

TrueVIS

VG-640/VG-540

Confidential



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Revision History

Revision	Date	Description	Approver	Author
0	March 22, 2016	First edition	Kawai	Adachi
1	April 4, 2016	Chapter 1 Replacement [Cap Top Replacement], [SW Power Supply Replacement], [Pump Drive Board Replacement] Chapter 2 Adjustment [Service Mode], [Key Combinations], [Limit Position & Cut Down Position Initialization], [Flushing Position Adjustment], [Print Head Alignment], [Belt Tension Adjustment], [Belt Position Adjustment] Chapter 3 Electrical Parts [DC Junction Board], [AC Junction Board] Chapter 4 Supplemental Information [Service Call Errors], [Supplemental Information on Service Call 0400], [Sensor Map] Chapter 5 Service Activities [Fully utilizing the machine]	Kawai	Adachi
2	April 11, 2016	Chapter 1 Replacement [Print Head Replacement], [SW Power Supply Replacement], [RFID R/W Board Replacement], [Carriage Belt Replacement], [Battery Replacement] Chapter 2 Adjustment [Service Mode], [Tool Height Adjustment], [Tool Pressure Adjustment] Chapter 3 Electrical Parts [VG-640 Wiring Map] Chapter 4 Supplemental Information [Service Call Errors]	Kawai	Adachi
3	April 18, 2016	Chapter 1 Replacement [Cut Carriage Replacement] Chapter 2 Adjustment [Linear Encoder Setup], [Crop Mark Sensor Adjustment] Chapter 5 Service Activities [Check the Place of Installation], [Included Items], [Main Specifications]	Kawai	Adachi
4	April 28, 2016	Chapter 1 Replacement [Print Head Replacement], [Encoder Scale Replacement], [Linear Encoder Board Replacement] Chapter 2 Adjustment [Flushing Position Adjustment], [Crop Mark Sensor Adjustment] Chapter 3 Electrical Parts [VG-540 Wiring Map], [Servo Board]	Kawai	Adachi
5	May 16, 2016	Chapter 1 Replacement [Print Head Replacement], [Pressure Pump / Ink Circulation Pump Replacement], [Pressure Control Valve Replacement], [Choke Valve Replacement] Chapter 2 Adjustment [Service Mode] Chapter 3 Electrical Parts [VG-540 Wiring Map]	Kawai	Adachi
6	June 6, 2016	Chapter 1 Replacement [Ink Tube Replacement] Chapter 2 Adjustment [Service Mode] Chapter 5 Service Activities [Installation Checklist], [When Moving the Unit], [Main Specifications]	Kawai	Adachi
7	June 13, 2016	Chapter 2 Adjustment [Service Mode], [Flushing Position Adjustment] Chapter 3 Electrical Parts [DC Junction Board], [AC Junction Board] Chapter 4 Supplemental Information [Service Call Errors]	Kawai	Adachi
8	June 30, 2016	[Special Tools] Chapter 1 Replacement [Print Head Replacement], [Scan Motor Replacement], [Servo Board Replacement], [Interlock Board Replacement], [Carriage Belt Replacement], [Linear Encoder Board Replacement], [Ink Tube Replacement] Chapter 2 Adjustment [Belt Position Adjustment]	Kawai	Adachi
9	July 20, 2016	Chapter 1 Replacement [Scan Motor Replacement], [Carriage Belt Replacement]	Kawai	Kurita
10	August 19, 2016	Chapter 1 Replacement [Feed Motor Replacement]	Kawai	Hosoya
11	September 6, 2016	Chapter 2 Adjustment [Service Mode], [History Menu], [Limit Position & Cut Down Position Initialization], [Print Head Alignment]	Kawai	Shin
12	November 25, 2016	Chapter 1 Replacement [Print Head Replacement], [Main Board Replacement], [Battery Replacement] Chapter 2 Adjustment [Service Mode], [Print Head Alignment], [Tool Height Adjustment], [Belt Position Adjustment], [Wiper Position Adjustment], [Feed Calibration]	Kawai	Shin
13	December 28, 2016	Chapter 1 Replacement [Feed Motor Replacement], [Ink Tube Replacement] Chapter 2 Adjustment [Print Head Alignment], [Belt Tension Adjustment]	Kawai	Hosoya
14	January 27, 2017	Chapter 2 Adjustment [Tool Pressure Adjustment] Chapter 3 Electrical Parts [Heater Control Board]	Kawai	Shin
15	April 3, 2017	Chapter 1 Replacement [Print Head Replacement], [Ink Tube Replacement] Chapter 4 Supplemental Information [Motor Errors]	Nimura	Saito

Revision History

Revision	Date	Description	Approver	Author
16	June 16, 2017	[How to Distinguish between New and Old Model] added Chapter 1 Replacement (VG-640: Serial No. ADC0100 or later/VG-540: Serial No. LDA0100 or later) added Chapter 2 Adjustment [Service Mode], [Print Head Alignment], [Tool Height Adjustment], [Tool Pressure Adjustment], [Belt Position Adjustment], [Wiper Position Adjustment] Chapter 3 Electrical Parts (VG-640: Serial No. ADC0100 or later/VG-540: Serial No. LDA0100 or later) added Chapter 5 Service Activities [Installation Checklist]	Nimura	Saito
17	July 7, 2017	Chapter 3 Electrical Parts (VG-640: Serial No. ADC0100 or later/VG-540: Serial No. LDA0100 or later) [VG-640 Wiring Map]	Nimura	Saito
18	August 1, 2017	Chapter 1 Replacement (VG-640: ZCK0100 or later/VG-540: K*** / Z***) [Print Head Replacement] Chapter 1 Replacement (VG-640: Serial No. ADC0100 or later/VG-540: Serial No. LDA0100 or later) [Print Head Replacement] Chapter 2 Adjustment [Crop Mark Sensor Adjustment]	Nimura	Saito
19	September 15, 2017	Chapter 1 Replacement (VG-640: ZCK0100 or later/VG-540: K*** / Z***) [Print Head Replacement] Chapter 1 Replacement (VG-640: Serial No. ADC0100 or later/VG-540: Serial No. LDA0100 or later) [Print Head Replacement]	Nimura	Saito
20	September 29, 2017	Chapter 1 Replacement (VG-640: ZCK0100 or later/VG-540: K*** / Z***) [Print Head Replacement] Chapter 1 Replacement (VG-640: Serial No. ADC0100 or later/VG-540: Serial No. LDA0100 or later) [Print Head Replacement] Chapter 2 Adjustment [Print Head Alignment]	Nimura	Saito
21	February 6, 2018	Chapter 4 Supplemental Information [Service Call Errors]	Nimura	Saito
22	May 25, 2018	[Special Tools]	Nimura	Saito
23	December 6, 2018	Chapter 1 Replacement (VG-640: ZCK0100 or later/VG-540: K*** / Z***) [Print Head Replacement] Chapter 1 Replacement (VG-640: Serial No. ADC0100 or later/VG-540: Serial No. LDA0100 or later) [Print Head Replacement] Chapter 2 Adjustment [Service Mode], [Flushing Position Adjustment], [Crop Mark Sensor Adjustment] Chapter 4 Supplemental Information [Motor Errors], [Service Call Errors]	Nimura	Saito
24	June 25, 2019	Chapter 2 Adjustment [Service Mode], [Print Head Alignment]	Nimura	Saito
25	August 28, 2019	Chapter 1 Replacement (VG-640: ZCK0100 or later/VG-540: K*** / Z***) [Print Head Replacement] Chapter 1 Replacement (VG-640: Serial No. ADC0100 or later/VG-540: Serial No. LDA0100 or later) [Print Head Replacement]	Nimura	Saito
26	February 28, 2020	Chapter 4 Supplemental Information [Service Call Errors], [Supplemental Information on Service Call 0400]	Nimura	Saito
27	May 15, 2020	Chapter 1 Replacement (VG-640: ZCK0100 or later/VG-540: K*** / Z***) [Scan Motor Replacement], [Feed Motor Replacement], [Carriage Belt Replacement] Chapter 1 Replacement (VG-640: Serial No. ADC0100 or later/VG-540: Serial No. LDA0100 or later) [Scan Motor Replacement], [Feed Motor Replacement], [Carriage Belt Replacement]	Nimura	Saito
28	July 16, 2020	[Special Tools] Cleaning liquid changed Chapter 2 Adjustment [Firmware Upgrade], [Firmware Installation] Note for referring to "VG-640/VG-540 TR2 Ink Conversion" service notes added.	Nimura	Saito

Revision History

Revision	Date	Description	Approver	Author
29	September 4, 2020	Chapter 2 Adjustment [Service Mode] corrected, [History Menu] corrected, [Firmware Upgrade], [Firmware Installation] Note for referring to "VG-640/VG-540 TR2 Ink Conversion" service notes deleted., [Print Head Alignment] Test patterns changed. Chapter 3 Electrical Parts (VG-640: ZCK0100 or later/VG-540: K***/Z***) Layout diagrams and circuit diagrams of circuit boards transferred to "VG-640(ZCK0100 or later)_Circuit_Board/VG-540(Kxxx_or_Zxxx)_Circuit Board" folder on Imagi-net. Chapter 4 Supplemental information [Service Call Errors] 0135/0145/0146 corrected.	Nimura	Saito
30	December 11, 2020	Chapter 2 Adjustment [History Menu] Contents of P PUMP TIMES revised	Nimura	Saito
31	June 1, 2022	Chapter 1 Replacement (VG-640: Serial No. ADC0100 or later/VG-540: Serial No. LDA0100 or later) [Print Head Replacement] Tube inserting procedure revised.	Nimura	Saito

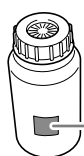
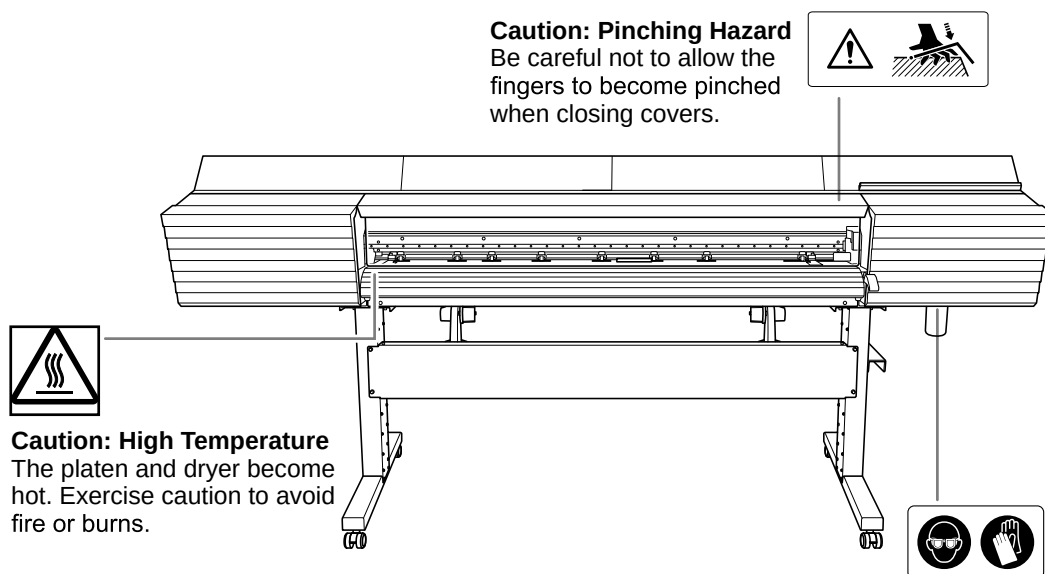
Service parts

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>

Warning Labels

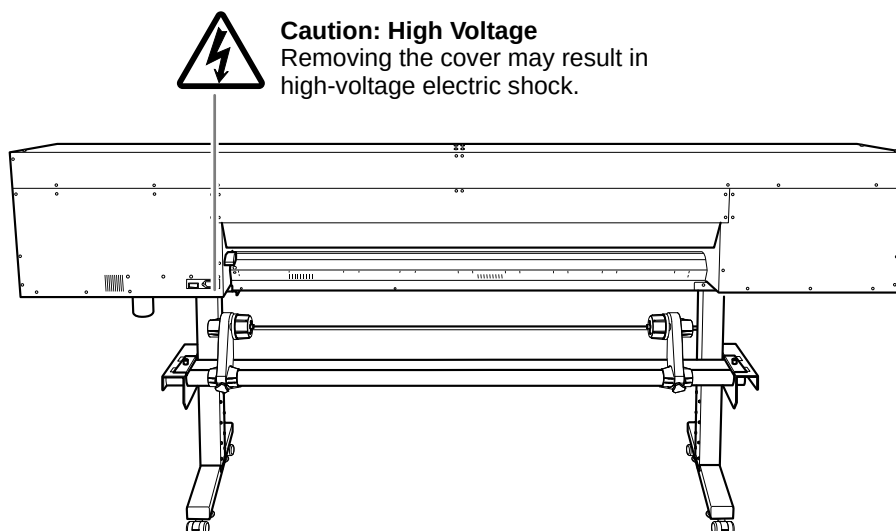
Warning labels are affixed to the machine to make areas of danger immediately clear. The meanings of these labels are as follows. Be sure to heed their warnings. Also, never remove the labels or allow them to become dirty.



Flammable

Ink and discharged fluid are flammable. Keep away from open flame.

Ink, cleaning liquid, and discharged fluid are toxic
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)).



How to Distinguish between New and Old Model



The structure of the inner parts has been changed from the machines with the specific serial number or later. The replacement and adjustment procedures of the new machine are different from those of the old models. You can distinguish between the new and old models by checking the serial number and the product name on the serial number label.

