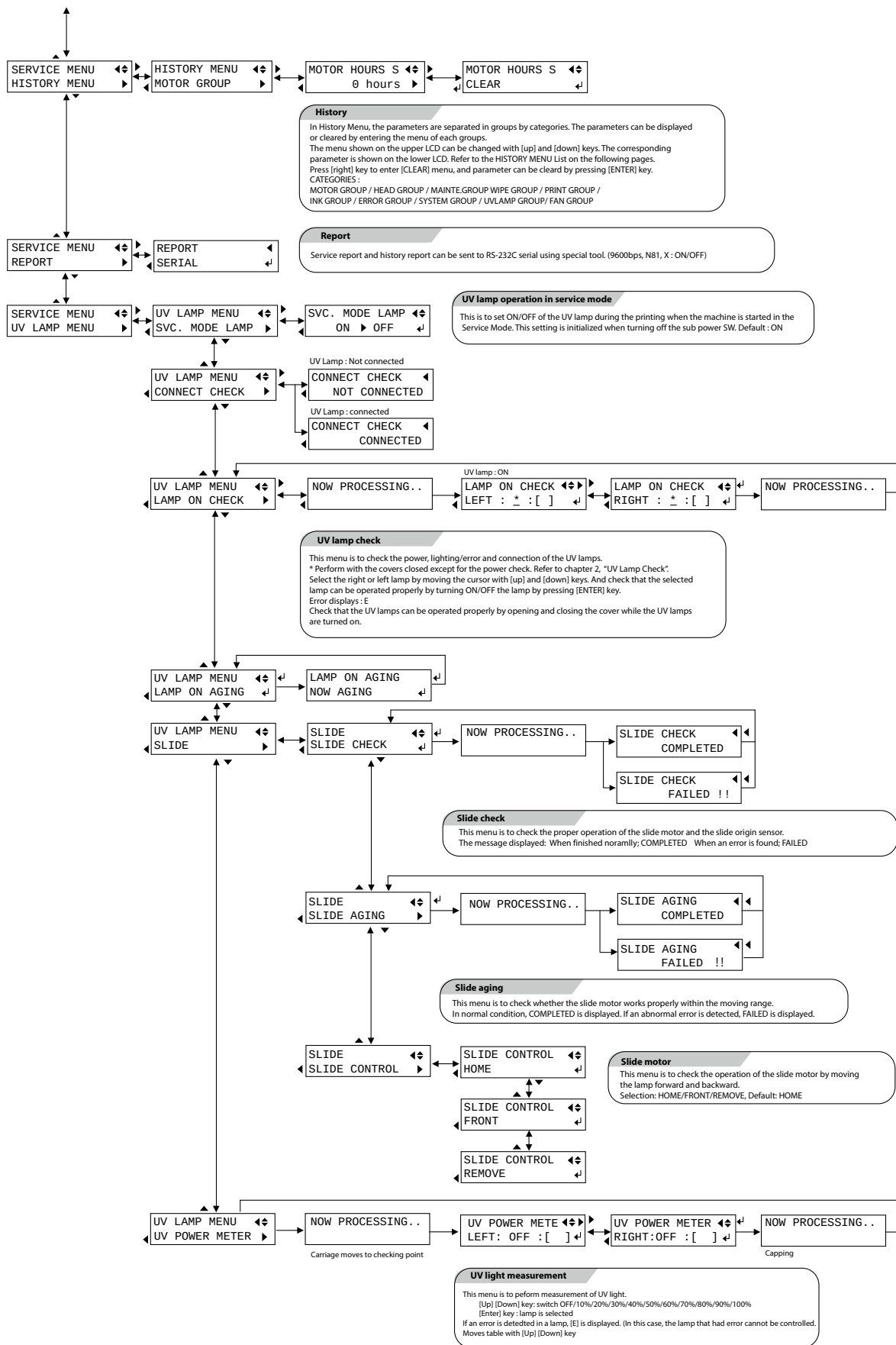












# History Menu

## MOTOR GROUP

| Item           | Description                                                | Unit  | Remarks          |
|----------------|------------------------------------------------------------|-------|------------------|
| MOTOR HOURS S  | Total time the scan motor rotated (distance/maximum speed) | hour  | Brush life time  |
| MOTOR HOURS F  | Total time the feed motor rotated                          | hour  | Belt life time   |
| MOTOR HOURS Z  | Total time that the Z Motor rotated                        | hour  | Belt life time   |
| MOTOR HOURS L  | Total time that the lamp slide motor rotated               | hour  | Motor durability |
| PUMP TIMES A   | Number of times the A-pump rotated                         | times | Pump life        |
| PUMP TIMES B   | Number of times the B-pump rotated                         | times | Pump life        |
| PUMP TIMES CIR | Number of times that ink circulation pump rotated          | times | Pump life        |
| CLEAR ALL      | Clear all values under Motor GROUP                         |       |                  |

## HEAD GROUP

| Item                  | Description                                                 | Unit         | Remarks                                        |
|-----------------------|-------------------------------------------------------------|--------------|------------------------------------------------|
| SHOT COUNT 1          | Number of piezo drive times per nozzle (H1 left)            | times x 1000 | Life: 6 billion times/nozzle<br>Ink from SLOT1 |
| SHOT COUNT 2          | Number of piezo drive times per nozzle (H1 right)           | times x 1000 | Life: 6 billion times/nozzle<br>Ink from SLOT2 |
| SHOT COUNT 3          | Number of piezo drive times per nozzle (H2 left)            | times x 1000 | Life: 6 billion times/nozzle<br>Ink from SLOT3 |
| SHOT COUNT 4          | Number of piezo drive times per nozzle (H2 right)           | times x 1000 | Life: 6 billion times/nozzle<br>Ink from SLOT4 |
| SHOT COUNT 5          | Number of piezo drive times per nozzle (H3 left)            | times x 1000 | Life: 6 billion times/nozzle<br>Ink from SLOT5 |
| SHOT COUNT 6          | Number of piezo drive times per nozzle (H3 right)           | times x 1000 | Life: 6 billion times/nozzle<br>Ink from SLOT6 |
| SHOT COUNT 7          | Number of piezo drive times per nozzle (H4 left)            | times x 1000 | Life: 6 billion times/nozzle<br>Ink from SLOT7 |
| SHOT COUNT 8          | Number of piezo drive times per nozzle (H4 right)           | times x 1000 | Life: 6 billion times/nozzle<br>Ink from SLOT8 |
| WIPE H1 to H4         | Number of times wiping was performed (H1 to H4)             | times        |                                                |
| AUTO CL. H1 to H4     | Number of times automatic cleaning was performed (H1 to H4) | times        |                                                |
| NORMAL CL. H1 to H4   | Number of times normal cleaning was performed (H1 to H4)    | times        |                                                |
| MEDIUM CL. H1 to H4   | Number of times MEDIUM cleaning was performed (H1 to H4)    | times        |                                                |
| POWERFUL CL. H1 to H4 | Number of times POWERFUL cleaning was performed (H1 to H4)  | times        |                                                |
| INK RENEW H1 to H4    | Number of times ink was renewed (H1 to H4)                  | times        |                                                |
| CLEAR H1 to H4        | Clear all values of H1 to H4                                |              |                                                |
| CLEAR ALL             | Clear all values under HEAD GROUP                           |              |                                                |

## MAINTENANCE GROUP

| Item           | Description                                      | Unit  | Remarks                                                                      |
|----------------|--------------------------------------------------|-------|------------------------------------------------------------------------------|
| MAINTEN. COUNT | Number of times head maintenance was performed   | times |                                                                              |
| TOTAL TIME     | Elapsed time from the last head maintenance      | hour  | This value is cleared automatically after the head maintenance is performed. |
| PRINTING TIME  | Printing time from the last head maintenance     | hour  | This value is cleared automatically after the head maintenance is performed. |
| HEAD REFRESH   | Number of times print head refresh was performed | times |                                                                              |
| CLEAR ALL      | Clear all values under MAINTENANCE GROUP         |       |                                                                              |

## History Menu

### WIPE GROUP

| Item         | Description                            | Unit  | Remarks                                                          |
|--------------|----------------------------------------|-------|------------------------------------------------------------------|
| WIPING COUNT | Number of times wiping was performed   | times | This value is cleared automatically after the wiper is replaced. |
| WIPE REPLACE | Number of times the wiper was replaced | times |                                                                  |
| CLEAR ALL    | Clear all values under WIPE GROUP      |       |                                                                  |

### PRINT GROUP

| Item          | Description                        | Unit  | Remarks                      |
|---------------|------------------------------------|-------|------------------------------|
| PRINTING TIME | Total printing time                | hour  | Test print time is excluded. |
| PRINT PAGES   | Number of pages printed            | pages |                              |
| CLEAR ALL     | Clear all values under PRINT GROUP |       |                              |

### INK GROUP

| Item             | Description                                                                                | Unit  | Remarks                                                                                                                                                  |
|------------------|--------------------------------------------------------------------------------------------|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| CARTRIDGE 1 to 7 | Number of times ink cartridge was changed (1 to 7)                                         | times |                                                                                                                                                          |
| CHANGE INK       | Number of times the Ink type was changed                                                   | times |                                                                                                                                                          |
| INK CIRCULATE    | Number of times periodic ink circulation + ink discharge was performed                     | times | Number of times of ink circulation operation + discharge operation performed only when periodic ink circulation is enabled by system switch 9-2 and 9-3. |
| INK DISCHARGE 1  | Number of times ink circulation + ink discharge was performed (small amount of discharge)  | times |                                                                                                                                                          |
| INK DISCHARGE 2  | Number of times ink circulation + ink discharge was performed (medium amount of discharge) | times |                                                                                                                                                          |
| INK DISCHARGE 3  | Number of times ink was circulated and discharged (large amount of discharge)              | times |                                                                                                                                                          |
| CLEAR ALL        | Clear all values under INK GROUP                                                           |       |                                                                                                                                                          |

### ERROR GROUP

| Item           | Description                                          | Unit  | Remarks                                                                                                                                                    |
|----------------|------------------------------------------------------|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SERVICE CALL   | Number of times service call occurred                | times |                                                                                                                                                            |
| S-CALL HISTORY | Service call numbers of the last five service calls  | No.   | Last five service call codes are retained.                                                                                                                 |
| MOTOR ERROR S  | Number of times the scan motor error occurred        | times | Number of times the servo error occurred                                                                                                                   |
| LOW TEMP.ERR.  | Number of times the low temperature error occurred   | times | Number of times the low temperature error occurred                                                                                                         |
| HIGH TEMP.ERR. | Number of times the high temperature error occurred  | times | Number of times the high temperature error occurred                                                                                                        |
| EMERG. CAPPING | Number of times the emergency capping error occurred | times | Number of times of forcible capping to prevent head from drying that works when cap is left open for 3 minutes or more due to cover open or other reasons. |
| START UNCAPPED | Number of times the printer started uncapped         | times | When the print head is left uncapped, it is detected when printer is started.                                                                              |
| CLEAR ALL      | Clear all values under ERROR GROUP                   |       |                                                                                                                                                            |

### SYSTEM GROUP

| Item           | Description                                        | Unit  | Remarks                 |
|----------------|----------------------------------------------------|-------|-------------------------|
| POWER ON COUNT | Number of times the sub power switch was turned on | times |                         |
| POWER ON TIME  | Total time sub power is turned on                  | hour  | SLEEP time is excluded. |
| SLEEP TIME     | Total time the printer was in the sleep mode       | hour  |                         |
| F-COVER OPEN   | Number of times the front cover was opened.        | times |                         |
| CLEAR ALL      | Clear all values under SYSTEM GROUP                |       |                         |

## History Menu

### UV LAMP GROUP

| Item                   | Description                                 | Unit       | Remarks |
|------------------------|---------------------------------------------|------------|---------|
| UV LAMP ON COUNT RIGHT | Number of times right UV Lamp was turned on | times      |         |
| UV LAMP ON TIME RIGHT  | Total time of right UV Lamp was turned on   | Time (min) |         |
| UV LAMP ON COUNT LEFT  | Number of times left UV Lamp was turned on  | times      |         |
| UV LAMP ON TIME LEFT   | Total time left UV Lamp was turned on       | Time (min) |         |
| F-COVER OPEN           | Number of times the front cover was opened. | times      |         |
| CLEAR ALL              | Clear all values under UV LAMP GROUP        |            |         |

### FAN GROUP

| Item           | Description                                      | Unit  | Remarks |
|----------------|--------------------------------------------------|-------|---------|
| MISTFAN F TIME | Total time of front mist fan rotated             | hour  |         |
| FILTER REPLACE | Number of times the mist fan filter was replaced | times |         |
| CLEAR ALL      | Clear all values under MIST FAN GROUP            |       |         |



# Firmware Upgrade

## Information

### Necessary tools

| Software        |
|-----------------|
| Peck            |
| Latest firmware |

### Typical work time

| Contents of work | Time   |
|------------------|--------|
| Firmware upgrade | 5 min. |

**2**

ADJUSTMENT

## Workflow

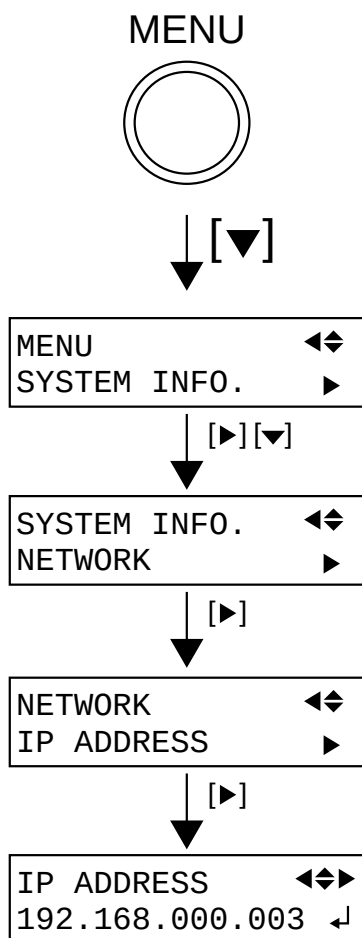
### CAUTION

It is necessary to prepare the following to upgrade/install the firmware.

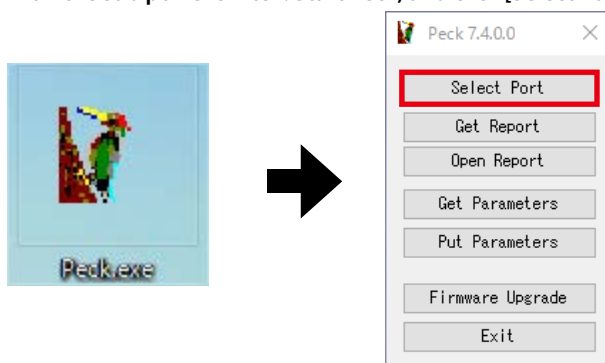
- Firmware
- Windows computer (Network port is required.)
- Peck.exe
- Network cable

1. Connect the machine to a computer by using a Network cable.
2. Plug the power code. Turn on the main power switch, and then turn on the sub power switch.

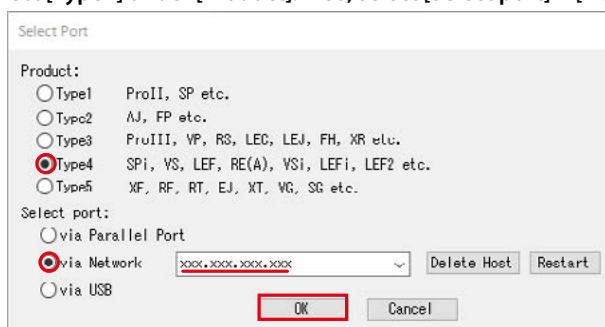
3. Select [MENU] > [SYSTEM INFO.] > [NETWORK] > [IP ADDRESS] and check the IP address of the machine.



4. Turn off the sub power switch. Start Peck, and click [Select Port] button.



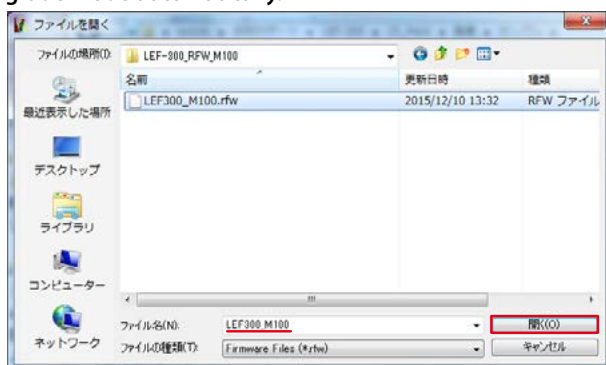
5. Select [Type4] under [Product]. Also, select [Select port] > [via Network]. Input IP address of the printer. Click [OK].



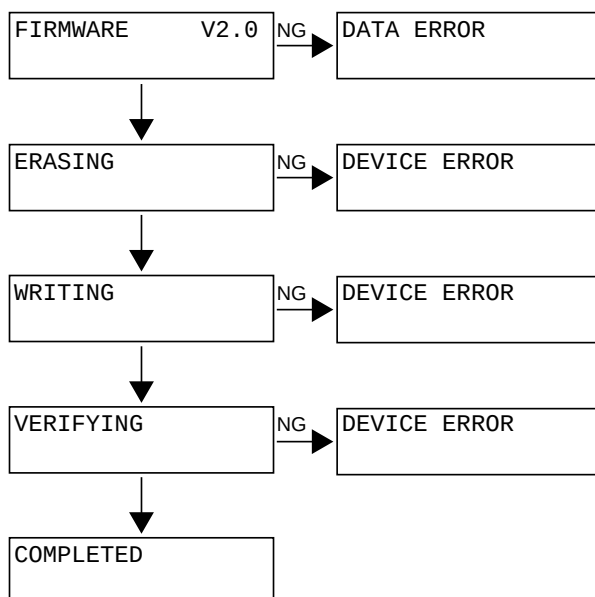
6. The [Peck] dialog appears. Click [Firmware Upgrade].



7. Select the firmware file, and click [Open] to send the firmware to the machine. The machine goes into the firmware upgrade mode automatically.



8. When the upgrade is completed, [COMPLETED] message is displayed. The sub power turns off automatically.



9. (End of procedure)

## Information

### Necessary tools

#### Software

Peck

Latest firmware

### Typical work time

| Contents of work      | Time    |
|-----------------------|---------|
| Firmware installation | 10 min. |

## Workflow

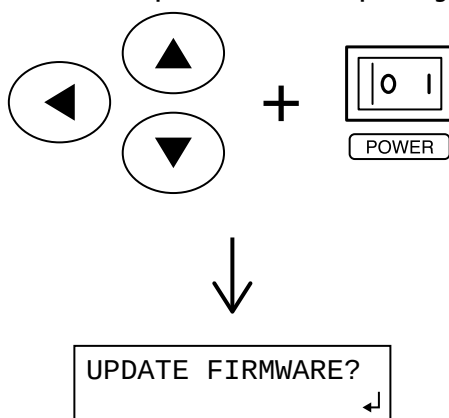
### CAUTION

It is necessary to prepare the following to upgrade/install the firmware.

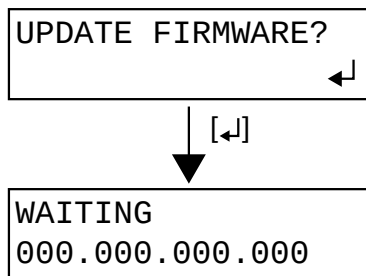
- Firmware
- Windows computer (Network port is required.)
- Peck.exe
- Network cable

Perform this procedure when a new main board without firmware is installed.

1. Connect the machine to a computer by using a network cable.
2. Turn on the main power switch while pressing the [◀] [▲] [▼] keys.



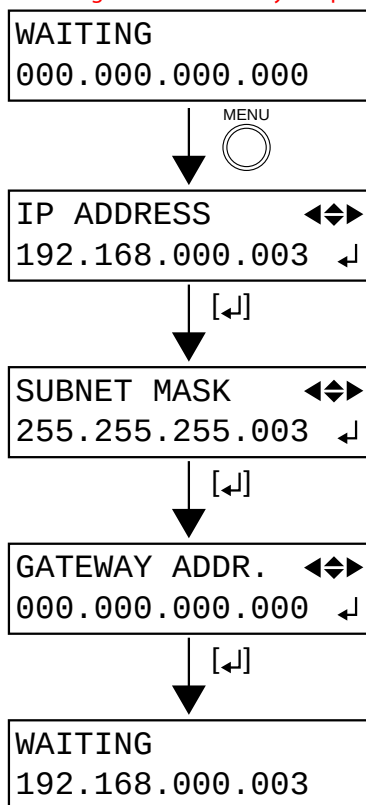
3. Press the [ENTER] key. The machine becomes ready to receive the firmware.



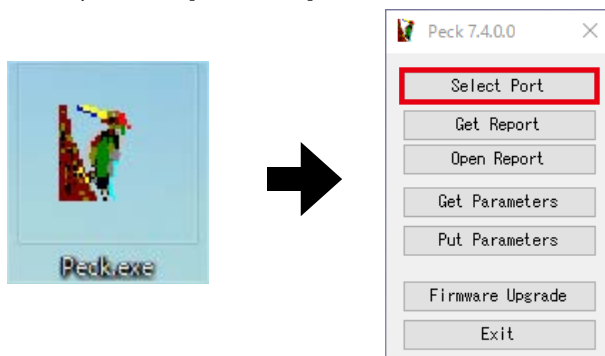
4. Press the [MENU] key, and set [IP ADDRESS], [SUBNET MASK], and [GATEWAY ADDR.]. Press the [◀] [▶] keys for moving between digits, and the [▲] [▼] keys for selecting values. After setting an address, press the [ENTER] key to go to the next address setting. When [GATEWAY ADDR.] is set, press the [ENTER] key so that the machine becomes ready to receive the firmware.

**CAUTION**

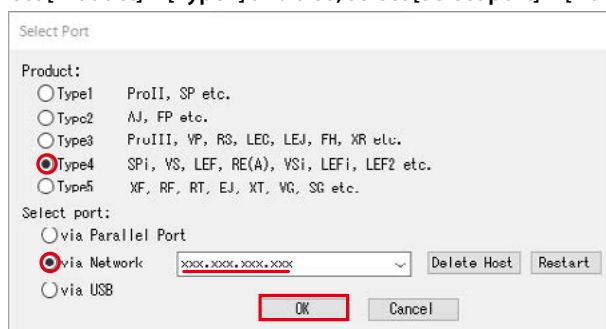
The setting made here is only temporary for the firmware installation and it is not saved.



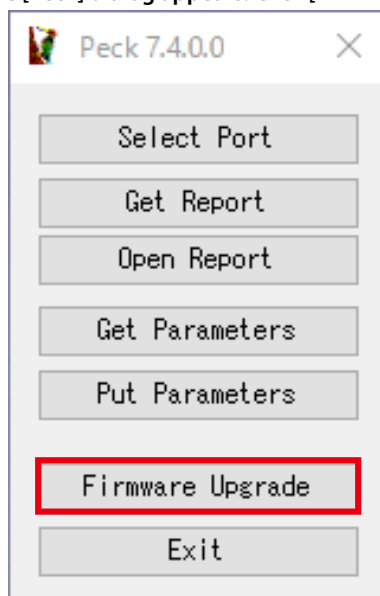
5. Start Peck, and click [Select Port] button.



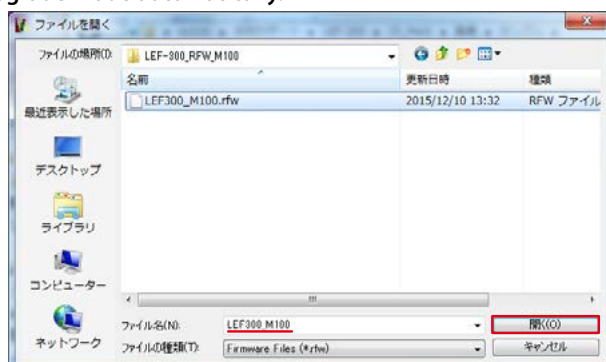
6. Select [Product] > [Type4] and also, select [Select port] > [via Network]. Input IP address of the printer and click [OK].



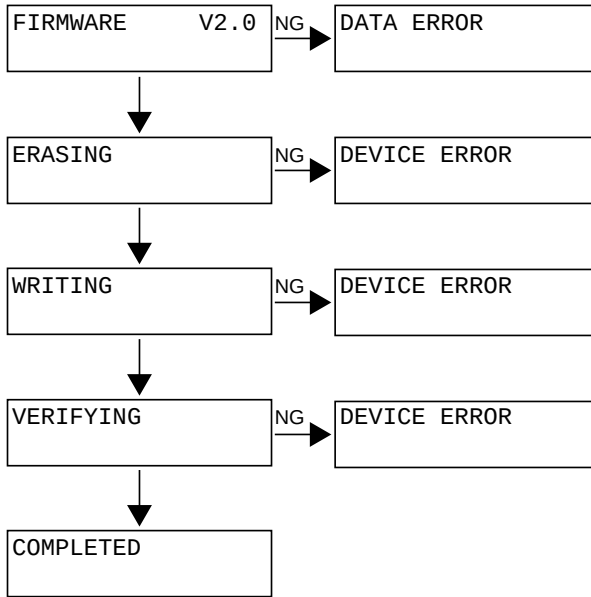
7. The [Peck] dialog appears. Click [Firmware Upgrade].



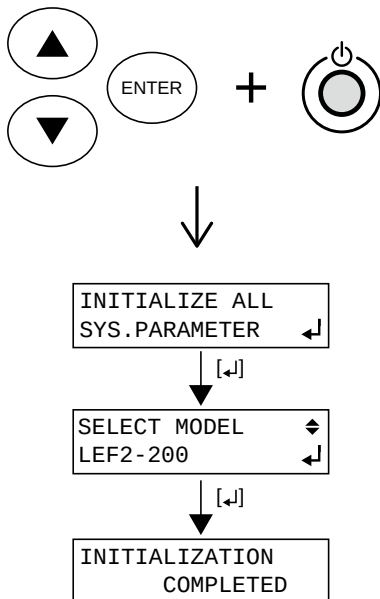
8. Select the firmware file, and click [Open] to send the firmware to the machine. The machine goes into the firmware upgrade mode automatically.



9. Firmware loading begins. The firmware installation is completed when the [COMPLETED] message is displayed. Turn off the sub power switch.

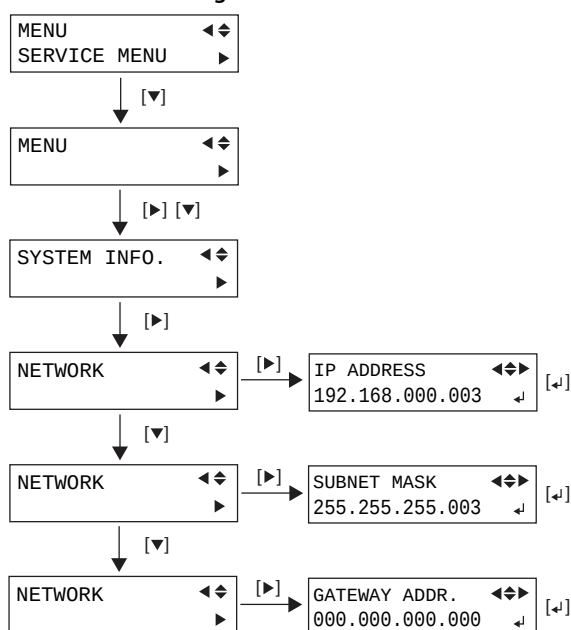


10. Turn on the sub power switch while pressing the [▲] [▼] [ENTER] keys to enter the [INITIALIZE ALL SYS. PARAMETER] menu. Press the [ENTER] key to start initialization. The sub power switch turns off automatically when it is completed.



11. Turn on the sub power switch and enter the service mode.

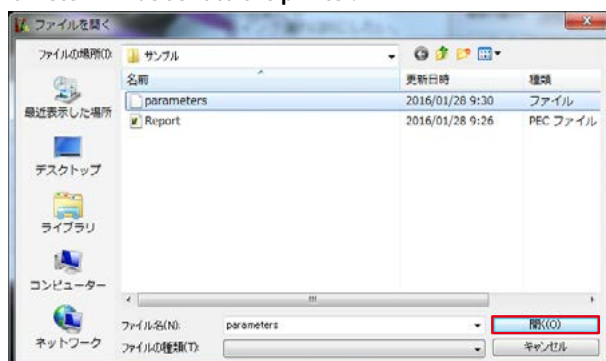
## 12. Perform network settings.



## 13. Start Peck, and click [Put Parameters] button.



## 14. Select the system parameter file that was saved before the main board replacement. Click [Open] and the system parameter will be sent to the printer.

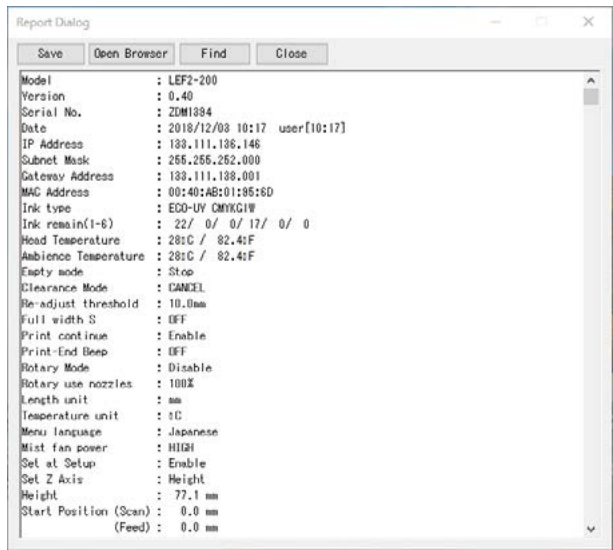
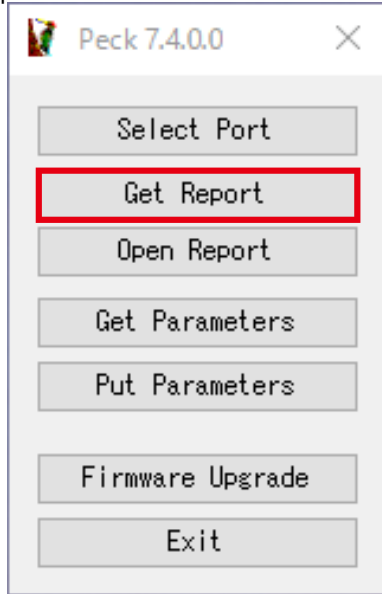




15. Click [Get Report] to import the system report file. Confirm that system parameters are reloaded properly.

NOTE

The addresses set at step 12 are replaced with the addresses saved in the system parameters when [Put Parameters] is performed. Please do the network settings again if necessary.



16. (End of procedure)

## Information

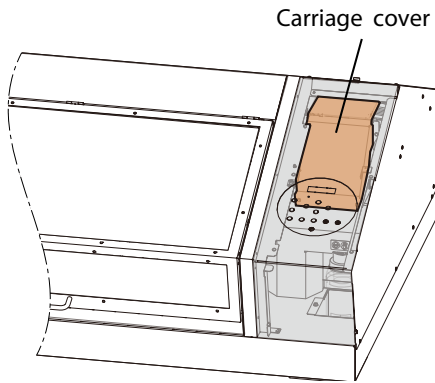
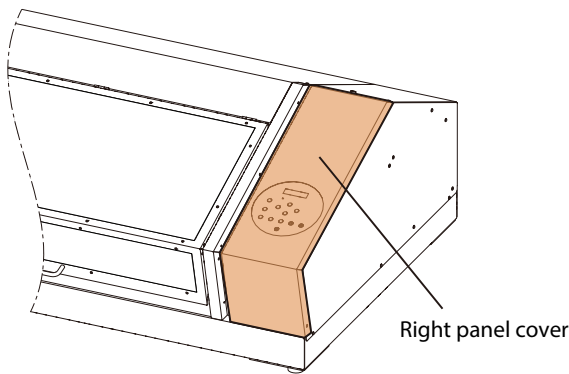
### Necessary tools

| General tools              |                                      |
|----------------------------|--------------------------------------|
| Media                      |                                      |
| 1.5 mm hexagonal wrench    |                                      |
| No. 2 Phillips screwdriver |                                      |
| Special tools              |                                      |
| ST-056                     | TORQUE DRIVER N6                     |
| 1000005829                 | TOOL,VINYL YE UV RESISTANT ST-113    |
| 1000005463                 | TOOL,BIT PHILLIPS NO.1 L150MM ST-107 |

### Typical work time

| Contents of work     | Time    |
|----------------------|---------|
| Print head alignment | 40 min. |

### Cover That Needs to Be Removed



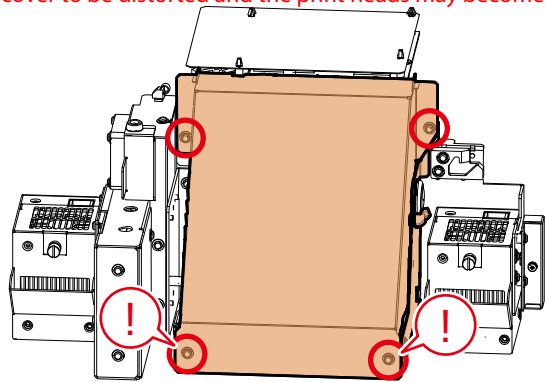
Notes when attaching carriage cover

NOTE

When attaching the carriage cover, tighten four screws loosely first, then tighten them fully to secure the cover.

CAUTION

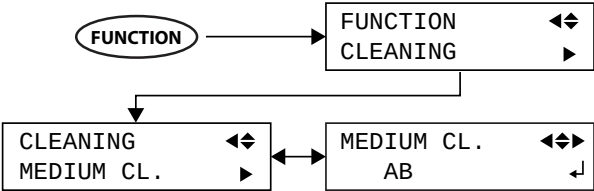
When tightening the two screws on the front, be careful not to tighten them too hard. Doing so may cause the carriage cover to be distorted and the print heads may become shifted.



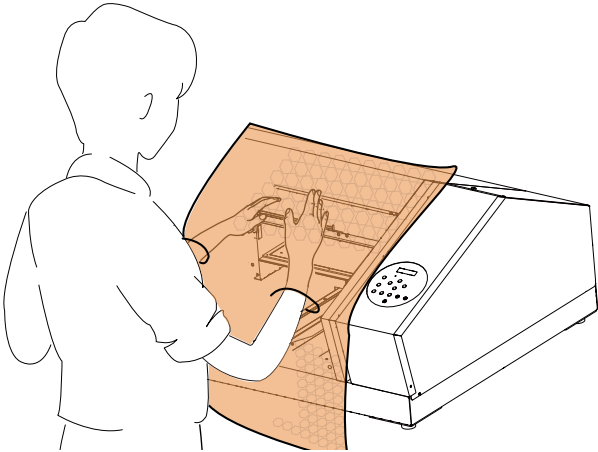
Workflow

CAUTION

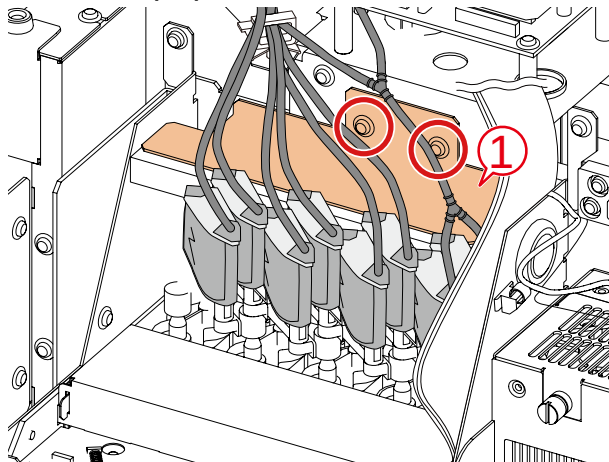
- This adjustment is to obtain the good printing quality. Make sure to perform this alignment after print head replacement. If the print heads are not aligned, printing problems such as banding, fine lines and gaps between bands could occur.
- PET-G is recommended for this alignment.
- To prevent hardened ink from entering into the nozzle, refresh print head before the adjustment. Perform medium cleaning on all print heads if 20 minutes passes.



- Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.



1. Unlock the print-head carriage, and move it to the left by hand.
2. Remove the carriage cover.
3. Remove the damper plate.



1. Damper plate

4. Move the print-head carriage to the lock position.

### CAUTION

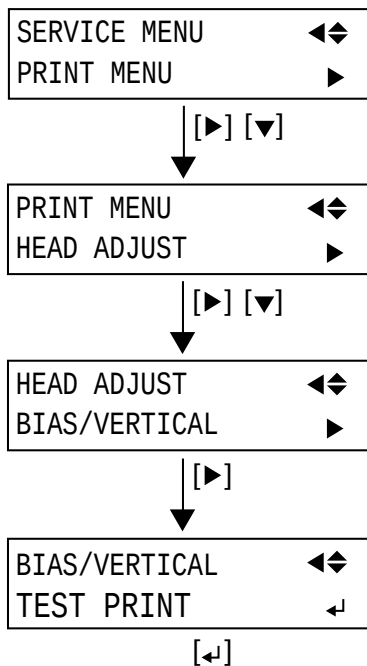
Do not lock the print-head carriage.

5. Turn on the power switch and enter the service mode.
6. Setup clear film on the machine.

### NOTE

Set the table height by auto detection.

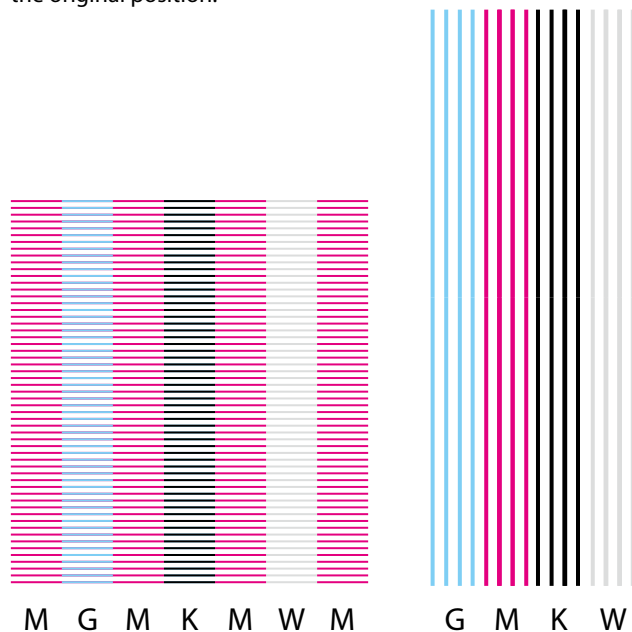
7. Select [SERVICE MENU] > [PRINT MENU] > [HEAD ADJUST] > [BIAS/VERTICAL] > [TEST PRINT], and press the [ENTER] key.