VG-640: Serial No. ZCK0100 or later
VG-540: Serial No. K***/Z***

VG-640: Serial No. ADC0100 or later
VG-540: Serial No. LDA0100 or later



MODEL:

VG-540

SERIAL NO.: KTC0220

WEIGHT: 191kg

INPUT: 1φ 100-120/220-240V
50/60Hz 7.9/4.1A

Designed in Japan, Assembled in Thailand

Roland DG Corporation
1-6-4, Shinmiyakoda, Kita-ku, Hamamatsu-shi, Shizuoka-ken,
JAPAN 431-2103



MODEL:

VG-540i

SERIAL NO.: LDA0100

WEIGHT: 191kg

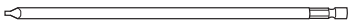
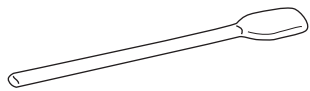
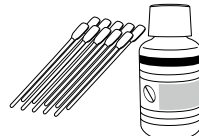
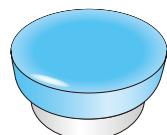
INPUT: 1φ 100-120/220-240V
50/60Hz 7.9/4.1A

Designed in Japan, Assembled in Thailand

Roland DG Corporation
1-6-4, Shinmiyakoda, Kita-ku, Hamamatsu-shi, Shizuoka-ken,
JAPAN 431-2103

Special Tools



Part No.	ST-056	
Part Name	TORQUE DRIVER N6	
Purpose	Print head replacement Print head alignment	
Part No.	1000015274	
Part Name	TOOL, BIT PHILLIPS NO.1 L200MM	
Purpose	Print head replacement Print head alignment	
Part No.	ST-001	
Part Name	TENSION GAUGE 2000GF/2000CN	
Purpose	Belt tension adjustment	
Part No.	ST-037 1000003138	
Part Name	CLEANING STICK TX712A SET, CLEANER STICK TX712A 10PCS.	
Purpose	Print head cleaning	
Part No.	6702419050	
Part Name	CLEANING LIQUID(ESL5) 500ML	
Purpose	Print head cleaning (ESL5)	
Part No.	6701409310	
Part Name	KIT, CLEANING(ESL5) 100ML	
Purpose	Print head cleaning (ESL5) *cleaning liquid + cleaning sticks 10 pcs."	
Part No.	6000004129	
Part Name	GREASE, FLOIL G-902 10ML_02	
Purpose	Grease	

Chapter 1 Replacement of Main Parts

**VG-640: Serial No. ZCK0100 or later/
VG-540: Serial No. K***/Z*****

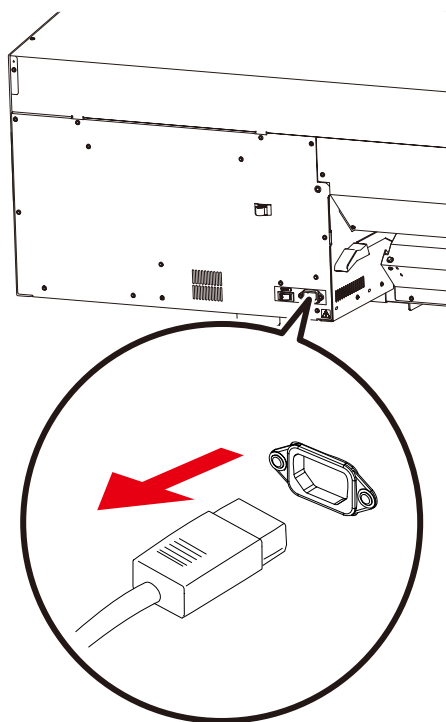
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To Ensure Safe Work



Turn off the sub power SW and main power SW, and unplug the power cable of the printer before performing parts replacement. Performing the parts replacement while the power is on may result in injury by unintended operation of the printer.



Static electricity can harm some electronic devices. To prevent static damage, discharge static electricity from your body before you touch any of electronic devices. You can do so by touching an unpainted metal surface on the chassis. You can also 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 device to the printer. Just before unwrapping the antistatic packaging, be sure to discharge static electricity from your body.
- When transporting a sensitive device, first place it in an antistatic container or packaging.
- Handle all sensitive devices in a static-safe area. If possible, use antistatic floor pads and workbench pads.

Information

Necessary tools

General tools

No.2 Phillips screwdriver

No.2 Phillips screwdriver (150 mm or less)

Gloves (anti-slip)

Waste cloth

Service parts

Old parts

6000003425	ASSY,INKJET HEAD (HEAD ONLY) SV CG2048
1000018350	CABLE-CARD 200L SET SV VG-640

New parts

(Refer to SERVICE INFORMATION RSB-0143)

6000003990	ASSY,INKJET HEAD 200L SV VG640
1000015256	ASSY,DAMPER DOUBLE CIR 2 VG-640

Replace the above parts all at the same time.

Special tools

ST-056	TORQUE DRIVER N6
1000015724 1000015274	BIT, PHILLIPS NO.2 L200MM

Workflow

1. Print head assembling
2. Print head replacement
3. Clearing the print head information
4. Print head alignment

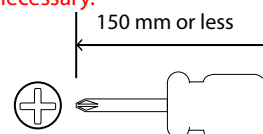
Time

Contents of work	Time
Print head assembling	5 min.
Print head replacement	60 min.
Clearing the print head information	1 min.
Print head alignment	25 min.

Procedure

CAUTION

- A Phillips screwdriver with a length of 150 mm or less is necessary.



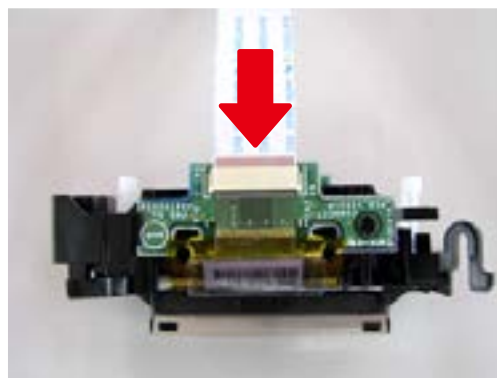
- Pump up and ink filling of the damper cannot be performed with the front cover open due to the interlock mechanism (the interlock mechanism prevents printer's operation while the front cover is open). To operate the printer with the front cover open, press and hold the sensor switch.

Print Head Assembling

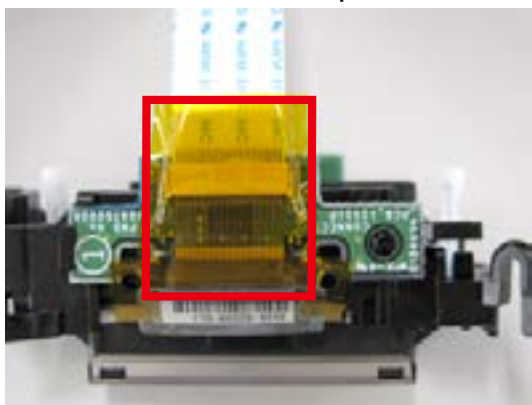
1. Insert the ribbon cable into the print head.

CAUTION

Insert the ribbon cable with the orientation shown in the figure.

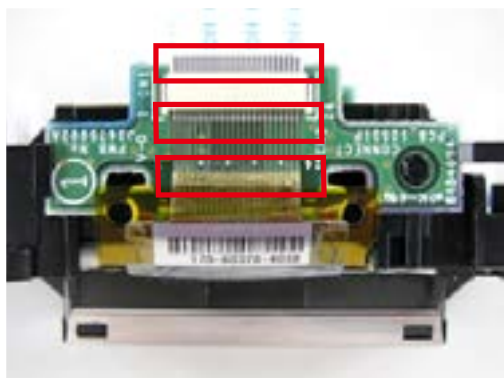


2. Cut the protective tape (TAPE, 650S-25-20X20) into 20+/-3 mm, and attach it to the print head.

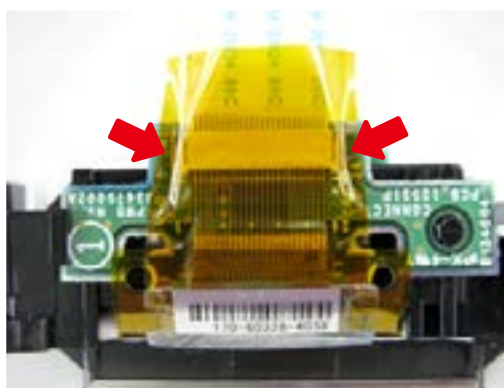


CAUTION

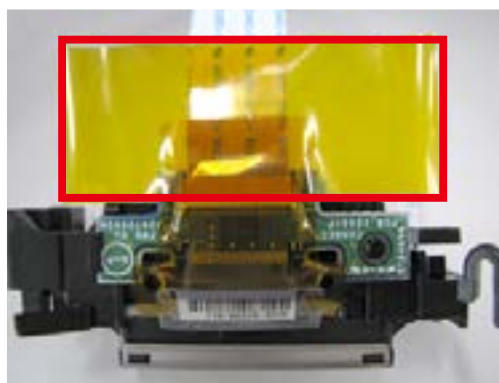
- Be sure to cover all the terminals indicated in red when you attach the protective tape.



- Press the protective tape at the stepped parts of the connector.

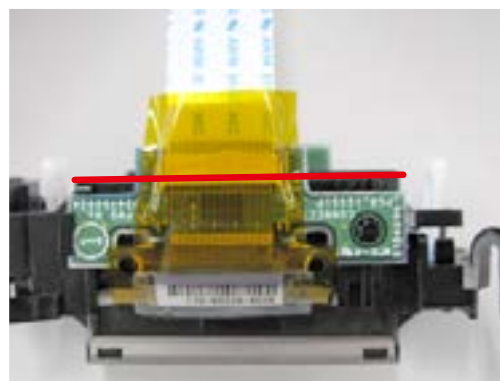


3. Cut the protective tape into 50+/-3 mm and attach it to the print head.

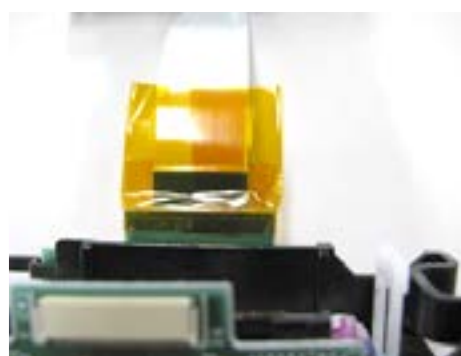
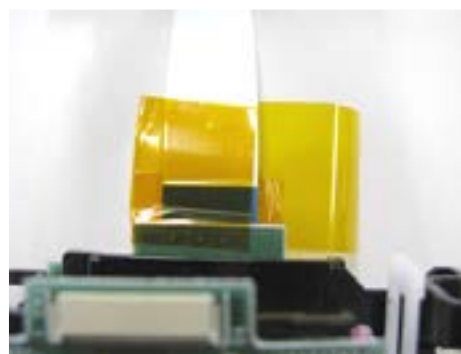


CAUTION

- Attach the protective tape with the red line in the figure as the reference position.



4. Fold the protective tape to the back side.



5. Attach the protective tape to the ribbon cable on the other side in the same way by following the steps 1 through 4.
6. Attach the damper.

CAUTION

- Check the orientation of the damper.
- The resin spring side comes the filler side.
- Attach one of the two hooks indicated with the red arrow first.



- Check that the hook has been caught securely.



7. Attach the head rank sticker to the right ribbon cable.



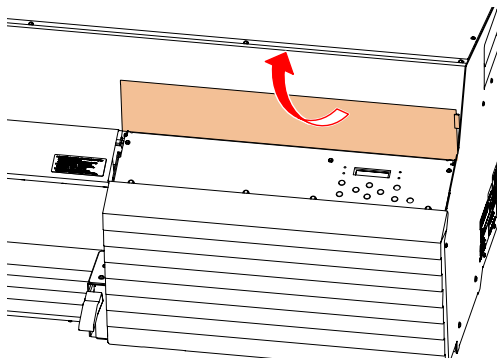
NOTE

Attach the sticker near the terminal that will be connected to the print carriage board.



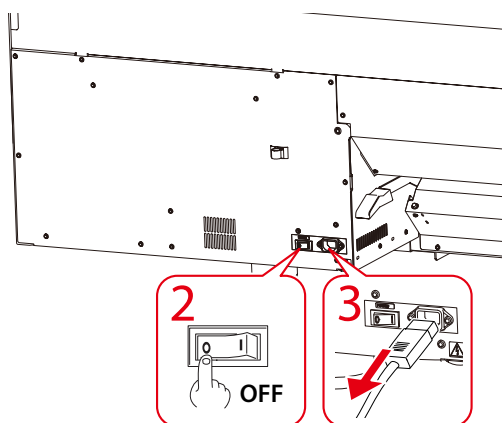
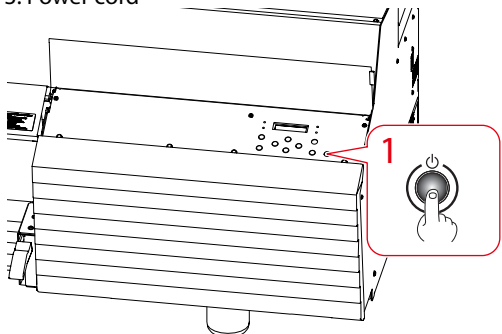
Print Head Replacement

8. Open the cover.

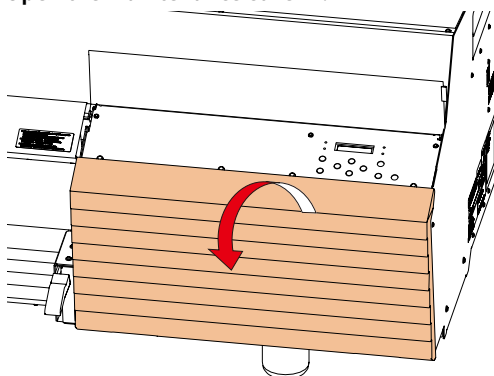


9. Turn off the sub power SW, and then turn off the main power. Unplug the power cord.

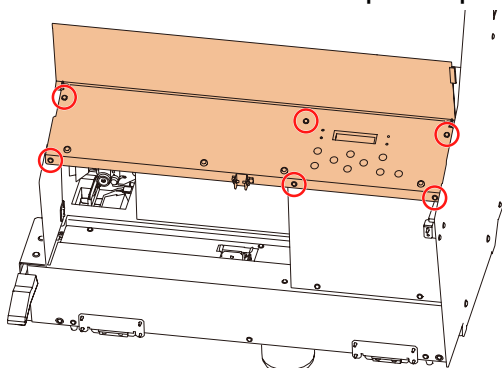
1. Sub power SW
2. Main power SW
3. Power cord



10. Open the maintenance cover R.



11. Remove six screws that secure the operation panel.



CAUTION

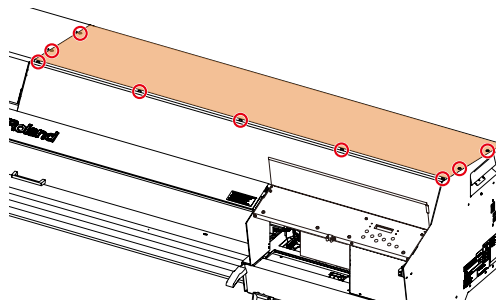
Before removing the operation panel, make sure to disconnect the ribbon cable from the operation panel.



12. Remove 15 screws.

NOTE

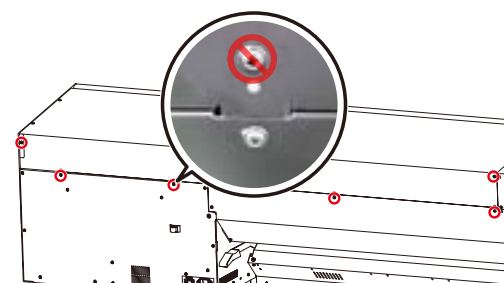
After removing the screws that secure the cover, you can leave the cover on the printer. (But removing the cover will make the work in step 24 and step 38 easier because you do not have to use a Phillips screwdriver with a length of 150 mm or less.)