### 8. A test pattern is printed.

#### NOTE

- The pattern of the test print changes depending on ink type.
- Press the [▲] key to move the table forward so that you can see the test pattern well. Press the [▼] key to move it back to the original position.



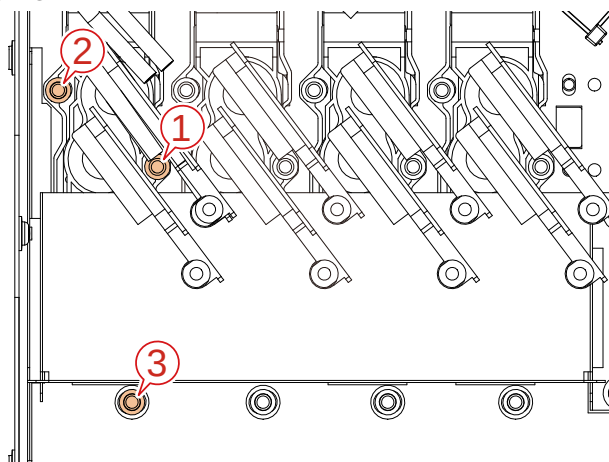
## BIAS Adjustment

9. Remove the panel cover.
10. Loosen three screws that secure the print head in the order as shown below.

#### CAUTION

Loosen the screws that secure the print head approximately 1/2 turn. If you loosen them too much, print head alignment cannot be performed properly.

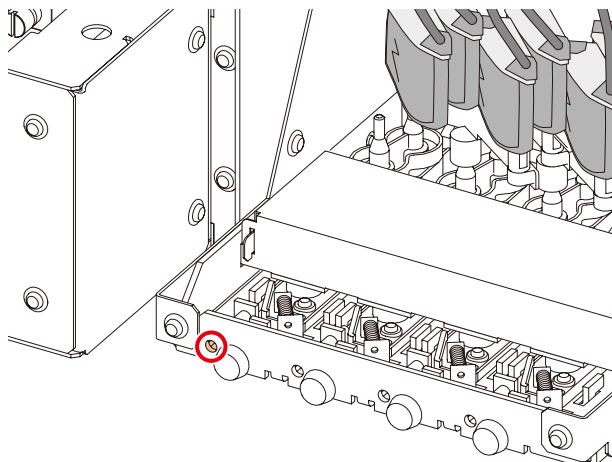
Top view



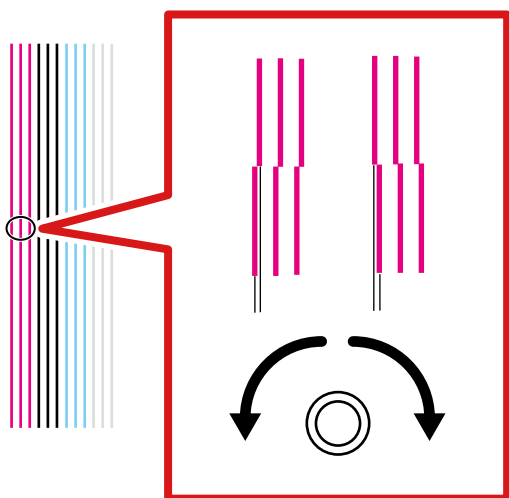
11. Insert the 1.5 mm hexagonal wrench through the hole of the print-head carriage. Then, turn the adjustment screw to make the lines of each color in the test pattern straight.

### NOTE

The position of the printing moves 1 line by turning the screw approximately 3/4 turn.



- ☞ When the upper lines are shifting towards the left of the lower lines, turn the screw CW.
- ☞ When the upper lines are shifting towards the right of the lower lines, turn the screw CCW.

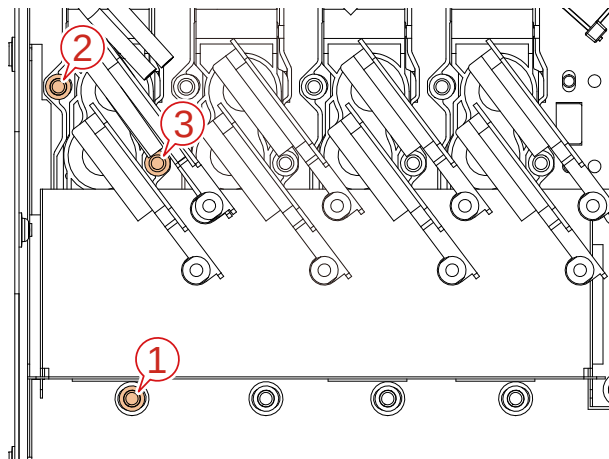


12. Tighten the screws that secure the print head in the reverse order of loosening, using the torque driver (Torque value: 20cN·m).

**CAUTION**

Do not overtighten the screws.

Top view



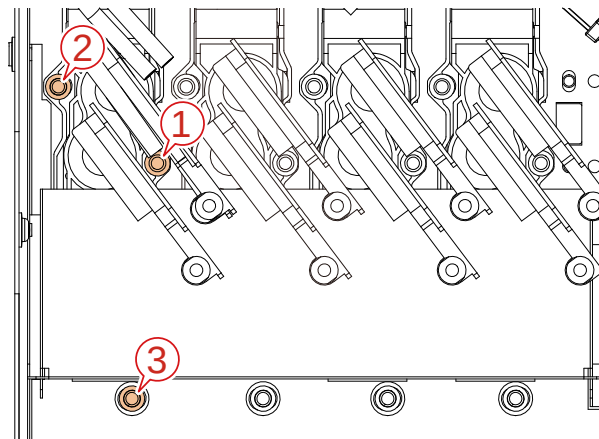
### Vertical adjustment

13. Loosen three screws that secure the print head in the order as shown below.

**CAUTION**

Loosen the screws that secure the print head approximately 1/2 turn. If you loosen them too much, print head alignment cannot be performed properly.

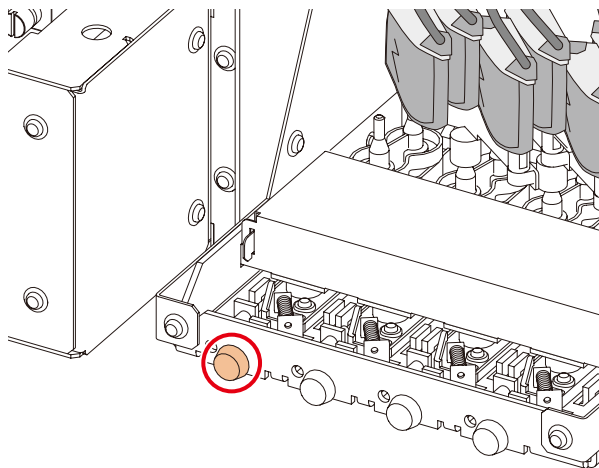
Top view



## 14. Turn the adjustment screw to make the lines of each color in the test pattern straight.

### NOTE

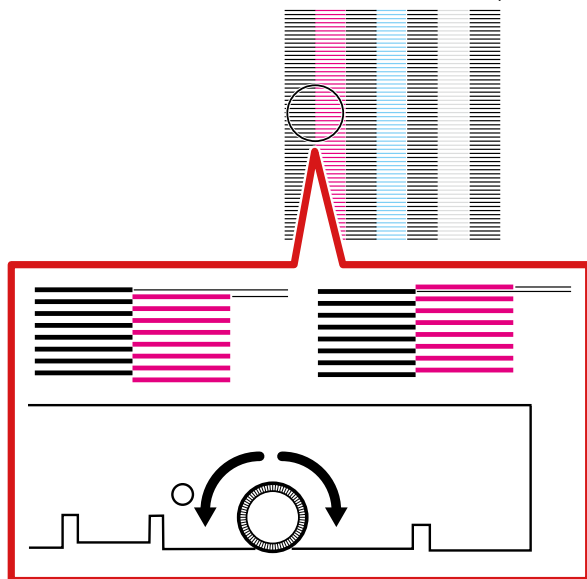
Position of the printing moves 1/2 line by turning the screw 3/4 turn.



### CAUTION

Adjust the print head positions referring to the left end K head as the base position. The position of K head does not need to be adjusted.

- ☞ When the lines other than K are above the K lines, turn the adjustment screw CW.
- ☞ When the lines other than K are below the K lines, turn the adjustment screw CCW.



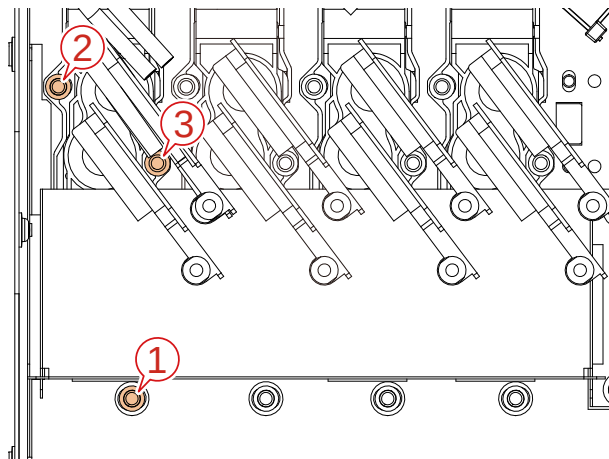


15. Tighten the screws that secure the print head in the reverse order of loosening, using the torque driver (Torque value: 20cN·m).

## CAUTION

Do not overtighten the screws.

Top view



16. Position the panel cover temporarily without securing it with screws.

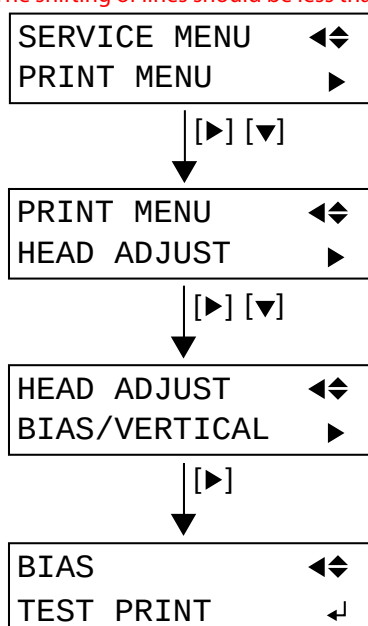
17. Print the test pattern again.

## NOTE

- If the result is not satisfactory, repeat steps 7 to 16.
- If the VERTICAL test print result is satisfactory, select [HEAD ADJUST] > [BIAS/VERTICAL] > [TEST PRINT], and print the test pattern again. If the BIAS/VERTICAL test print result is not satisfactory, repeat BIAS/VERTICAL adjustment.

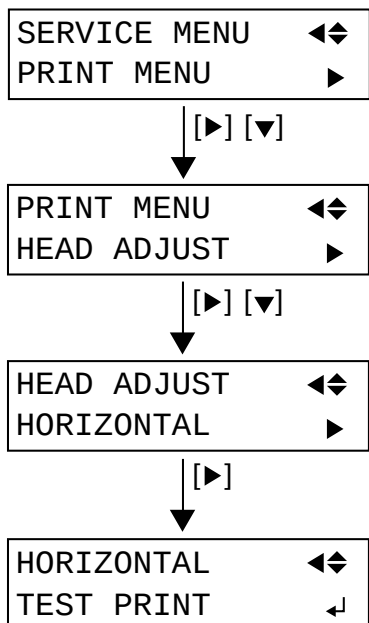
## CAUTION

The shifting of lines should be less than 1/2 dot.

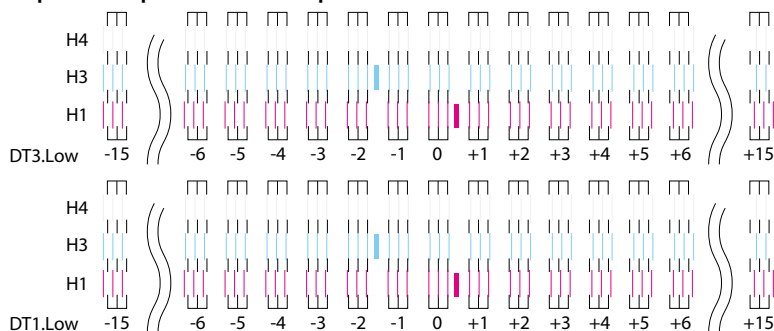


## Horizontal adjustment

18. Select [SERVICE MENU] > [PRINT MENU] > [HEAD ADJUST] > [HORIZONTAL] > [TEST PRINT], and press the [ENTER] key.



19. A test pattern is printed. Find the position where the line of each color matches the K line and check the number.



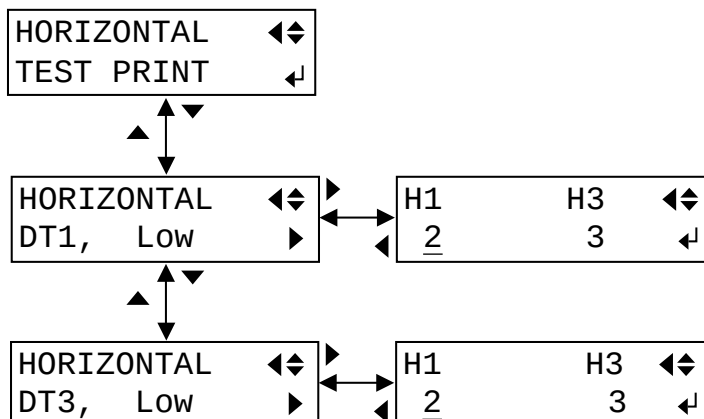
### NOTE

- In case of problems selecting one of two numbers, half values are also available for inputting.
- The number with ■ is the current setting.

20. Select [HEAD ADJUST] > [DT1, Low] > [DT3, Low]. Enter the value you checked in step 17 with the [▲] [▼] keys. Press the [ENTER] key to save the settings.

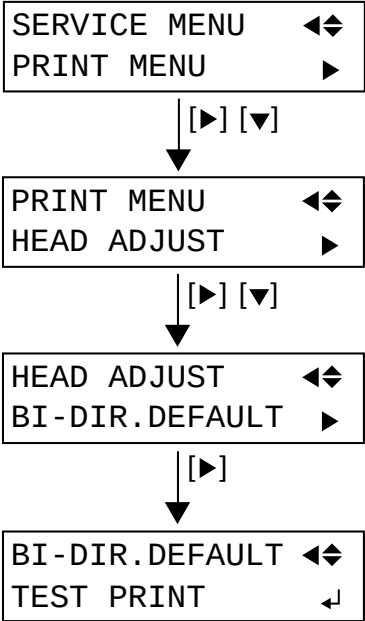
### NOTE

Parameters can be entered in increments of 1/2.



Bidirectional position adjustment

21. Select [PRINT MENU] > [HEAD ADJUST] > [BI-DIR. DEFAULT] > [TEST PRINT], and press the [ENTER] key.



22. A test pattern shown below is printed. Find the position where the two lines are overlapping and check the number of each color.



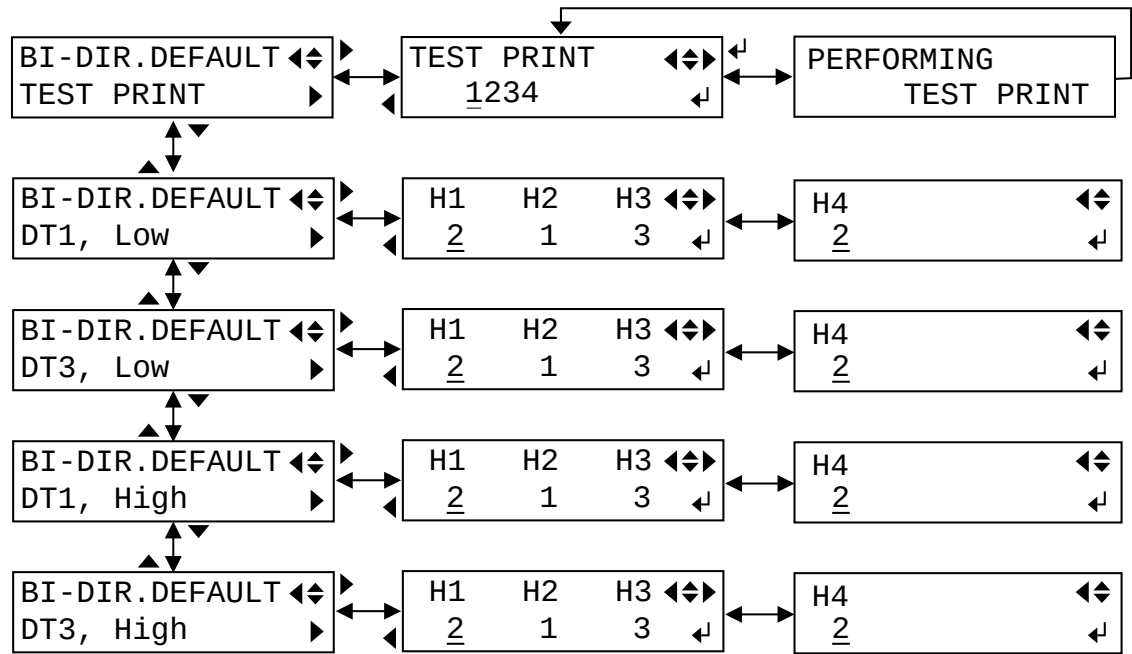
NOTE

- In case of problems selecting one of two numbers, half values are also available for inputting.
- The number with ■ is the current setting.

23. Select [BI-DIR.DEFAULT] > [DT1,Low], [DT3,Low], [DT1,High] and [DT3,High]. Enter the value you checked in step 23 with the [▲] [▼] keys. Press the [ENTER] key to save the settings.

NOTE

Parameters can be entered in increments of 1/2.

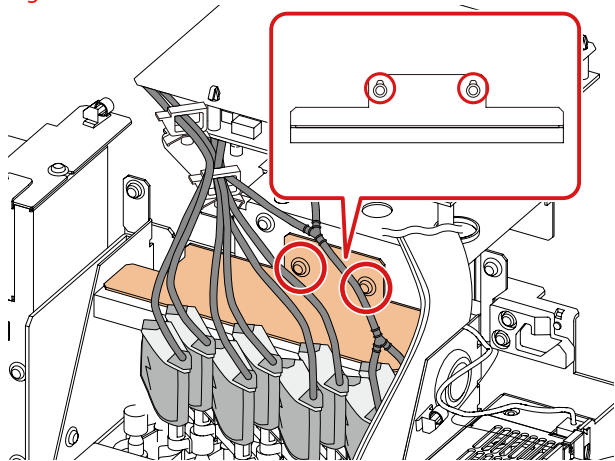


24. Unlock the print-head carriage, and move it to the left by hand.

25. Attach the damper plate.

CAUTION

- Fix the damper plate with screws while pressing it lightly with your hand. Be careful not to press it down to the dampers. Dampers could break.
- Tighten the screws at the bottom of the slotted holes.



26. (End of procedure)

# Limit Position & Maximum Scan Width Position Initialize

## Information

### Necessary tools

#### General tools

None

#### Special tools

|            |                                   |
|------------|-----------------------------------|
| 1000005829 | TOOL,VINYL YE UV RESISTANT ST-113 |
|------------|-----------------------------------|

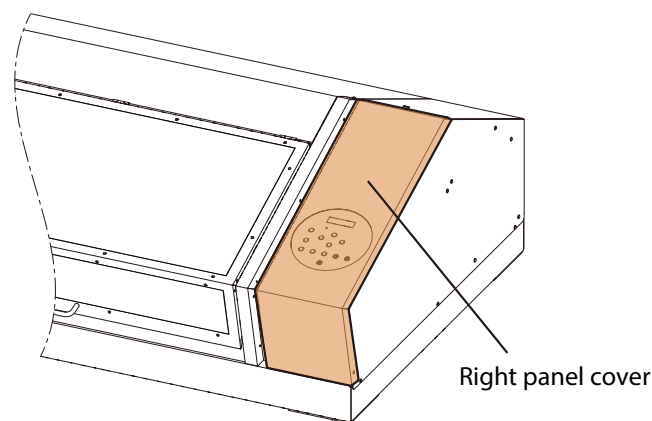
### Typical work time

| Contents of work                                        | Time    |
|---------------------------------------------------------|---------|
| Limit Position & Maximum Scan Width Position Initialize | 10 min. |

2

ADJUSTMENT

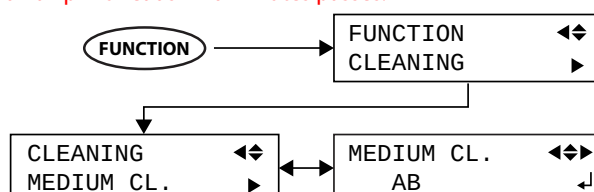
## Cover That Needs to Be Removed



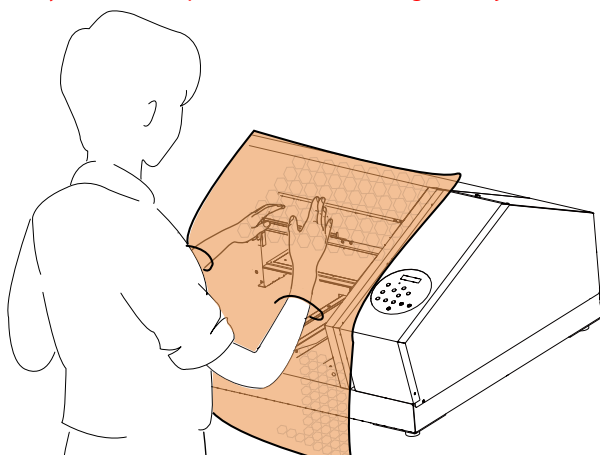
## Workflow

### CAUTION

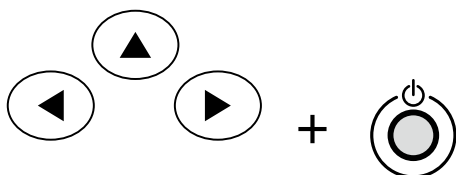
- This is for adjusting the relative distance between the limit sensor and the capping position, and also detecting the distance from the leftmost position of the print-head carriage movement to the limit sensor.
- When the limit position is not set correctly, it may cause some problems such as a head capping error.
- To prevent hardened ink from entering into the nozzle, refresh print head before the adjustment. Perform medium cleaning on all print heads if 20 minutes passes.



- Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.

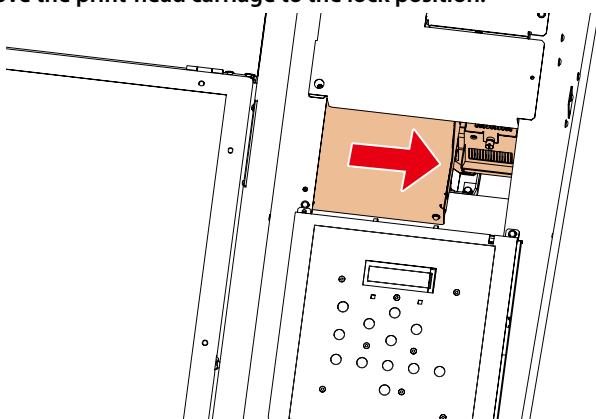


1. Turn on the main power switch and then the sub power switch while pressing the [◀] [▲] [▶] keys to enter the limit initialization mode.



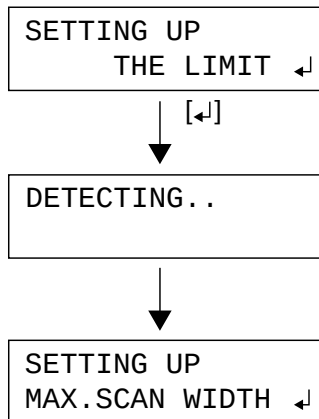
SETTING UP  
THE LIMIT ↵

2. Move the print-head carriage to the lock position.



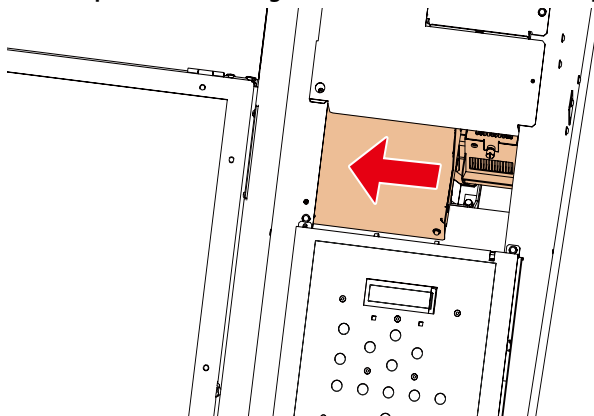
### Limit position adjustment

3. Confirm that the print head is capped properly, and press the [ENTER] key. The tool carriage will be separated from the print-head carriage and limit position initialization will start. After initialization is completed, the message is displayed.

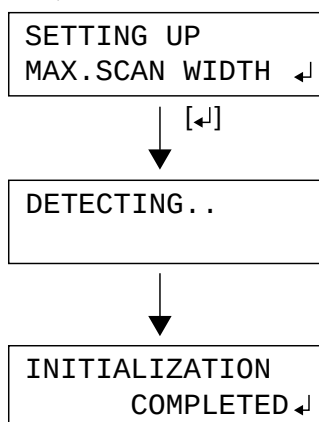


### Maximum scan width position initialize

4. Unlock the print-head carriage, and move it to the leftmost position of the print-head carriage movement.



5. Press the [ENTER] key to start the maximum scan width position initialize. After initialization is completed, the message is displayed.



6. Perform chapter 2 "[Flushing Position Adjustment](#)".
7. (End of procedure)

## Information

### Necessary tools

#### General tools

None

#### Special tools

None

### Typical work time

| Contents of work     | Time    |
|----------------------|---------|
| Linear encoder setup | 10 min. |

## Workflow

### CAUTION

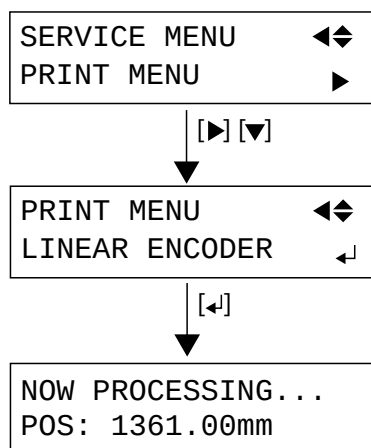
Linear encoder setup is performed to confirm that the installation of the linear encoder is proper, and also to confirm that it properly reads. This operation is required when the limit sensor, encoder scale or encoder sensor is replaced or the position is adjusted.

1. Turn on the power switch and enter the service mode.

### NOTE

Make sure to unload the media when it is set on the machine.

2. Select [SERVICE MENU] > [PRINT MENU] > [LINEAR ENCODER] and press the [ENTER] key.





**3.** One of the messages appears at the completion of setup.

LINEAR ENCODER ◀  
SETUP COMPLETED

LINEAR ENCODER ◀  
SETUP FAILED

LINEAR ENCODER ◀  
HEADBOARD FAILED

**NOTE**

In case of [SETUP FAILED] error occurs, check the following.

- Dirt/scratches on the encoder scale
- Dirt/scratches on the encoder sensor
- The encoder scale is not between the encoder sensor.
- There is a backlash between the scan motor gear and the drive gear.
- Fastening of the carriage and the carriage belt
- Bad cable connection

**4.** (End of procedure)

# Flushing Position Adjustment

## Information

### Necessary tools

#### General tools

None

#### Special tools

1000005829 TOOL,VINYL YE UV RESISTANT ST-113

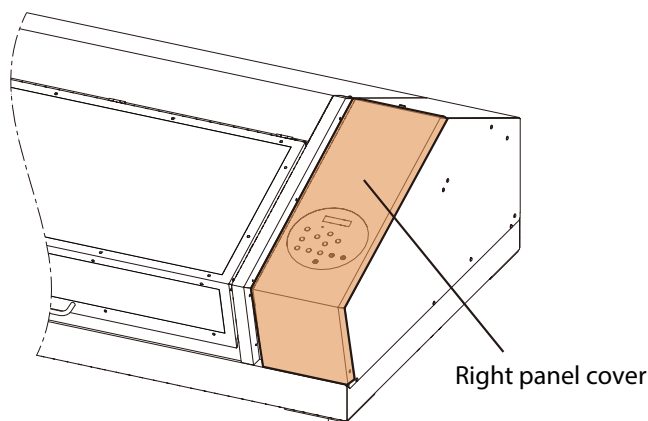
### Typical work time

| Contents of work             | Time   |
|------------------------------|--------|
| Flushing position adjustment | 5 min. |

2

ADJUSTMENT

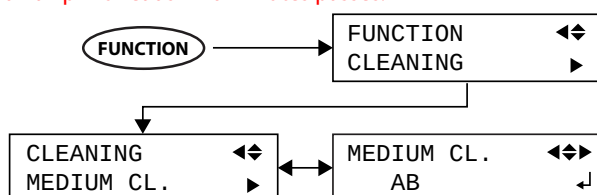
## Cover That Needs to Be Removed



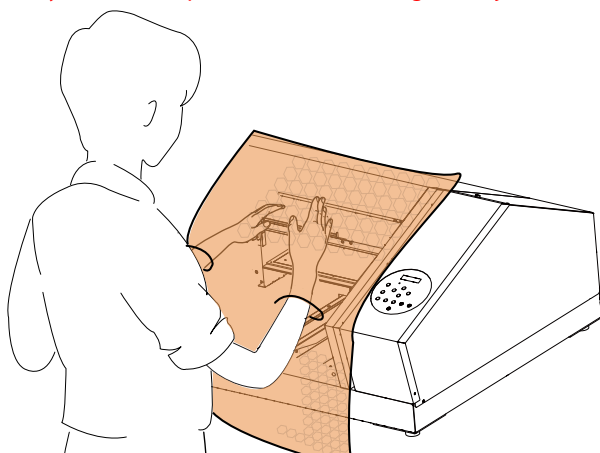
## Workflow

### CAUTION

- This is to adjust the flushing position. This adjustment is NOT required when a cap top and a print head are removed or replaced. This adjustment is required after performing the limit position & maximum scan width position initialize. Without this adjustment, the flushing may not be performed properly and that can cause nozzle firing problem.
- To prevent hardened ink from entering into the nozzle, refresh print head before the adjustment. Perform medium cleaning on all print heads if 20 minutes passes.



- Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.

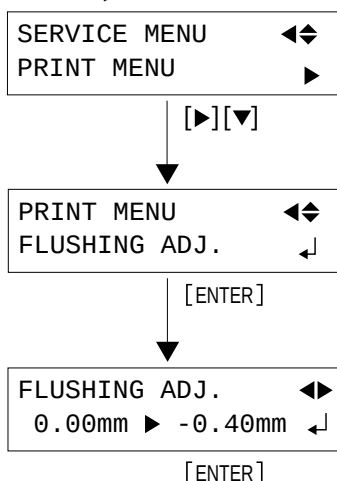


1. Remove the cover and enter service mode.

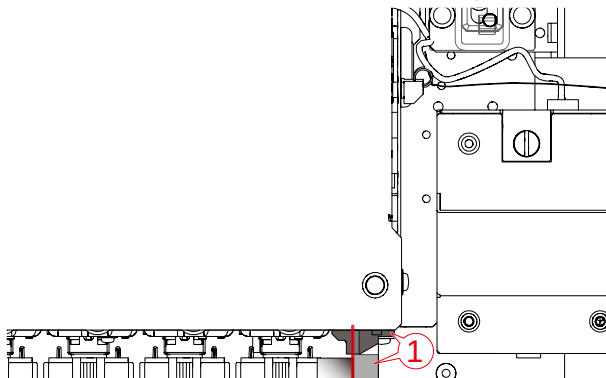
### NOTE

Make sure to unload the media when it is set on the machine.

2. Select [SERVICE MENU] > [PRINT MENU] > [FLUSHING ADJ.], and press the [ENTER] key. The print-head carriage automatically moves to the current flushing position.



3. Move the cap tops and heads to the position where the cap case guide makes contact with the carriage cap guide by pressing the [◀] [▶] keys. Then, press the [ENTER] key to update the flushing position. If you press the [MENU] key, the flushing position will not be updated, and display returns to the menu.



1. Guide

4. (End of procedure)

# Belt Tension Adjustment

## Information

### Necessary tools

#### General tools

No. 2 Phillips screwdriver

3.0 mm hexagonal wrench

#### Special tools

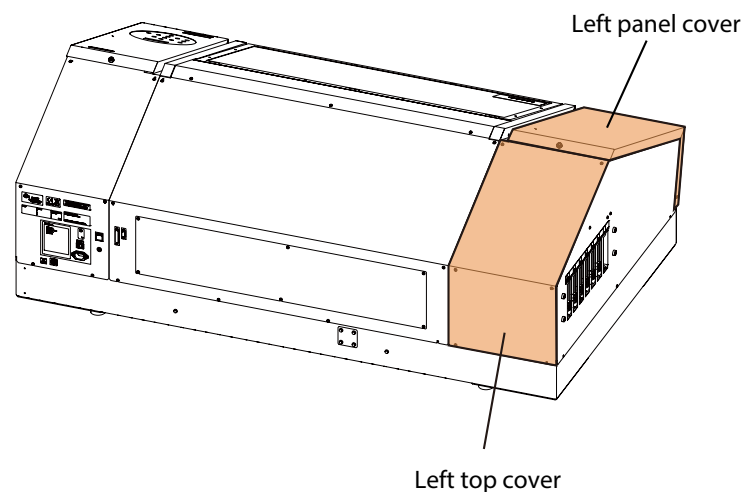
ST-001 TENSION GAUGE 2000GF/2000CN

1000005829 TOOL,VINYL YE UV RESISTANT ST-113

### Typical work time

| Contents of work        | Time    |
|-------------------------|---------|
| Belt Tension Adjustment | 20 min. |

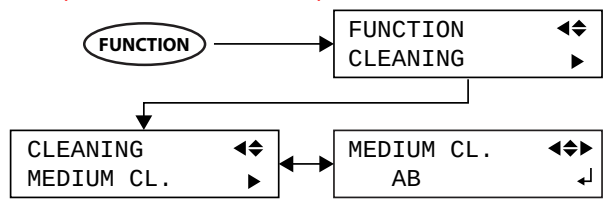
## Cover That Needs to Be Removed



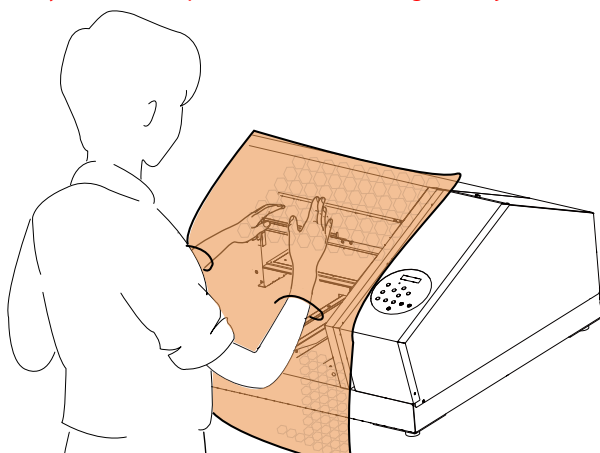
## Workflow

### CAUTION

- To prevent hardened ink from entering into the nozzle, refresh print head before the adjustment. Perform medium cleaning on all print heads if 20 minutes passes.



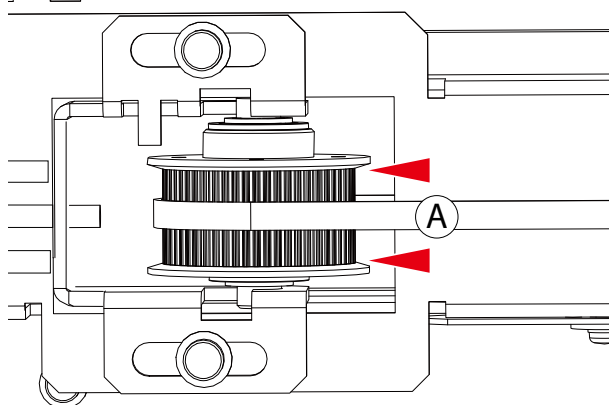
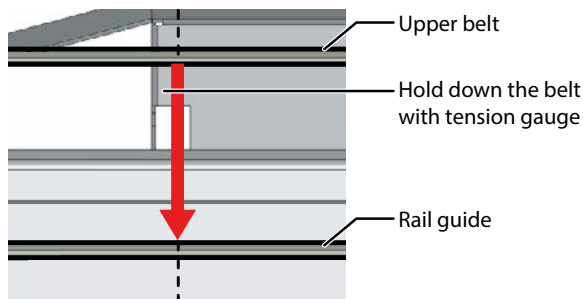
- Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.



1. Measure the tension of the belt at the position [A] shown in the figure using TENSION GAUGE (ST-001). When the tension is not proper, move on to the next step and adjust the belt tension.

**NOTE**

Press the upper belt downward with the gauge to make slight contact with the rail guide. The tension is proper when the measured value is 0.98 kgf to 1.18 kgf (9.8 cN/m to 11.8 cN/m).

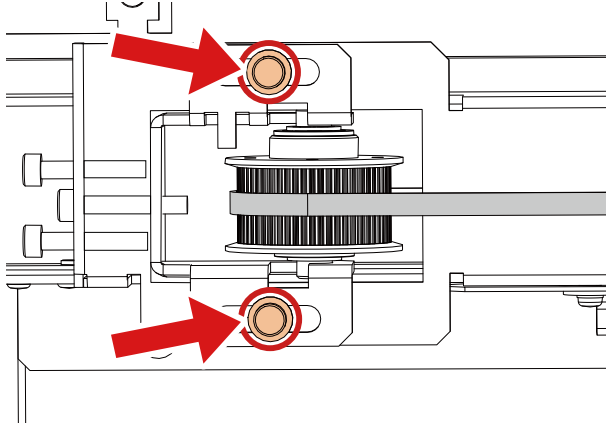
**Top view****Front view**

- Loosen two screws located at the left end of the belt halfway round.