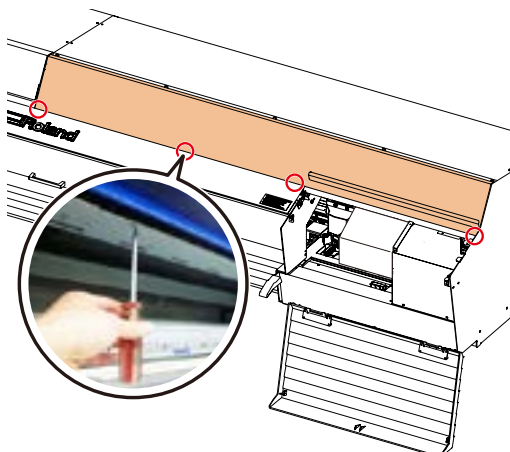
Rear view

CAUTION

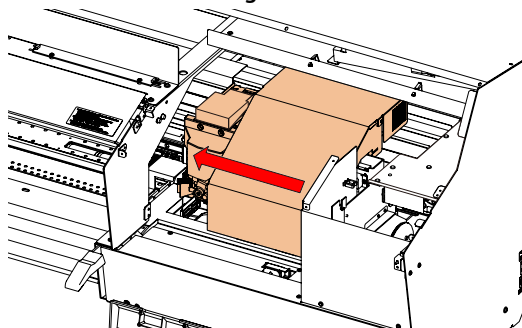
Do not remove the upper screw. Remove only the bottom screw. If you remove both upper and bottom screws, a small plate that the two screws are securing will fall off inside the printer.



13. Remove four screws that secure the cover.



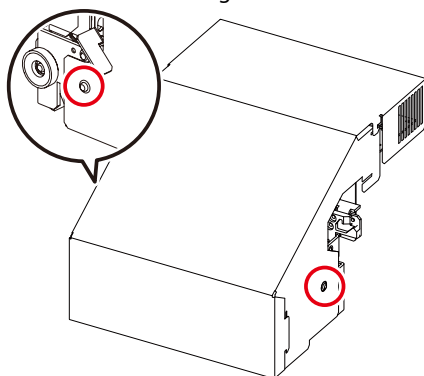
14. Unlock the head carriage.



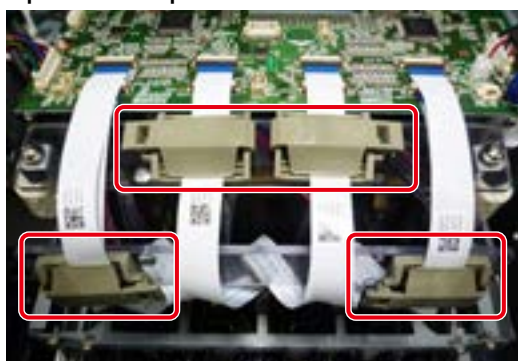
15. Remove two screws that secure the cover.

NOTE

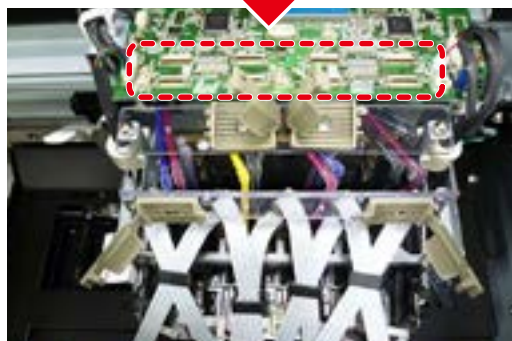
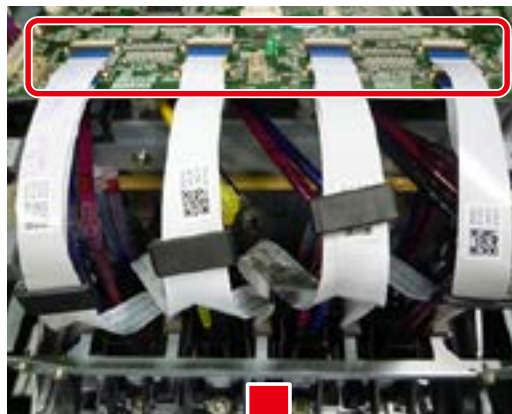
The screws are on the right and left side of the cover.



16. Open four clamps that secure the ferrite cores.

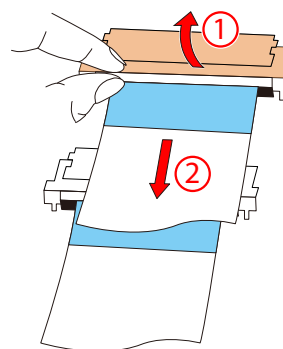


17. Disconnect all the ribbon cables from the print carriage board.

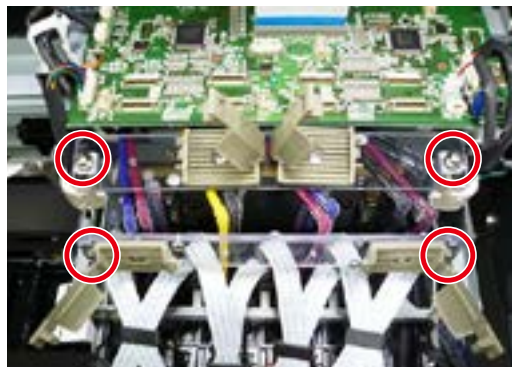


CAUTION

Open the cover in the direction of the arrow marked "1". Then, disconnect the ribbon cable from the print carriage board.



18. Remove four screws that secure two plates.



19. Place waste cloth under the tube joints. Ink may spatter and cause stains.



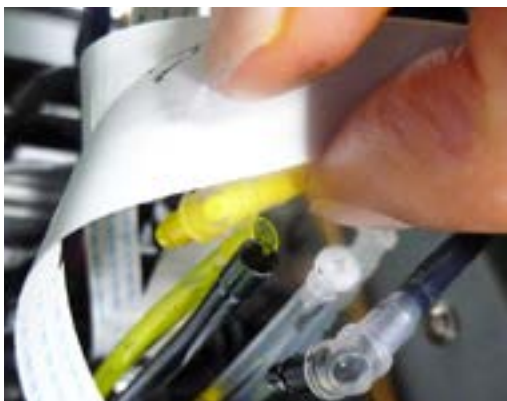
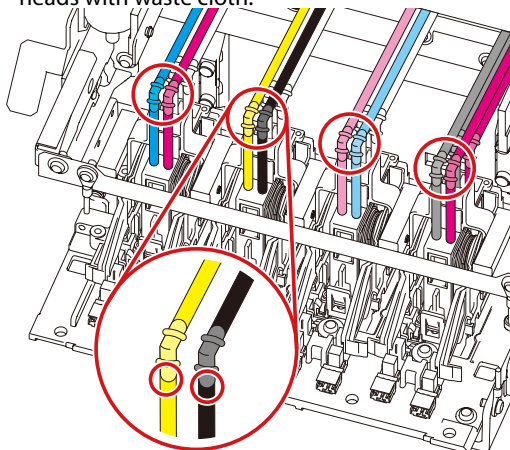
20. Remove the ink tubes, which are attached to the print head you are going to replace, from the L-shaped tubes.

CAUTION

Remove the ink tubes slowly and carefully to prevent ink from dripping or spattering. Putting waste cloth under the L-shaped tubes is recommended. Even after the ink tubes are removed from the L-shaped tubes, ink will not leak from the L-shaped tubes because the pressure control valves prevent it.

NOTE

Wipe off any ink from the ribbon cables and print heads with waste cloth.

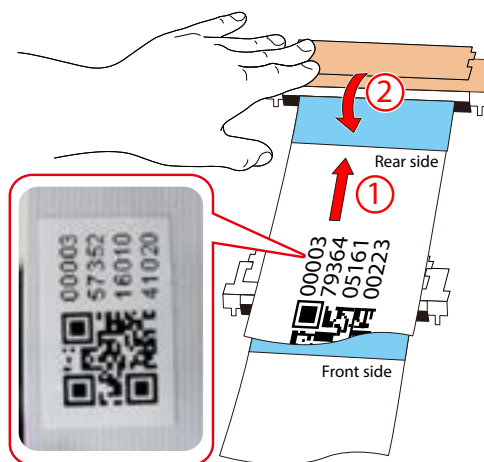


21. Connect all the ribbon cables from the print head to the print carriage board.

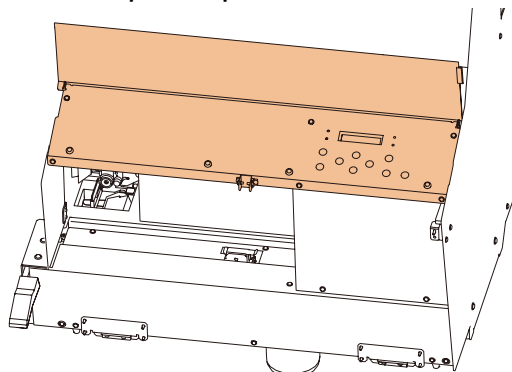


CAUTION

- Be sure to connect each ribbon cable to the correct connector.
- Be sure to find head rank code in Rear side ribbon cable



22. Tighten one or a couple of screws to temporarily fasten the operation panel.

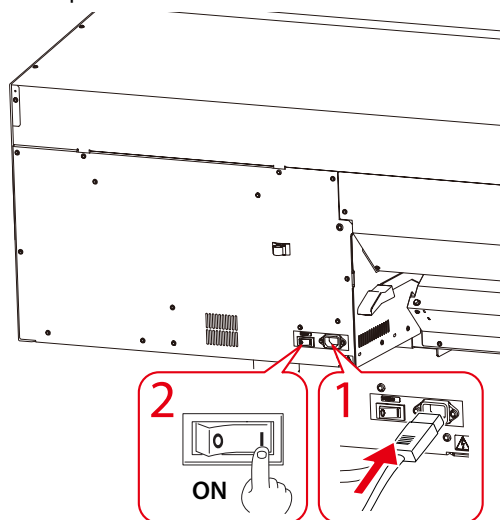


CAUTION

Connect the ribbon cable to the operation panel.

23. Plug in the power cord, and turn on the main power SW.

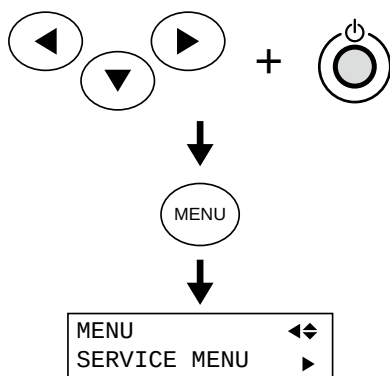
1. Power cord
2. Main power SW



24. Turn on the sub power SW while pressing the [◀] [▼] [▶] keys to enter the service mode.

CAUTION

The machine may perform automatic cleaning if you do not turn on the sub power for a while and the certain time interval has passed. To avoid automatic cleaning, be sure to put the machine into service mode within 30 seconds after the main power is switched on.

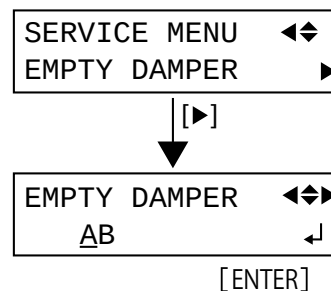


25. Go to [SERVICE MENU] > [SUB MENU] > [EMPTY DAMPER] and select the head group being replaced. Then, perform [EMPTY DAMPER].

* Required time for [EMPTY DAMPER]: approx. 3 min.

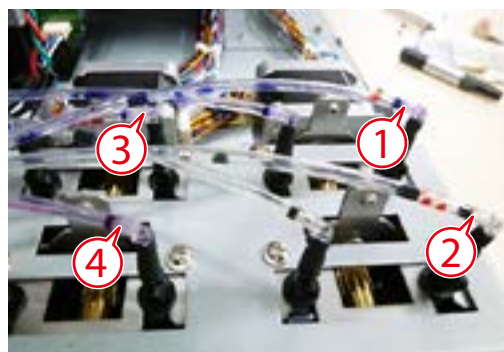
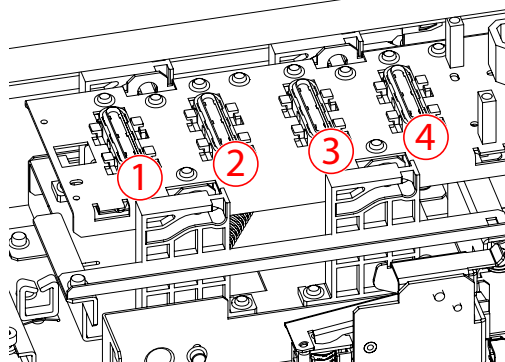
CAUTION

Be sure to perform [EMPTY DAMPER]. Otherwise, ink may leak from the dampers while you are removing the print head.



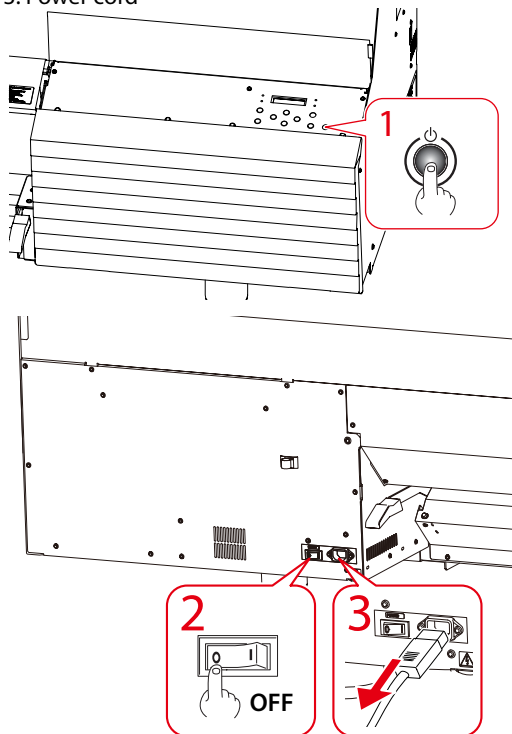
NOTE

- To save ink, refer to the figures below and remove the tubes, which are connected to the print heads NOT being replaced, from the pumps. Be sure to reconnect them to the pumps when [EMPTY DAMPER] is completed and after performing step 60.
- Be careful not to spatter ink on the feed encoder when removing the tubes from the dampers.