### CAUTION

Be careful with the sharp edges around the belt when loosening the screws. It may cause injury.

Top view (left end of the belt)

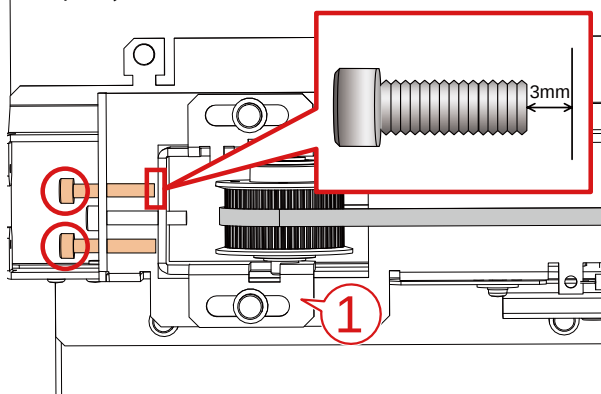


- Loosen the two screws to make a gap of approx. 3 mm between the tip of the screw and the idle pulley holder.

### NOTE

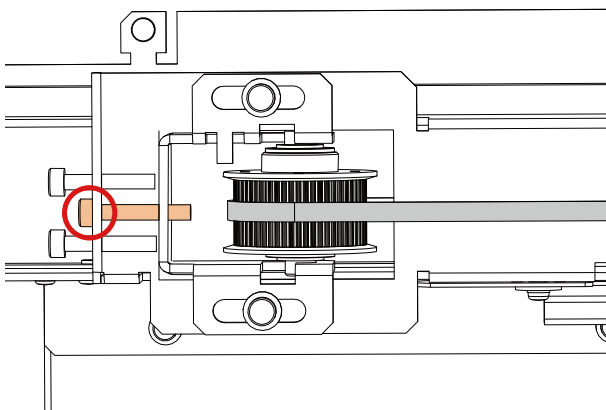
- The belt tension cannot be adjusted higher when the screws contact with the idle pulley holder.
- The gap between the screws and the idle pulley can be seen from both the front and rear side of the machine.

1. Idle pulley holder

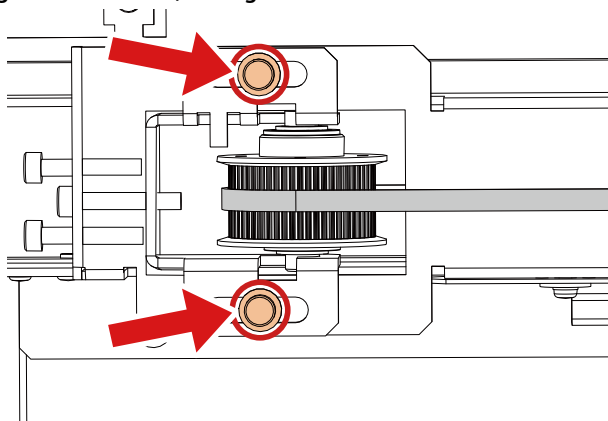


- Turn the screw to adjust the value of the tension gauge to be within the proper value.

- \* Turn the screw clockwise: Tension is increased.
- \* Turn the screw counterclockwise: Tension is decreased.



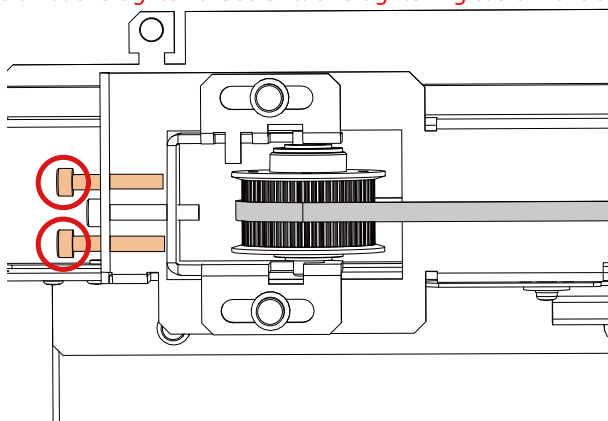
5. Tighten two screws, and again confirm that the tension is within the proper value.



6. Tighten two screws to slightly contact with the idle pulley holder.

**CAUTION**

Do not overtighten the screws. Overtightening could move the idle pulley holder.



7. Perform the following adjustments.
  - 7-1. Chapter 2 "[Belt Position Adjustment](#)"
8. (End of procedure)

# Belt Position Adjustment

## Information

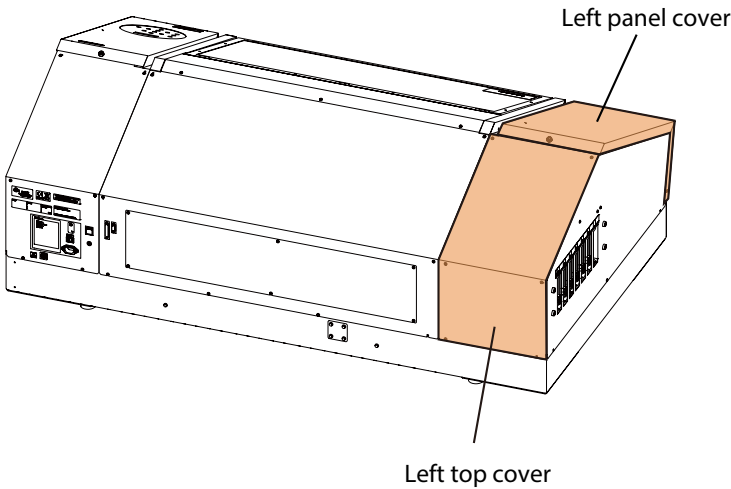
### Necessary tools

| General tools              |                                   |
|----------------------------|-----------------------------------|
| No. 2 Phillips screwdriver |                                   |
| 3.0 mm hexagonal wrench    |                                   |
| Media                      |                                   |
| Special tools              |                                   |
| 1000005829                 | TOOL,VINYL YE UV RESISTANT ST-113 |

### Typical work time

| Contents of work         | Time    |
|--------------------------|---------|
| Belt position adjustment | 30 min. |

## Cover That Needs to Be Removed

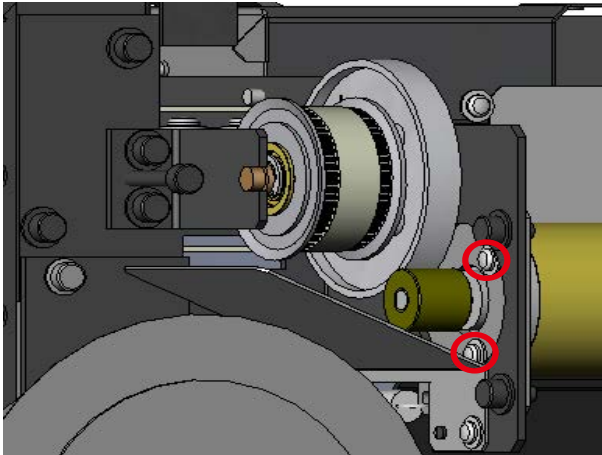




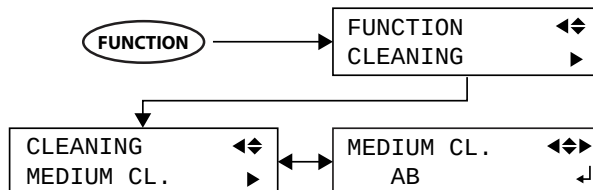
## Workflow

### CAUTION

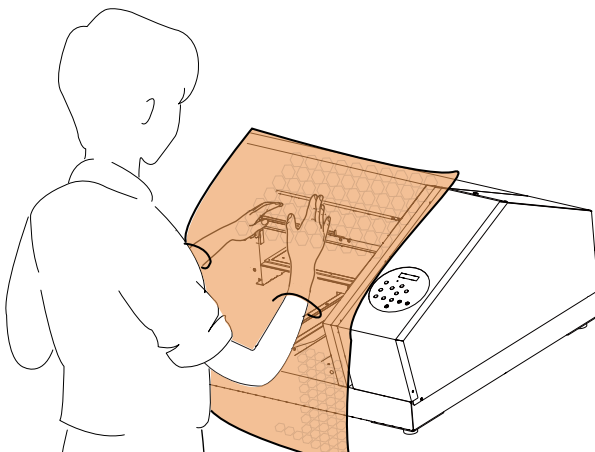
- This adjustment is to prevent the belt wear which is caused by the belt contacting the pulley flanges excessively. The belt position needs to be checked after the belt tension adjustment and adjusted if necessary.
- When adjusting the drive pulley side, the pressure of engagement between the white gear of the drive pulley and the scan motor gear is changed, possibly resulting in teeth breaking on the white gear or failure of the scan motor. After the belt position adjustment, be sure to loosen the screws fixing the scan motor and re-tighten them again.



- To prevent hardened ink from entering into the nozzle, refresh print head before the adjustment. Perform medium cleaning on all print heads if 20 minutes passes.

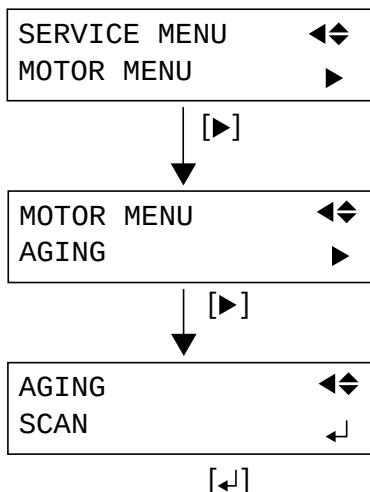


- Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.



1. Confirm that the belt tension adjustment is completed.
2. Turn on the power switch and enter the service mode.

3. Select [SERVICE MENU] > [MOTOR MENU] > [AGING] > [SCAN], and press the [ENTER] key.

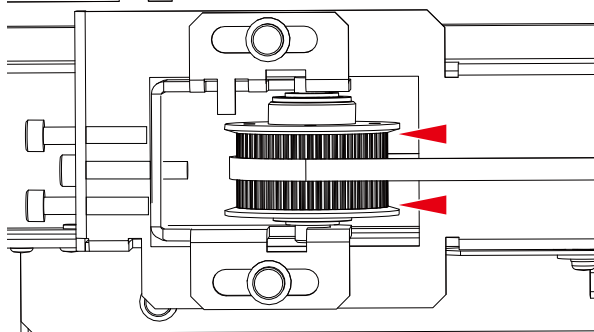


4. Check the position of the belt. The position is proper when the belt is not touching the flanges excessively. When positioning is correct, end this belt position adjustment. When positioning is not correct, perform the following adjustment.

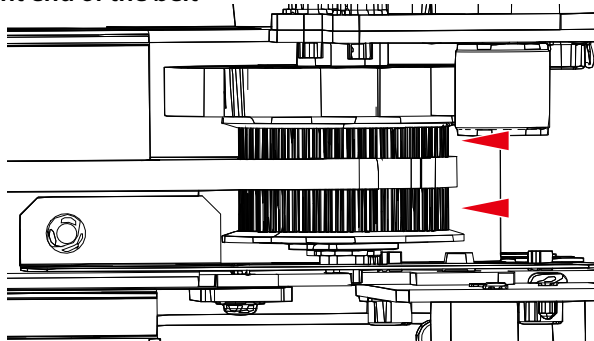
### NOTE

Belt partly touching the flange is acceptable.

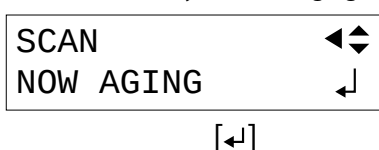
#### Left end of the belt



#### Right end of the belt



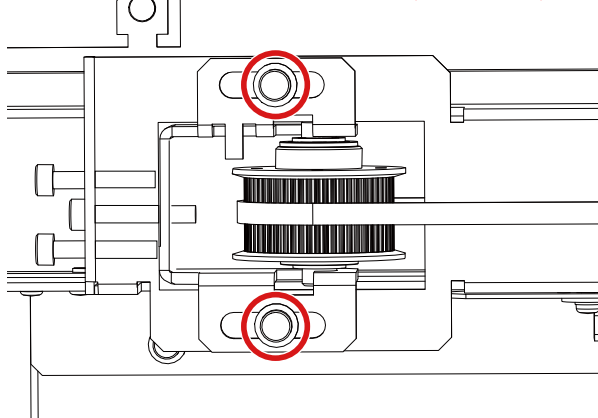
5. Press the [ENTER] key to cancel aging.



6. Loosen two fixing screws located at the left end of the belt eighth to quarter round.

### CAUTION

If you loosen the screws too much, it will make it difficult to adjust the belt position. Be careful with the sharp edges around the belt when loosening the screws. It may cause injury.

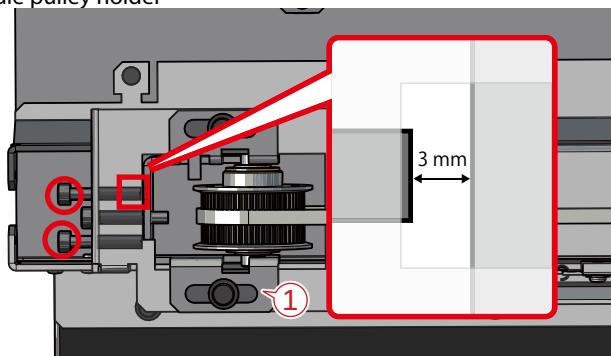


7. Loosen the two screws to make a gap of 3 mm between the tip of the screw and idle pulley holder.

### NOTE

The gap between the screws and the idle pulley holder can be seen from both the front side and rear side of the machine.

1. Idle pulley holder

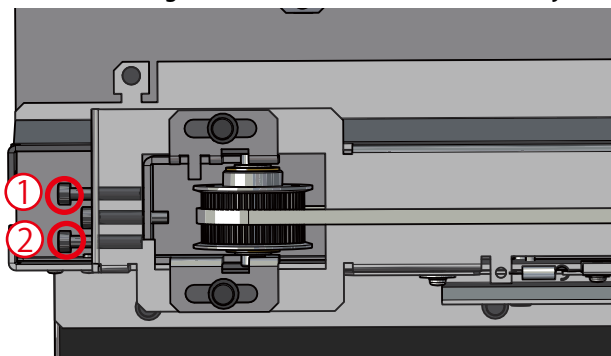


8. Press the [ENTER] key to restart aging.



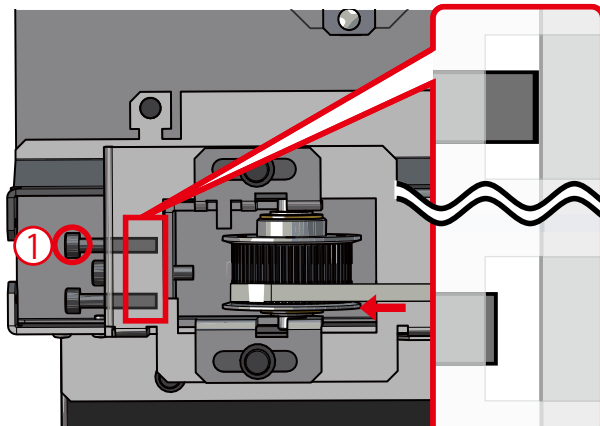
[↵]

9. Insert a wrench through the holes on the side frame and adjust the belt position by turning screw 1 and 2 as follows.



### When the belt is shifted toward the front side of the machine:

Turn screw 1 carefully clockwise to where it touches to the idle pulley holder.

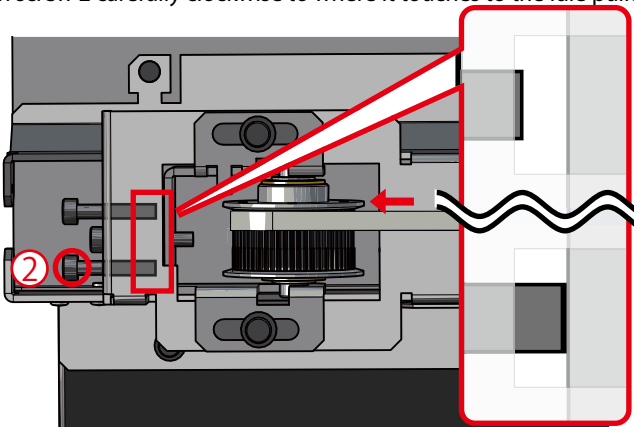


#### NOTE

Make sure that there is a gap of 3 mm between screw 2 and the idle pulley holder when turning screw 1.

### When the belt is shifted toward the rear side of the machine:

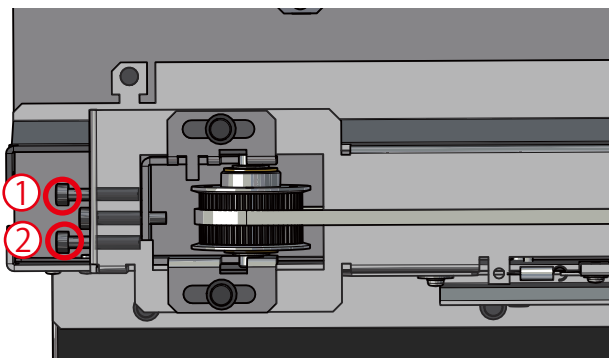
Turn screw 2 carefully clockwise to where it touches to the idle pulley holder.



#### NOTE

Make sure that there is a gap of 3 mm between screw 1 and the idle pulley holder when turning screw 2.

- 10.** Tighten one of the screws that have no contact with the idle pulley holder until the screw slightly touches the idle pulley holder.



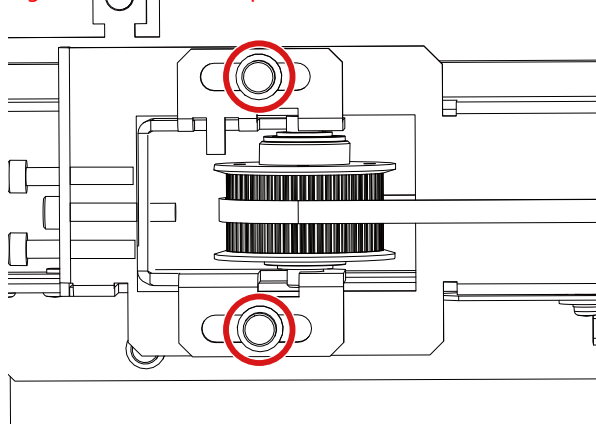
#### CAUTION

Do not overtighten the screws. Overtightening could move the idle pulley holder.

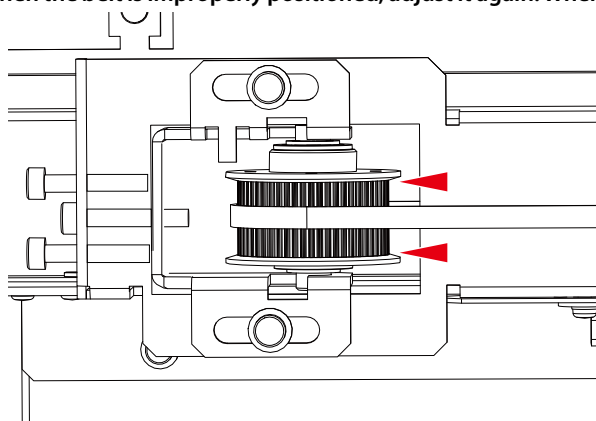
### 11. Tighten two fixing screws.

#### CAUTION

Be cautious with the moving print-head carriages and cableveyor during this procedure. Also, be careful with the sharp edges of the mechanical parts around it.



### 12. Confirm that the belt is not touching the pulley flanges excessively while the print-head carriages are in the printing area. When the belt is improperly positioned, adjust it again. When positioning is correct, press the [ENTER] key to cancel aging.



SCAN   
NOW AGING 

[↵]

### 13. (End of procedure)

## Information

### Necessary tools

| General tools |
|---------------|
| Media         |
| Special tools |
| None          |

### Typical work time

| Contents of work             | Time    |
|------------------------------|---------|
| Calibration (Feed direction) | 10 min. |

## Workflow

1. Turn on the power switch and enter the service mode.
2. Set PET-G on the printer.

#### NOTE

The vacuum fan operates with the [PAUSE / VACUUM] key.

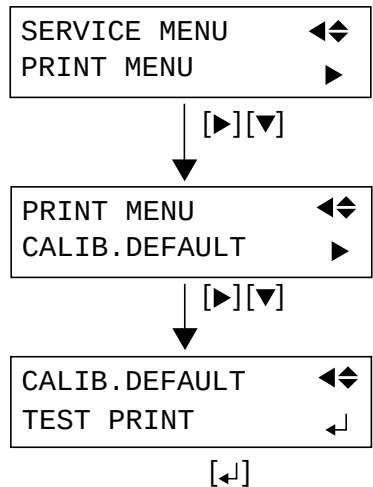
#### CAUTION

Set the table height by auto detection.

3. Select [CALIB.DEFAULT] > [TEST PRINT], and press the [ENTER] key.

#### NOTE

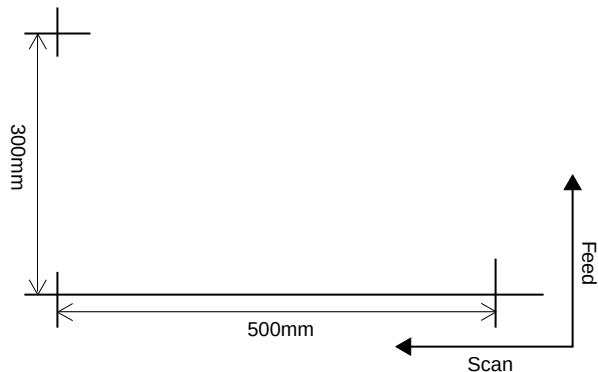
A media width of 510 mm or more is required for test printing.



4. A test pattern is printed. Measure the length of the feed direction and use the value to calculate the correction value with the formula shown at step 5.

**NOTE**

Test pattern is always printed with correction value 0.00%. Even if a correction is made in the [SETTING] menu, the test pattern is not affected.



5. Calculate the amount to be calibrated with the formula below.

CA = calibration amount

CL = commanded length (300MM)

ML = measured length

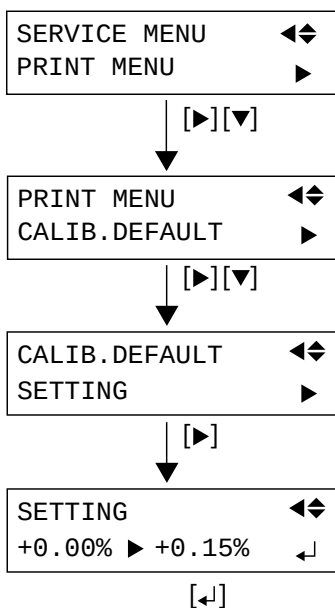
Formula

$$\frac{CL - ML}{ML} \times 100$$

6. Select [CALIB. DEFAULT] menu > [SETTING], and press the [▲] [▼] keys to enter the calibration value. Then press the [ENTER] key to save the setting.

**NOTE**

The correction value can be entered in increments of 0.01%. (MAX + 2.00% to MIN -2.00%)



7. (End of procedure)

## Information

### Necessary tools

#### General tools

None

#### Special tools

None

### Typical work time

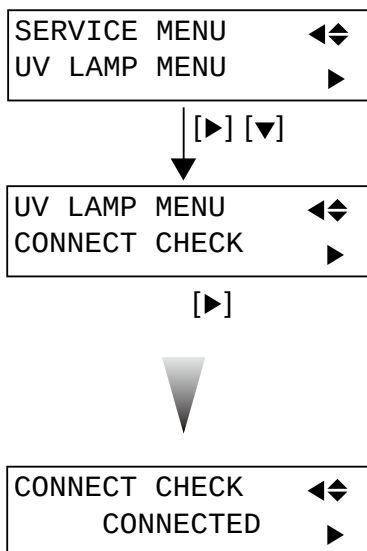
| Contents of work | Time   |
|------------------|--------|
| UV lamp check    | 5 min. |

## Workflow

### NOTE

- This is required when UV lamp unit is replaced.
- This is to check whether UV lamp unit operates properly.

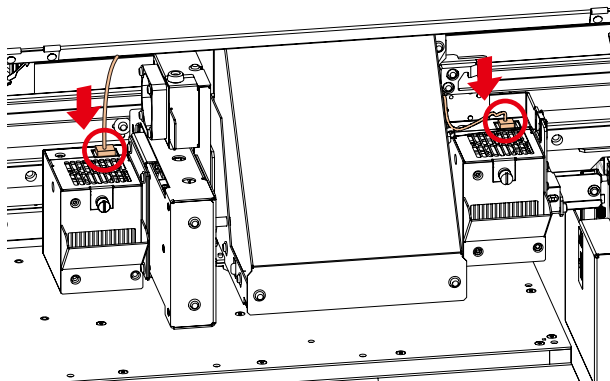
1. Turn on the power switch and enter the service mode.
2. Select [SERVICE MENU] > [UV LAMP MENU] > [CONNECT CHECK], and press the [▶] key to enter the menu. Check that the screen below appears.





- If the screen shown below appears, check if the UV lamp is connected properly.

CONNECT CHECK ◀▶  
NOT CONNECTED ▶



- Go back to [UV LAMP MENU] and select [LAMP ON CHECK], and press the [▶] key to enter the menu. The print-head carriage moves to a location permitting UV lamp replacement, and then the screen below appears.

UV LAMP MENU ◀▶  
LAMP ON CHECK ▶

[▶]

NOW PROCESSING...

LAMP ON CHECK ◀▶▶  
LEFT :OFF:[ ] ◀

LAMP ON CHECK ◀▶▶  
RIGHT :OFF:[ ] ◀

- Check that the UV Lamp can be operated properly by turning ON/OFF the UV lamp by pressing the [ENTER] key while the cover is closed.

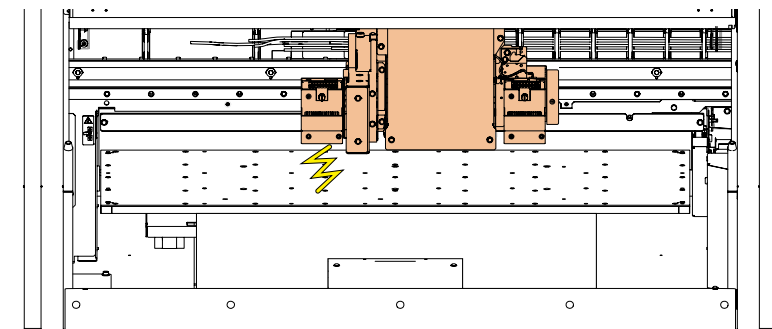
Left

LAMP ON CHECK ◀▶▶  
LEFT :100:[ ] ◀

ENTER

<When the lamp is on>

LAMP ON CHECK ◀  
LEFT : \* : [ ] ◀



Right

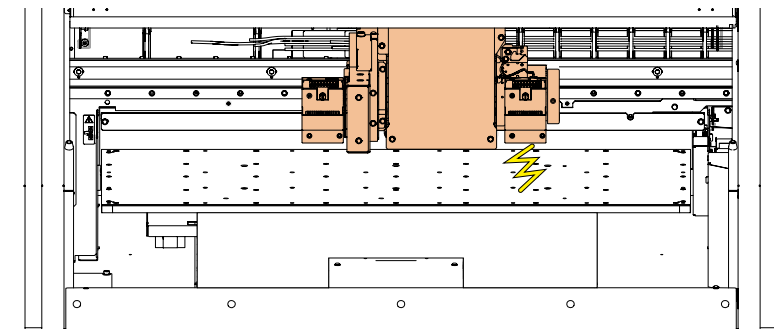
LAMP ON CHECK ◀▶  
RIGHT :100:[ ] ↵

ENTER



<When the lamp is on>

LAMP ON CHECK ◀  
RIGHT \* : [ ] ↵



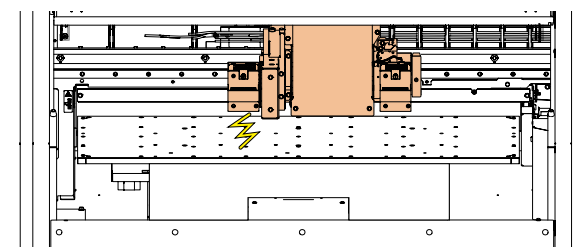
- Turn on the [RIGHT] and [LEFT] UV lamps on the operation panel while the cover is closed. Check that the UV Lamp is turned ON/OFF when opening and closing the cover.

Left

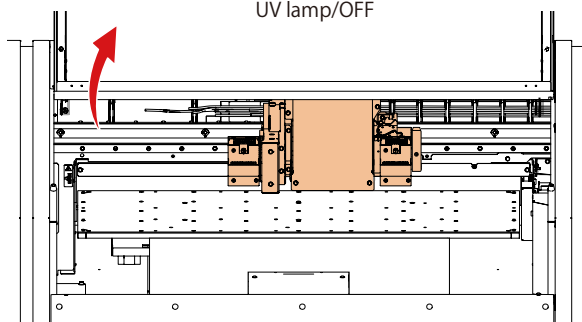
<When the lamp is on>

LAMP ON CHECK ◀  
LEFT \* : [ ] ↵

< When the cover is closed>  
UV lamp/ON



< When the cover is open>  
UV lamp/OFF

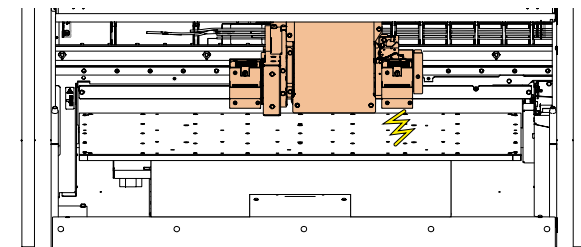


Right

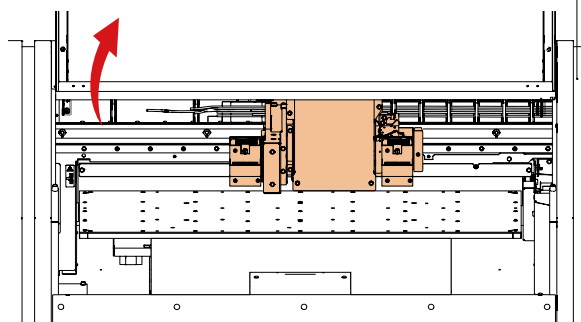
<When the lamp is on>

LAMP ON CHECK ◀  
RIGHT \* : [ ] ↵

< When the cover is closed>  
UV lamp/ON



< When the cover is open>  
UV lamp/OFF



- (End of procedure)

# UV Lamp Illuminance Measurement

## Information

### Necessary tools

#### General tools

None

#### Special tools

|            |                                     |
|------------|-------------------------------------|
| 1000021605 | SET,PWR-M C6080-385-NF,E15348-01 SV |
|------------|-------------------------------------|

### Typical work time

| Contents of work                | Time    |
|---------------------------------|---------|
| UV lamp illuminance measurement | 10 min. |

2

ADJUSTMENT

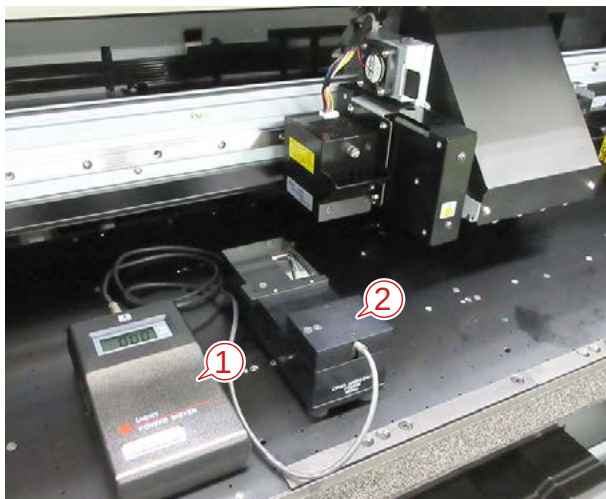
## Workflow

1. Turn on the power switch and enter the service mode.
2. Select [SERVICE MENU] > [UV LAMP MENU] > [UV POWER METER] and press the [▶] key. Print-head carriage and table move to the set positions.

#### NOTE

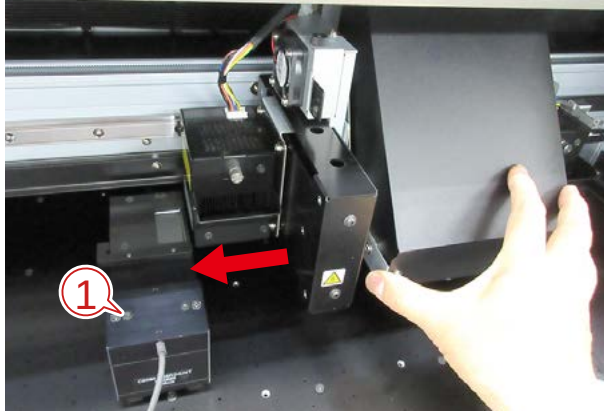
After the print-head carriage and table stop moving, move the carriage with your hand. You can control the table height by pressing table [UP] [DOWN] keys.

3. Put the illuminance measuring tool and jig (SET,PWR-M C6080-385-NF,E15348-01 SV) next to the left UV lamp.



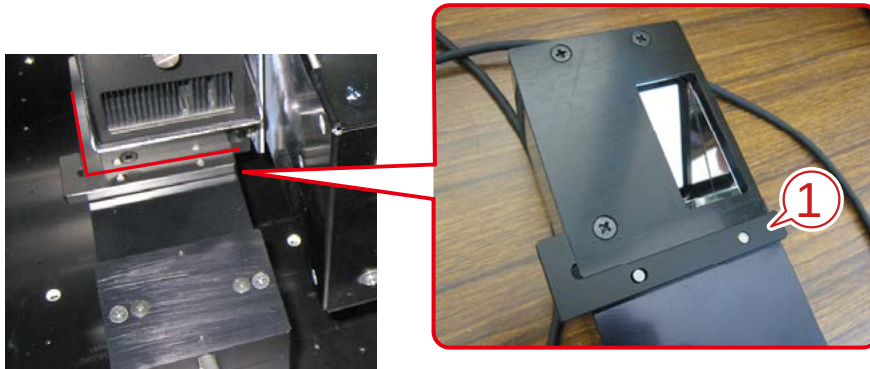
1. Illuminance measuring tool
2. Measuring jig

4. Adjust the table height by table [UP] [DOWN] keys so that the gap between the measuring jig and the left UV lamp becomes within 0.3 mm.
5. Confirm that the UV lamp does not make contact with the measuring jig when you move the print-head carriage leftward. If the lamp makes contact with the jig, lower the table by one level.



1. Measuring jig

6. Bring the left UV lamp into contact with the alignment plate.



1. Alignment plate

### NOTE

Place the UV lamp so that its front and left side surfaces match the alignment plate.

7. Close the front cover, and press the [▲] [▼] keys to set the value to "100". Press the [ENTER] key to light the UV lamp.

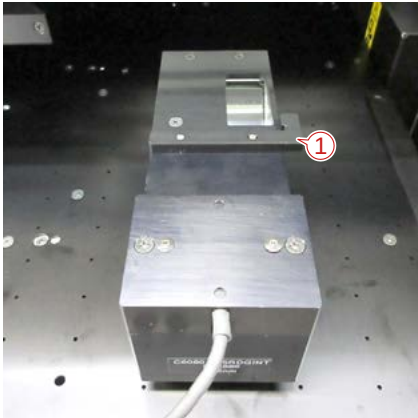


8. Wait for 3 minutes after lighting the UV lamp and read the measured value of the measuring tool.

### NOTE

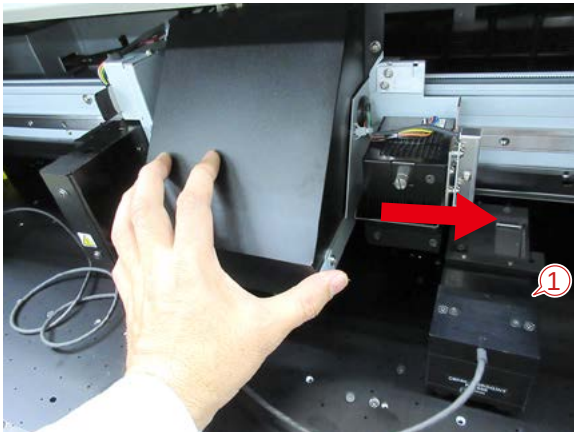
Measured value criterion: 90 or more

9. Press the [▲] [▼] keys to set the value from "100" to "OFF". Press the [ENTER] key to turn off the UV lamp.
10. Remove the alignment plate and attach it to the jig so that the L-shaped part is on the right side. Then put the measuring jig next to the right UV lamp.



1. Alignment plate

11. Adjust the table height by table [UP] [DOWN] keys so that the gap between the measuring jig and right UV lamp becomes within 0.3 mm.
12. Confirm that the UV lamp does not make contact with the measuring jig when you move the print-head carriage rightward. If the lamp makes contact with the jig, lower the table by one level.



1. Measuring jig

13. Bring the right UV lamp into contact with the alignment plate.



1. Alignment plate

### NOTE

Place the UV lamp so that its front and left side surfaces match the alignment plate.

14. Close the front cover, and press the [▲] [▼] keys to set the value to "100". Press the [ENTER] key to light the UV lamp.



15. Wait for 3 minutes after lighting the UV lamp and read the measured value of the measuring tool.

**NOTE**

Measured value criterion: 90 or more

16. Press the [▲] [▼] keys to set the value from "100" to "OFF". Press the [ENTER] key to turn off the UV lamp.

17. Remove the illuminance measuring tool and jig from the table.

**NOTE**

When the machine exits the measurement mode, the print-head carriage starts to move. Remove the measuring tool and jig beforehand so as not to cause any damage in the UV lamp or the measuring tool and jig, or the measuring tool and jig do not get caught.