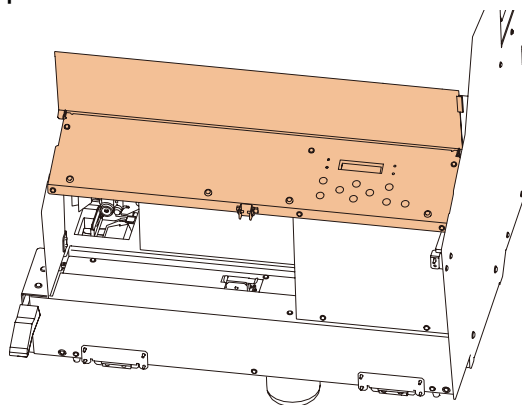


26. Turn off the sub power SW, and then turn off the main power SW. Unplug the power cord.

1. Sub power SW
2. Main power SW
3. Power cord



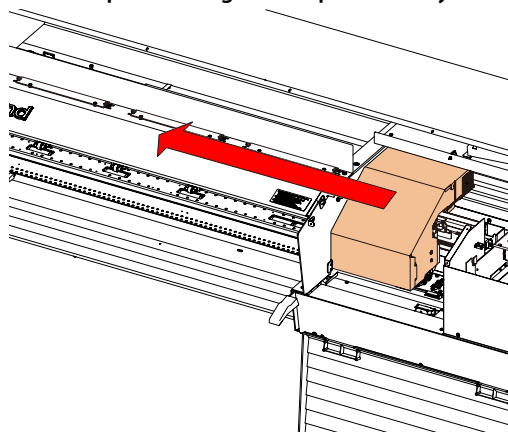
27. Remove the screw(s) that secures the operation panel.



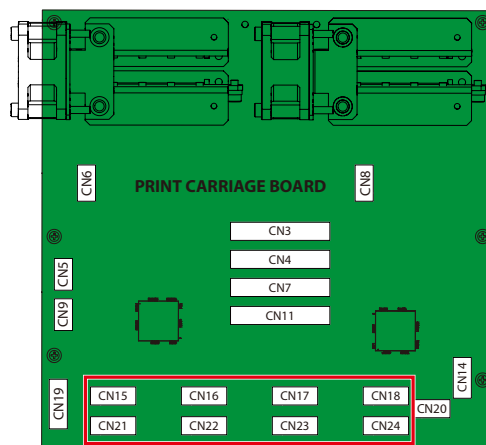
CAUTION

Before removing the operation panel, make sure to disconnect the ribbon cable from the operation panel.

28. Move the print carriage to the print area by hand.

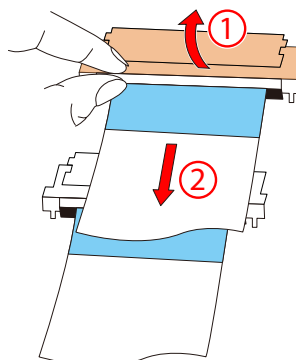


29. Disconnect the ribbon cables, which are connected to the print head you are going to replace, from the print carriage board.

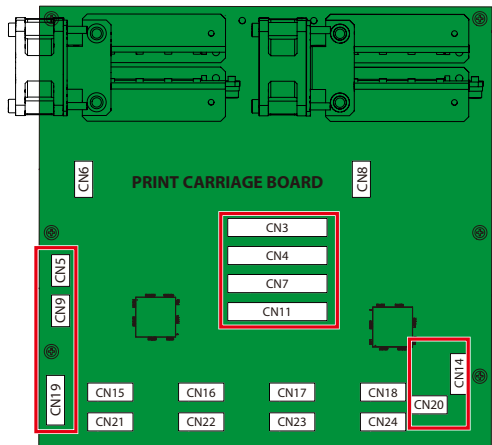


CAUTION

Open the cover in the direction of the arrow marked "1". Then, disconnect the ribbon cable from the print carriage board.

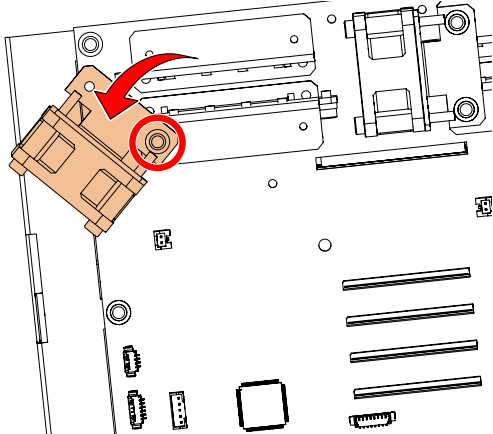


30. Unplug the connectors.

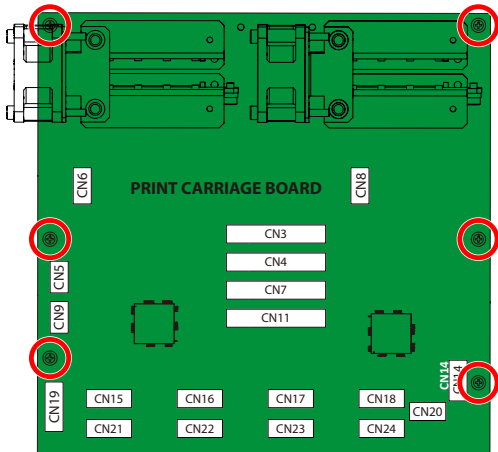


NOTE

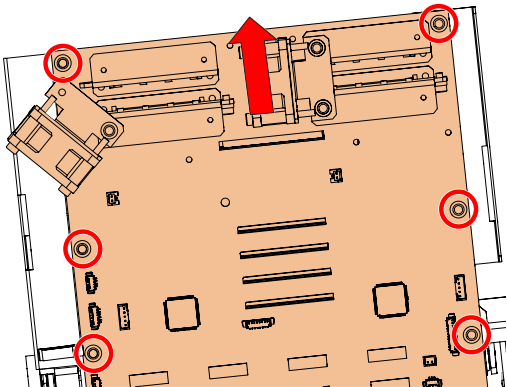
Slide the fan toward the front.



31. Remove six screws that secure the print carriage board. Then, slide the print carriage board toward the rear so that you can access the screw that secures the rear side of the print head.



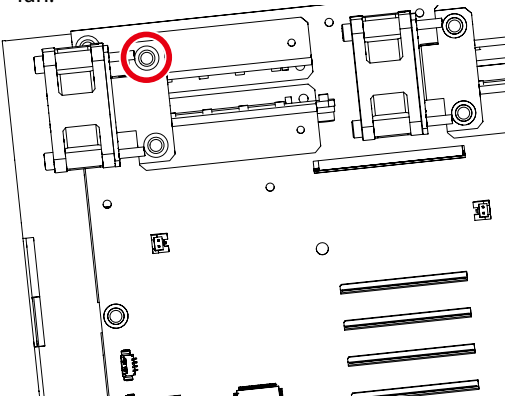
31-2. Remove six screws that secure the print carriage board. Then, slide the print carriage board toward the rear.



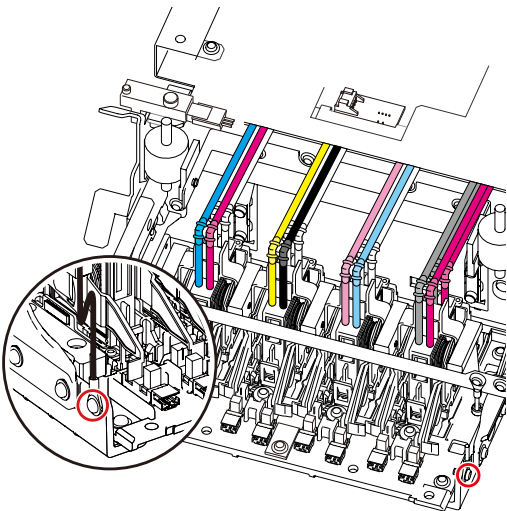
31-1. The screw that secures the top left corner of the print carriage board is hidden under the fan. To access the hidden screw, remove the screw that secures the left side of the fan using a Phillips screwdriver with a length of 150 mm or less, then slide the fan toward the front.

NOTE

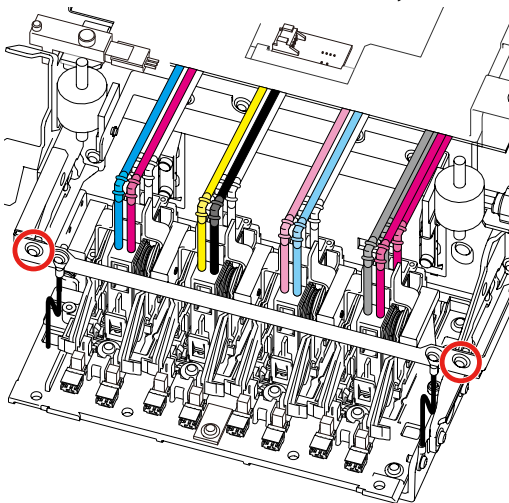
Remove the screw that secures the left side of the fan.



32. Remove two screws that secure the cables.

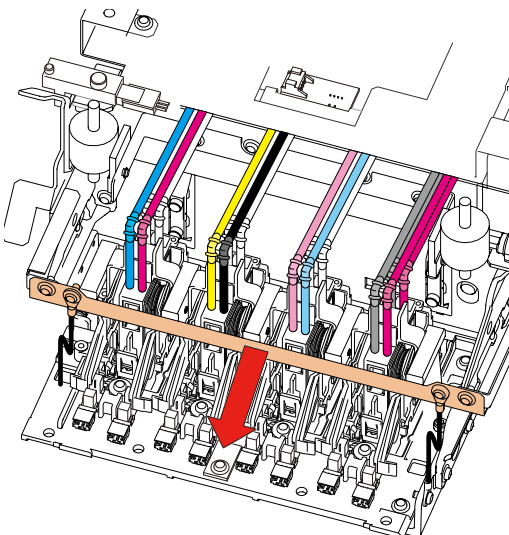


33. Remove two screws that secure the stay.

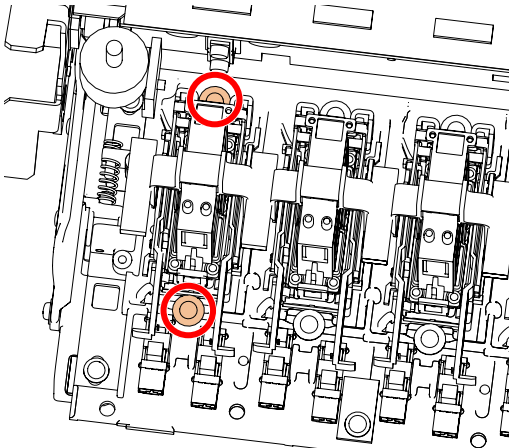


NOTE

Pull and remove the stay.



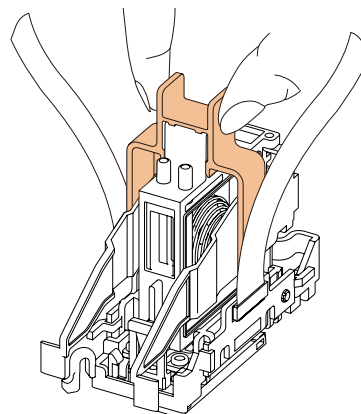
34. Remove two screws that secure the print head.



35. Detach the filler guard from the print head, and attach it to the new print head.

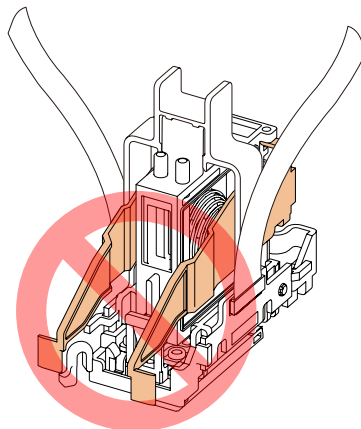
NOTE

Pinch the upper part of the filler guard and detach it.



CAUTION

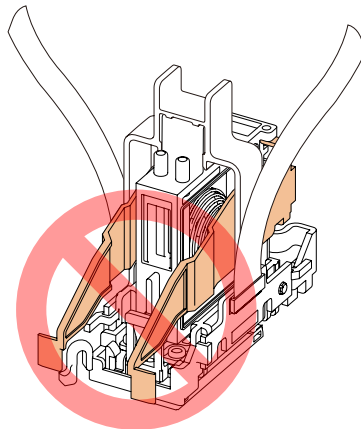
Be careful not to touch the filler.



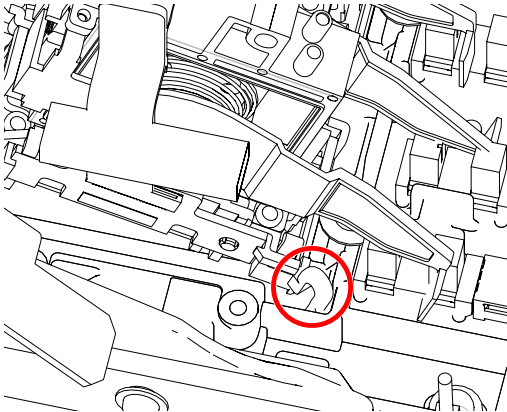
36. Attach the new print head to the head base.

CAUTION

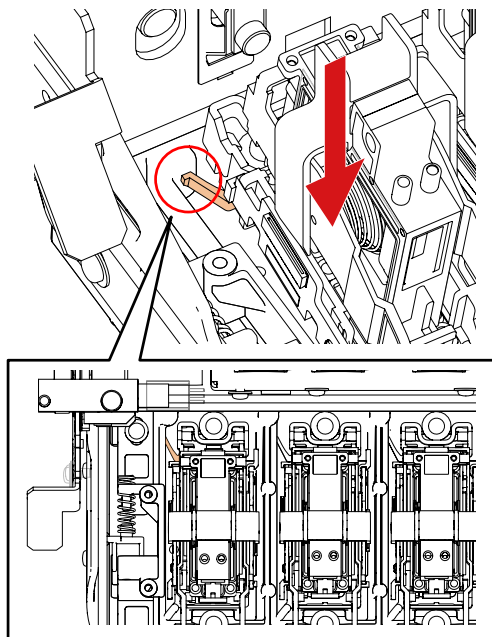
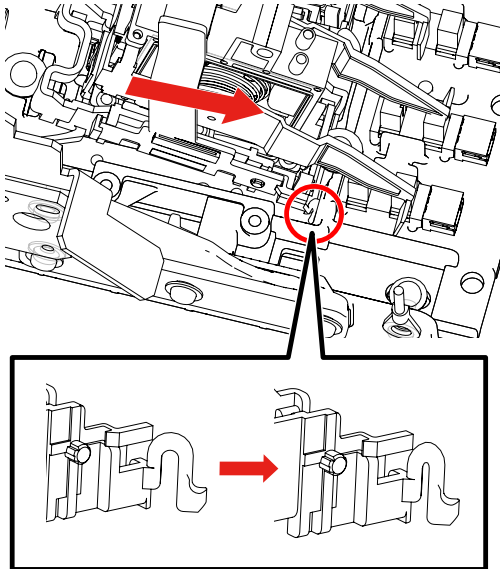
Be careful not to touch the filler.



- 36-1. First, hook the spring, which is on the right front side of the print head, to the head base.



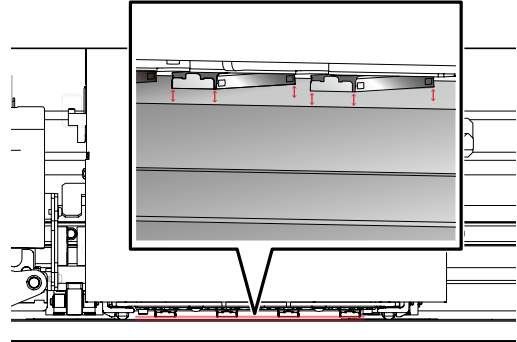
- 36-2. Then, press the spring against the head base until the spring bends, and then push the rear side of the print head into the head base.



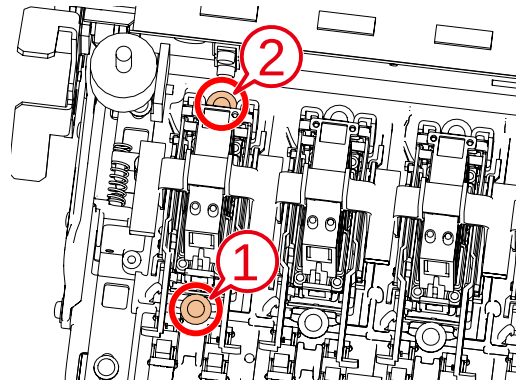
- 36-3. Make sure that the print head is attached to the base firmly.

CAUTION

- If the print head is not attached firmly, it may crack when you secure it with screws.
- Make sure that the all print heads are aligned horizontally.



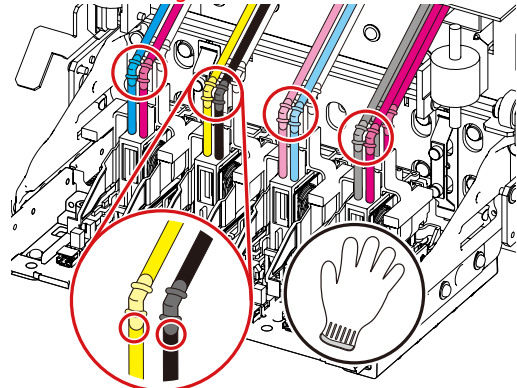
37. Tighten two screws in the order shown below to secure the print head (torque value: 0.2N•m/20cN•m).



38. Attach the tubes came with the print head assembly to the L-shaped tubes.

CAUTION

- Be sure to wear gloves (anti-slip).
- Hold the tube about 10 mm from the end and insert it straight so that it does not bend.

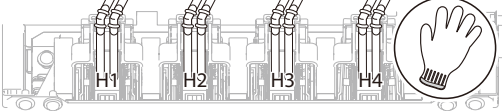


39. Attach the tubes, which are connected to the L-shaped joint, to the print heads.

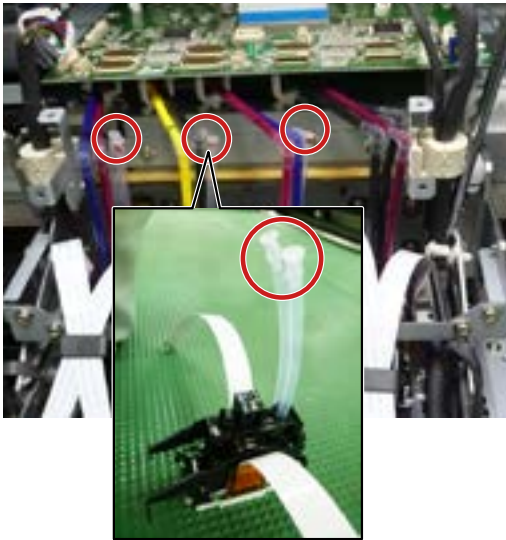
CAUTION

- Be sure to wear gloves (anti-slip).
- Hold the tube about 10 mm from the end and insert it straight so that it does not bend.

	H1		H2		H3		H4	
4 colors (CMYK)	●	●	●	●	●	●	●	●
	MG	YE	CY	BK	BK	CY	YE	MG
7 colors (CMYKcLmLk)	●	●	●	●	●	●	●	●
	CY	MG	YE	BK	Lm	Lc	LK	MG
8 colors (CMYKcLmLkWh)	●	●	●	●	●	●	●	●
	CY	MG	YE	BK	Lm	Lc	LK	Wh



40. In case of H1, H2, or H3 (non-circulation lines), close the ends of the new tubes with lids. Then, attach the tubes to the rear side of the print head.

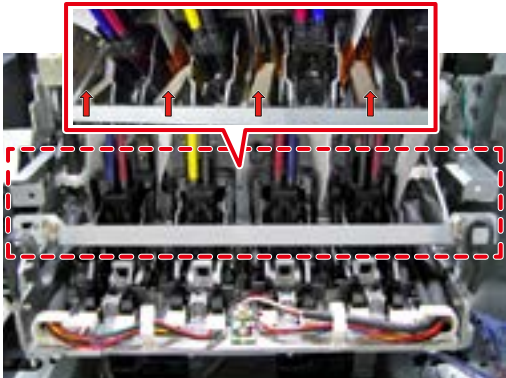


41. Tighten two screws to secure the stay.

41-1. Insert the stay at the same level as the dampers.

NOTE

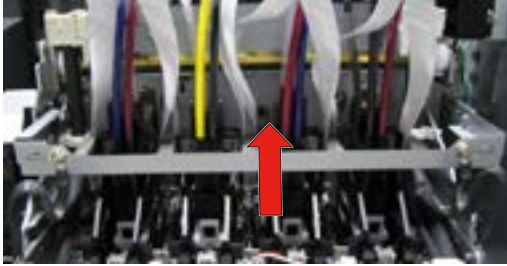
Insert each projection of the stay indicated by the red arrows between the ribbon cables.



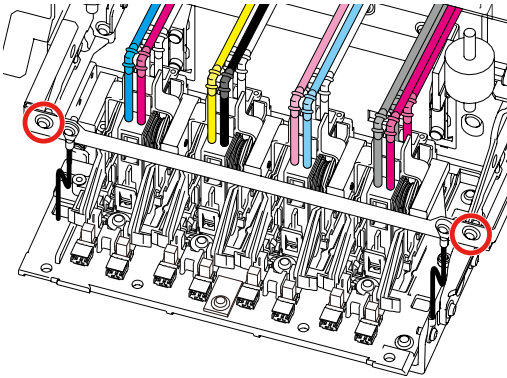
41-2. Lift up the stay.

NOTE

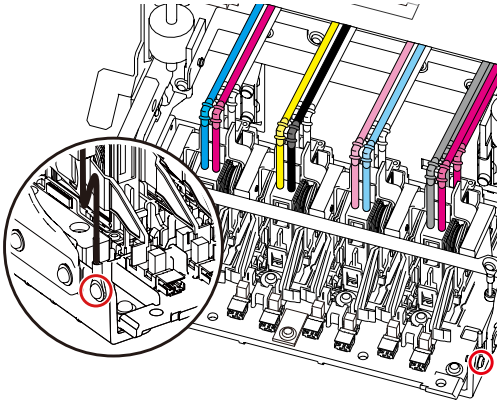
Insert the stay at the same level as the dampers, and then lift it up.



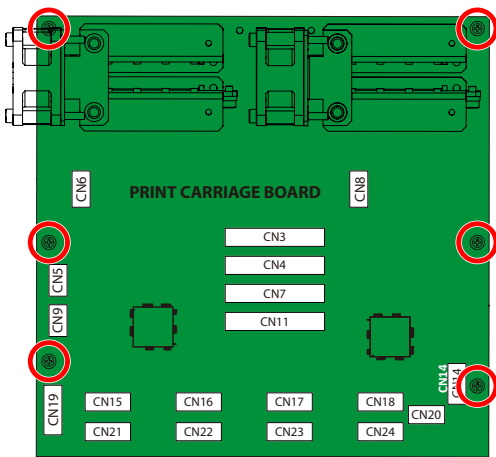
41-3. Tighten two screws to secure the stay.



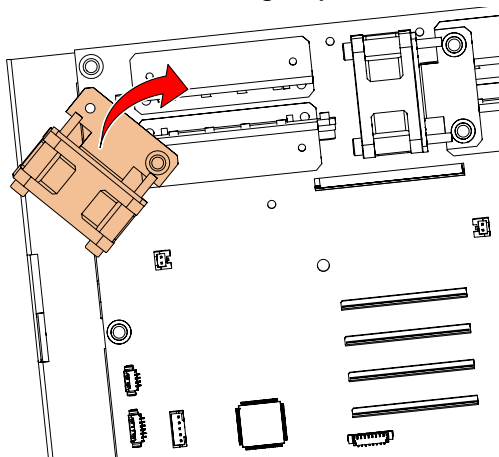
42. Tighten two screws to secure the cables.



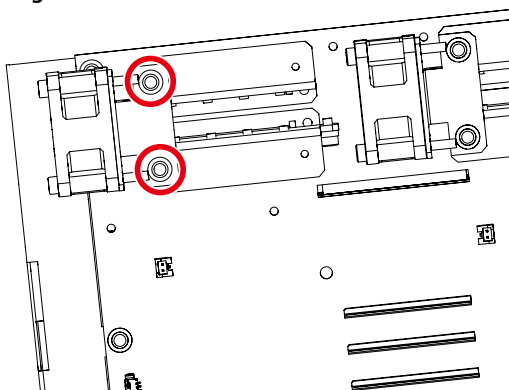
43. Tighten six screws to secure the print carriage board.



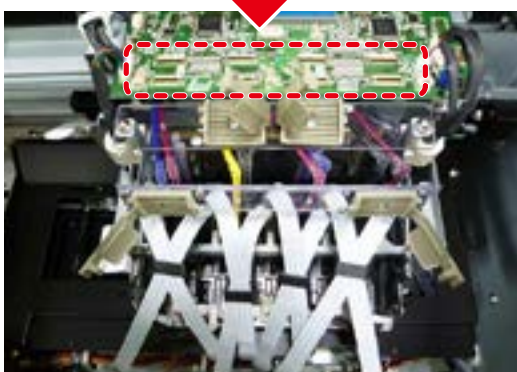
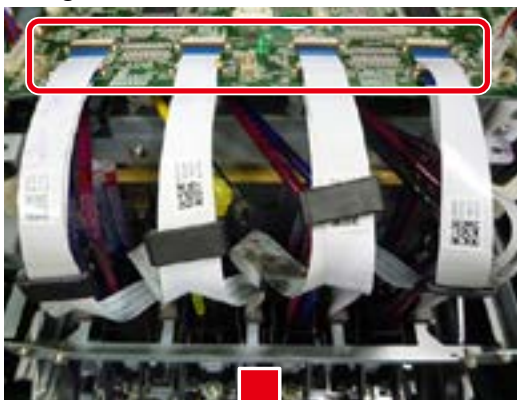
44. Slide the fan back to its original position.



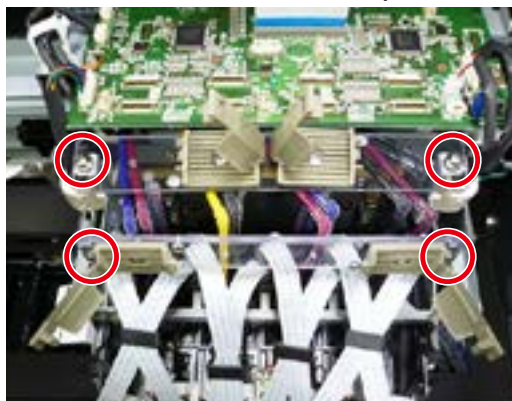
45. Tighten two screws using a Phillips screwdriver with a length of 150 mm or less to secure the fan.



46. Disconnect all the ribbon cables from the print carriage board.

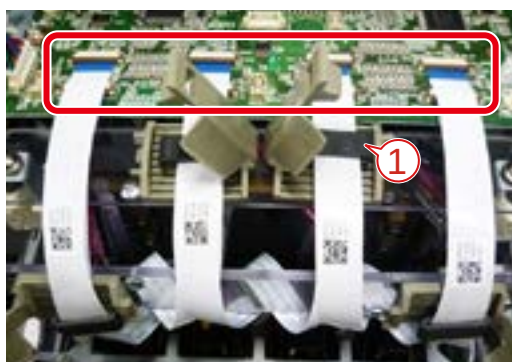


47. Remove four screws that secure two plates.



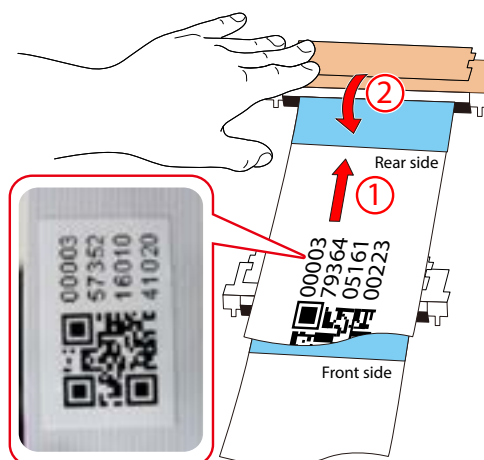
48. Connect all the ribbon cables from the print head to the print carriage board.