18. Press the [◀] key and exit the measurement mode.

# LED Pointer Position Adjustment

## Information

### Necessary tools

#### General tools

Clear film for test print

#### Special tools

|            |                                   |
|------------|-----------------------------------|
| 1000005829 | TOOL,VINYL YE UV RESISTANT ST-113 |
|------------|-----------------------------------|

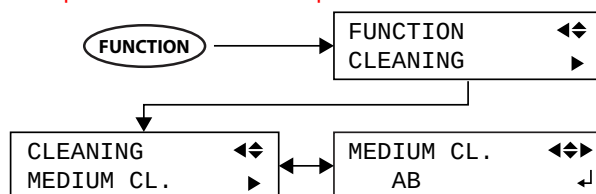
### Typical work time

| Contents of work                | Time   |
|---------------------------------|--------|
| LED pointer position adjustment | 5 min. |

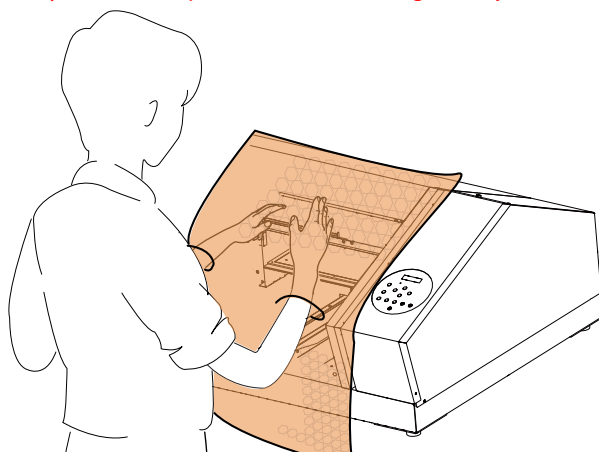
## Workflow

### CAUTION

- To prevent hardened ink from entering into the nozzle, refresh print head before the adjustment. Perform medium cleaning on all print heads if 20 minutes passes.



- Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.



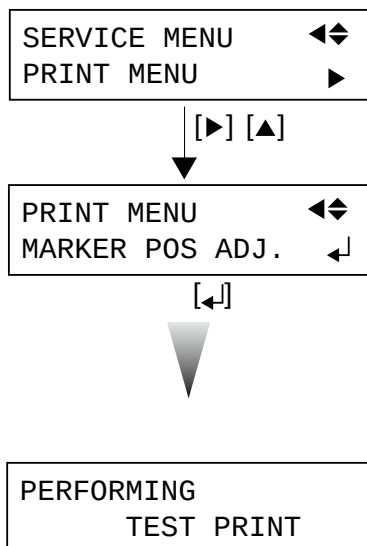
- This adjustment is required when the LED pointer is replaced.
- This adjustment is to adjust the position of the print head and the LED pointer.

1. Turn on the power switch and enter the service mode.
2. Setup clear film on the machine.

**CAUTION**

Set the table height by auto detection.

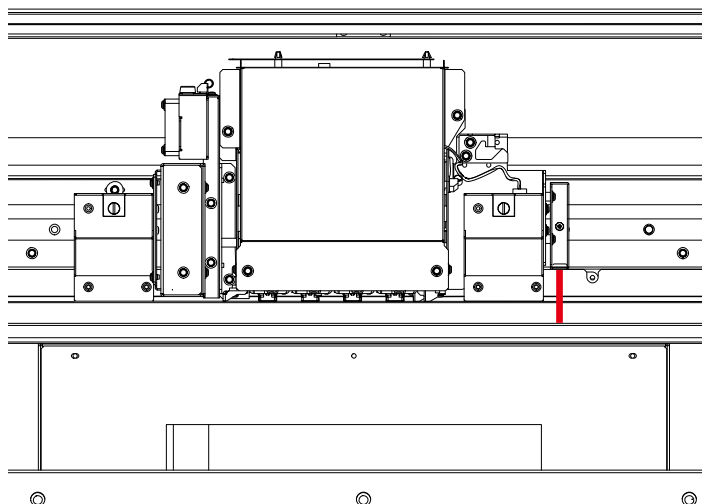
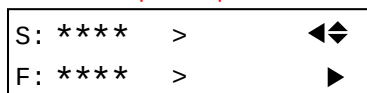
3. Select [SERVICE MENU] > [PRINT MENU] > [MARKER POS ADJ.], and press the [ENTER] key. A test pattern is printed.



4. After the test print, the print-head carriage moves above the test pattern automatically.

**CAUTION**

When the LED pointer position is not adjusted, the value of the LCD will be displayed as [\*\*\*\*].

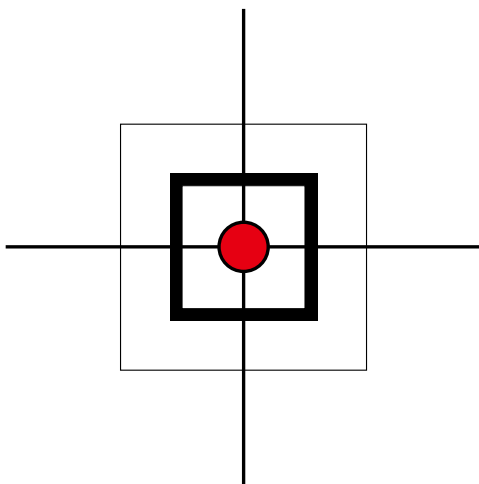




5. Move the print-head carriage to the position where the LED pointer points the centermost square of the test pattern by pressing the [▲] [▼] [◀] [▶] keys. Then press the [ENTER] key to save the setting. If you press the [MENU] key, the flushing position will not be updated, and display returns to the menu.

```
S: **** > +0.3mm◀▶
F: **** > -0.1mm ◀
```

[↵]



6. Perform "Chapter 2 [Print Area Adjustment](#)".
7. (End of procedure)

## Information

### Necessary tools

#### General tools

Clear film for test print

#### Special tools

|            |                                   |
|------------|-----------------------------------|
| 1000005829 | TOOL,VINYL YE UV RESISTANT ST-113 |
|------------|-----------------------------------|

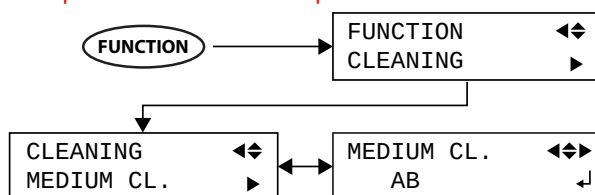
### Typical work time

| Contents of work      | Time    |
|-----------------------|---------|
| Print area adjustment | 10 min. |

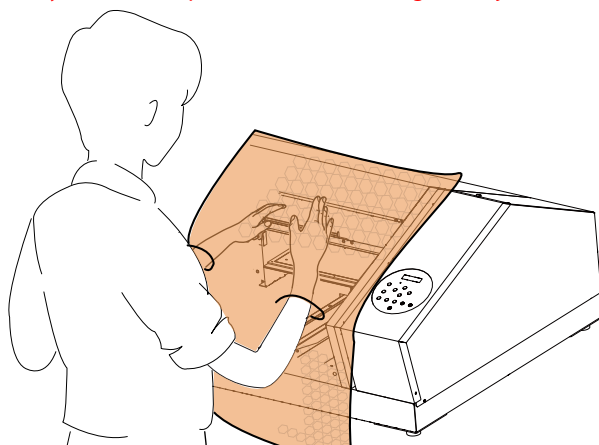
## Workflow

### CAUTION

- To prevent hardened ink from entering into the nozzle, refresh print head before the adjustment. Perform medium cleaning on all print heads if 20 minutes passes.

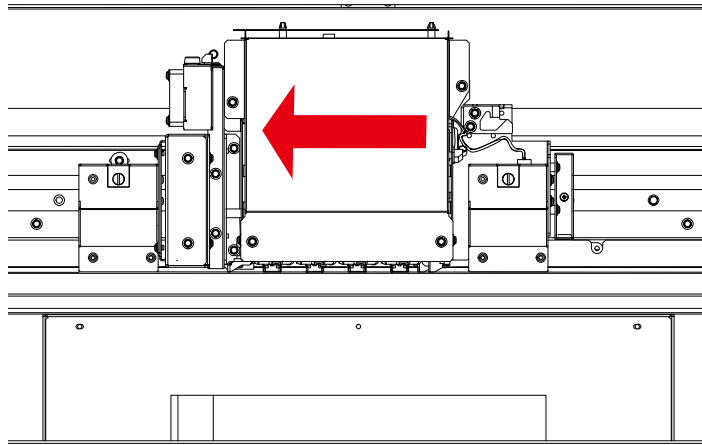
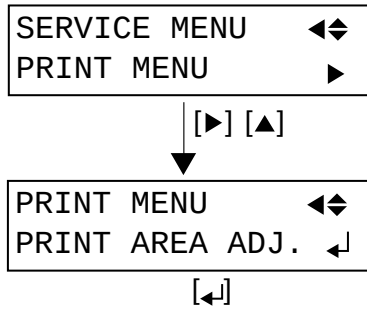


- Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.

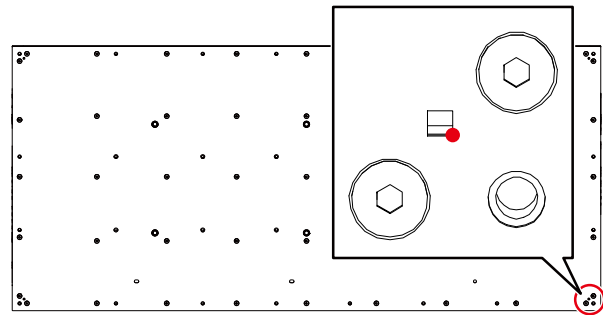
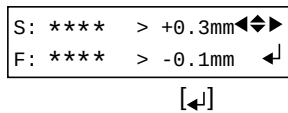


- This is to adjust the print area on the table and the operation area of the LED pointer. This adjustment is required when the LED pointer or table is removed or replaced.

1. Turn on the power switch and enter the service mode.
2. Select [SERVICE MENU] > [PRINT MENU] > [PRINT AREA ADJ.], and press the [ENTER] key. The print-head carriage moves to above the table.



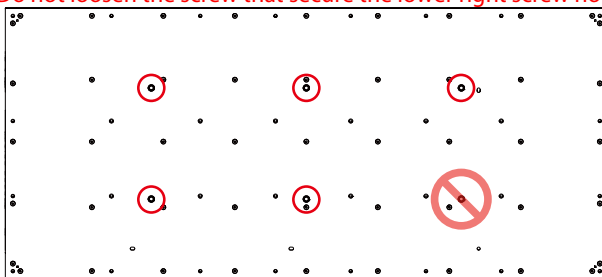
3. Move the print-head carriage to the position where the LED pointer points lower right of the print area by pressing the [UP] [DOWN] [LEFT] [RIGHT] keys. Then, press the [ENTER] key. If you press the [MENU] key, the flushing position will not be updated, and display returns to the menu.



4. Loosen the screws that secure the table plate.

## CAUTION

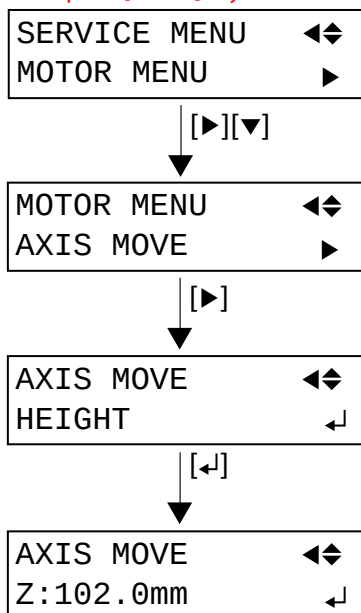
Do not loosen the screw that secure the lower right screw hole of the table plate.



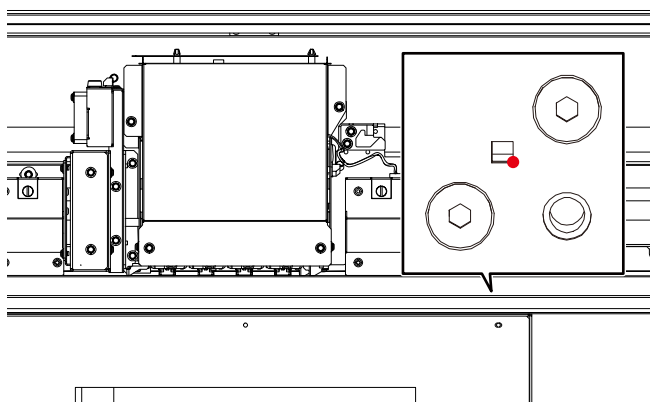
5. Select [MOTOR MENU] > [AXIS MOVE] > [HEIGHT] and set the Height to 102.0 mm, then unlock the print-head carriage and move it leftwards by hand.

## CAUTION

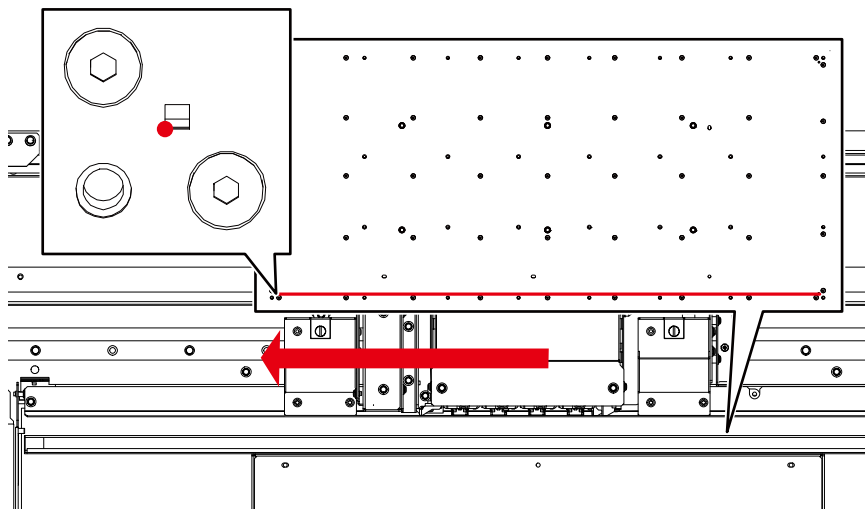
Do not press [ENTER] key.



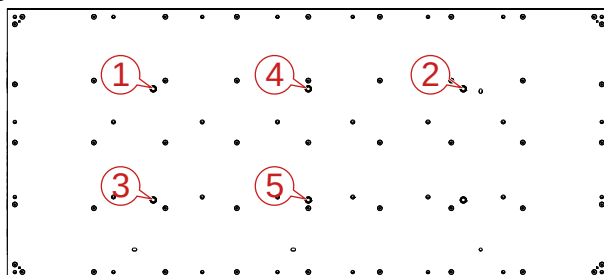
6. Move the table by pressing the [▲] [▼] keys for FEED AXIS, and move the print-head carriage by hand for SCAN AXIS so that the LED pointer points lower right position of the print area.



7. Move the print-head carriage slowly by hand in SCAN direction, and adjust the table position so that the LED pointer does not move outside of the LED range line.



8. Tighten the screws in the order as shown below.



9. (End of procedure)

# Table Height Adjustment

## Information

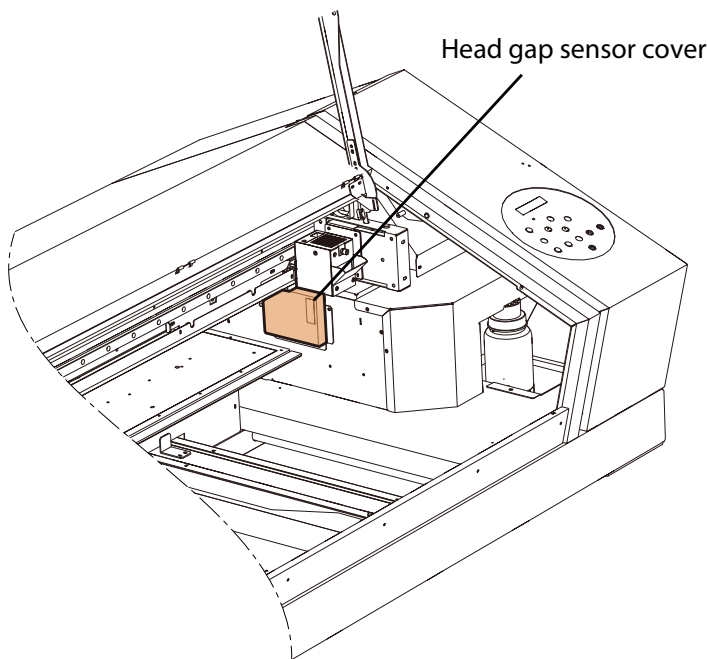
### Necessary tools

| General tools           |                                   |
|-------------------------|-----------------------------------|
| Block                   |                                   |
| Media                   |                                   |
| 2.0 mm hexagonal wrench |                                   |
| 2.5 mm hexagonal wrench |                                   |
| Special tools           |                                   |
| 1000005829              | TOOL,VINYL YE UV RESISTANT ST-113 |

### Typical work time

| Contents of work        | Time    |
|-------------------------|---------|
| Table height adjustment | 20 min. |

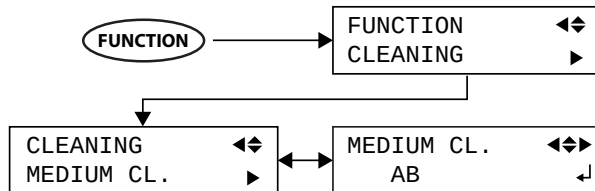
## Cover That Needs to Be Removed



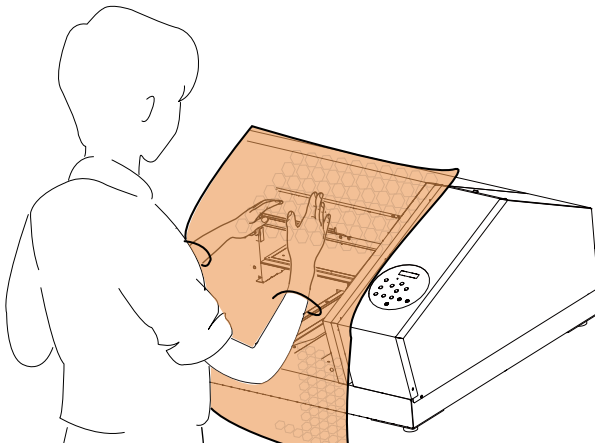
## Workflow

### CAUTION

- To prevent hardened ink from entering into the nozzle, refresh print head before the adjustment. Perform medium cleaning on all print heads if 20 minutes passes.

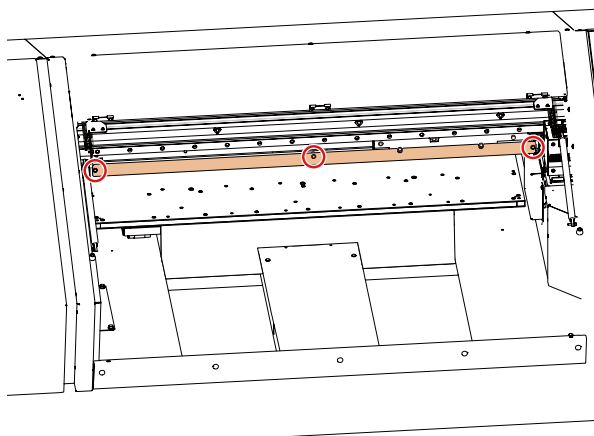


- Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.



- This adjustment is required when the table unit is replaced. This adjustment is NOT required when you remove the table unit and put back the same one. This adjustment is to adjust the table height parallel to the LM guide. After this adjustment, following adjustments are required: - Head height adjustment - UV lamp position adjustment- Head gap sensor adjustment- Print area adjustment
- A parallelepiped block is required for this adjustment.
- Recommended media for this adjustment is PET-G.

### 1. Remove the plate Head gap sensor plate



2. Tape the plate shown in the figure in the place to deauthorize the head gap sensor.

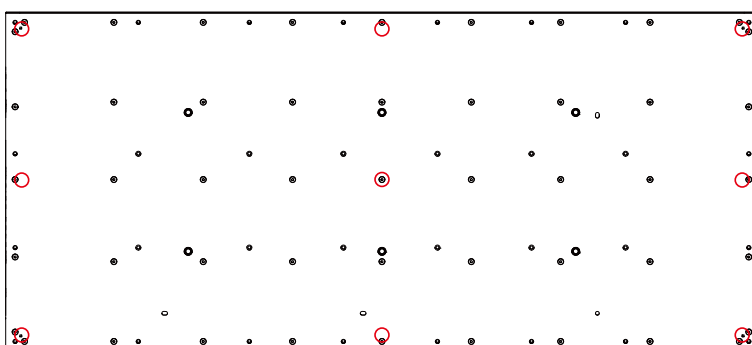


3. Turn on the power switch and enter the service mode.

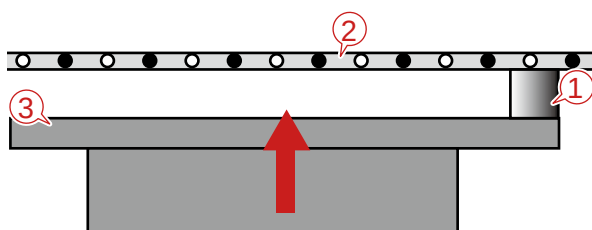
### Measuring the distance at the five points of the print area

4. Measure the distance between the LM guide and the tabletop at the nine points of the print area.

Top view

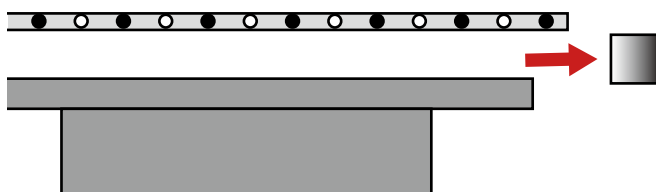


- 4-1. Move the table unit in feed direction by pressing the [▲] [▼] keys so that the front line of the print area is located under the LM guide.
- 4-2. Select [SERVICE MENU] > [MOTOR MENU] > [AXIS MOVE] > [HEIGHT].
- 4-3. Set the block on the lower right corner of the print area, and move up the table by pressing the Z height keys.



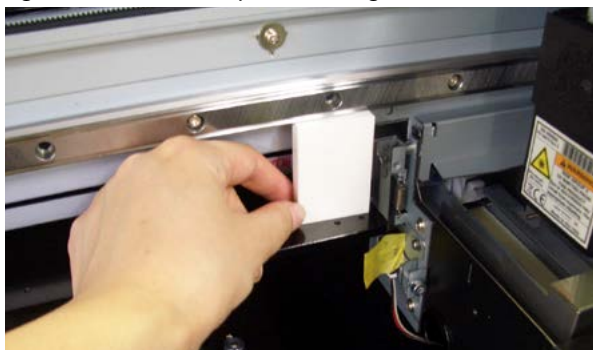
1. Block
2. LM guide
3. Table

- 4-4. Move up the table until the block touches the LM guide, then remove the block.

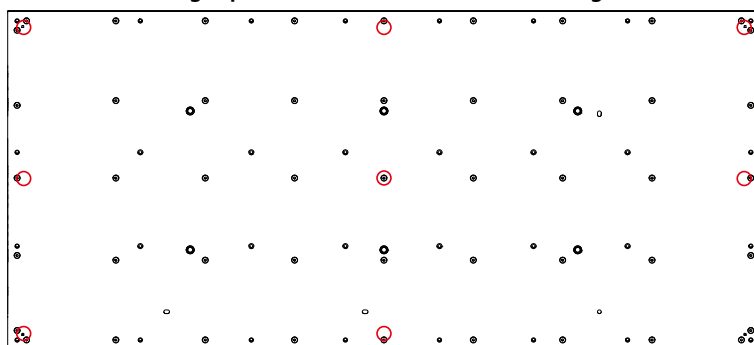




- 4-5. Move the table up 0.1 mm and insert the block on the same place again. Repeat this step until the space between the LM guide and the tabletop is not enough to insert the block. Make note of the height when the block cannot be inserted.

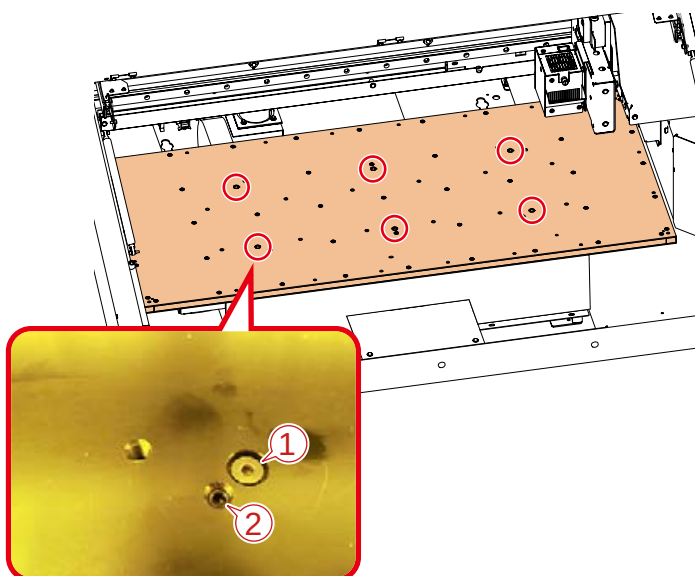


5. Measure the other eight points and make a note of their height values.



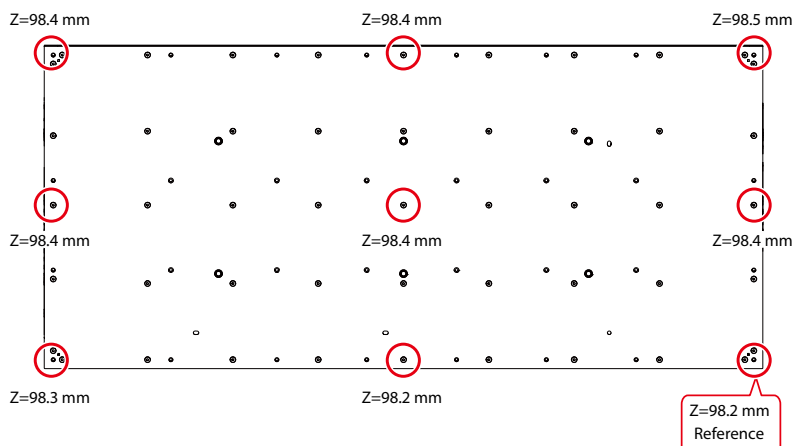
6. Loosen six fixing screws that secure the table unit.

1. Fixing screw (2.5 mm)
2. Adjustment screw (2.0 mm)

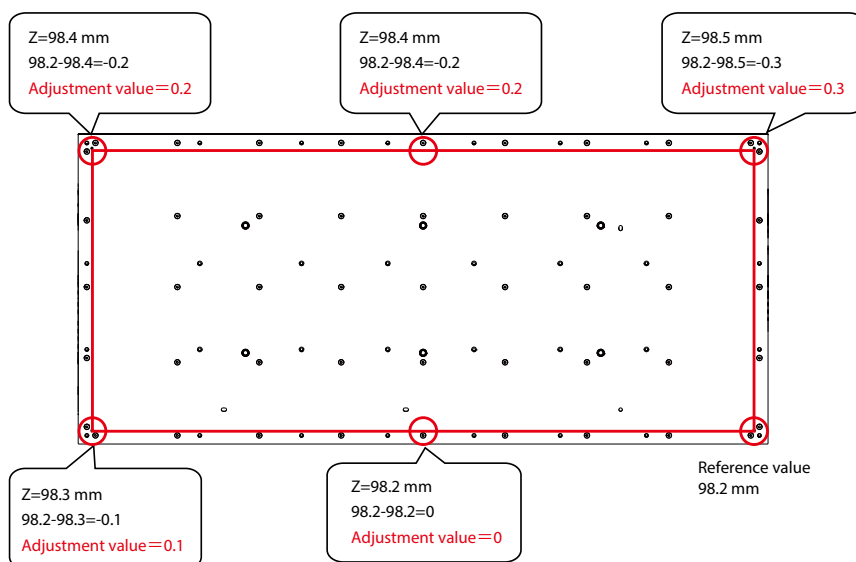


7. Refer to the height values that you made note in step 4 and 5, and adjust the table height by adjustment screws. The reference value is the lowest value (the highest point of the table) of the all five points.

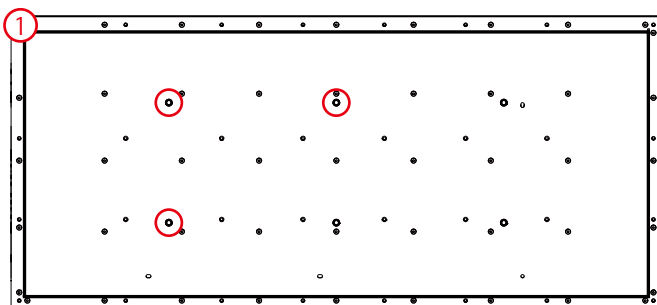
- 7-1. Suppose the height values are as in the figure. Since the point that has the lowest value is the one of lower right corner, the reference value is 98.2 mm.



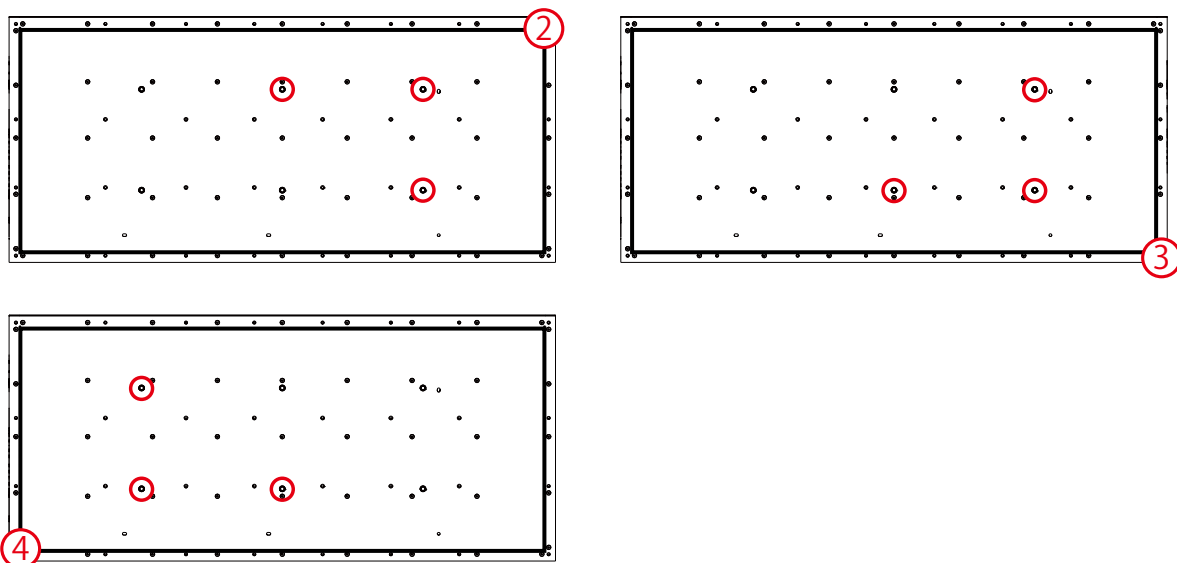
- 7-2. Subtract the each value of the five points from the value of the lower right corner (98.2 mm). According to the subtracted value, adjust the height at 3 positions. (For the center point, adjust the height at one or two points close to it).



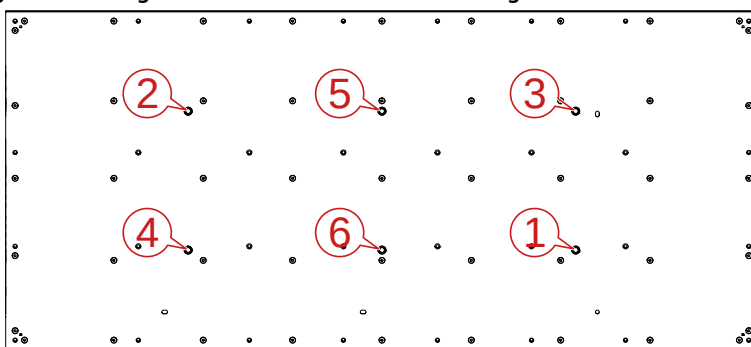
- 7-3. For No. 1 point, adjust the height with the following three adjustment screws. For adjusting 0.1 mm, turn the adjustment screw for 1/7 turn. Since the adjustment value of No. 1 point is 0.2, turn the adjustment screw for 2/7 turn.



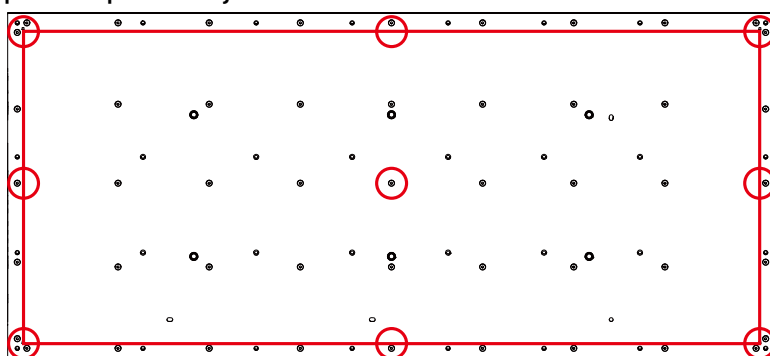
- 7-4. For the other three corner points, adjust the heights with the following three adjustment screws.



8. Tighten six fixing screws in the order shown in the figure.



9. Measure the distance between the LM guide and table unit for 8 points again, and confirm that the difference between the reference value and the value of the other points are within 0.3 mm. If the difference is more than 0.3 mm, go back to step 7 and repeat the adjustment.



10. Perform the following adjustments.

- 10-1. Chapter 2 "[Print Head Height Adjustment](#)"
- 10-2. Chapter 2 "[UV Lamp Height Adjustment](#)"
- 10-3. Chapter 2 "[Head Gap Sensor Position Adjustment](#)"
- 10-4. Chapter 2 "[Print Area Adjustment](#)"
- 10-5. Chapter 2 "[Print Head Alignment](#) (HORIZONTAL only)"

### 11. When all adjustments are finished, perform test print referring to the following procedure.

11-1. Turn on the power switch and enter the service mode.

11-2. Setup clear film on the machine.

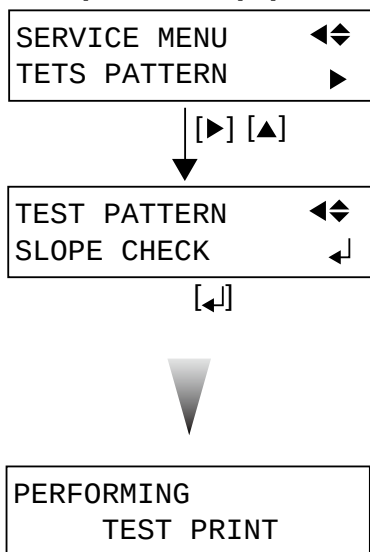
#### NOTE

The vacuum fan operates with the [PAUSE / VACUUM] key.

#### CAUTION

Set the table height by auto detection.

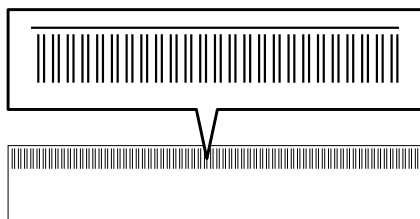
11-3. Select [SERVICE MENU] > [TEST PATTERN] > [SLOPE CHECK] and press the [ENTER] key.



11-4. A test pattern is printed. Confirm that the interval of the two lines are same in the test pattern.

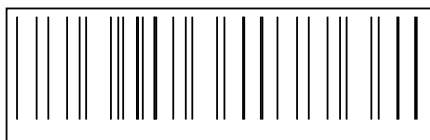
OK

\* The interval of two lines are same.

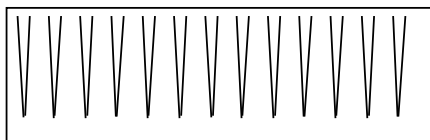


No Good

\* The interval of the two lines are different.



\* Two lines are overlapped.



### 12. (End of procedure)

# Print Head Height Adjustment

## Information

### Necessary tools

#### General tools

No. 2 Phillips screwdriver

#### Special tools

1000005829 TOOL,VINYL YE UV RESISTANT ST-113

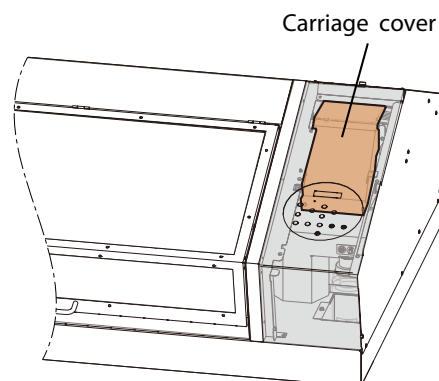
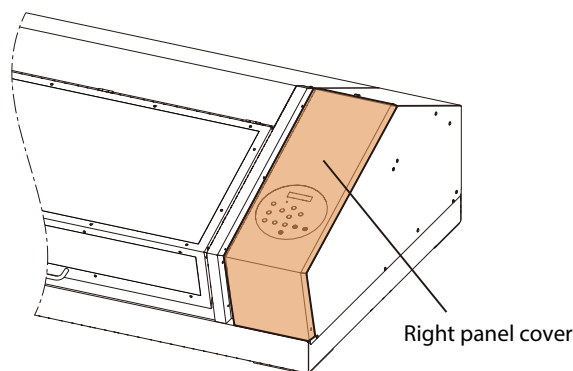
### Typical work time

| Contents of work             | Time    |
|------------------------------|---------|
| Print head height adjustment | 20 min. |

2

ADJUSTMENT

### Cover That Needs to Be Removed



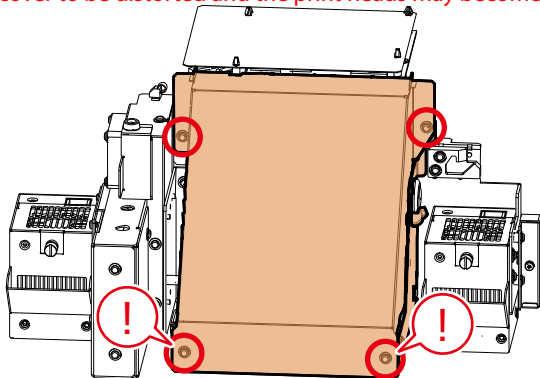
### Notes when attaching carriage cover

#### NOTE

When attaching the carriage cover, tighten four screws loosely first, then tighten them fully to secure the cover.