1. Ferrite core

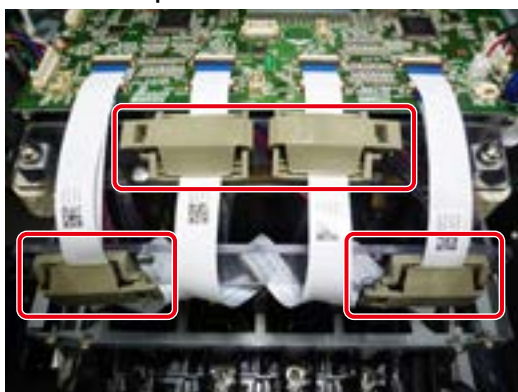


CAUTION

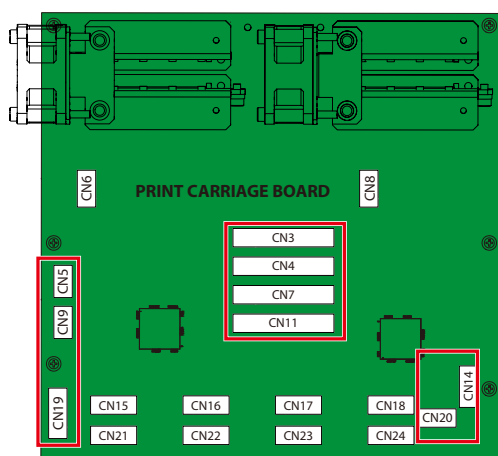
- Remove the ferrite core from the old print head, and attach it to the new print head.
- Be sure to connect each ribbon cable to the correct connector.
- Be sure to find head rank code in Rear side ribbon cable



49. Close the clamps to secure the ferrite cores.



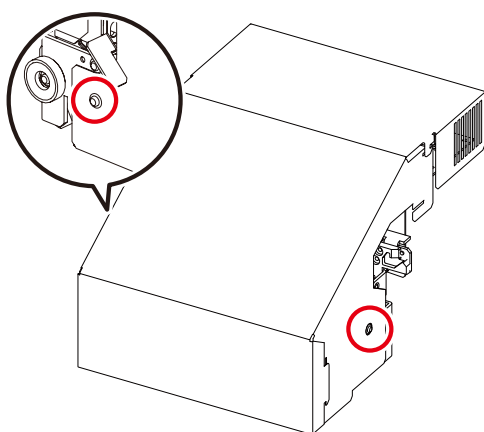
50. Plug in the connectors.



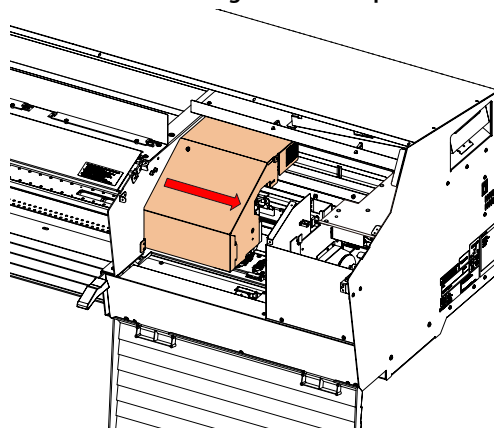
51. Secure the cover.

NOTE

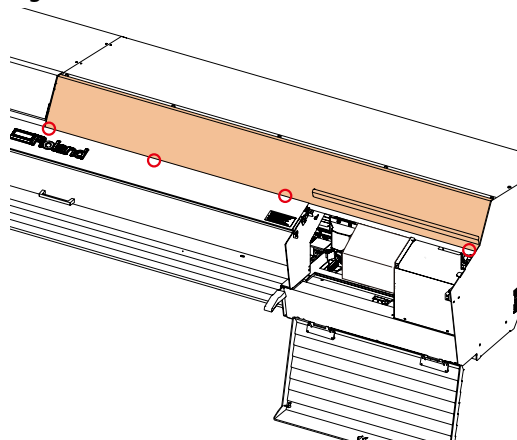
Install the screws on the right and left side of the cover.



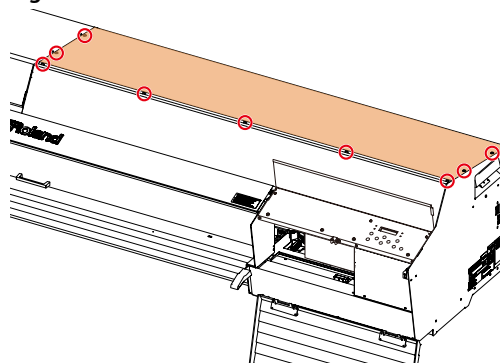
52. Move the head carriage to the lock position.



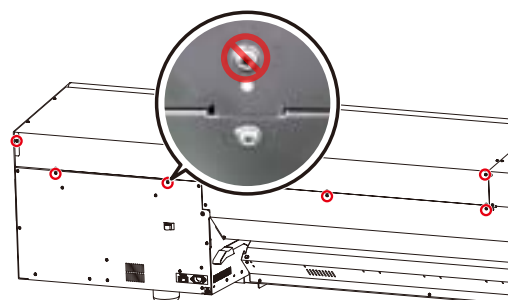
53. Tighten four screws to secure the cover.



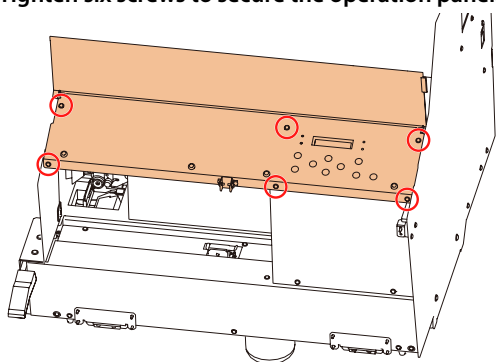
54. Tighten 15 screws.



Rear view

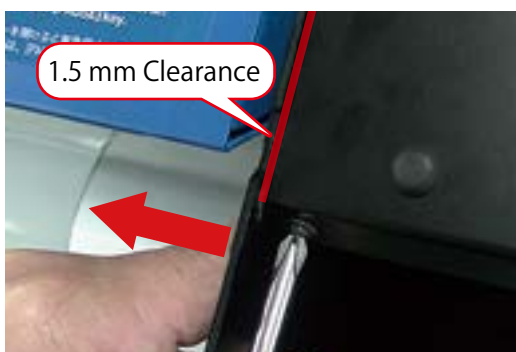


55. Tighten six screws to secure the operation panel.



CAUTION

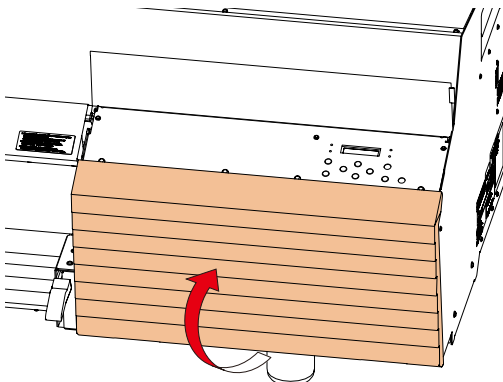
- Tighten two screws in the operation panel with holding up to the left, then make 1.5 mm clearance between the frame and the operation panel.



- Connect the ribbon cable to the operation panel.



56. Close the maintenance cover R and confirm that the cover is fixed.

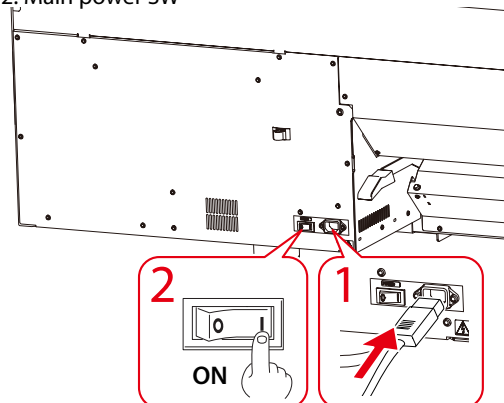


CAUTION

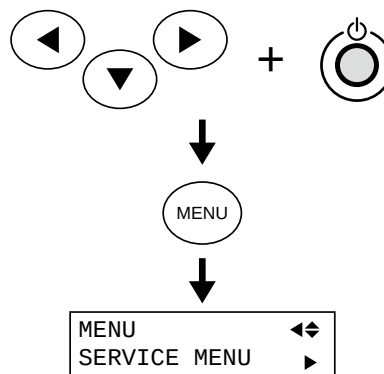
If the cover is not fixed, then maintenance sensor R does not work properly. Widen the clearance between the operation panel and the frame if the cover is not fixed by shaking the right and left ends of the cover back and forth with your hands.

57. Plug in the power cord, and turn on the main power SW.

- Power cord
- Main power SW



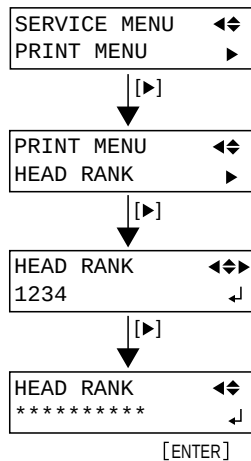
58. Turn on the sub power SW while pressing the [◀] [▼] [▶] keys to enter the service mode.



59. Select [SERVICE MENU] > [PRINT MENU] > [HEAD RANK], and input the head rank, which is written on the ribbon cable of the new print head. Input the head rank by selecting the corresponding digit with [◀] [▶] keys and changing the parameters with [▲] [▼] keys. Then, press the [ENTER] key to save the setting.

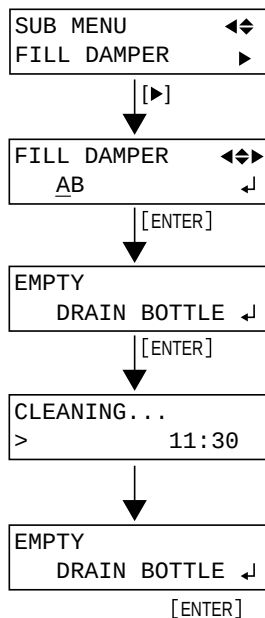
CAUTION

Make sure to input the head rank correctly. Even when you input a wrong head rank, a warning message will NOT appear.



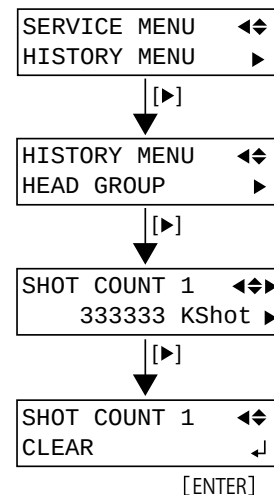
- 60.** Go to [SERVICE MENU] > [SUB MENU] > [FILL DAMPER] and select the head group of the print head you replaced. Then, perform [FILL DAMPER].

* Required time for [FILL DAMPER]: approx. 18 min.

**CAUTION**

Make sure that the amount of remaining ink is more than approximately 50 ml before starting the [FILL DAMPER]. If ink runs out during the operation, it may cause cleaning error and ink mixture occurs. If ink mixture occurs, perform [FILL DAMPER] again after performing super cleaning. (The message "CHANGE TO NEW INK CARTRIDGE" is displayed on the screen.)

- 61.** Clear print head information. Perform [SERVICE MENU] > [HISTORY MENU] > [HEAD GROUP] > [SHOT COUNT 1] to [SHOT COUNT 8] > [CLEAR].



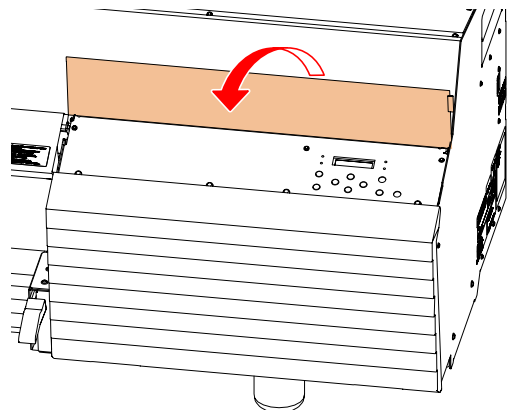
- 62.** Perform the following.

- ### 62-1. Test print

☞ When the printing result has missing dots or deflected-fired dots, perform the cleaning again.

- ## 62-2. Chapter 2 "[Print Head Alignment](#)"

- 63.** Close the cover.



- 64.** (End of procedure)

Cap Top Replacement

Information

Necessary tools

General tools

No.2 Phillips screwdriver

Special tools

None

Workflow

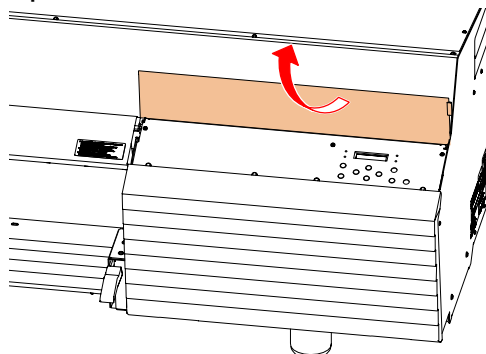
1. Cap top replacement

Typical work time

Contents of work	Time
Cap top replacement	10 min.

Procedure

1. Open the cover.

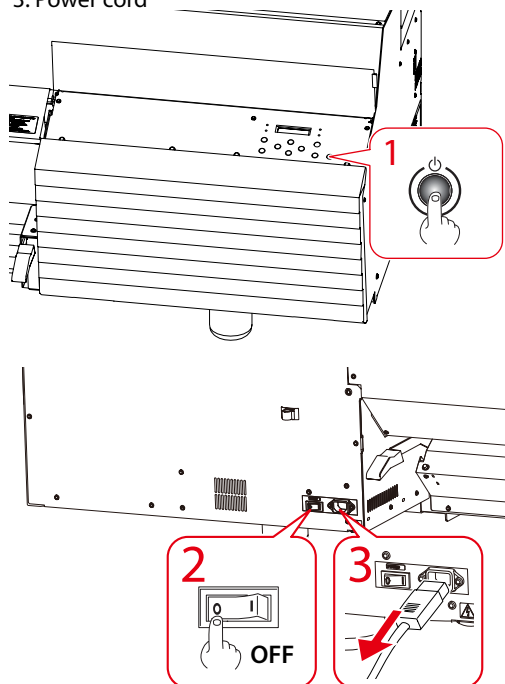


2. Turn off the sub power SW, and then turn off the main power SW. Unplug the power cord.

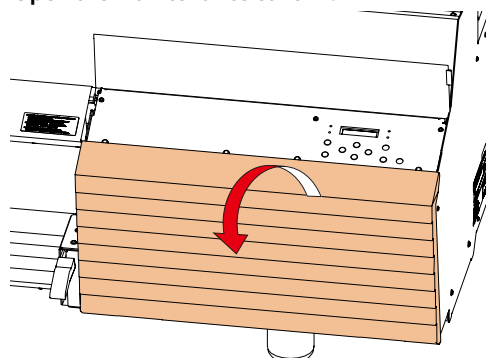
1. Sub power SW

2. Main power SW

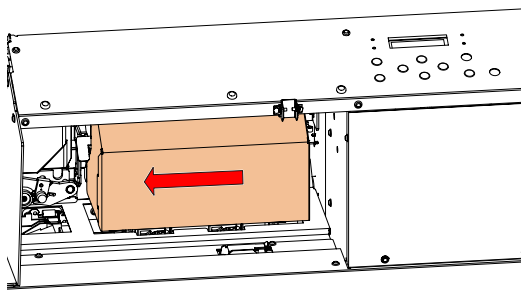
3. Power cord



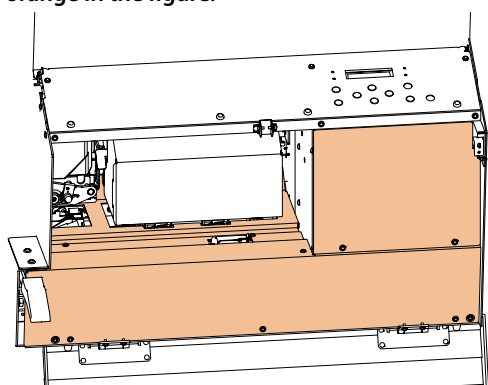
3. Open the maintenance cover R.



4. Unlock the head carriage, and move it to the left by hand.

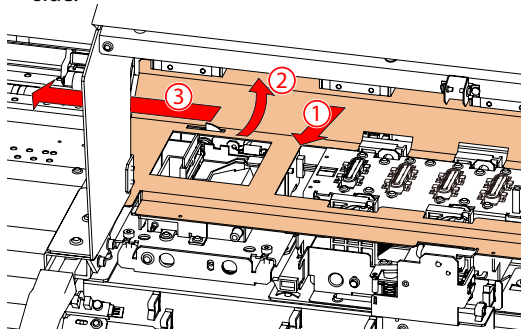


5. Remove the screws that secure the covers shown in orange in the figure.

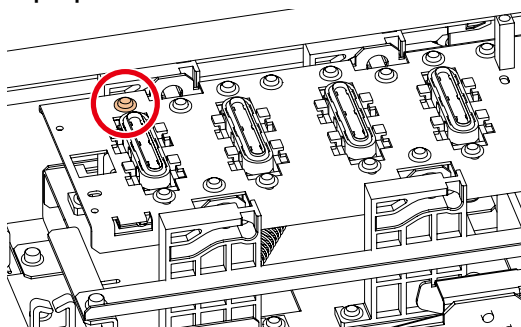


NOTE

Easiest way to remove the cover shown below is to 1) slide the cover to the front, 2) lift up the rear side of the cover, and 3) remove the cover from the left side.



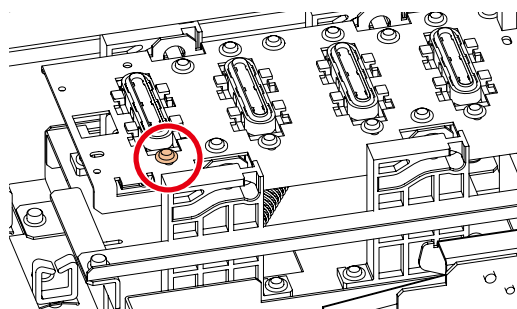
6. Remove the screw that secures the rear part of the cap top.



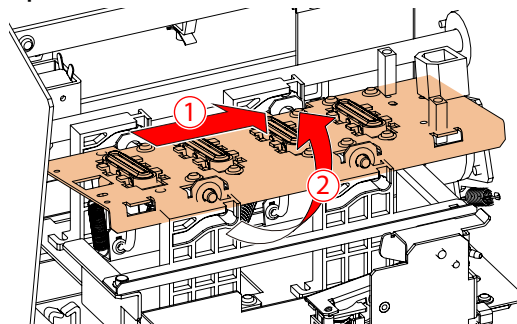
7. Loosen the screw that secures the front side of the cap top.

CAUTION

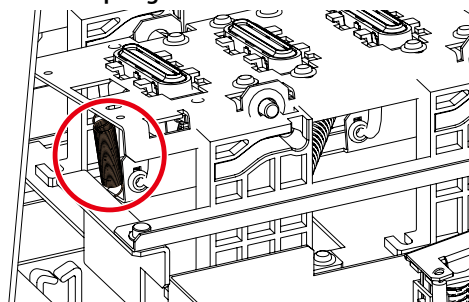
Do not remove the screw completely. Just loosen them. If you remove it, the base part of the cap top will fall off.



8. Slide the cap-base frame to the right, and then lift it up to remove it.

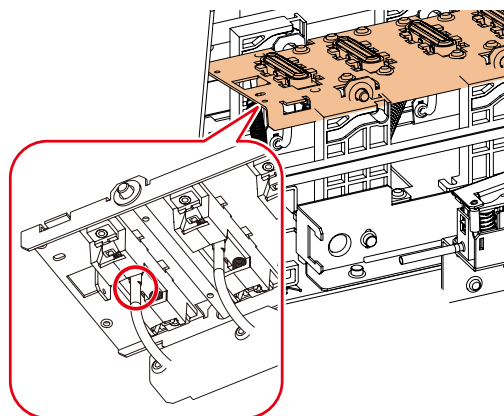


9. Remove the spring.

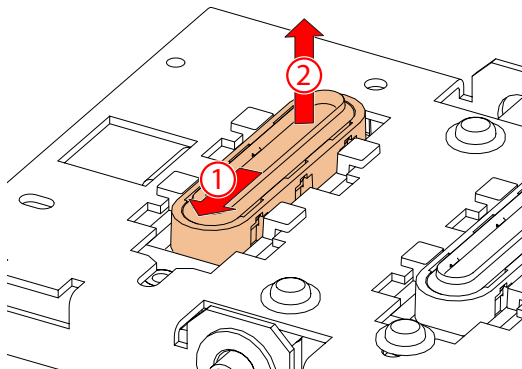


10. Detach the tube from the cap-base frame.

Bottom view

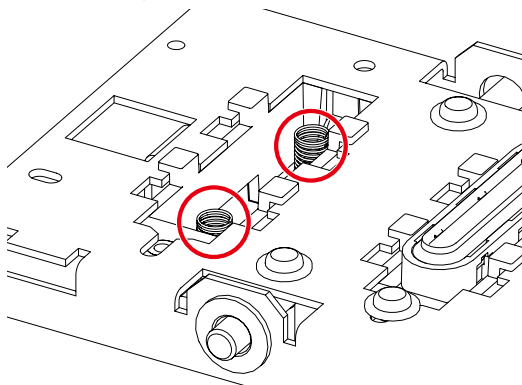


11. Slide the cap top to the front. Then, lift up the rear side of the cap top, and remove it.

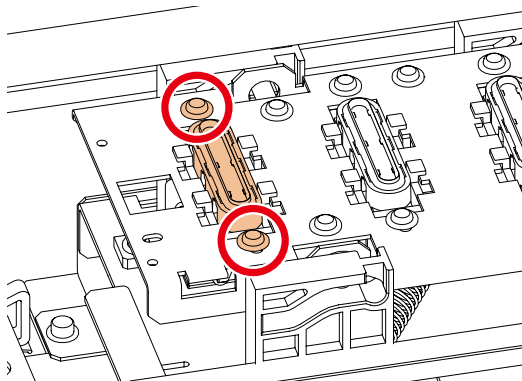


CAUTION

There are springs under the cap top. Remove the cap top carefully so that these springs will not jump out.

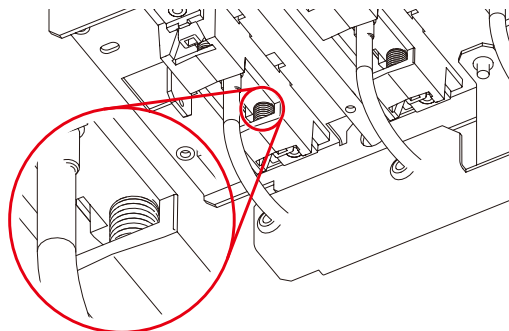


12. Tighten two screws to secure the new cap top.

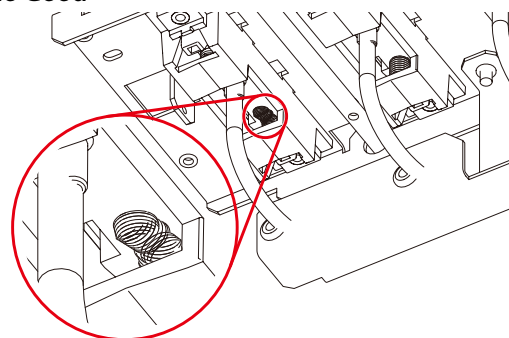


13. Check that the spring is attached properly.

OK

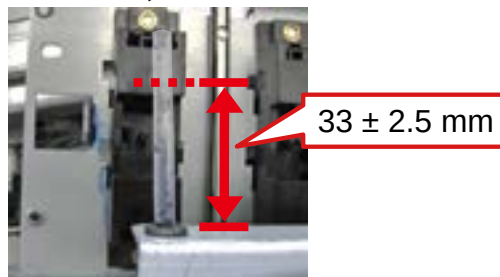


No Good

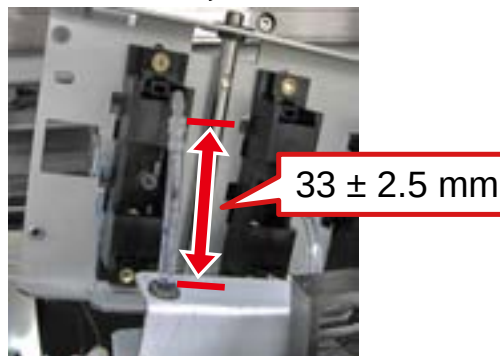


14. Attach the tube joint to the tube.

- 14-1. Cut the tube 33 ± 2.5 mm from the rubber bush on the stay.

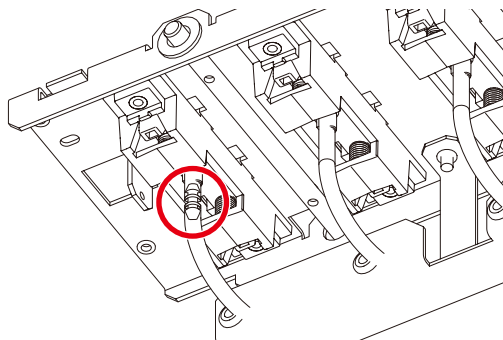


- 14-2. Attach the tube joint to the tube.

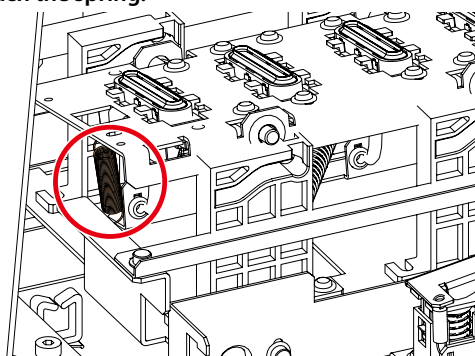


15. Attach the tube.

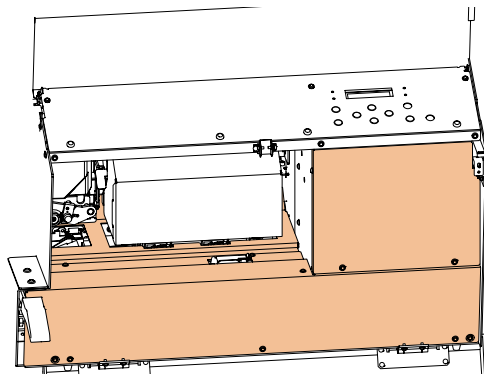
Bottom view



16. Attach the spring.

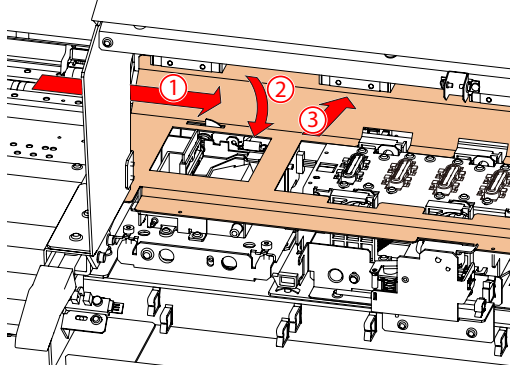


17. Fasten the covers with screws.

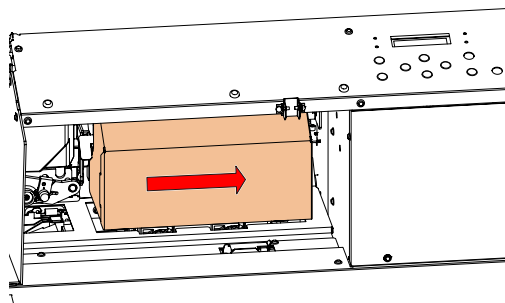


NOTE

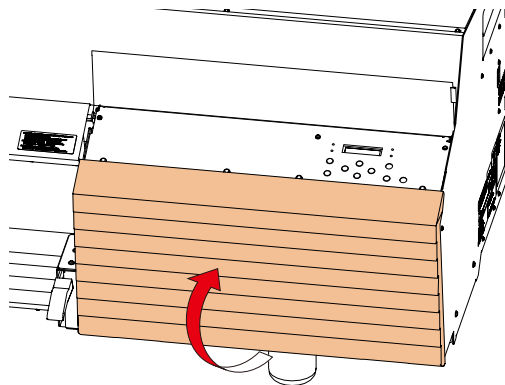
Easiest way to attach the cover shown below is to 1) insert the cover from the left side and 2) fit the rear part of the cover in place as you lift the front part of the cover.



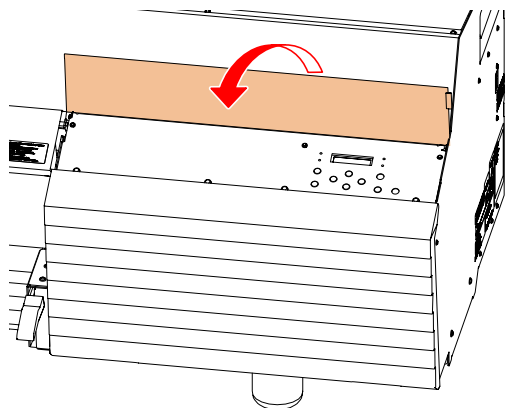
18. Move the head carriage to the lock position.



19. Close the maintenance cover R.



20. Close the cover.



21. (End of procedure)

Tool Carriage Replacement

Information

Necessary tools

General tools

No.2 Phillips screwdriver

2.5 mm hexagonal wrench

Special tools

None

Workflow

1. Tool carriage replacement

Typical work time

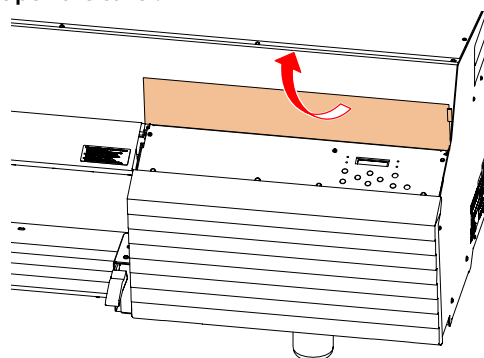
Contents of work	Time
Tool carriage replacement	20 min.

Procedure

CAUTION

An interlock mechanism ordinarily prevents carriage movement when the printer's cover is opened. To operate the printer with the cover open, press and hold the cover sensor switch.