### CAUTION

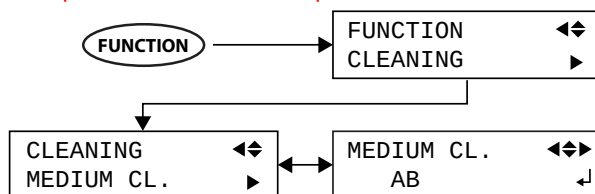
When tightening the two screws on the front, be careful not to tighten them too hard. Doing so may cause the carriage cover to be distorted and the print heads may become shifted.



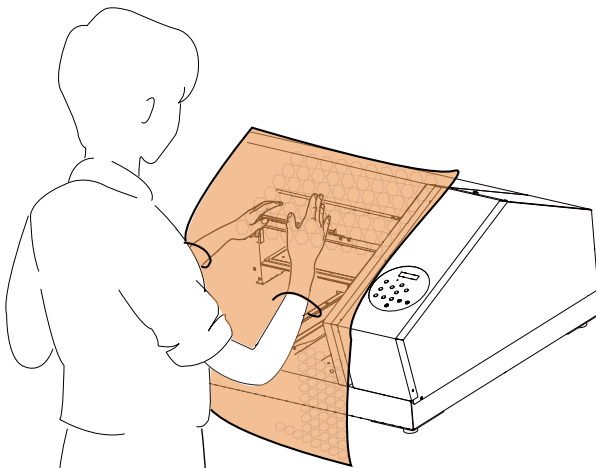
## Workflow

### CAUTION

- To prevent hardened ink from entering into the nozzle, refresh print head before the adjustment. Perform medium cleaning on all print heads if 20 minutes passes.



- Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.

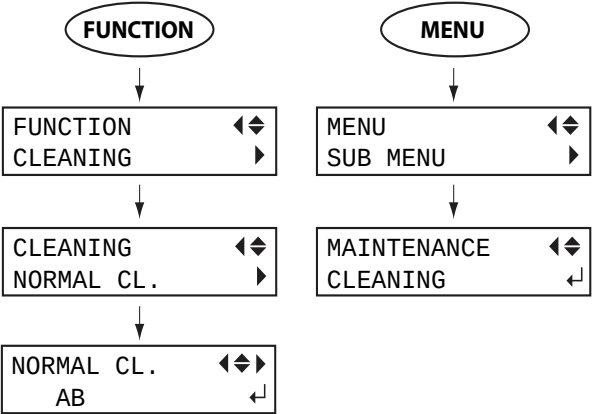


- This adjustment is required when the table unit is replaced. This adjustment is NOT required when you remove the table unit and attach the same one. This is to adjust the print head height parallel to the table unit. This adjustment is NOT required when the print head is replaced.

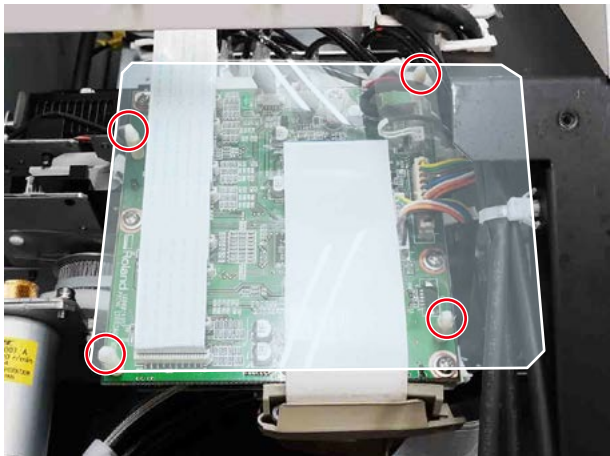
1. Before adjusting print head height, perform normal cleaning and manual cleaning.

**NOTE**

This step is to prevent the ink around the print head from rubbing off on the table when the print head is placed on the table at step 14.

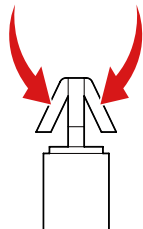


2. Unlock the print-head carriage and move it slowly leftwards.  
3. Remove the carriage cover.  
4. Remove the print carriage board cover.



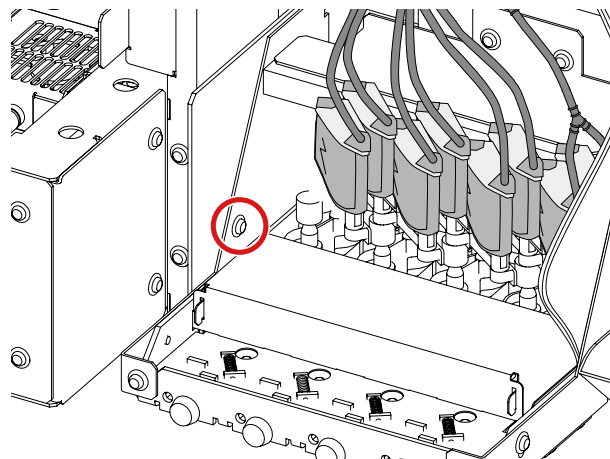
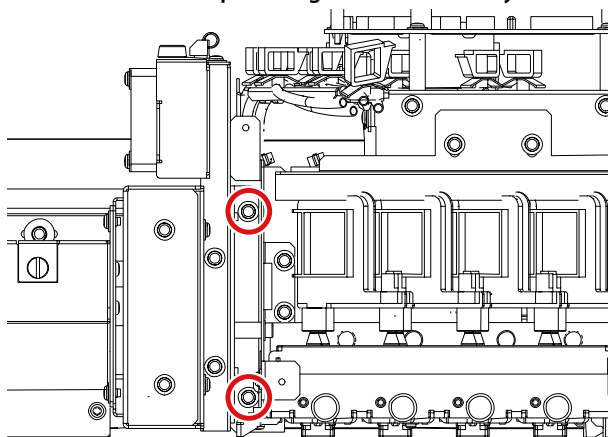
**CAUTION**

Remove the print carriage board cover by pushing the part indicated by the arrows because the top part of the support is easy to break.

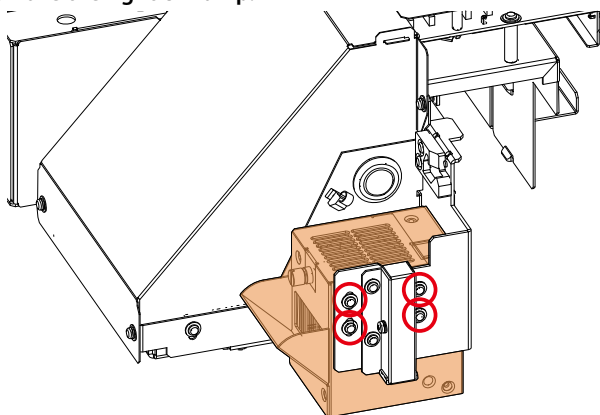


5. Unplug the connectors from the print carriage board.

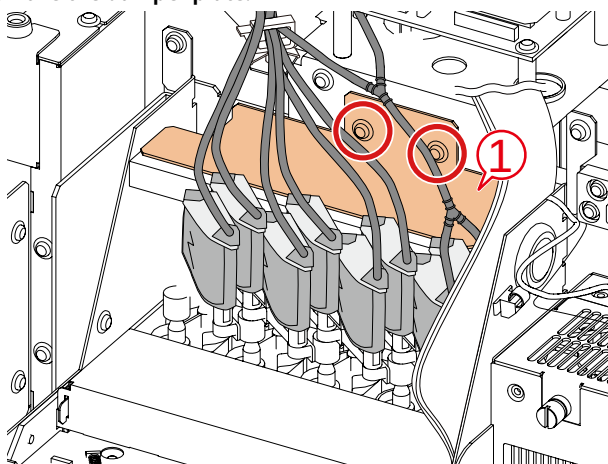
- 6.** Remove the left UV lamp unit together with the stay.



- 7.** Remove the right UV lamp.



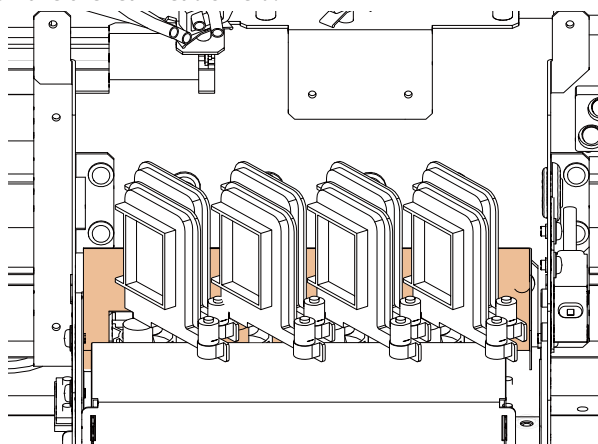
- 8.** Remove the damper plate.



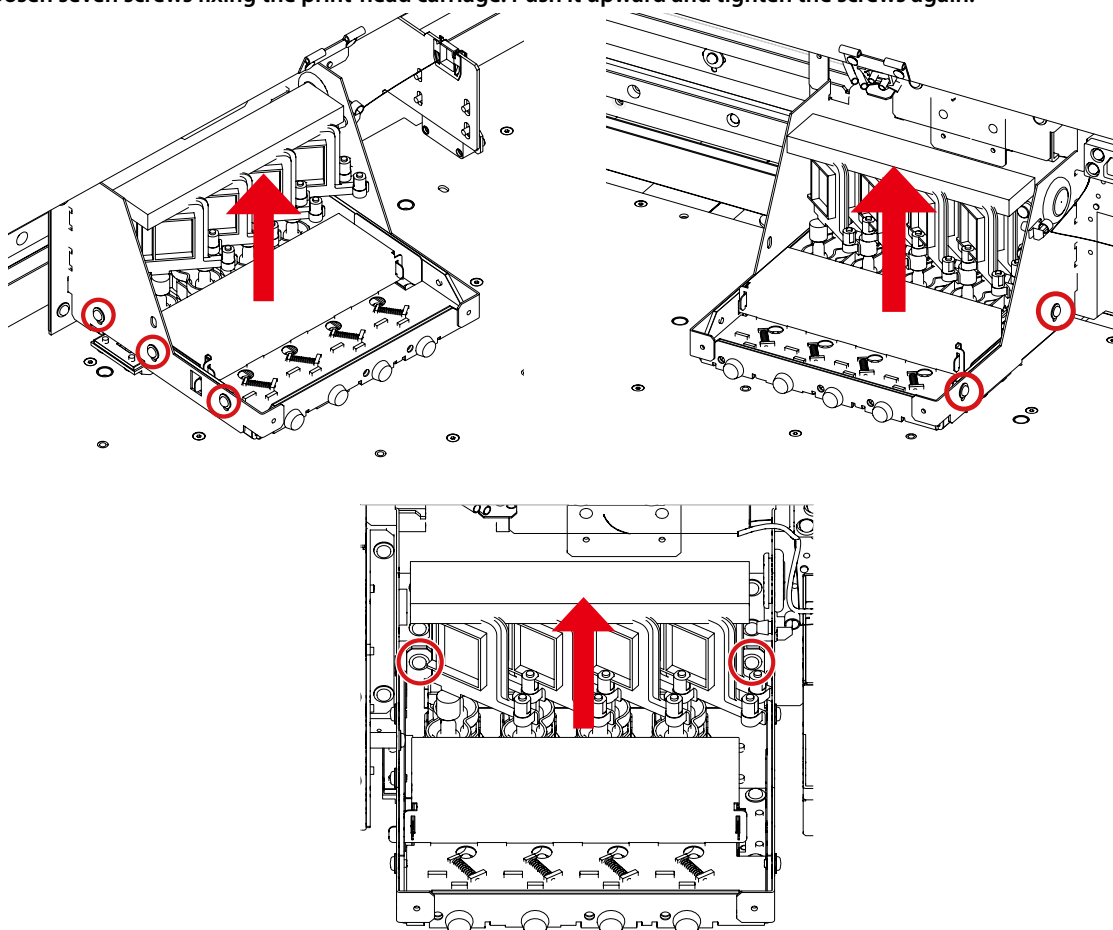
1. Damper plate



- 9.** Remove the rear head shield.



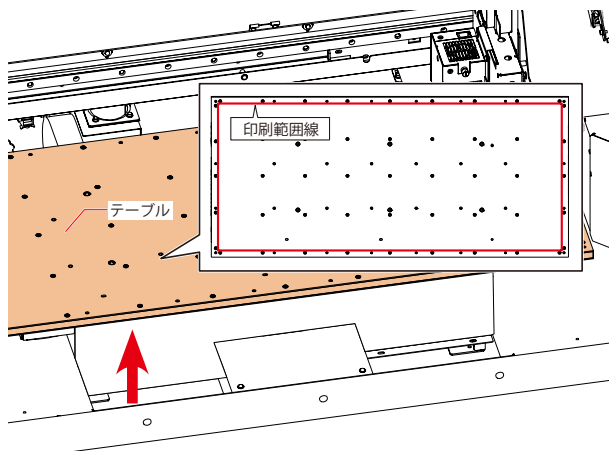
- 10.** Loosen seven screws fixing the print-head carriage. Push it upward and tighten the screws again.



- 11.** Turn on the power switch and enter the service mode.
- 12.** Select [SERVICE MENU] > [MOTOR MENU] > [AXIS MOVE] > [HEIGHT] to set the height to 103 mm and move the table to the position which the print-head carriage is placed inside of the print area by pressing the [▲] [▼] Key.

### CAUTION

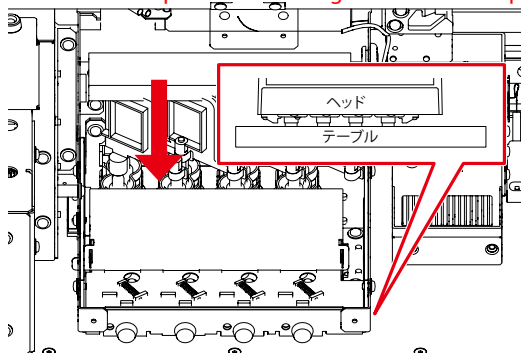
Be sure that the table unit is in a position anterior to the head gap sensor plate.  
When the table unit hits the plate, the table unit cannot rise to 103 mm.



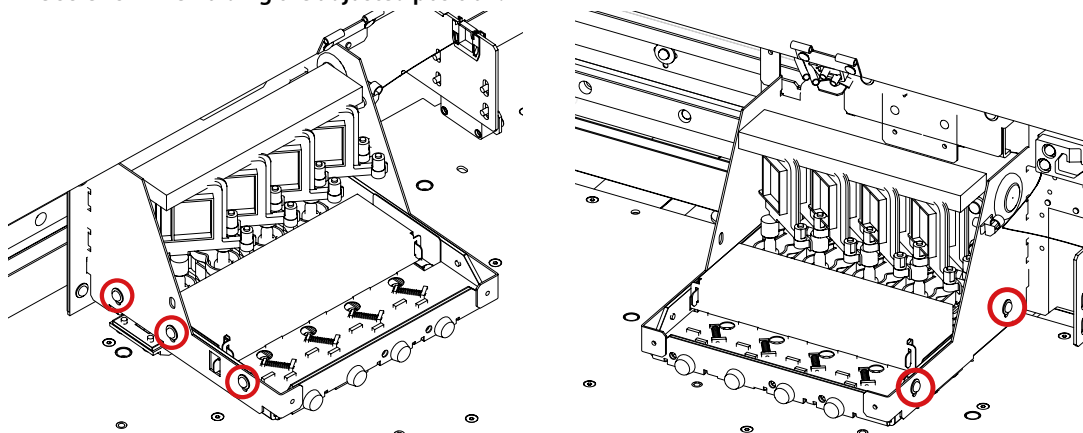
13. Loosen the screws fixing the print-head carriage again and push the print-head carriage downward so that the print head is placed on the table.

### CAUTION

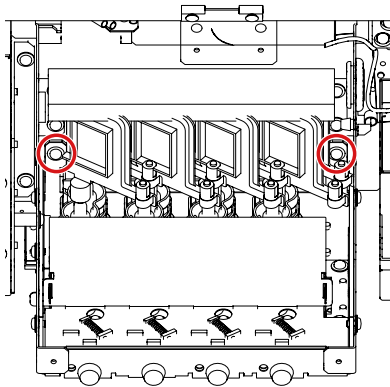
Be sure that the print-head carriage is inside of the print area.



14. Fix five screws while holding the adjusted position.



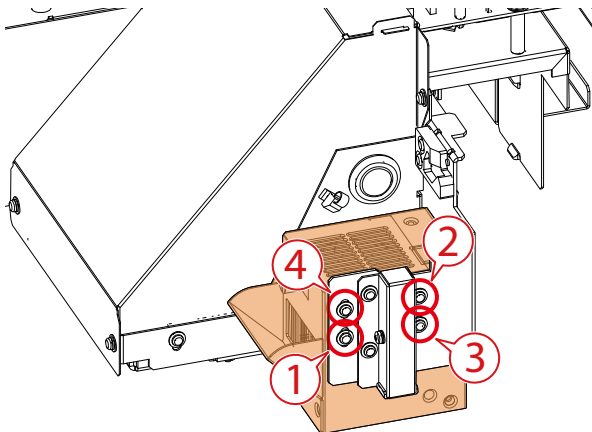
15. Fix two screws while holding the adjusted position.



16. Attach the rear head shield.  
17. Attach the damper plate.  
18. Attach the left UV lamp unit together with the stay.  
19. Tighten four screws in the order shown below to secure the right UV lamp.

**CAUTION**

Fasten the screws to attach the UV lamp while pushing the UV lamp downward.



20. Attach the print carriage board cover.

**CAUTION**

Remove the print carriage board cover by pushing the part indicated by the arrows because the top part of the support is easy to break.



21. Attach the covers, and perform the following adjustments:

- 21-1. Chapter 2 "[UV Lamp Height Adjustment](#)"  
21-2. Chapter 2 "[Print Head Alignment](#) (HORIZONTAL only)"

22. (End of procedure)

# UV Lamp Height Adjustment

## Information

### Necessary tools

| General tools              |                                   |
|----------------------------|-----------------------------------|
| No. 2 Phillips screwdriver |                                   |
| Thickness gauge            |                                   |
| Special tools              |                                   |
| 1000005829                 | TOOL,VINYL YE UV RESISTANT ST-113 |

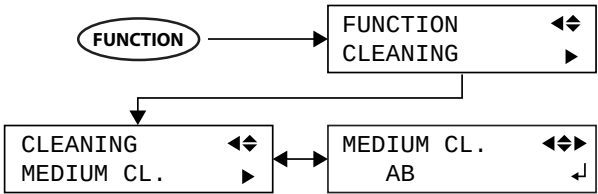
### Typical work time

| Contents of work          | Time    |
|---------------------------|---------|
| UV lamp height adjustment | 30 min. |

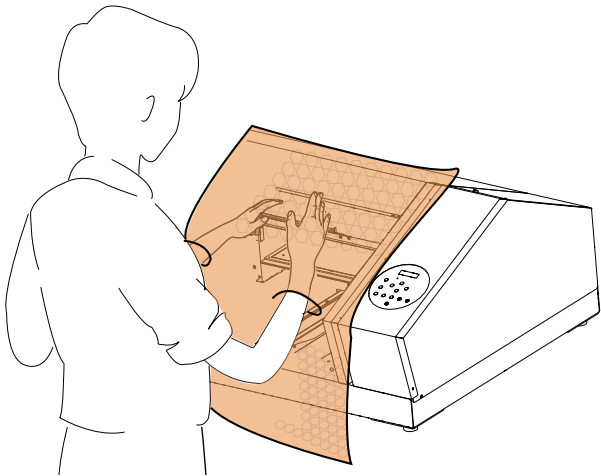
## Workflow

### CAUTION

- To prevent hardened ink from entering into the nozzle, refresh print head before the adjustment. Perform medium cleaning on all print heads if 20 minutes passes.



- Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.

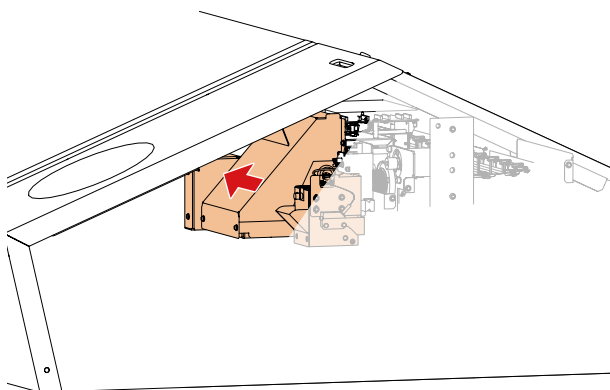


- This adjustment is required when table height adjustment or print head height adjustment is performed.

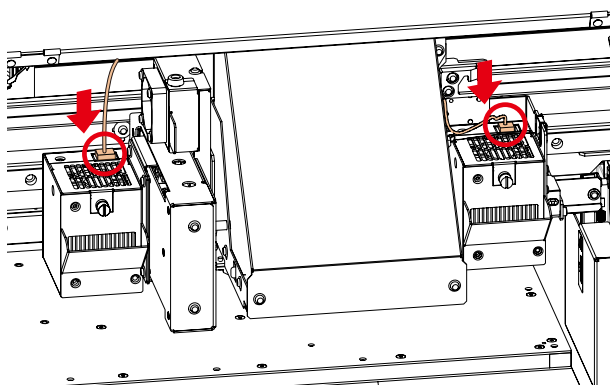
1. Unlock the print-head carriage, and move it to the left by hand.

### CAUTION

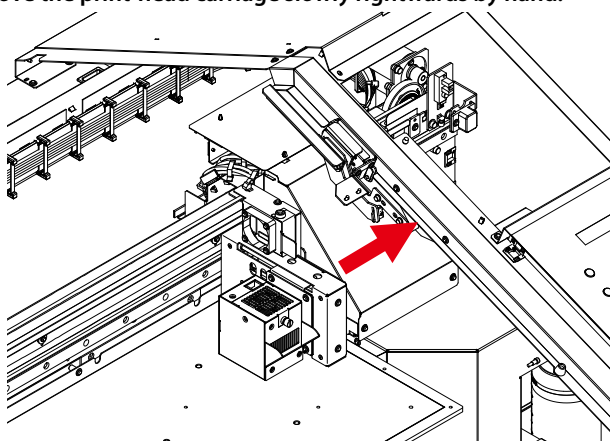
Move the print-head carriage to the position where the print head surface does not hit the table plate.



2. Unplug the connectors.



3. Move the print-head carriage slowly rightwards by hand.



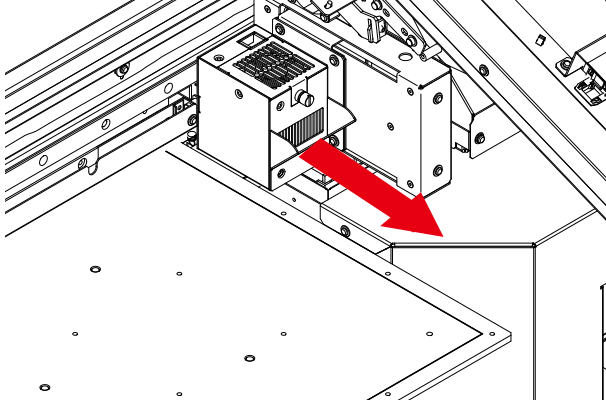
4. Turn on the power switch and enter the service mode.

5. Perform [SERVICE MENU] > [MOTOR MENU] > [AXIS MOVE] > [HEIGHT] to set the Height to 103 mm.

**CAUTION**

Be sure that the table unit is in a position anterior to head gap sensor plate. When the table unit hits the plate, the table cannot rise to 103 mm.

6. Press the [▶] key to move the UV lamp frontward.

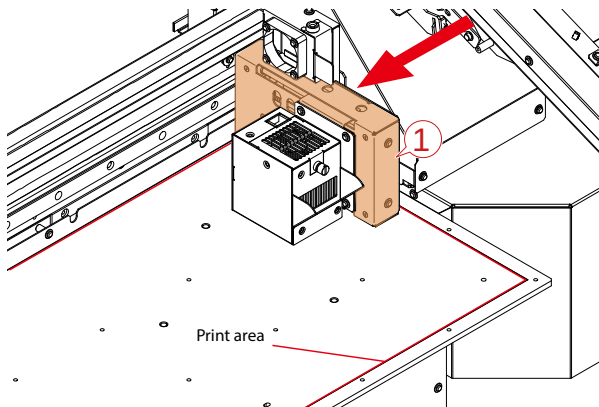


7. Move the print-head carriage slowly to the position which UV lamp slider unit is placed inside of the print area.

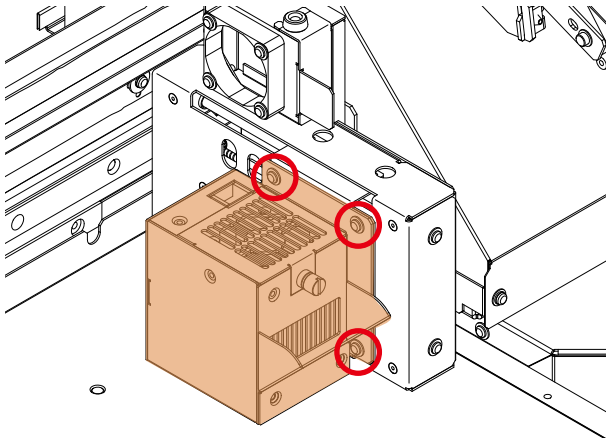
**CAUTION**

Move the print-head carriage to the position where the print head surface does not hit the table plate.

1. Slider unit

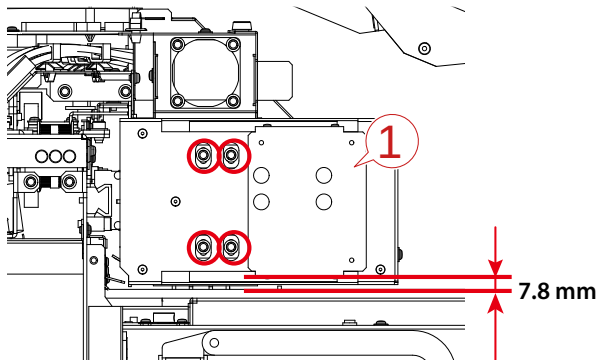


8. Loosen three screws.



9. Loosen four screws to set the gap between the bottom of the UV lamp stay and the top of the table plate to [7.8 mm].

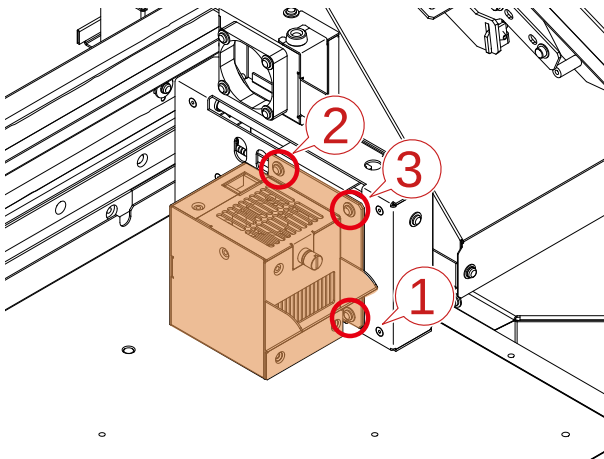
1. UV lamp stay



10. Tighten three screws in the order shown in the figure.

**CAUTION**

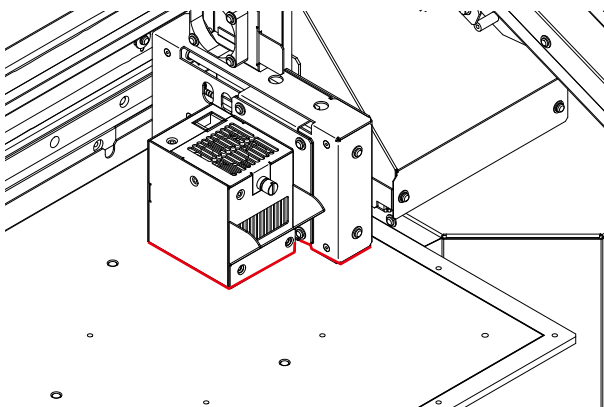
Fasten the screws to attach the UV lamp while pushing the UV lamp downward.



11. Press the [TABLE DOWN] key to set the height to below [100 mm].  
12. Press the [◀] key to move the UV lamp backward.  
13. Press the [TABLE UP] key to set the height to [103 mm].  
14. Check that there is no gap between the bottom of the UV lamp and the top of the table plate.

**CAUTION**

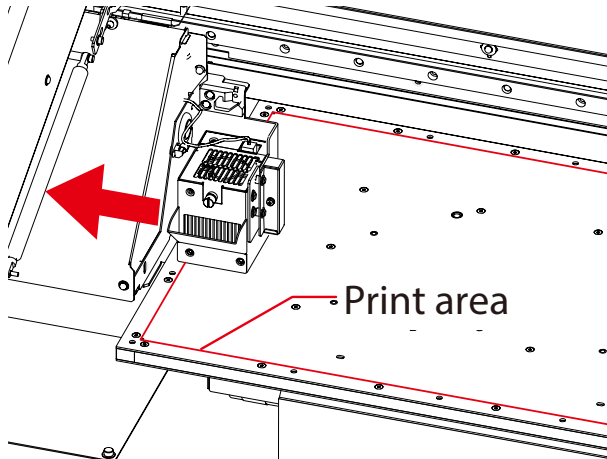
If there is a gap, go back to step 7, and perform the adjustment again.



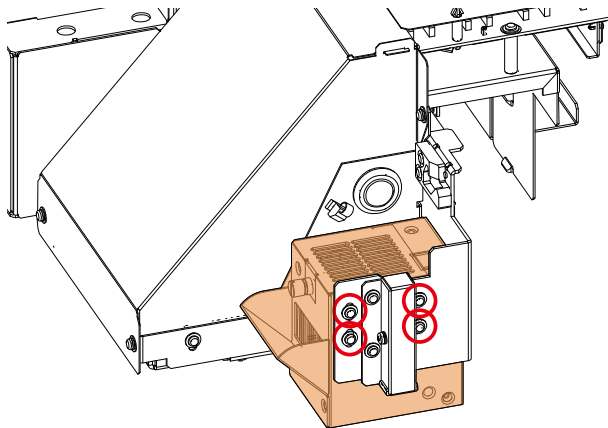
15. Press the [TABLE DOWN] key to set the height to below [100 mm].
16. Move the print-head carriage leftward so that the right UV lamp is placed inside of the print area.

**CAUTION**

Move the print-head carriage to the position where the print head surface does not hit the table plate.



17. Loosen four screws.



18. Press the [TABLE UP] key to set the height to [103 mm].

**CAUTION**

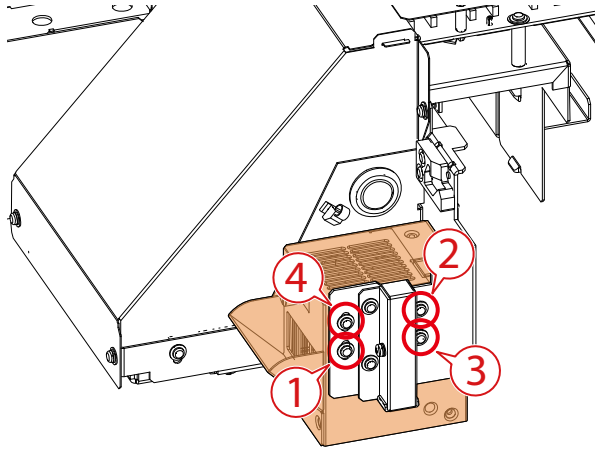
Be sure that the table unit is in a position anterior to the head gap sensor plate.  
When the table unit hits the plate, the table unit cannot rise to 103 mm.



19. Tighten four screws in the order shown in the figure.

**CAUTION**

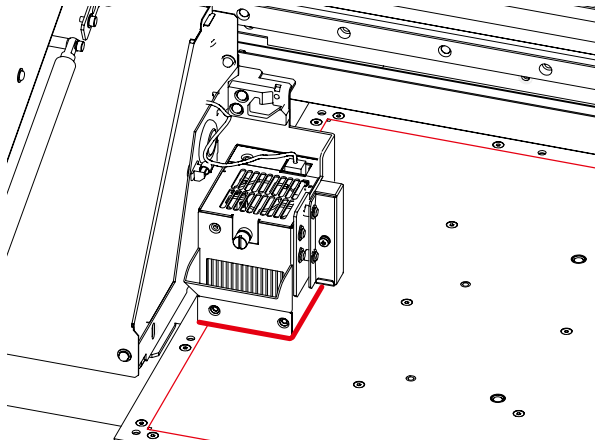
Fasten the screws to attach the UV lamp while pushing the UV lamp downward.



20. Press the [TABLE DOWN] key to set the height to below [100 mm].
21. Press the [TABLE UP] key to set the height to [103 mm].
22. Check that there is no gap between the bottom of the UV lamp and the top of the table plate.

**CAUTION**

If there is a gap, go back to step 19, and perform the adjustment again.



23. Turn off the sub power switch, and then turn off the main power switch.
24. Plug in the connectors.
25. Move the print-head carriage to the lock position.
26. (End of procedure)

# Head Gap Sensor Position Adjustment

## Information

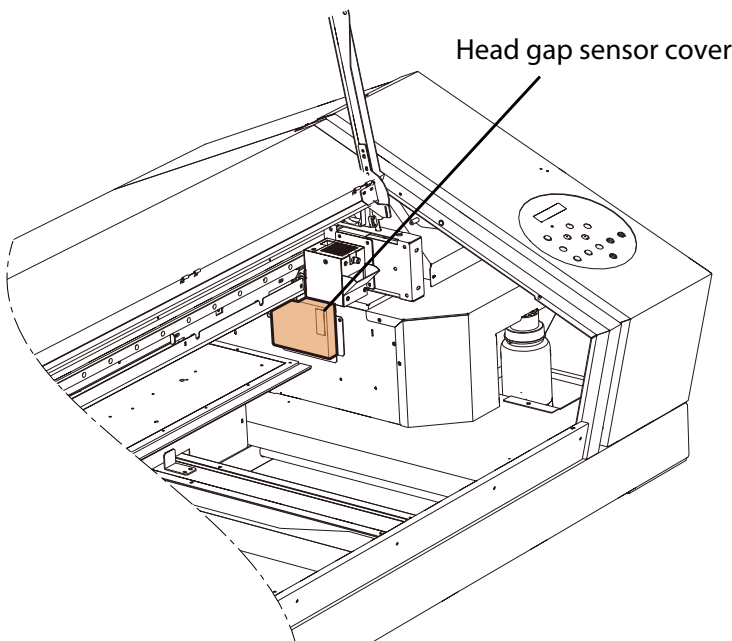
### Necessary tools

| General tools              |                                   |
|----------------------------|-----------------------------------|
| No. 2 Phillips screwdriver |                                   |
| 3.0 mm hexagonal wrench    |                                   |
| Thickness gauge            |                                   |
| Special tools              |                                   |
| 1000005829                 | TOOL,VINYL YE UV RESISTANT ST-113 |

### Typical work time

| Contents of work                    | Time    |
|-------------------------------------|---------|
| Head gap sensor position adjustment | 15 min. |

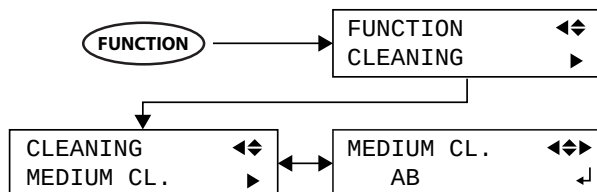
## Cover That Needs to Be Removed



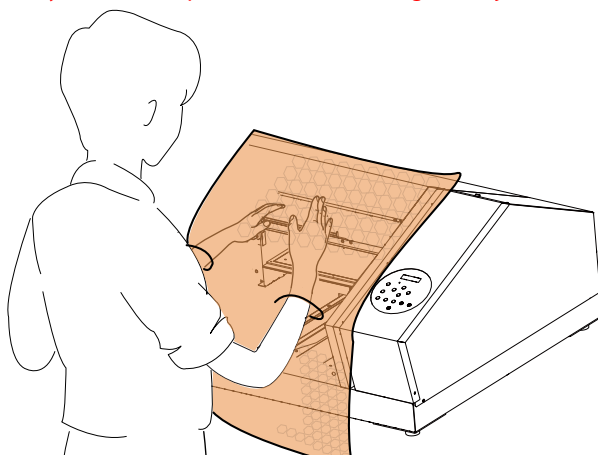
## Workflow

### CAUTION

- To prevent hardened ink from entering into the nozzle, refresh print head before the adjustment. Perform medium cleaning on all print heads if 20 minutes passes.



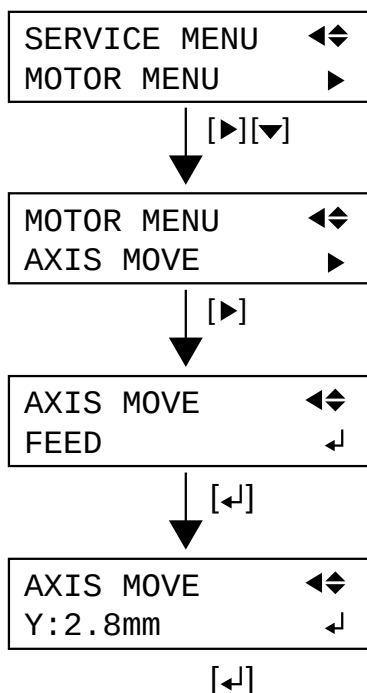
- Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.



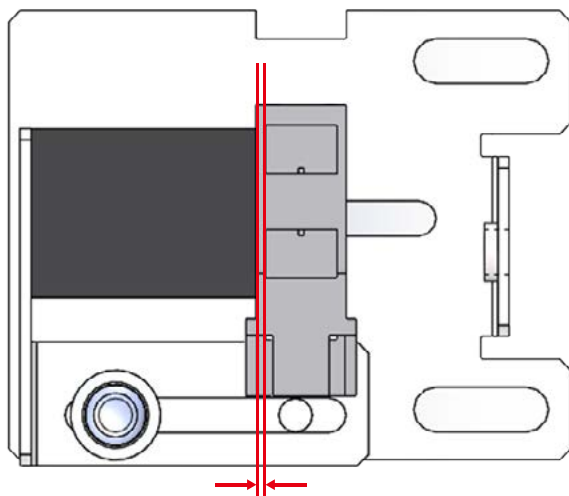
2

ADJUSTMENT

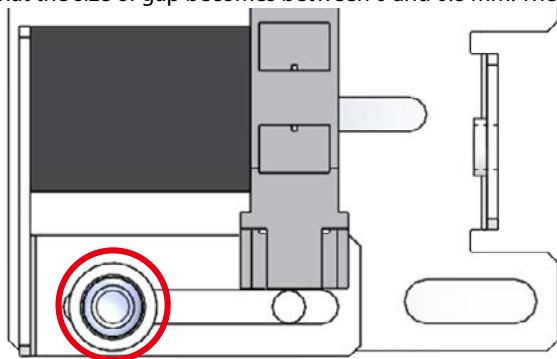
- Turn on the power switch and enter the service mode.
- Select [SERVICE MENU] > [MOTOR MENU] > [AXIS MOVE] > [FEED] and set the feed to [Y: 2.8 mm] to move the table to the backward.



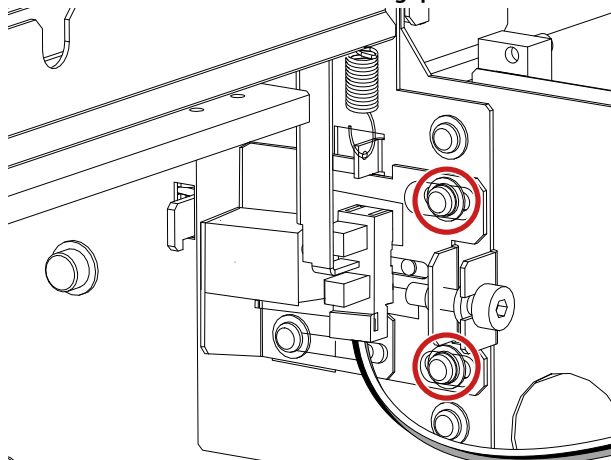
3. Remove the covers.
4. Check the size of gap between the cushioning and the head gap sensor.



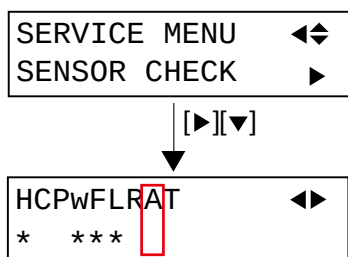
- If the size of gap is between 0 and 0.8 mm, move on to step 5.
- If the size of gap is other than between 0 and 0.8 mm, loosen the screw and adjust the position of the head gap sensor so that the size of gap becomes between 0 and 0.8 mm. Then tighten the screw.



5. Loosen two screws that secure the head gap sensor. Do not loosen the screws to the point where backlash occurs.



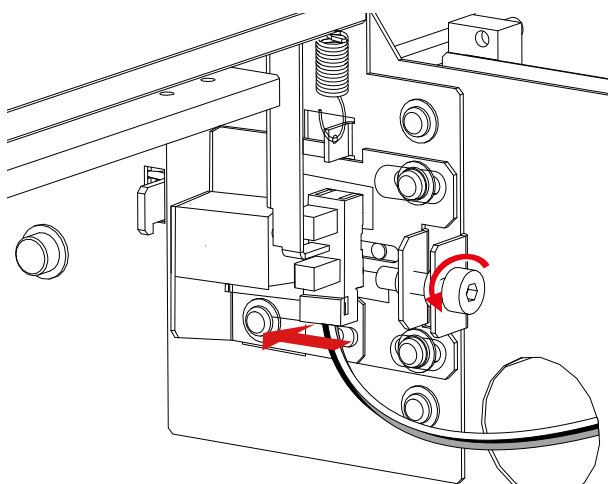
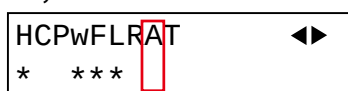
6. Perform [SERVICE MENU] > [SENSOR CHECK] and confirm the status of sensor [A].



7. Flip the metal plate of head gap sensor with your fingers in order to put the sensor back to the original position, and turn the screw counterclockwise until the status of sensor [A] is OFF. When the sensor is OFF, [\*] mark is not displayed.

### NOTE

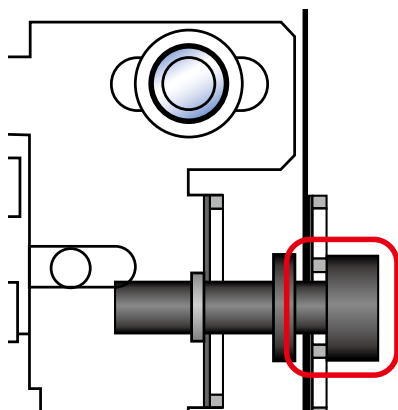
- When you turn the screw counterclockwise, the head gap sensor moves backward.



- The screw head should be contacted with the metal plate always.

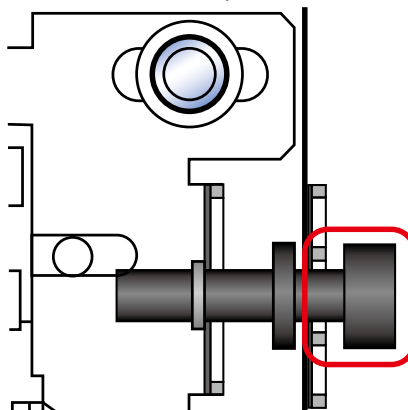
### GOOD

Screw head is contacted with the metal plate.



### NO GOOD

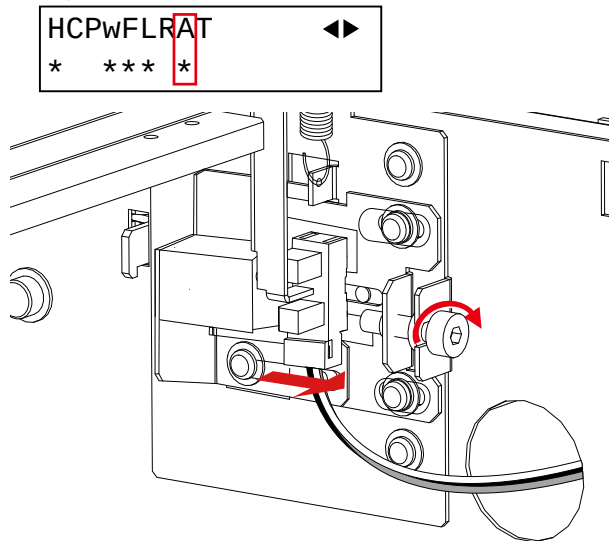
Screw head is not contacted with the metal plate.



- Turn the adjustment screw clockwise 90 degrees repeatedly until the status of sensor [A] is ON.

**NOTE**

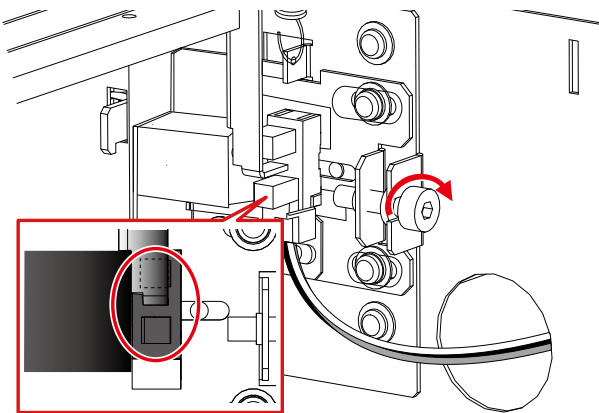
When you turn the screw clockwise, the head gap sensor moves frontward.



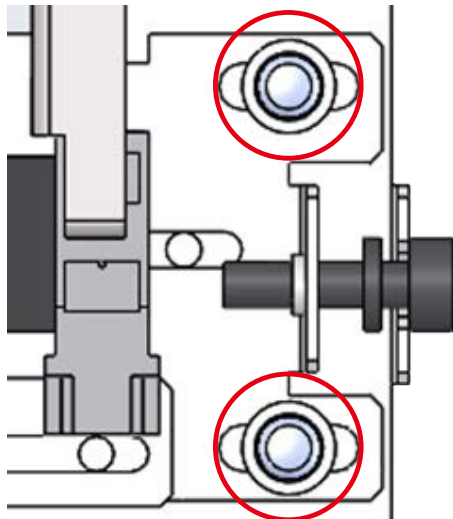
- Turn the adjustment screw clockwise three times more.

**CAUTION**

Confirm that the head gap sensor plate is center of the head gap sensor.

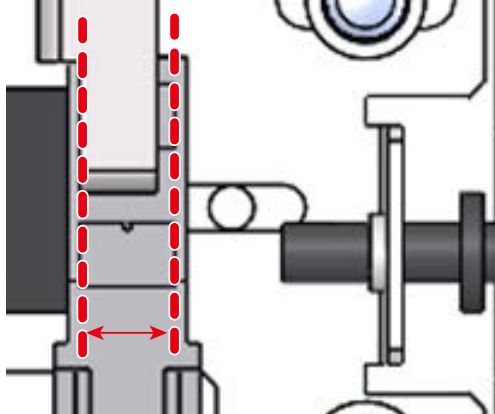


- Tighten two screws to secure the head gap sensor.



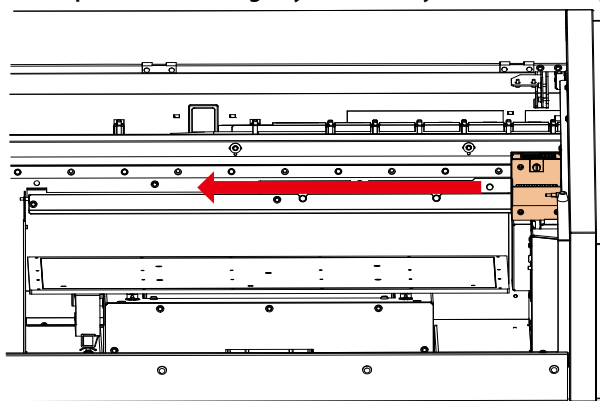
### CAUTION

Do not position the head gap sensor plate beyond the sensor area.

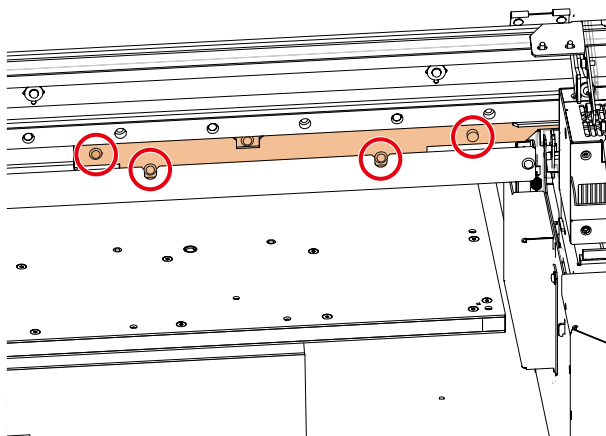


Position the head gap sensor plate within the range.

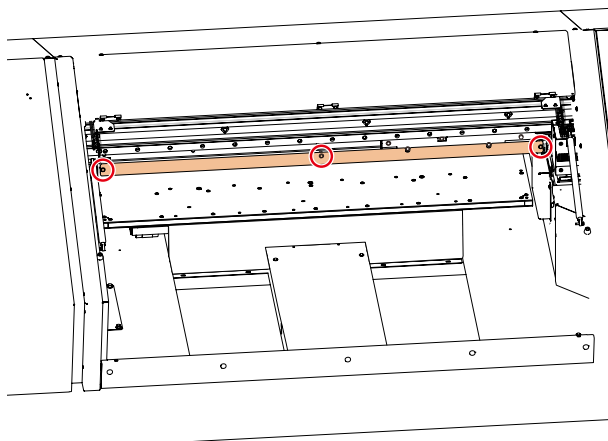
11. Move the print-head carriage by hand slowly to the leftmost position of the print-head carriage movement.



12. Tighten four screws to secure the carriage stopper.

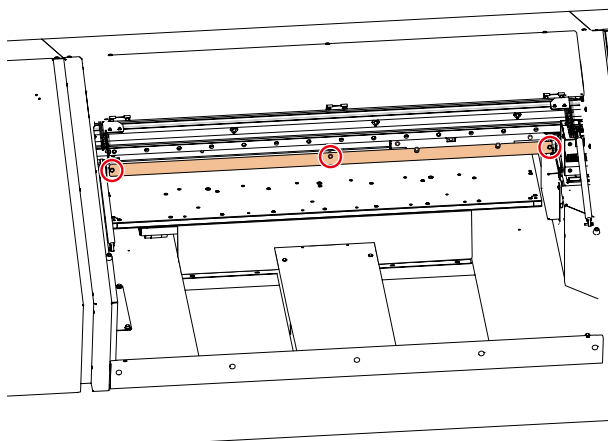


- 13.** Loosen three screws that secure the head gap sensor plate.

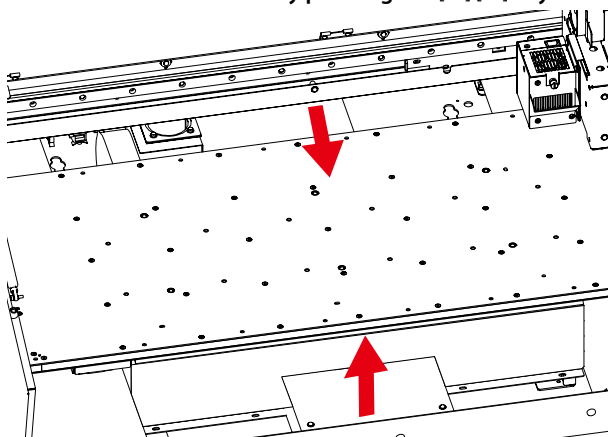


1. Head gap sensor plate

- 14.** Tighten three screws while pushing the head gap sensor plate upward.

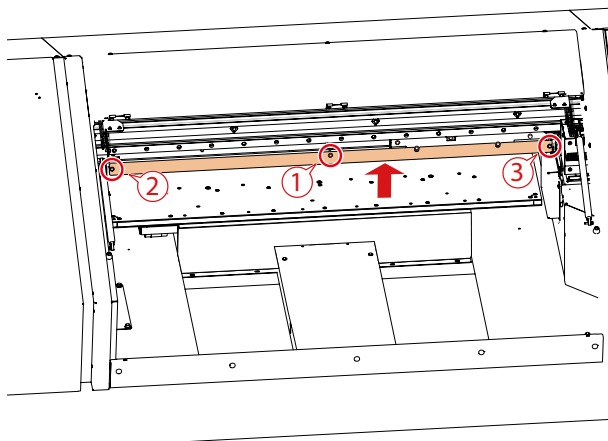


- 15.** Perform [SERVICE MENU] > [MOTOR MENU] > [AXIS MOVE] > [HEIGHT] and set the Height to 102.1 mm and move the table to the center of the machine by pressing the [▲] [▼] key.



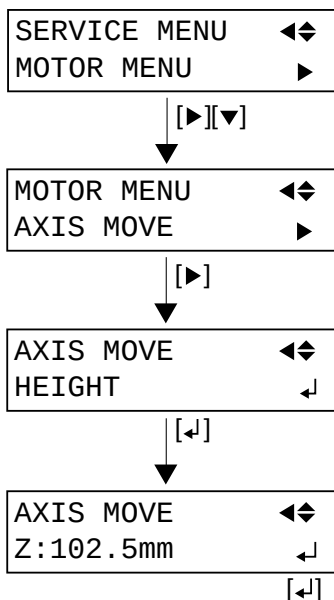


- 16.** Loosen three screws. Then, tighten them in the order as shown below while pushing the head gap sensor plate downward.



- 17.** Remove the carriage stopper.

- 18.** Perform [SERVICE MENU] > [MOTOR MENU] > [AXIS MOVE] > [HEIGHT] to move the table upward, and confirm the value which the head gap sensor turns ON.



- 19.** When the value of table height is NOT between 102.4 mm and 102.5 mm, adjust the height of the head gap sensor plate again. Calculate the value of the table height when the head gap sensor plate is fixed referring to the following. Then move back to step 10 and perform the adjustment again.

When the value which the head gap sensor turns ON (Z) is under 102.3 mm

$$\text{The accurate value} = 102.1 + (102.4 - Z)$$

When the value which the head gap sensor turns ON (Z) is over 102.6 mm

$$\text{The accurate value} = 102.1 - (Z - 102.4)$$

- 20.** (End of procedure)

## Information

### Necessary tools

#### General tools

No. 2 Phillips screwdriver

#### Special tools

|            |                                   |
|------------|-----------------------------------|
| 6000004129 | GREASE,FLOIL G-902 10ML_02        |
| 1000005829 | TOOL,VINYL YE UV RESISTANT ST-113 |

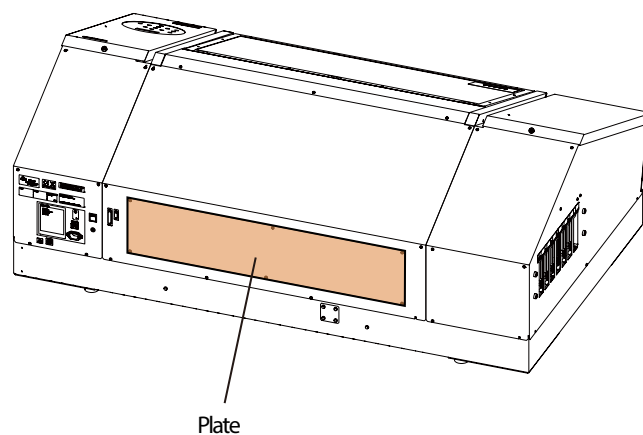
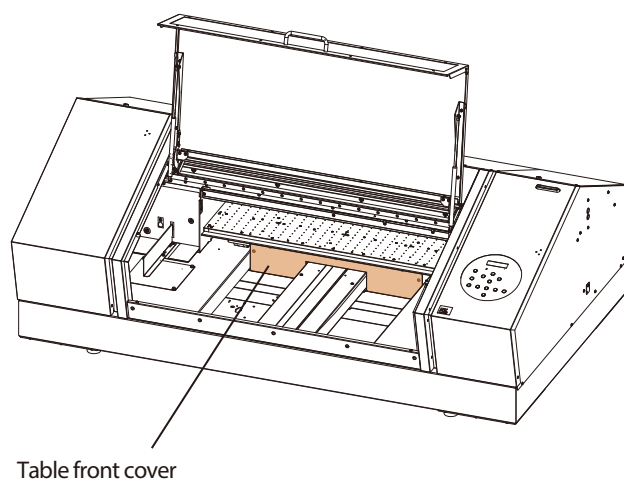
### Typical work time

| Contents of work      | Time    |
|-----------------------|---------|
| Grease up maintenance | 10 min. |

2

ADJUSTMENT

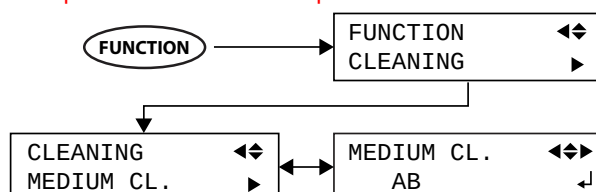
## Cover That Needs to Be Removed



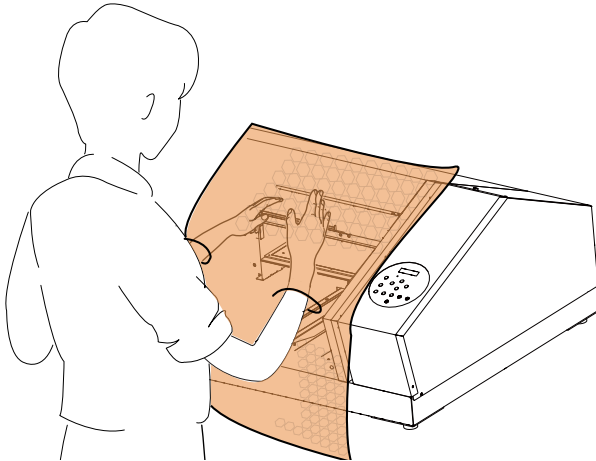
## Procedure

### CAUTION

- To prevent hardened ink from entering into the nozzle, refresh print head before the adjustment. Perform medium cleaning on all print heads if 20 minutes passes.



- Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.



- This maintenance is to grease the screws of the table UP/DOWN and the plate which fixes the head gap sensor plate. This maintenance is required in every 6 months.

## 2

### ADJUSTMENT

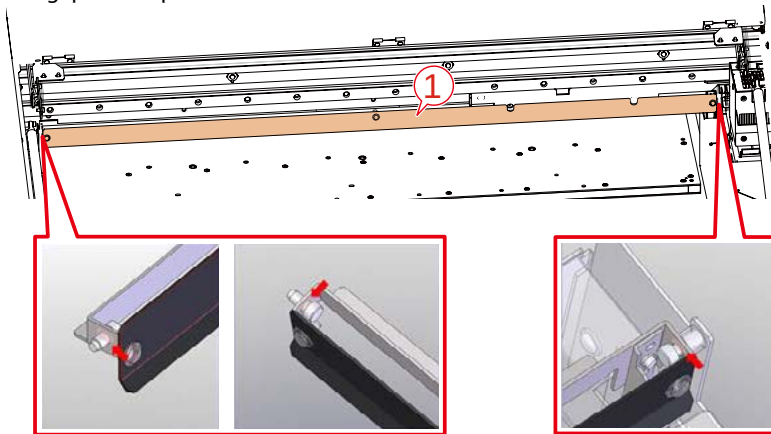
#### 1. Apply grease to marked parts of the plate supporting the head gap sensor plate.

- Grease: FLOIL G-902 10ML\_02
- Volume: as needed

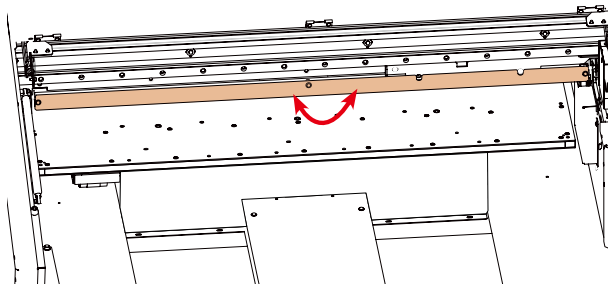
#### CAUTION

Use the wiry tool since the gaps between the screws and the plate are small. Loosen the screws approximately 1/2 turn to make the greasing easier.

##### 1. Head gap sensor plate

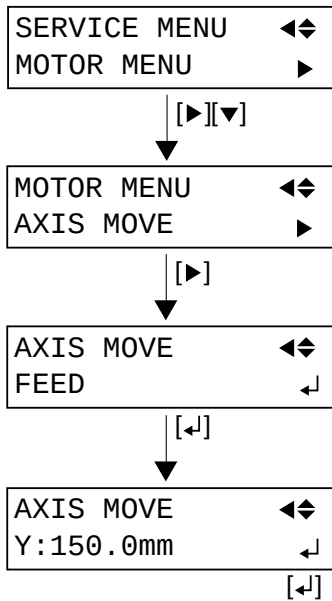


#### 2. Move the head gap sensor plate back and forth to check that the greased part moves smoothly.



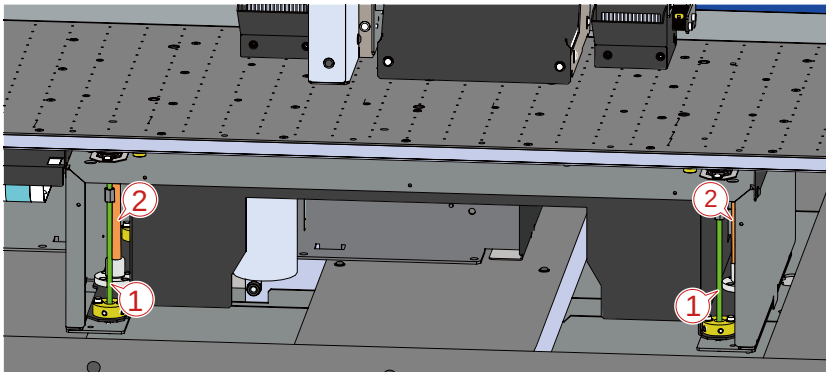
#### 3. Turn on the power switch and enter the service mode.

4. Select [SERVICE MENU] > [MOTOR MENU] > [AXIS MOVE] > [FEED] and set the feed to [150.0 mm] to move the table toward the center of the machine.



5. Apply grease to the table unit UP/DOWN screws (4 screws) and 4 shafts.

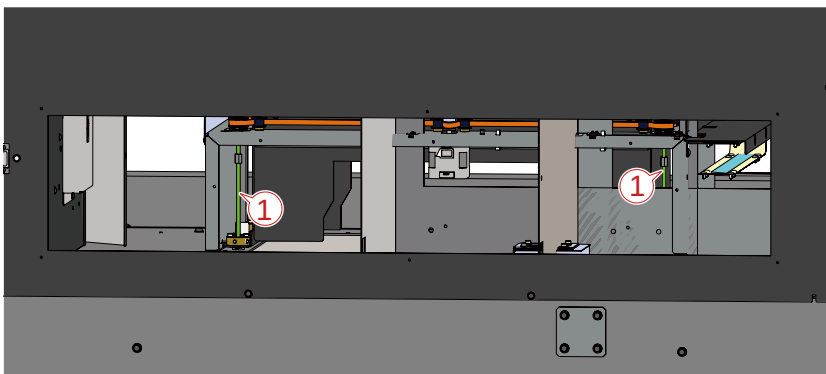
- Grease: FLOIL G-902 10ML\_02
- Volume: as needed



Rear view

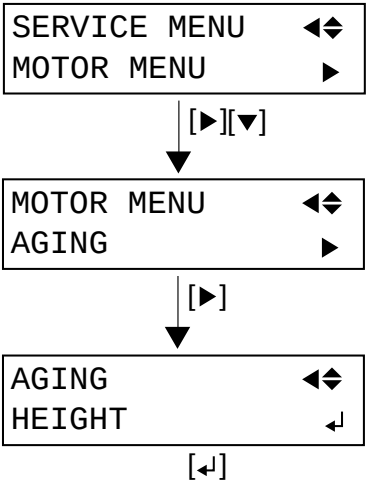
1. Table unit UP/DOWN screw

2. Shaft



6. Attach the table unit front cover.
7. Attach the table unit rear cover, and then attach the plate.
8. Turn on the power switch and enter the service mode.

9. Perform [SERVICE MENU] > [MOTOR MENU] > [AGING] > [HEIGHT].



10. (End of procedure)

# Front Cover Sensor Adjustment

## Information

### Necessary tools

| General tools              |                                   |
|----------------------------|-----------------------------------|
| No. 2 Phillips screwdriver |                                   |
| 2.5 mm hexagonal wrench    |                                   |
| Special tools              |                                   |
| 1000005829                 | TOOL,VINYL YE UV RESISTANT ST-113 |

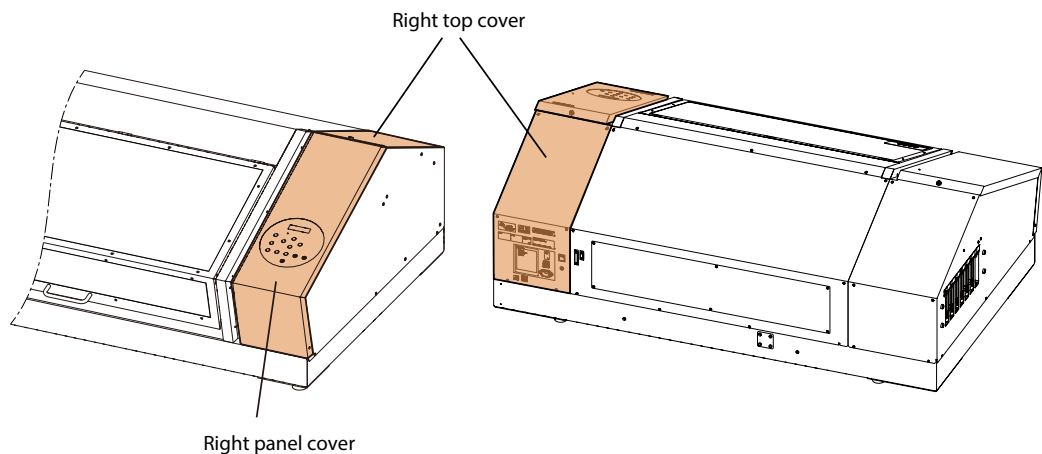
### Typical work time

| Contents of work              | Time    |
|-------------------------------|---------|
| Front cover sensor adjustment | 15 min. |

2

ADJUSTMENT

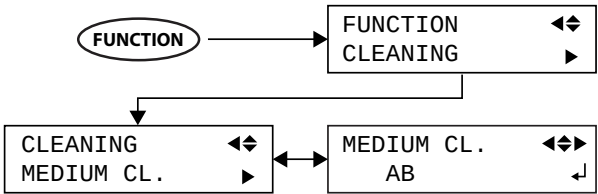
## Cover That Needs to Be Removed



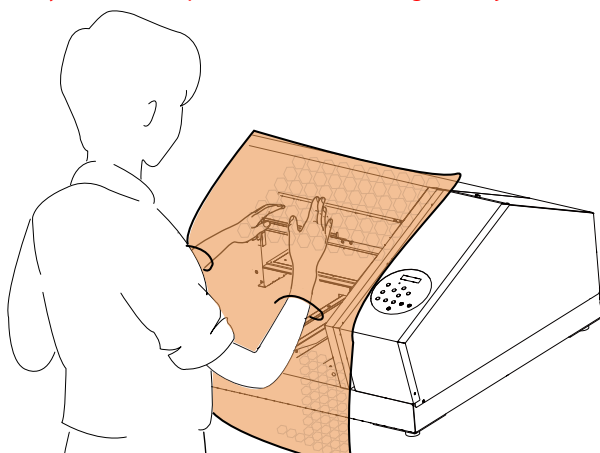
## Workflow

### CAUTION

- To prevent hardened ink from entering into the nozzle, refresh print head before the adjustment. Perform medium cleaning on all print heads if 20 minutes passes.



- Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.



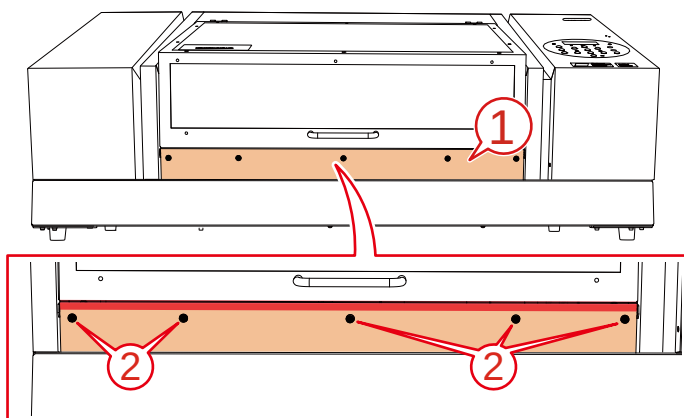
1. Confirm that the front cover is set in the right place by checking the following points.

### NOTE

If the front cover is not in the right place, adjust the position.

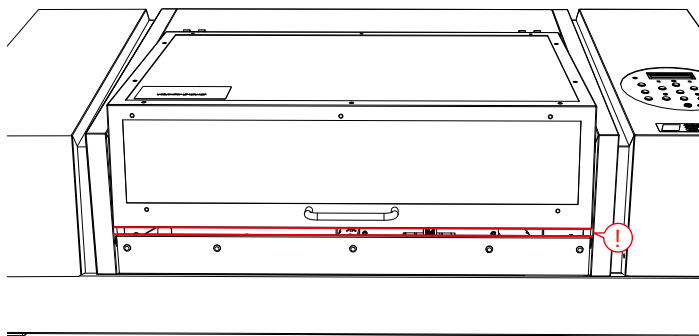
1. Under cover

2. Front cover cushions

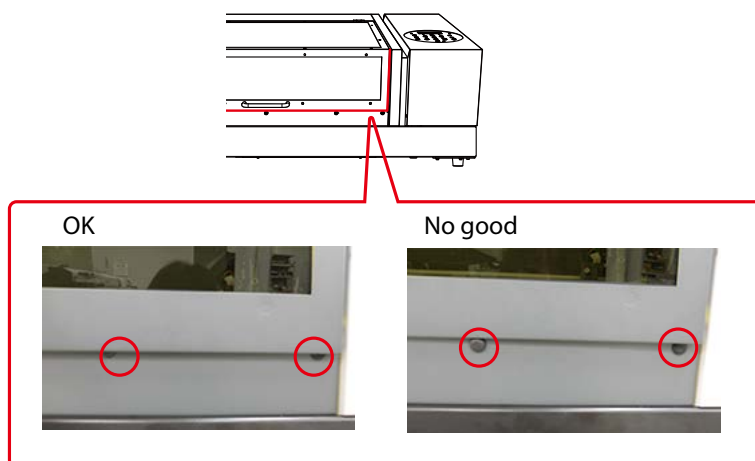


### No Good

There is a gap between the front cover and the under cover.

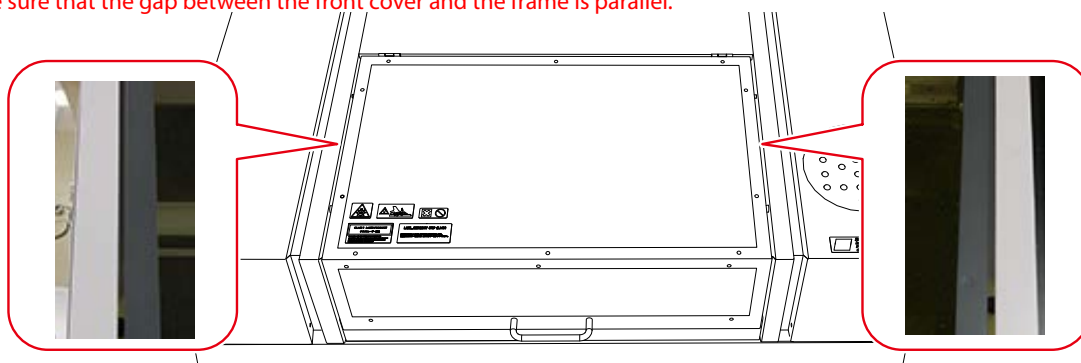


The front cover lies upon the upper surface of the front cover cushions.

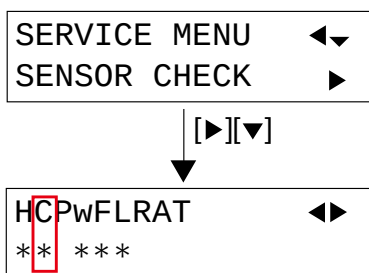


### CAUTION

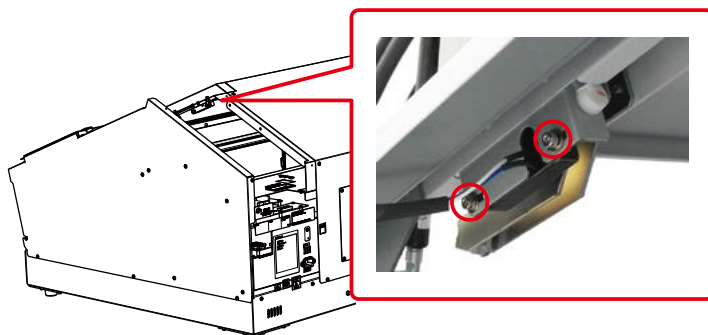
Be sure that the gap between the front cover and the frame is parallel.



2. Turn on the power switch and enter the service mode.
3. Perform [SERVICE MENU] > [SENSOR CHECK] and confirm the status of sensor [C].



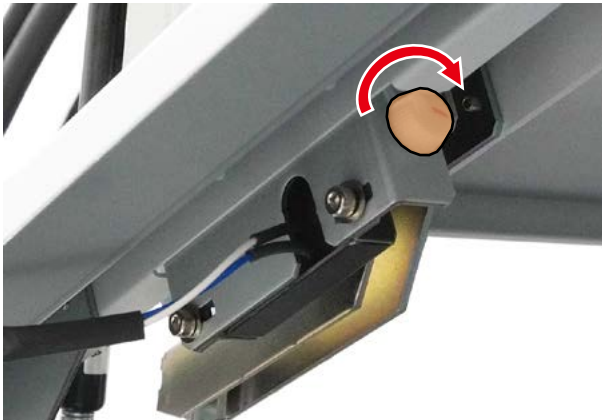
4. Remove the panel cover and the right top cover.
5. Unlock the print-head carriage and move it slowly leftwards by hand.
6. Loosen two screws that secure the front cover sensor half a turn.





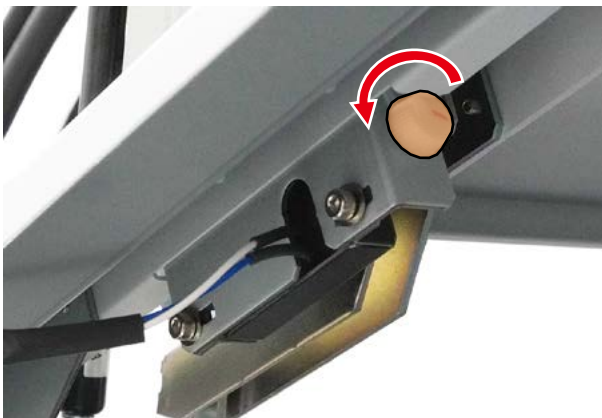
7. Tighten the screw clockwise until the status of the sensor [C] is ON. When the sensor is ON, [\*] mark is displayed.

HCPwFLRAT  
\* \* \* \* \*



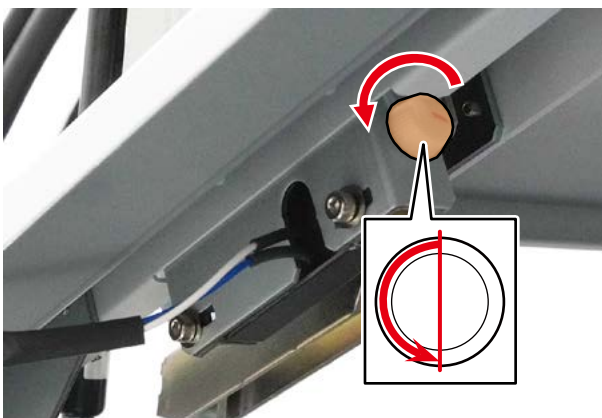
8. Loosen the screw slowly until the status of sensor [C] is OFF. When the sensor is ON, [\*] mark is not displayed.

HCPwFLRAT  
\* \* \* \*



9. Loosen the screw counterclockwise half a turn more.

HCPwFLRAT  
\* \* \* \*



10. Attach the front cover sensor.

### Front cover sensor position adjustment

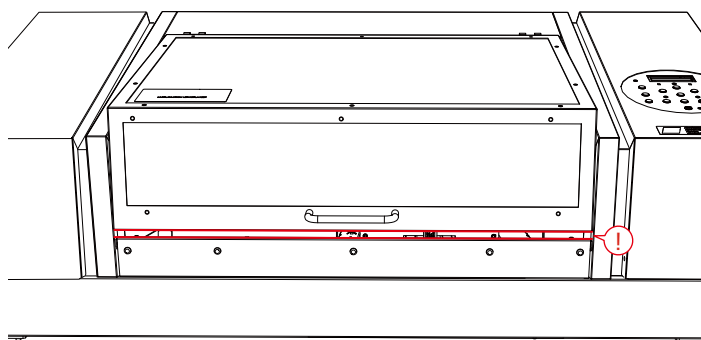
11. Open the front cover and confirm the position of the lower edge of the front cover when the front cover sensor clicks. Then, close the front cover and confirm the position again.

#### NOTE

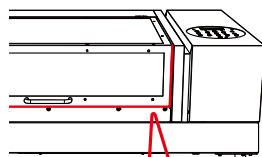
The position of the front cover is proper when both positions are between the top edge of the under cover and the top edge of the front cover cushions.

#### No Good

There is a gap between the front cover and the under cover.



The front cover lies upon the upper surface of the front cover cushions.



OK

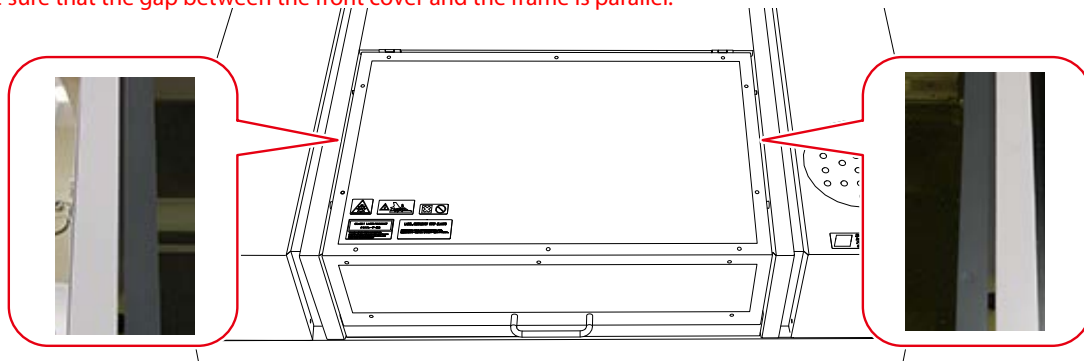


No good



#### CAUTION

Be sure that the gap between the front cover and the frame is parallel.

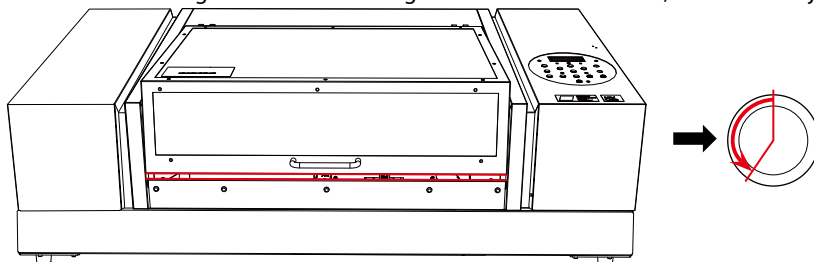


- 11-1.** Change the degree of adjustment screw rotation depending on the position of the front cover when the front cover sensor still clicks.

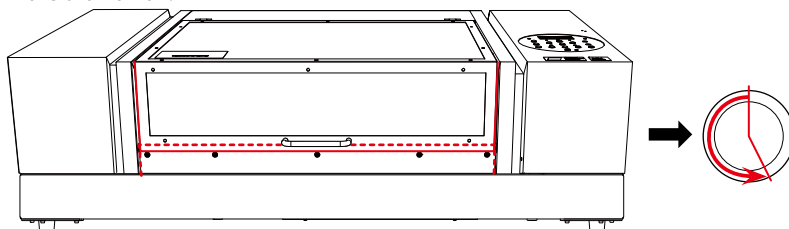
**NOTE**

Check the position of the lower edge of the front cover when the sensor clicks, and adjust the amount of screw loosening in step 9.

- When the lower edge of front cover is higher than the under cover, loosen the adjustment screw less than half.



- When the lower edge of front cover is lower than the top edge of the front cover cushions, loosen the adjustment screw more than a half.



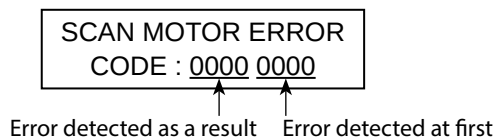
- 12.** (End of procedure)

# Chapter 3 Supplement

|                          |      |
|--------------------------|------|
| Motor Errors.....        | 3-2  |
| Service Call Errors..... | 3-3  |
| Sensor Map.....          | 3-6  |
| Wiring Map.....          | 3-10 |

# Motor Errors

## Error Description



| No.  | Meaning                                                                                               | Cause                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------|-------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0010 | Scan motor deviation error<br>(The order from the CPU does not match the feedback of the scan motor.) | < External factors ><br>1. Media jamming<br>2. Pull or move the print-head carriage by hands.<br>3. The print-head carriage runs into a thing/hands.<br><br>< Printer factors ><br>1. The grease lubrication of the motor gear is not enough.<br>2. The motor is broken or comes to its end of life.<br>3. The servo board is broken.<br>4. Print-head carriage fixation to the belt is loose.<br>5. The bearing inside the idle pulley is worn out.<br>6. The carriage belt loses steps.<br>(The symptom may be improved when you grease the belt.) |
| 0040 | Scan motor overcurrent error 1<br>(Big load is put on the motor movement instantaneously.)            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 0080 | Scan motor overcurrent error 2<br>(A little load is put on the motor movement for a long time.)       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 00C0 | 0040 and 0080 occurred simultaneously.                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 0050 | 0010 and 0040 occurred simultaneously.                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 0090 | 0010 and 0080 occurred simultaneously                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

## Service Call Errors

| Code | Error Name                                           | Contents                                                                                                                                                                         | Cause                                                                                                                                                                                                                                                                                                                                 | Action (You do not have to perform everything listed below. Sometimes performing just one or some of the following can solve the problem.)                                                                                                                                                    |
|------|------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0002 | Sub CPU error                                        | <ul style="list-style-type: none"> <li>Disorder of communication with the sub CPU</li> <li>This occurs when the sub CPU is not detected after turning on the printer.</li> </ul> | <ul style="list-style-type: none"> <li>The servo board does not work correctly.</li> <li>The sub CPU does not work correctly.</li> <li>There is a bad connection between the main board and the servo board.</li> </ul>                                                                                                               | <ul style="list-style-type: none"> <li>Check the cable connection between the main board and the servo board.</li> <li>Check the other cable connections of the servo board.</li> <li>Replace the servo board.</li> <li>Replace the main board.</li> <li>Replace the ribbon cable.</li> </ul> |
| 0004 | Sub CPU SRAM error                                   | <ul style="list-style-type: none"> <li>Sub CPU SRAM error</li> </ul>                                                                                                             | <ul style="list-style-type: none"> <li>SRAM is broken.</li> </ul>                                                                                                                                                                                                                                                                     | <ul style="list-style-type: none"> <li>Replace the servo board.</li> </ul>                                                                                                                                                                                                                    |
| 0005 | Sub CPU download error                               | <ul style="list-style-type: none"> <li>An error occurs when downloading a program for the sub CPU.</li> </ul>                                                                    | <ul style="list-style-type: none"> <li>The servo board does not work correctly.</li> <li>The sub CPU does not work correctly.</li> <li>There is a bad connection between the main board and the servo board.</li> <li>A noise on a signal</li> </ul>                                                                                  | <ul style="list-style-type: none"> <li>Check the cable connection between the main board and the servo board.</li> <li>Check the other cable connections of the servo board.</li> <li>Replace the servo board.</li> <li>Replace the main board.</li> <li>Replace the ribbon cable.</li> </ul> |
| 0006 | Sub CPU Communication error                          | <ul style="list-style-type: none"> <li>An error occurs when communicating with the sub CPU.</li> </ul>                                                                           | <ul style="list-style-type: none"> <li>A noise on a signal while sending a command.</li> <li>The sub CPU was reset to default.</li> <li>Tried to communicate when the sub CPU was reset to default.</li> </ul>                                                                                                                        | <ul style="list-style-type: none"> <li>Check the cable connection between the main board and the servo board.</li> <li>Check the other cable connections of the servo board.</li> <li>Replace the servo board.</li> <li>Replace the main board.</li> <li>Replace the ribbon cable.</li> </ul> |
| 0007 | Sub CPU command error                                | <ul style="list-style-type: none"> <li>An error occurs while sending a command.</li> </ul>                                                                                       | <ul style="list-style-type: none"> <li>The servo board does not work correctly.</li> <li>The sub CPU does not work correctly.</li> <li>There is a bad connection between the main board and the servo board.</li> <li>A noise on a signal while sending a command.</li> <li>The sub CPU was reset while sending a command.</li> </ul> | <ul style="list-style-type: none"> <li>Check cable connection between the main board and the servo board.</li> <li>Check the other cable connections of the servo board.</li> <li>Replace the servo board.</li> <li>Replace the main board.</li> <li>Replace the ribbon cable.</li> </ul>     |
| 0008 | Sub CPU communication error (serial synchronization) | <ul style="list-style-type: none"> <li>There is a problem with synchronizing serial communication to the sub CPU.</li> </ul>                                                     | <ul style="list-style-type: none"> <li>The servo board does not work correctly.</li> <li>The sub CPU does not work correctly.</li> <li>There is a bad connection between the main board and the servo board.</li> <li>A noise on a signal.</li> </ul>                                                                                 | <ul style="list-style-type: none"> <li>Check the cable connection between the main board and the servo board.</li> <li>Check the other cable connections of the servo board.</li> <li>Replace the servo board.</li> <li>Replace the main board.</li> <li>Replace the ribbon cable.</li> </ul> |
| 0010 | Network initialization error                         | <ul style="list-style-type: none"> <li>Network I/F Initialize has not been completed.</li> </ul>                                                                                 | <ul style="list-style-type: none"> <li>Network I/F does not work correctly.</li> </ul>                                                                                                                                                                                                                                                | <ul style="list-style-type: none"> <li>Replace the main board.</li> </ul>                                                                                                                                                                                                                     |

| Code | Error Name                                 | Contents                                                                                                           | Cause                                                                                                                                                                                                        | Action (You do not have to perform everything listed below. Sometimes performing just one or some of the following can solve the problem.)                                                                                                                                                                                                                                                                                          |
|------|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0101 | Limit position initialize error            | <ul style="list-style-type: none"> <li>Limit Position Initialize in the service mode has not been done.</li> </ul> | <ul style="list-style-type: none"> <li>Limit Position Initialize has not been done.</li> <li>Limit Position Initialize is ended before it is completed.</li> </ul>                                           | <ul style="list-style-type: none"> <li>Complete limit position initialize correctly.</li> </ul>                                                                                                                                                                                                                                                                                                                                     |
| 0102 | Limit sensor error                         | <ul style="list-style-type: none"> <li>The limit sensor does not work correctly.</li> </ul>                        | <ul style="list-style-type: none"> <li>The limit sensor does not work correctly or is broken.</li> </ul>                                                                                                     | <ul style="list-style-type: none"> <li>Replace the limit sensor.</li> <li>Check the mechanical backlash or loose with the scan axis related parts.</li> </ul>                                                                                                                                                                                                                                                                       |
| 0107 | Linear encoder setup error                 | <ul style="list-style-type: none"> <li>Linear encoder setup has not been done.</li> </ul>                          | <ul style="list-style-type: none"> <li>Linear encoder setup has not been done.</li> <li>Linear encoder setup is ended before it is completed.</li> </ul>                                                     | <ul style="list-style-type: none"> <li>Carry out linear encoder setup in service menu.</li> </ul>                                                                                                                                                                                                                                                                                                                                   |
| 0109 | Wiper error                                | <ul style="list-style-type: none"> <li>Wiper unit does not work correctly.</li> </ul>                              | <ul style="list-style-type: none"> <li>Wiper motor error</li> <li>Defect of the wiper unit</li> <li>Defect of the wiper sensor</li> <li>Cut-line or short-circuit of cable and flexible cable</li> </ul>     | <ul style="list-style-type: none"> <li>Replace the wiper motor .</li> <li>Replace the wiper unit.</li> <li>Replace the wiper sensor.</li> <li>Replace cable and ribbon cable.</li> </ul>                                                                                                                                                                                                                                            |
| 0110 | Linear encoder error                       | <ul style="list-style-type: none"> <li>There is a problem in reading the linear encoder.</li> </ul>                | <ul style="list-style-type: none"> <li>Read error of the linear encoder.</li> <li>Read error of the encoder on the scan motor side.</li> <li>Belt is not fixed to the print-head carriage firmly.</li> </ul> | <ul style="list-style-type: none"> <li>Confirm whether the encoder scale is between the slit of the encoder module in a whole width of the printer.</li> <li>Check the cable connection between the print carriage board and linear encoder board.</li> <li>Confirm connection between the belt and the carriage.</li> <li>Replace the linear encoder.</li> <li>Replace the scan motor.</li> <li>Replace the main board.</li> </ul> |
| 0112 | Cartridge IC driver error                  | <ul style="list-style-type: none"> <li>It is not possible to communicate with the cartridge IC driver.</li> </ul>  | <ul style="list-style-type: none"> <li>Cartridge IC driver has a problem (not working).</li> <li>The communication wire of the cartridge IC driver cable has short circuited or cut-line.</li> </ul>         | <ul style="list-style-type: none"> <li>Replace ink cartridge IC sensor.</li> <li>Replace the parts.</li> </ul>                                                                                                                                                                                                                                                                                                                      |
| 0115 | External expansion I/O communication error | <ul style="list-style-type: none"> <li>Disorder of communication with the external expansion I/O</li> </ul>        | <ul style="list-style-type: none"> <li>There is a problem with the devise.</li> <li>There is a problem with the sub board.</li> </ul>                                                                        | <ul style="list-style-type: none"> <li>Replace the sub board.</li> </ul>                                                                                                                                                                                                                                                                                                                                                            |
| 0148 | Thermistor error (print head)              | <ul style="list-style-type: none"> <li>There is a problem with the thermistor on the print head.</li> </ul>        | <ul style="list-style-type: none"> <li>Thermistor has a problem.</li> <li>Ribbon cable has short circuited or cutline.</li> </ul>                                                                            | <ul style="list-style-type: none"> <li>Check the cable connection around the thermistor.</li> <li>Replace the print head.</li> </ul>                                                                                                                                                                                                                                                                                                |

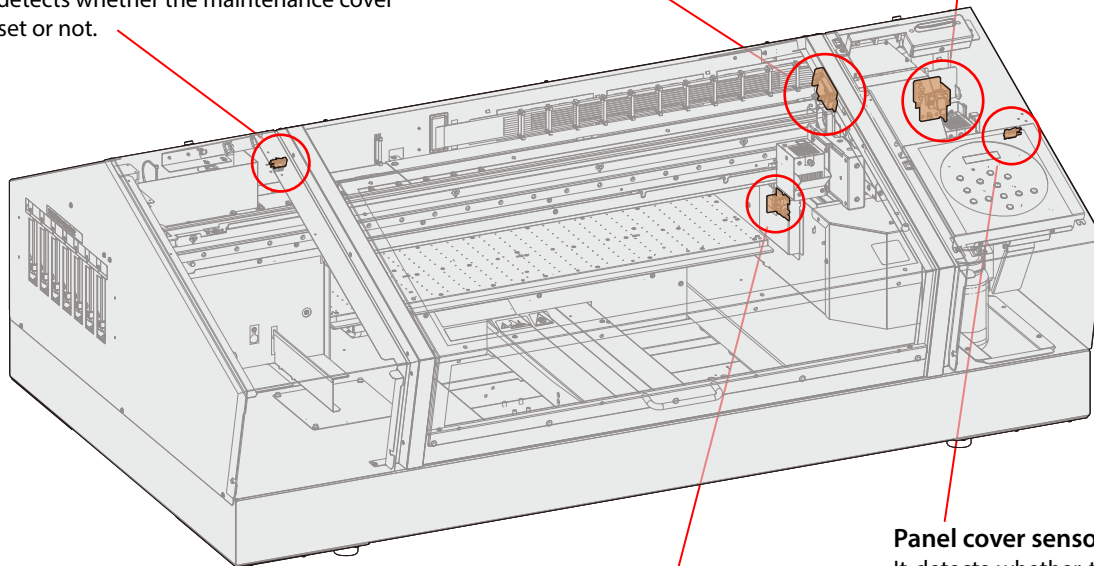
| Code | Error Name               | Contents                                                                                                                                                                  | Cause                                                                                                                                                                                                                                                                                                                                                                                                                    | Action (You do not have to perform everything listed below. Sometimes performing just one or some of the following can solve the problem.)                                                                                                                                                                                                                                       |
|------|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0210 | UV lamp connection error | <ul style="list-style-type: none"> <li>The UV lamp is not connected / tuned on.</li> </ul>                                                                                | <ul style="list-style-type: none"> <li>There is a bad connection between the UV lamp and the print carriage board.</li> <li>There is a bad connection between the DC junction board and the signal junction board.</li> <li>The print carriage board is broken.</li> <li>The DC junction board is broken.</li> <li>The signal junction board is broken.</li> <li>The UV lamp is broken.</li> </ul>                       | <ul style="list-style-type: none"> <li>Check cable connection between the UV lamp and the print carriage board.</li> <li>Check cable connection between the DC junction board and the signal junction board.</li> <li>Replace the print carriage board.</li> <li>Replace DC junction board.</li> <li>Replace the signal junction board.</li> <li>Replace the UV lamp.</li> </ul> |
| 0211 | UV lamp error            | <ul style="list-style-type: none"> <li>The UV lamp is broken. / There is a problem with the UV Lamp.</li> <li>The thermistor in the UV lamp is extremely high.</li> </ul> | <ul style="list-style-type: none"> <li>There is a bad connection between the UV junction board and the signal junction board.</li> <li>The UV junction board is broken.</li> <li>The signal junction board is broken.</li> <li>The filter of the UV lamp is clogged.</li> <li>The UV lamp is broken.</li> </ul> <p>*When the bad connections happen at the same time, Service Call [0211] occurs as a high priority.</p> | <ul style="list-style-type: none"> <li>Check cable connection between the print carriage board and the signal junction board.</li> <li>Replace the print carriage board.</li> <li>Replace the signal junction board.</li> <li>Replace the UV lamp filter.</li> <li>Replace the UV lamp.</li> </ul>                                                                               |
| 0212 | Lamp slide error         | <ul style="list-style-type: none"> <li>The lamp slide unit does not work correctly.</li> </ul>                                                                            | <ul style="list-style-type: none"> <li>Defect of the lamp slide motor</li> <li>Defect of the lamp slide unit</li> <li>Defect of the limit board</li> <li>Cut-line or short-circuit of cable and flexible cable</li> </ul>                                                                                                                                                                                                | <ul style="list-style-type: none"> <li>Replace the lamp slide motor</li> <li>Replace the lamp slide unit.</li> <li>Replace the limit board.</li> <li>Replace the cable and flexible cable.</li> </ul>                                                                                                                                                                            |
| 0230 | Feed motor error         | <ul style="list-style-type: none"> <li>The feed origin sensor does not work correctly.</li> </ul>                                                                         | <ul style="list-style-type: none"> <li>Feed motor error</li> <li>Defect of the feed motor gear</li> <li>Defect of the feed belt</li> <li>Defect of the feed origin sensor</li> <li>Cut-line or short-circuit of cable and flexible cable</li> </ul>                                                                                                                                                                      | <ul style="list-style-type: none"> <li>Replace the feed motor.</li> <li>Replace the feed motor gear.</li> <li>Replace the feed belt.</li> <li>Replace the feed origin sensor.</li> <li>Replace the cable and flexible cable.</li> </ul>                                                                                                                                          |
| 0231 | HEIGHT motor error       | <ul style="list-style-type: none"> <li>The table height motor origin sensor does not work correctly.</li> </ul>                                                           | <ul style="list-style-type: none"> <li>Table height motor error</li> <li>Defect of the table height unit</li> <li>Defect of the table height origin sensor</li> <li>Cut-line or short-circuit of cable and flexible cable</li> </ul>                                                                                                                                                                                     | <ul style="list-style-type: none"> <li>Replace the table height motor.</li> <li>Replace the table height unit</li> <li>Replace the table height origin sensor</li> <li>Replace the cable and flexible cable</li> </ul>                                                                                                                                                           |



**Maintenance cover sensor**  
It detects whether the maintenance cover is set or not.

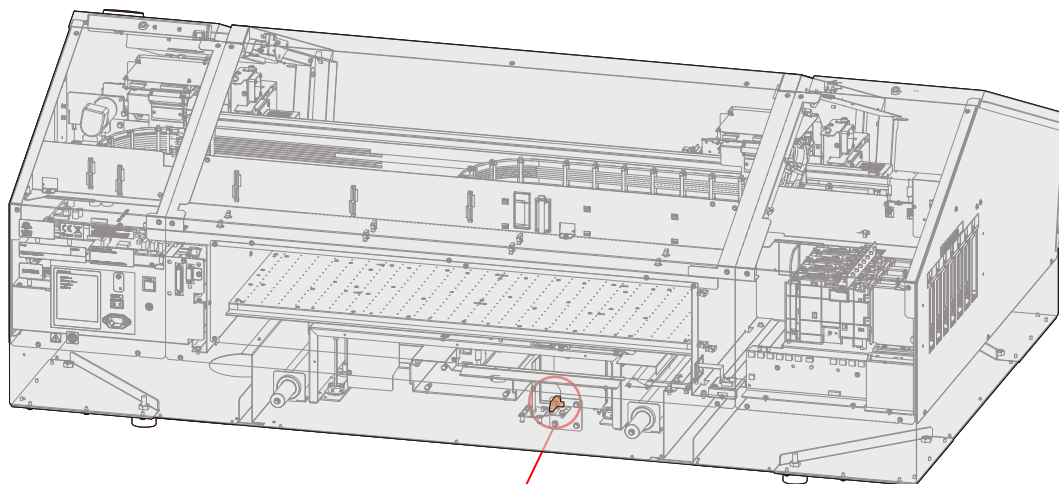
**Front cover sensor**  
It detects whether the front cover is open or close.

**Head lock sensor**  
It detects whether the print-head carriage is at locking position or not. It also detects whether the print-head carriage is at the origin or not.

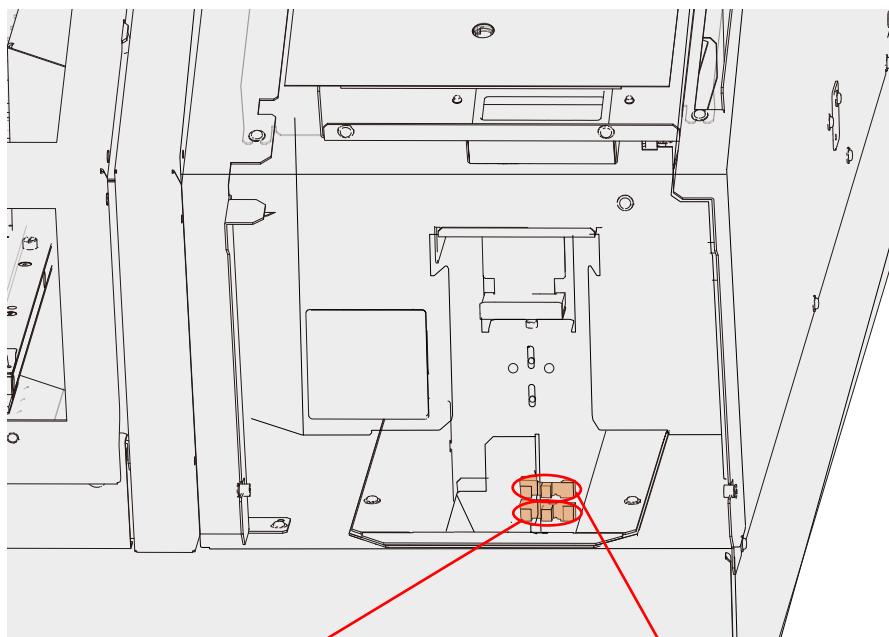


**Head gap sensor**  
It detects height of the material.

**Panel cover sensor**  
It detects whether the panel cover is set or not.



**Z origin sensor**  
It detects the Z-axis origin.

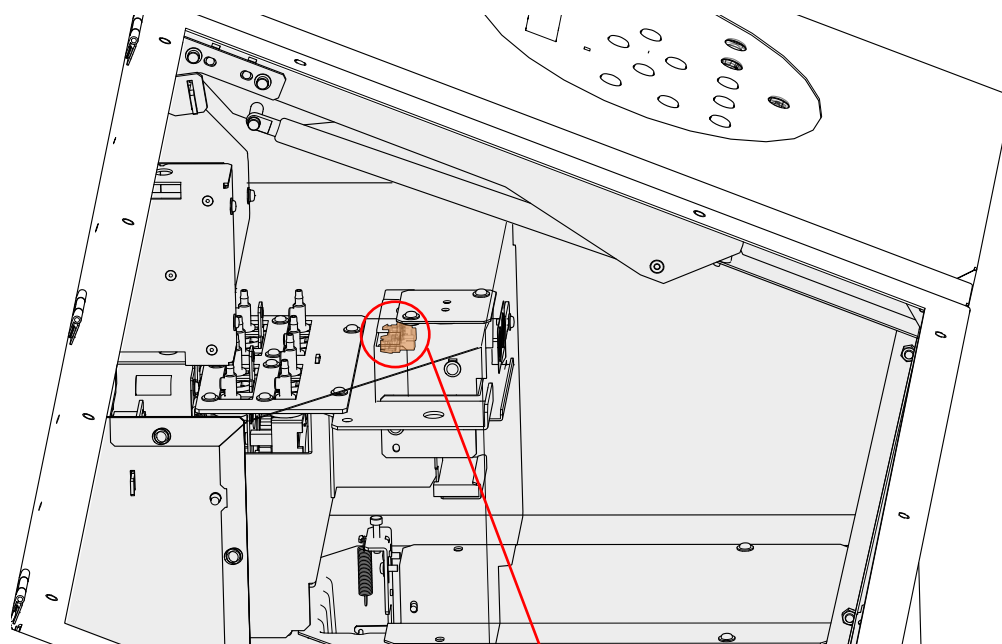


### Drain bottle sensor (full)

It detects that the drain bottle is full with discharged fluid.

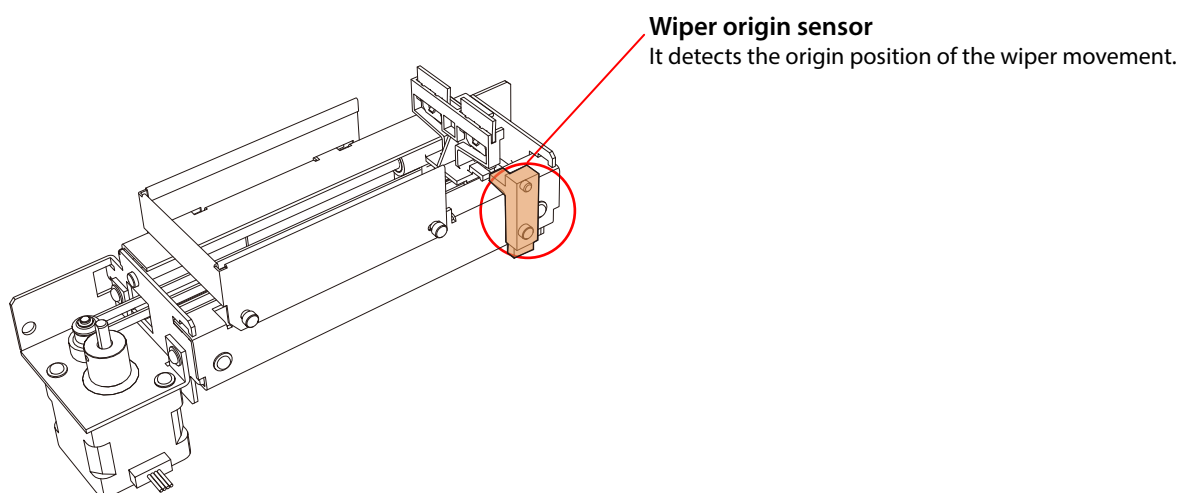
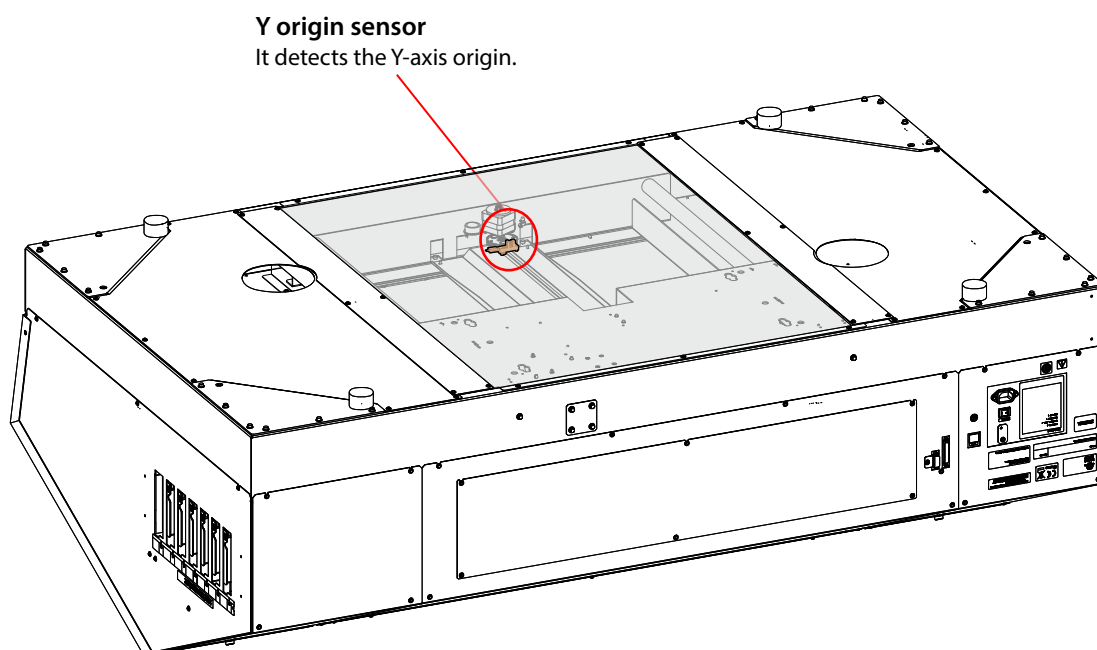
### Drain bottle sensor (nearly full)

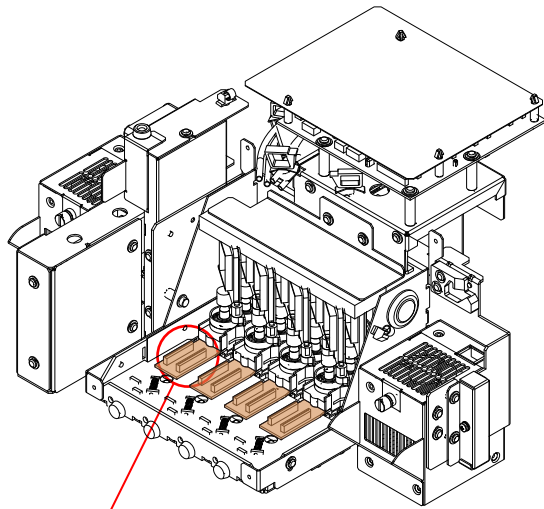
It detects that the drain bottle is nearly full with discharged fluid.



### Drain bottle sensor

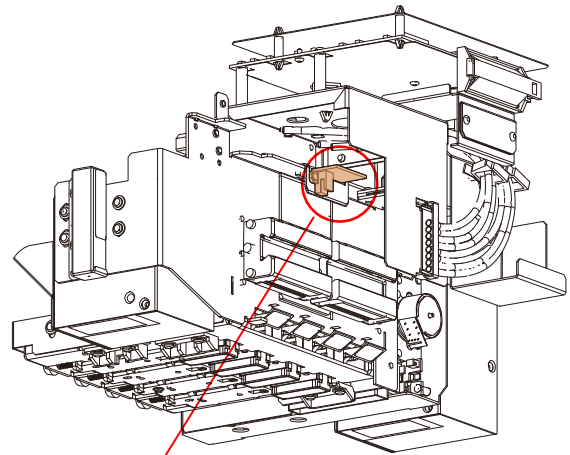
It detects whether whether the drain bottle is installed or not.





### Thermistor

It measures the temperature around the print head.



### Encoder sensor

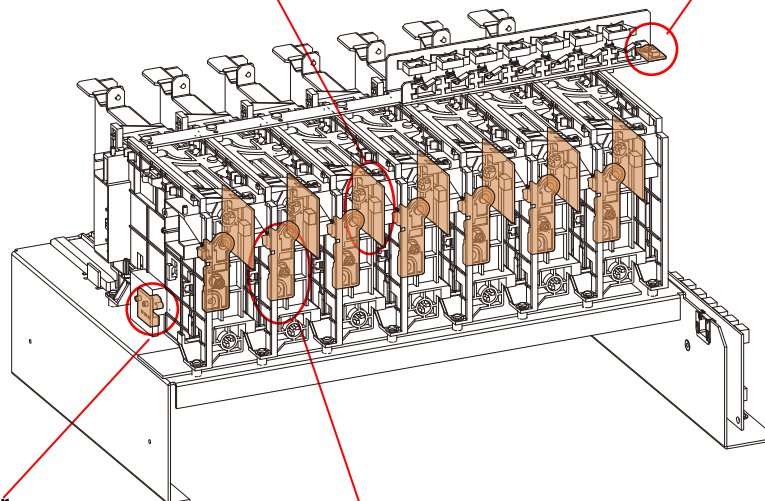
It detects the coordinates in the carriage moving direction, and also generates the print signal.

### Ink cartridge IC sensor

It communicates with the IC chip of the ink cartridge.

### Air temperature thermistor

It measures the temperature around the machine.



### Ink empty sensor

It detects whether the ink cartridge is empty or not.

### Ink cartridge sensor

It detects whether the ink cartridge is installed or not.

Service Parts

For more information on the cables, refer to the Parts Finder Web.

<https://365rolanddg.sharepoint.com/sites/extranet/Work-SitePages/GSV-PartsFinder.aspx>

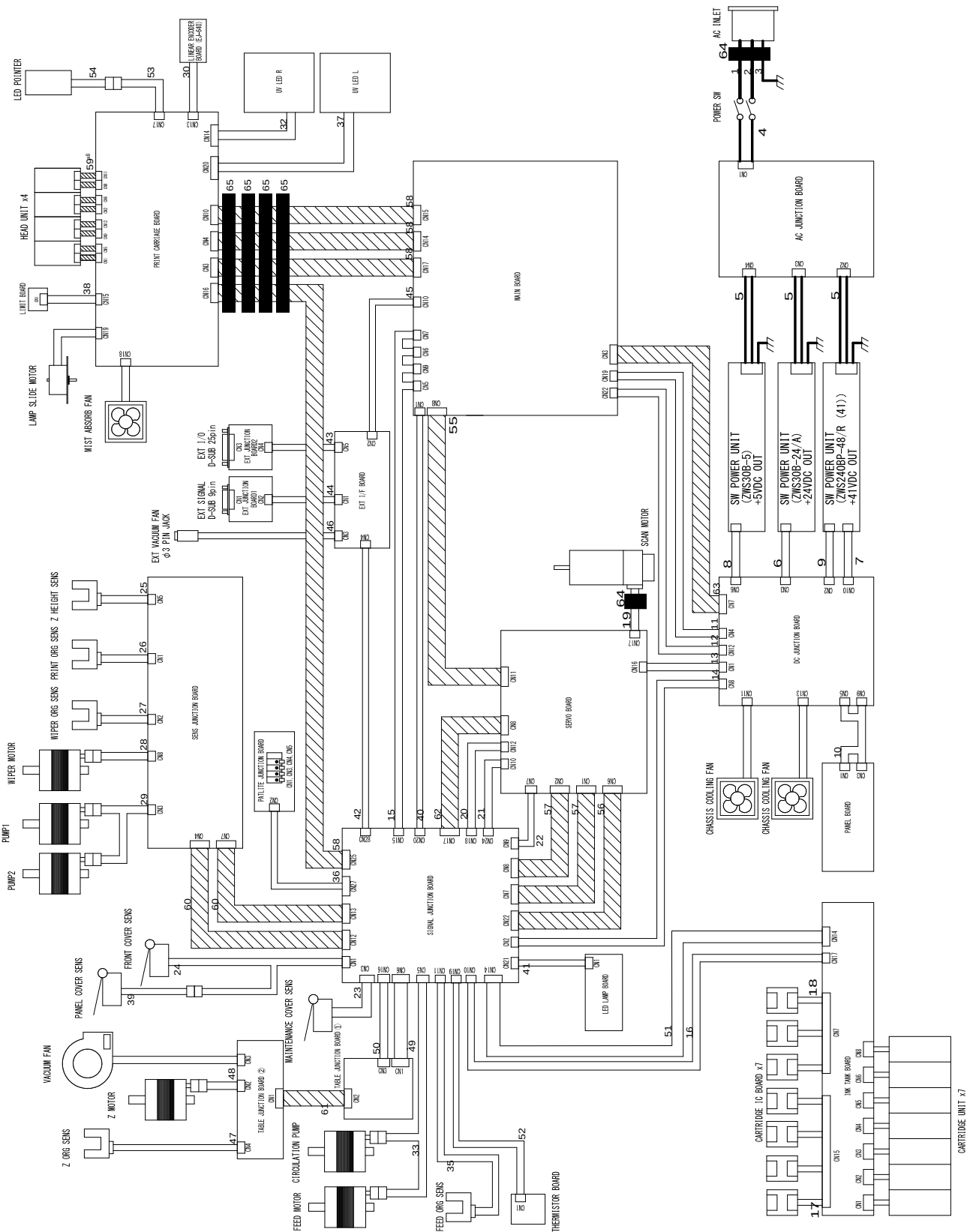
Description of sensor name

The name of each sensor is described as written below.

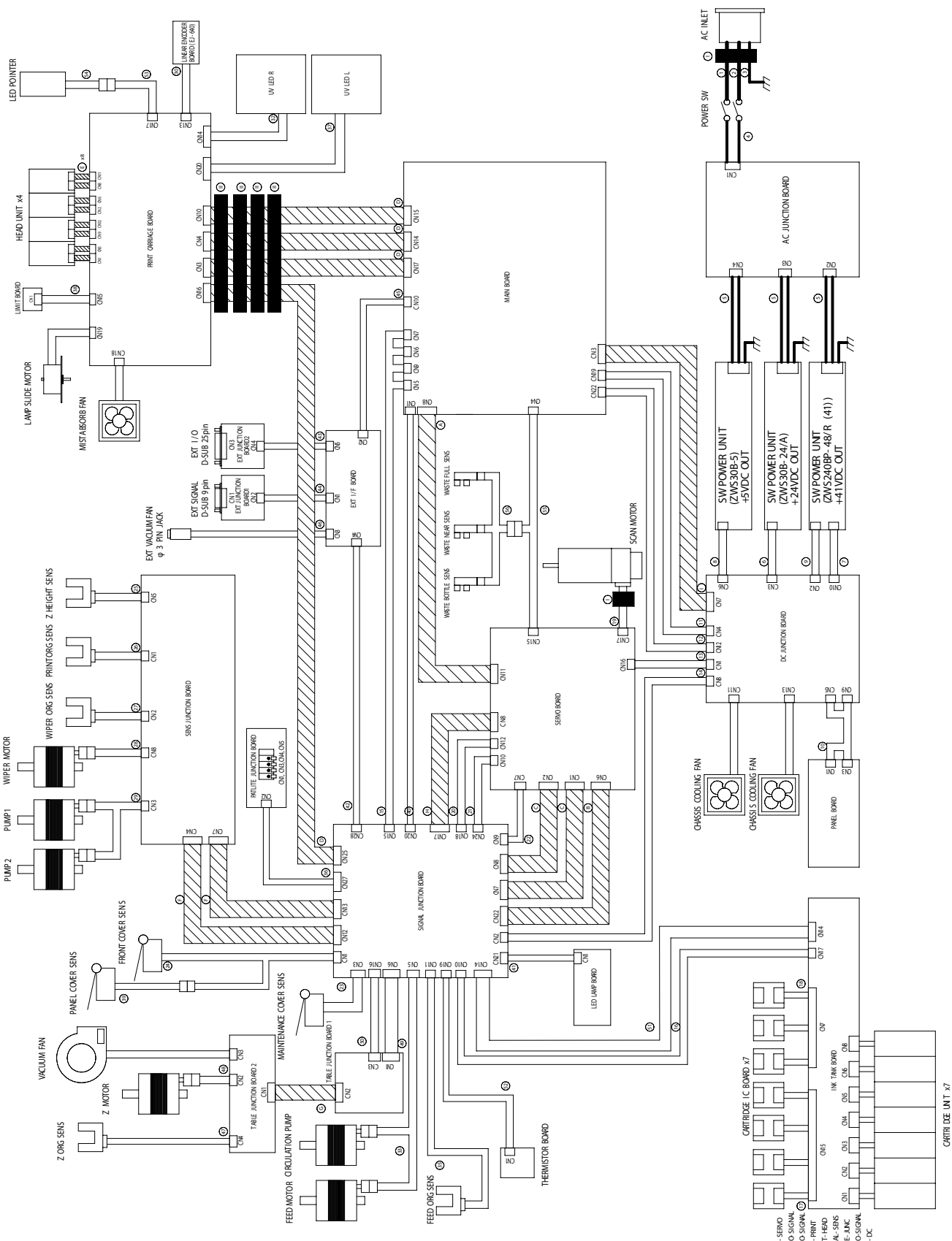
|                        |                          |
|------------------------|--------------------------|
| FEED ORG SENS          | Y-axis origin sensor     |
| FRONT COVER SENS       | Front cover sensor       |
| MAINTENANCE COVER SENS | Maintenance cover sensor |
| PANEL COVER SENS       | Panel cover sensor       |
| PRINT ORG SENS         | Head lock sensor         |
| WASTE BOTTLE SENS      | Drain bottle sensor      |

|                 |                                   |
|-----------------|-----------------------------------|
| WASTE NEAR SENS | Drain bottle sensor (nearly full) |
| WASTE FULL SENS | Drain bottle sensor (full)        |
| WIPER ORG SENS  | Wiper origin sensor               |
| Z HEIGHT SENS   | Head gap sensor                   |
| Z ORG SENS      | Z-axis origin sensor              |

Serial No. ZEF0421 or earlier



Serial No. ZEG0422 or later



# Chapter 4 Service Activities

|                             |      |
|-----------------------------|------|
| Installation Checklist..... | 4-2  |
| Maintenance Checklist.....  | 4-14 |



# Installation Checklist

## LEF2-300 Installation Checklist

Date: \_\_\_\_\_

User name: \_\_\_\_\_

Serial number: \_\_\_\_\_

### Installation Space

- ☐ The necessary space is secured in order to use this machine. Install the machine in a level and stable location.

### Included items

Confirm that the included items are all present and accounted for in reference to Setup Guide.

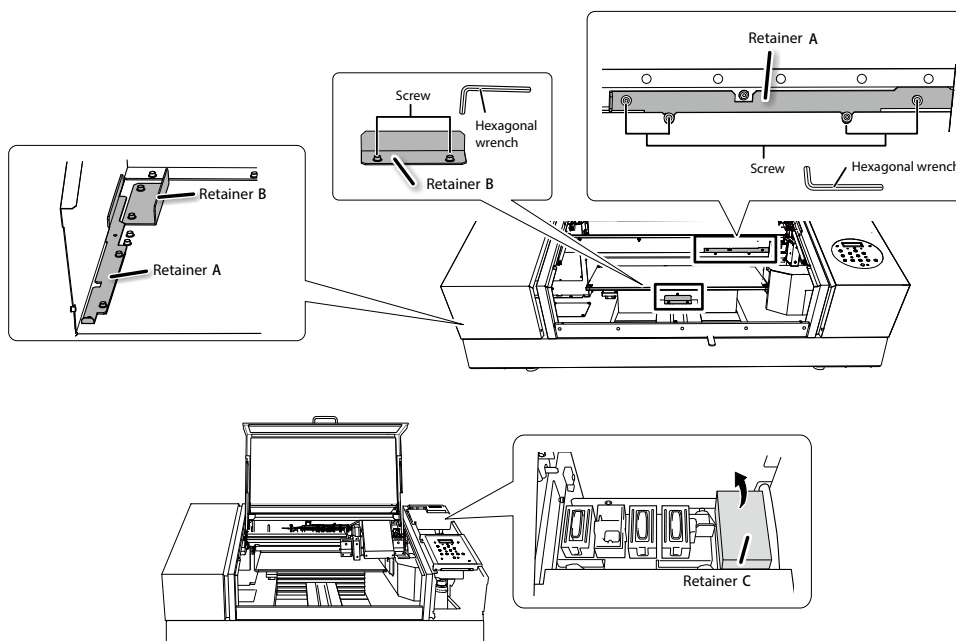
\*The following items are included if the installing machine is LEF2-300D (LEF2-300 + D-KIT).

- Spacer table 1pc
- Spacer table fixing screw 4 pcs
- Spacer refresher
- D-KIT Setup Guide
- D-KIT Regular Maintenance Guide

### Installation and preparation

Explain the following to the customer referring to from “Setting Up the Machine, Step 1: Removing the Retainers” to “Connecting to the Computer, Step 3 Make the Port Settings for the Software RIP” in the Setup Guide.

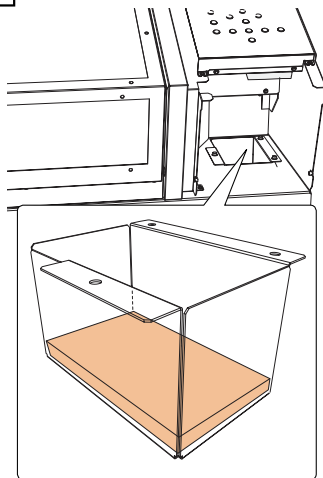
- ☐ Removing the retainers



### CAUTION

You need the retainers when you move the machine. Be sure not to lose them.

- ☐ Attaching a piece of pad tray (not necessary for the machine having the drain bottle sensor)



- ☐ Connecting the cables

- ☐ Initial settings

- ☐ Ink filling

## NOTE

If the model is LEF2-300D, check the following.

- ☐ Print area adjustment

Install the table spacer and perform step 1 to 3 in Chapter 2 "[Print area adjustment](#)" for checking.

- ☐ Print head alignment

Install the table spacer and perform test printing , then check the following.

Chapter 2 "[Print head alignment](#)"

- BIAS adjustment
- Vertical adjustment
- Horizontal adjustment
- Bi-directional position adjustment

- ☐ Network settings

IP address of the computer \_\_\_\_\_

IP address of the printer \_\_\_\_\_

- ☐ Setting jig plate

If you use a jig, set the height of head refresher.

### Upgrading the firmware

Upgrade the firmware to the latest version.

### Installing VersaWorks

Refer to [VersaWorks Installation Guide](#) and install VersaWorks.

#### ☐ Connecting to Roland@NET

Get permission from the user and change the settings so that the software will be automatically updated and notified.

#### ☐ Power-saving setting on computer

Turn off the computer's power-saving functions which make the computer go standby or sleep.  
It may stop a job being output.

### Installing OnSupport

Refer to Roland OnSupport on [Manual Library](#) and install the software.

#### ☐ Basic operations

How to display OnSupport Help

#### ☐ Environmental settings (language/network)

Checking the network connection

#### **CAUTION**

To fully utilize OnSupport, you need to connect your computer to our OnSupport server via the Internet. If your computer is linked to the Internet, you will enable its connection to our OnSupport server only by installing OnSupport.

Setting the e-mail server  
What is "OnSupport Mail"?

#### ☐ Registering/logging in/updating the account

Register the Roland DG account if the customer accepts it.

#### **CAUTION**

When you register the Roland DG account (Roland DG ID), you will become able to use OnSupport more effectively.  
You are to communicate with our OnSupport server in registering your account. An e-mail address is required.

How to update OnSupport

☐ Connecting and managing the devices

**CAUTION**

When you make the management settings, you will become able to use "OnSupport Mail function" and the "Device Firmware Update function". To update the firmware, you need to log in OnSupport with the computer with which you made the management settings.

☐ Preliminary Note  
(to the User)

Explain the following before operating the machine.

☐ Interlock function

**CAUTION**

The safety against the UV light is assured for users having the UV light shielding measures in the apertural area and the interlock feature that cuts off the UV light when the front cover is opened.  
Never disable the front cover sensor.

☐ Front Cover

**CAUTION**

Always keep the front cover closed except when necessary, such as when loading media. The front cover prevents direct sunlight or illumination.  
If the ink receives direct sunlight, the ink is solidified to cause some clogging problems.

☐ Preliminary Note  
(to the Service Technician)

☐ The influence of UV light from the UV lamp on the eye

**CAUTION**

Looking directly at the UV light may result in a serious eye injury such as "UV keratitis", "pterygium" or "cataract".  
Be sure to wear the UV-proof goggles to protect the eyes when performing the maintenance operations of the machine.

☐ The influence of the volatilized UV ink on the eye, nose, and throat

**CAUTION**

The volatilized UV ink may stimulate the eye, nose, and throat. Be sure to wear the UV-proof goggles and anti bromic mask if you replace the print head under the light shielding curtain.  
It is recommended to wear the goggles and anti bromic mask because the symptoms vary between individuals and work hours.

- ☐ The influence of UV ink on the skin

### CAUTION

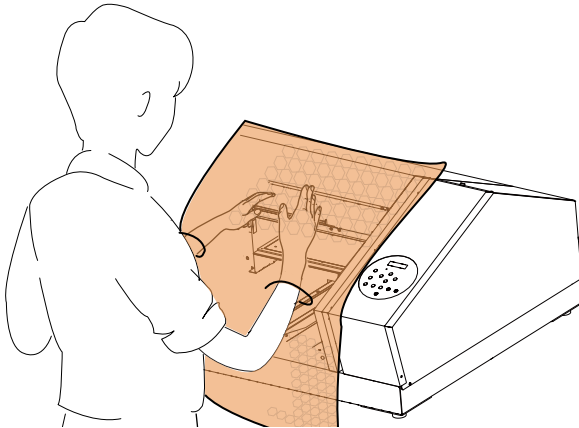
It is recommended to wear the gloves when performing the maintenance operations of the machine.  
In the event of contacting with the skin, immediately wash with water and neutral soap.

- ☐ Protection against the light\* during the service activity

### CAUTION

Be sure to use the UV-proof sheet when the ink line is exposed to the light during the replacement, or ink will harden and clog the ink line, and it results in a serious influence to the machine.

\* The light means the light which includes the ultraviolet. Consider that most of the light including fluorescent light includes the ultraviolet.



### Basic operations

Explain the following to the customer in reference to the User's Manual.

- ☐ Power supply operations

- ☐ Check before operations

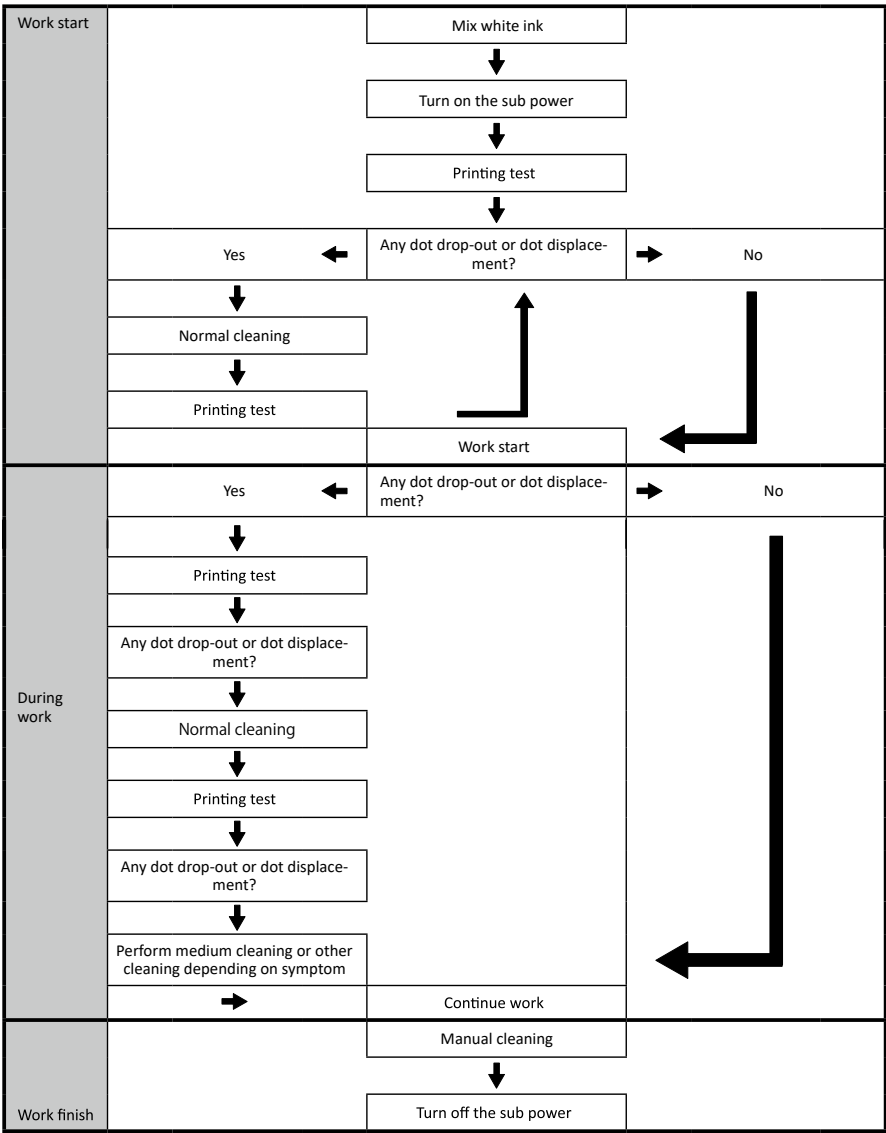
Before operations, remove the white ink cartridge, shake it 50 times (about 15 seconds), and then reinsert this cartridge.

Explanation of how to use the machine

Explain the following to the customer in reference to the User's Manual.

Printing method

Checking the daily workflow



Three checks before printing

- 1. Do not use objects that easily reflect light.
- 2. Shorten the distance to the print heads.
- 3. Consider whether a jig is necessary.

☐ Printing

☐ Head refreshing after daily operations

Head refreshing is an important operation that prevents clogging of the print heads. Refresh the print head:

- After daily operations.
- When the message "DO HEAD REFRESH" appears.
- When dot drop-out or dot displacement occurs.
- When an emergency stop occurs.
- When switching on the main power and sub power after the main power was previously switched off.

☐ Pausing and resuming printing

☐ Optimizing quality and efficiency

Explain the following to the customer in reference to the User's Manual.

☐ Optimizing the setup method

- Adjusting the height
- Print area settings

☐ Optimizing the printing quality

- Preventing ink discharge defects
- Improving ink adhesion

☐ Optimizing work efficiency

- Using presets
- Reducing print time
- Reducing paper used during printing tests

☐ Optimizing work efficiency

☐ Managing the operations appropriately and efficiently

- Setting the current time
- Setting the start timer
- Notifying the user of ink exceeding its shelf life

☐ Managing the basic settings of the printer

## Maintenance

Explain the following to the customer in reference to the User's Manual.

### ☐ Basic maintenance knowledge

- Types and timing of maintenance

#### Regular maintenance

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

| Timing                                        | Category                                      |
|-----------------------------------------------|-----------------------------------------------|
| Before daily operations                       | Maintenance of ink cartridges                 |
|                                               | Cleaning of the print heads                   |
| During and after daily operations             | Cleaning of the print heads (head refreshing) |
|                                               | Cleaning the machine                          |
|                                               | Replacing ink cartridges                      |
| When dot drop-out or dot displacement occurs. | Cleaning of the print heads                   |
| Once a month                                  | Cleaning of the print heads                   |

#### Advanced maintenance

These maintenance methods consume a large amount of ink. Thoroughly read the explanation, and then perform the operation at the appropriate point in time.

| Timing                                 | Category                                                      |
|----------------------------------------|---------------------------------------------------------------|
| When the white ink concentration drops | Eliminating drops in ink concentration                        |
| When manual cleaning is not effective  | Eliminating uneven colors, dot drop-out, and dot displacement |
| Once a month                           | Cleaning of the print heads                                   |

#### Replacing the consumable parts

These items are for replacement of consumable parts. Thoroughly read the explanation, and then perform the operation at the appropriate point in time.

| Timing                                                            | Category                   |
|-------------------------------------------------------------------|----------------------------|
| When a replacement message appears                                | Replacing consumable parts |
| Half a year after the start of use                                |                            |
| When the head refresher cleaning pad becomes twisted or falls out |                            |

- Automatic maintenance and feature and notes
- Alarm features
- Measures when the printer is not in use for a prolonged period



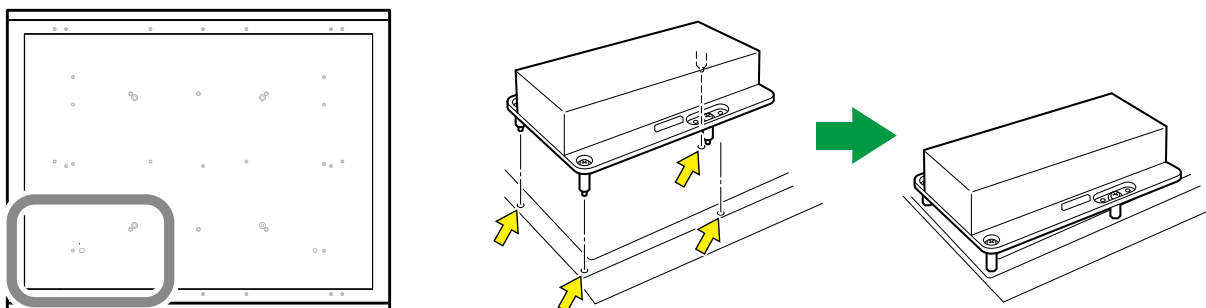
## ☐ Regular maintenance

- Cleaning the machine
- Replacing ink cartridges
- Disposing of discharged ink
- Maintenance that must be performed daily
  - Maintenance of ink cartridges
  - Printing tests and normal cleaning
  - Head refreshing

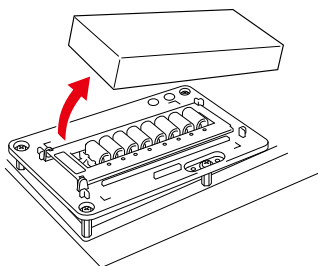
## Head refreshing method

If you perform head refreshing, follow the instruction of operation panel.

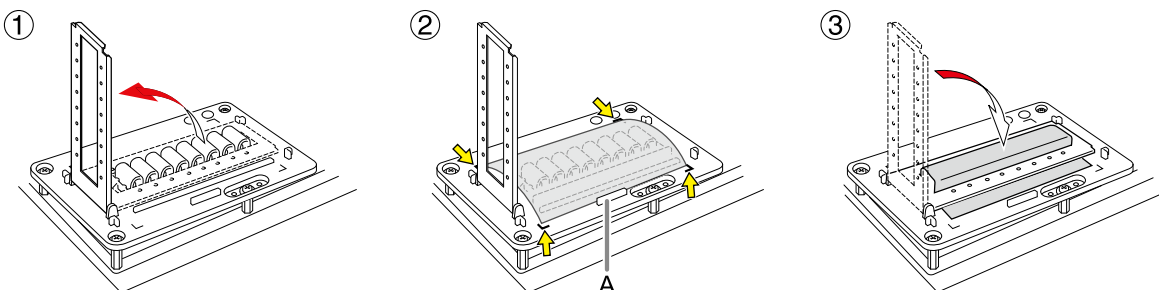
1. Attach the head refresher to the left side at the front of the flat table.



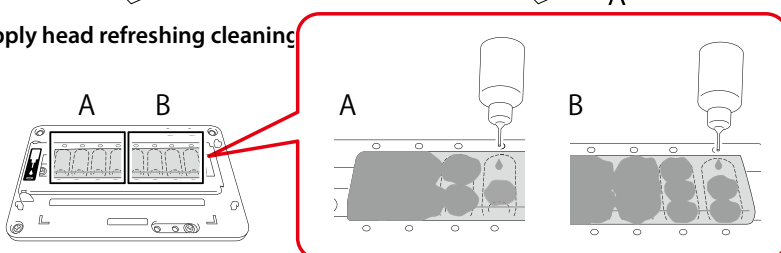
2. Remove the head refresher cover.



3. Attach the head cleaning sheet to the head refresher.



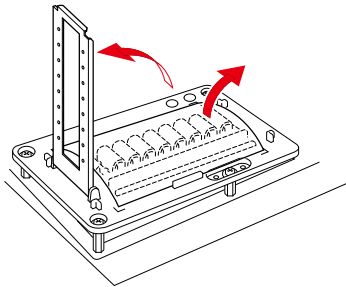
4. Apply head refreshing cleaning



## NOTE

- As a guideline, apply 2 drops (A), or 3 drops (B) of cleaning liquid to a single cleaning pad. Apply cleaning liquid as shown in the figure using the holes in the sheet retaining cover (total of 16 holes) as guidelines for the positions where to apply the liquid.
- Soak the cleaning liquid into the entirety of the head cleaning sheet covering the wiping part. Rubbing the print heads with a dry sheet may lead to malfunctions.

### 5. After head refreshing is finished, open the sheet retaining cover and remove the head cleaning sheet.



### 6. (End of procedure)

- When normal cleaning is not effective
- Manual cleaning

#### ☐ Advanced maintenance

- Restoring the white ink concentration
- Handling severe dot drop-out and dot displacement

#### ☐ Replacing consumable parts

- Replacing method of consumable parts
- Replace the filter
- Replacing the cleaning pad unit
- Inquiry about consumable parts  
(Consumable parts that customers can purchase and replace)
  - Wiper
  - Wiper cleaner
  - Cleaning stick
  - Cleaning liquid
  - Print head cleaning sheet
  - Cleaning liquid for head refreshing

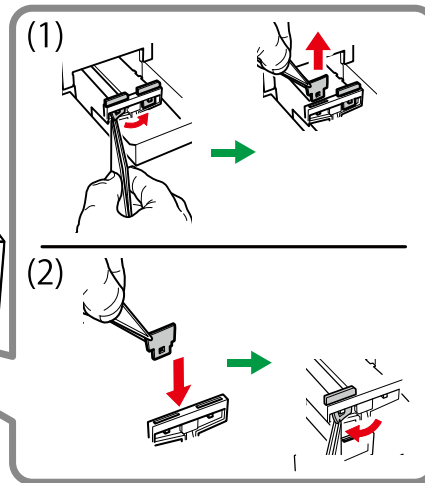
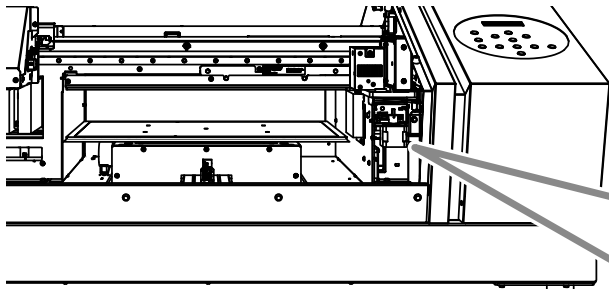
(Parts that you need to inquire before replacement)

- Print head
- Cleaning pad unit

## Replacing the wipers and wiper cleaner

When a message is displayed, it is time to replace the wiper.

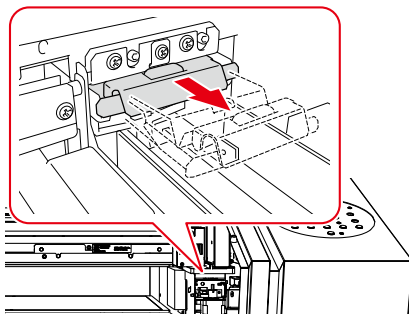
### 1. Replace the wipers.



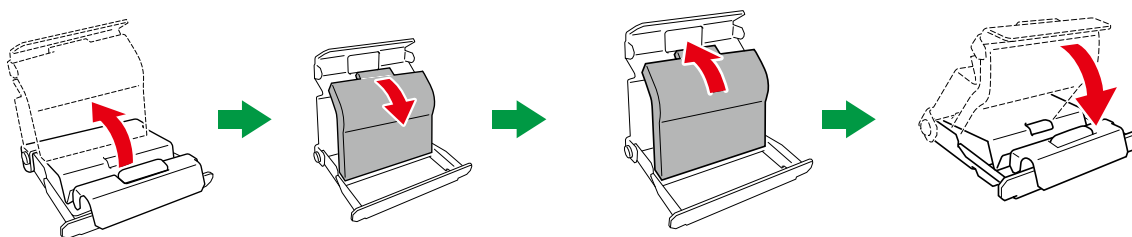
#### NOTE

Replace the two wipers at the same time.

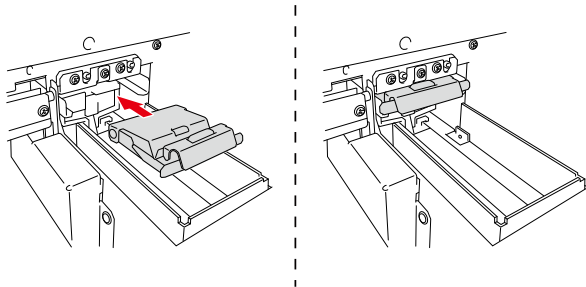
### 2. Remove the wiper cleaner case.



### 3. Replace the wiper cleaner.



4. Attach the wiper cleaner case.



5. (End of procedure)

Consumable parts and replacement cycle

| Name                            | Replacement Cycle                                                           |
|---------------------------------|-----------------------------------------------------------------------------|
| UV lamp                         | 10,000 hours                                                                |
| Print head                      | 6 billion shots/nozzle (6,000,000 k shots)                                  |
| Wiper                           | 6 months, wiping 1000 times                                                 |
| Wiper cleaner                   | 6 months, wiping 1000 times                                                 |
| Scan motor                      | 3,000 hours                                                                 |
| Cap top                         | 6 months                                                                    |
| Ink tube                        | 3,000 hours                                                                 |
| Mist filter                     | 500 hours<br>The message appears when the printing hours comes to 500 hours |
| Sponge for wipers               | Replace when worn out                                                       |
| Lithium battery                 | 24 months                                                                   |
| Pad tray                        | Depending on the damage degree                                              |
| Front cover cushion             | 6 months or depending on the damage degree                                  |
| UV lamp filter                  | Replace the filter when it is clogged.                                      |
| Sponge unit for head refreshing | 6 months                                                                    |
| Pad for head refreshing cover   | 24 months                                                                   |

# Maintenance Checklist

## LEF2-300 Maintenance Checklist

Date: \_\_\_\_\_

User name: \_\_\_\_\_

Serial number: \_\_\_\_\_

| Check items                              |                                       | Important Points                                                                                                                                                                                                                                                                         | Check                                                              |                                        |
|------------------------------------------|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|----------------------------------------|
| Interview with the customer              |                                       | Ask the customer if there is something that he/she is concerned about.                                                                                                                                                                                                                   | <input type="checkbox"/> Done                                      |                                        |
| Output / Check report before maintenance |                                       | [Get report by Peck], or print [ALL] in service menu.                                                                                                                                                                                                                                    | <input type="checkbox"/> Done                                      |                                        |
| Check drain bottle                       |                                       | If a large amount of ink is discharged in the drain bottle, dispose of it and give an explanation to the customer. Make sure to reset the discharged ink count.                                                                                                                          | <input type="checkbox"/> Good<br><input type="checkbox"/> Disposed | <input type="checkbox"/> Reset         |
| Upgrade firmware                         |                                       | Upgrade if it is not the latest version.                                                                                                                                                                                                                                                 | <input type="checkbox"/> Done                                      | <input type="checkbox"/> Not necessary |
| Check Consumable Parts<br>Parts name     | UV lamp                               | Check if the UV glasses are contaminated with dust or ink.<br>If a cleaning is needed, clean them manually with cleaning liquid (SL-CL) or ethanol.                                                                                                                                      | <input type="checkbox"/> Cleaned                                   |                                        |
|                                          | Print head                            | Determine if the print heads should be replaced based on the SHOT COUNT in the history report, the test print result, and the customer's interview.<br>Replacement cycle: 6 billion shots/nozzle                                                                                         | <input type="checkbox"/> Good<br><input type="checkbox"/> Replaced | <input type="checkbox"/> Reset         |
|                                          |                                       | Perform manual cleaning by using cleaning sticks and cleaning liquid.                                                                                                                                                                                                                    | <input type="checkbox"/> Cleaned                                   |                                        |
|                                          |                                       | Output the test patterns for BIAS, VERTICAL, HORIZONTAL to check the error, and perform adjustment if necessary.                                                                                                                                                                         | <input type="checkbox"/> Good                                      | <input type="checkbox"/> Adjusted      |
|                                          | Scan motor                            | Determine if it should be replaced based on MOTOR ERROR and MOTOR HOURS in the History Report, or on the motor sound when performing a print and the customer's interview. Put some grease (FLOIL G-902 10ML_02) on the gear if you replace the motor.<br>Replacement cycle: 3,000 hours | <input type="checkbox"/> Good<br><input type="checkbox"/> Replaced | <input type="checkbox"/> Reset         |
|                                          | Wiper                                 | Determine if it should be replaced based on the deformation or the time period from the last replacement.<br>If replacement is unnecessary, clean them manually using cleaning stick and cleaning liquid.<br>Replacement Cycle: 6 months or WIPING COUNT 3,000 times rubbing 100 times   | <input type="checkbox"/> Cleaned                                   | <input type="checkbox"/> Replaced      |
|                                          | Cap top                               | Determine if it should be replaced based on the performance of the cleaning or the time period from the last replacement. If replacement is unnecessary, clean them manually using cleaning stick and cleaning liquid.<br>Replacement cycle: 6 months                                    | <input type="checkbox"/> Good<br><input type="checkbox"/> Cleaned  | <input type="checkbox"/> Replaced      |
|                                          | Sponge for wipers                     | Determine if it should be replaced based on its appearance or the time period from the last replacement.<br>Replacement cycle: 12 months                                                                                                                                                 | <input type="checkbox"/> Good                                      | <input type="checkbox"/> Replaced      |
|                                          | Wiper cleaner                         | Determine if it should be replaced based on its appearance or the time period from the last replacement.<br>Replacement cycle: 6 months or WIPING COUNT 1,000 times or rubbing 100 times                                                                                                 | <input type="checkbox"/> Good                                      | <input type="checkbox"/> Replaced      |
|                                          | Mist filter                           | Determine if it should be replaced based on its appearance or the time period from the last replacement.<br>Replacement cycle: 500 hours                                                                                                                                                 | <input type="checkbox"/> Good                                      | <input type="checkbox"/> Replaced      |
|                                          | Z-axis shaft, screw / head gap sensor | Lubrication cycle (FLOIL G-902 10ML_02): 6 months                                                                                                                                                                                                                                        | <input type="checkbox"/> Done                                      | <input type="checkbox"/> Not necessary |
|                                          | Lithium battery                       | Replacement cycle: 24 months                                                                                                                                                                                                                                                             | <input type="checkbox"/> Good                                      | <input type="checkbox"/> Replaced      |
|                                          | Front cover cushion                   | Determine if it should be replaced based on its appearance or the time period from the last replacement.<br>Replacement cycle: 6 months                                                                                                                                                  | <input type="checkbox"/> Good                                      | <input type="checkbox"/> Replaced      |
|                                          | UV lamp filter                        | Replace the filter when it is clogged.                                                                                                                                                                                                                                                   | <input type="checkbox"/> Good                                      | <input type="checkbox"/> Replaced      |
|                                          | Sponge unit for head refreshing       | Determine if it should be replaced based on its appearance or the time period from the last replacement.<br>Replacement cycle: 6 months                                                                                                                                                  | <input type="checkbox"/> Good                                      | <input type="checkbox"/> Replaced      |
|                                          | Pad for head refreshing cover         | Determine if it should be replaced based on its appearance or the time period from the last replacement.<br>Replacement cycle: 24 months                                                                                                                                                 | <input type="checkbox"/> Good                                      | <input type="checkbox"/> Replaced      |

4

SERVICE  
ACTIVITIES

## Maintenance Checklist

| Check items                         |                   | Important Points                                                                                                                                                             | Check                         |                                   |
|-------------------------------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-----------------------------------|
| Others<br>Check<br>Mechanical       | Carriage belt     | Check if the carriage belt doesn't touch the flanges of the drive pulley and idle pulley when the print-head carriage moves in the full width. Adjust the belt if necessary. | <input type="checkbox"/> Good | <input type="checkbox"/> Adjusted |
|                                     |                   | Check the belt tension and adjust it if necessary                                                                                                                            | <input type="checkbox"/> Good | <input type="checkbox"/> Adjusted |
|                                     | Y-axis belt       | Confirm that there is no scratch or stain.                                                                                                                                   | <input type="checkbox"/> Good | <input type="checkbox"/> Replaced |
|                                     | Drive gear        | Confirm that the drive gear has no scratch, stain or backlash.                                                                                                               | <input type="checkbox"/> Done |                                   |
|                                     | Vacuum fan filter | Check that it is not dirty nor clogged.                                                                                                                                      | <input type="checkbox"/> Good | <input type="checkbox"/> Replaced |
| Check printing                      |                   | Check that there is no problem with the printing operation and printing result.                                                                                              | <input type="checkbox"/> Done |                                   |
| Output/Get report after maintenance |                   | [Check Report] by Peck, or print [ALL] in the service menu.                                                                                                                  | <input type="checkbox"/> Done |                                   |
| Remarks                             |                   |                                                                                                                                                                              |                               |                                   |