1. Open the cover.

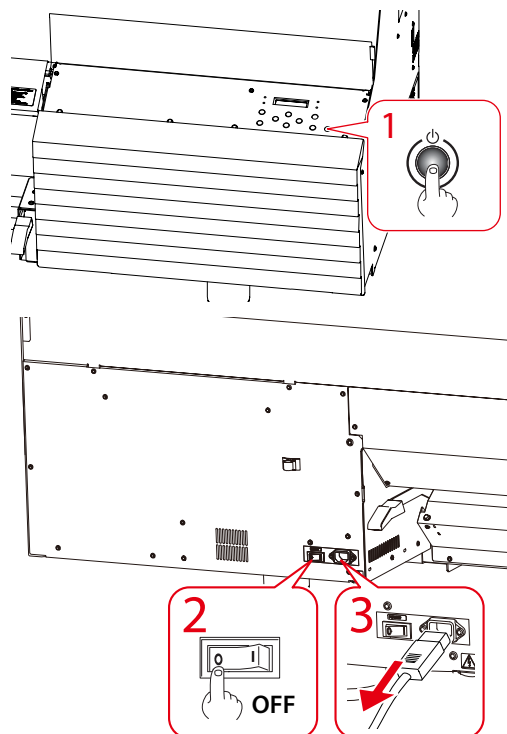


2. Turn off the sub power SW, and then turn off the main power SW. Unplug the power cord.

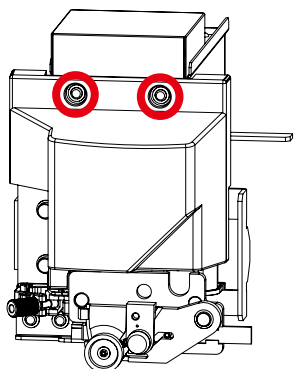
1. Sub power SW

2. Main power SW

3. Power cord



3. Remove two screws that secure the cover.



4. Remove the blade holder.



5. Unplug the solenoid cable and two connectors.



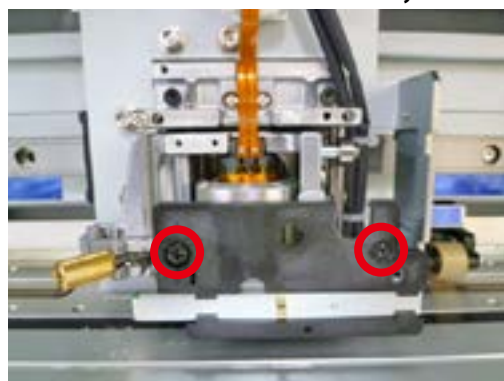
6. Release the cables from the clamp.



7. Remove the screw that secures the sheet cutter holder.



8. Remove two screws that secure the stay.



9. Unhook the spring from the black stay.

CAUTION

When unhooking the spring, be careful not to lose it.



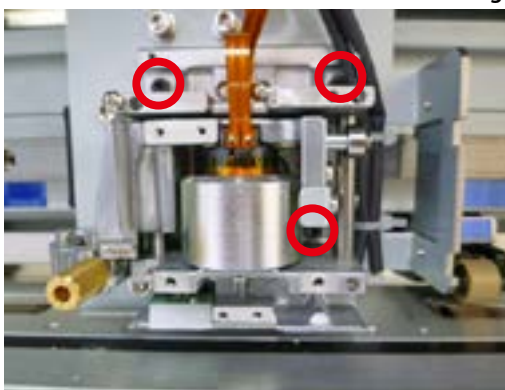
- 10.** Remove two screws that secure the stay.



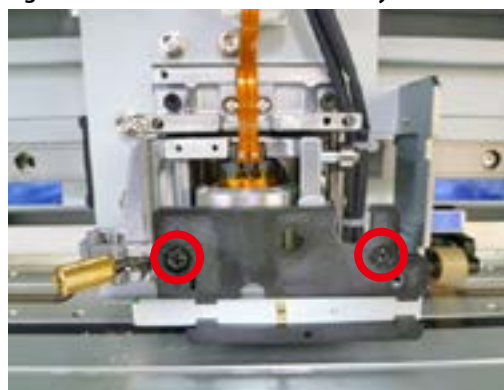
- 14.** Attach the spring to the black stay.



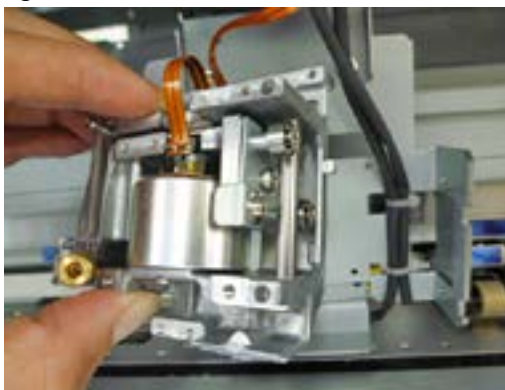
- 11.** Remove three screws that secure the tool carriage.



- 15.** Tighten two screws to secure the stay.



- 12.** Tighten three screws to secure the new tool carriage.



- 16.** Tighten the screw to secure the sheet cutter holder.



- 13.** Tighten two screws to secure the stay.



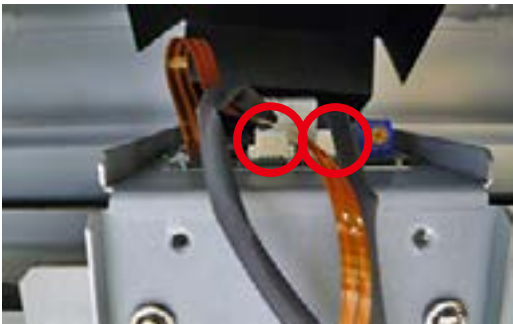
- 17.** Bundle the cables with the clamp.



- 18.** Plug the solenoid cable into the tool carriage board.

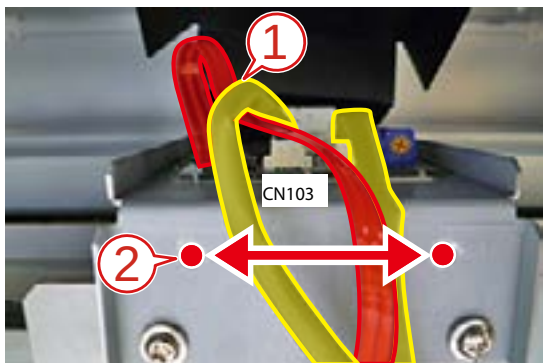


- 19.** Plug two connectors into the tool carriage board.

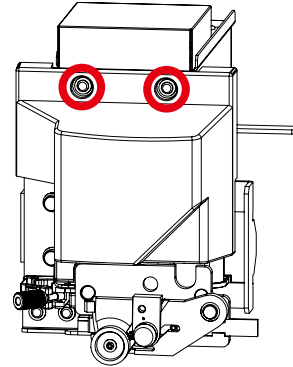


CAUTION

1. Place the two CN103 cables (shown in yellow in the figure) on top of the solenoid cable (shown in orange).
2. Place the three cables in between the two screws as shown in the figure.



- 20.** Tighten two screws to secure the cover.



- 21.** Perform the following adjustments.

- 21-1. Chapter 2 "[Limit Position & Cut Down Position Initialization](#)"
- 21-2. Chapter 2 "[Tool Height Adjustment](#)"
- 21-3. Chapter 2 "[Tool Pressure Adjustment](#)"
- 21-4. Chapter 2 "[Crop Mark Sensor Adjustment](#)"
- 21-5. Crop Cut Adjustment
 - * Adjust the crop cut position by selecting [CUTTING MENU] > [CROP-CUT ADJ.].
- 21-6. Print & Cut Alignment
 - * Adjust the print/cut position by selecting [CUTTING MENU] > [PRINT-CUT ADJ.].

- 22.** (End of procedure)

Information

Necessary tools

General tools

No.2 Phillips screwdriver

No.2 Phillips screwdriver (80 mm or less)

3.0 mm hexagonal wrench

Special tools

6000004129 GREASE, FLOIL G-902_02

Workflow

1. Scan motor replacement
2. Servo lock check
3. Aging check
4. Motor time clear

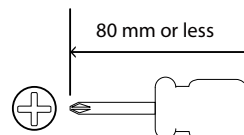
Typical work time

Contents of work	Time
Scan motor replacement	30 min.
Servo lock check	1 min.
Aging check	5 min.
Motor time clear	1 min.

Procedure

CAUTION

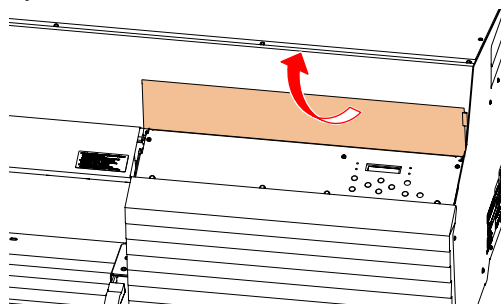
- A Phillips screwdriver with a length of 80 mm or less is necessary.



- An interlock mechanism ordinarily prevents carriage movement when the printer's cover is opened. To operate the printer with the cover open, press and hold the cover sensor switch.

Scan Motor Replacement

1. Open the cover.

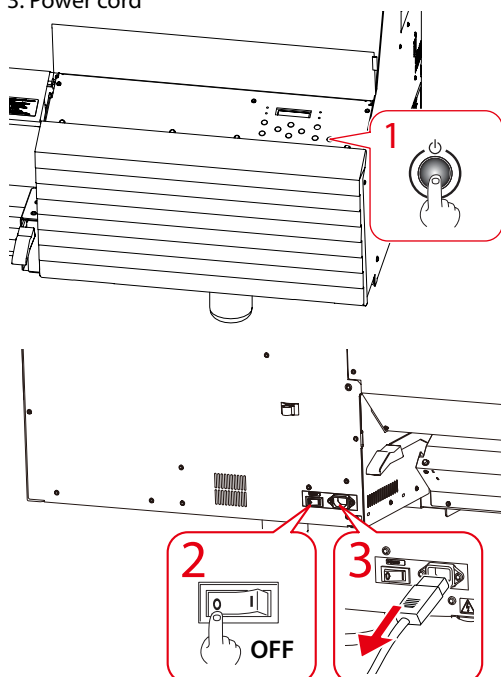


2. Turn off the sub power SW, and then turn off the main power SW. Unplug the power cord.

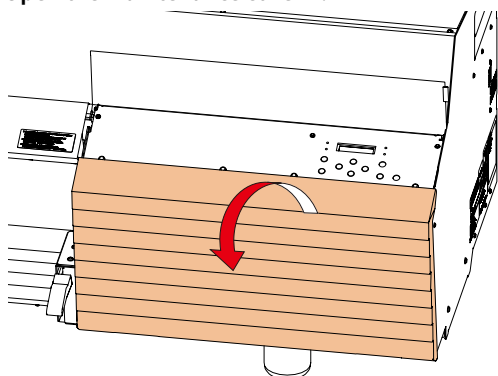
1. Sub power SW

2. Main power SW

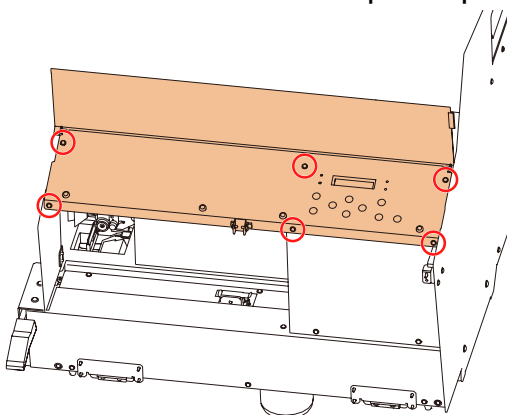
3. Power cord



- 3.** Open the maintenance cover R.



- 4.** Remove six screws that secure the operation panel.

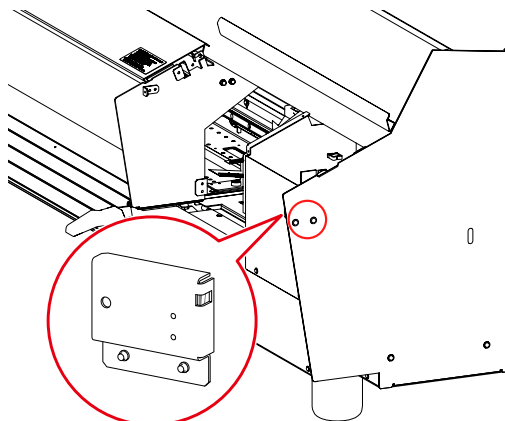


CAUTION

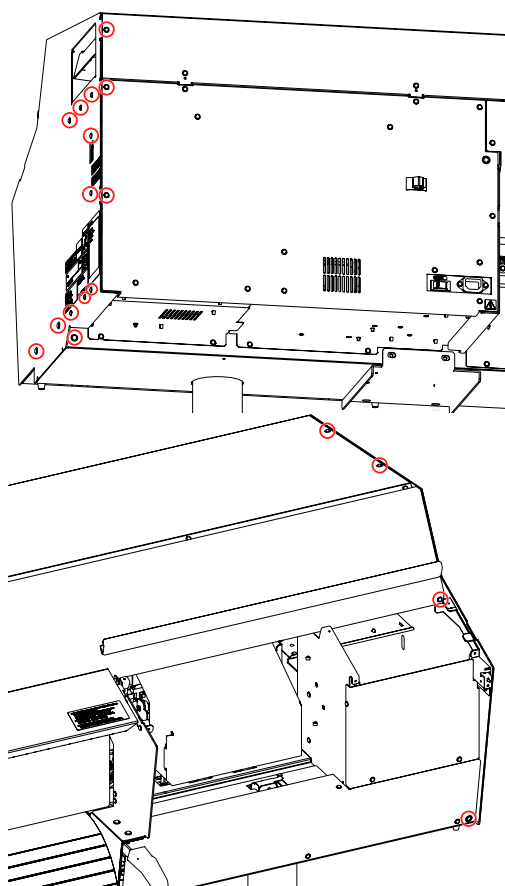
Before removing the operation panel, make sure to disconnect the ribbon cable from the operation panel.



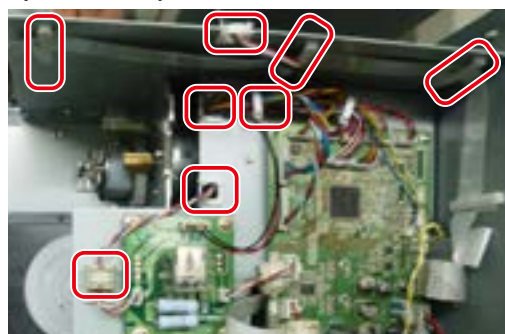
- 5.** Remove two screws that secure the maintenance cover sensor R.



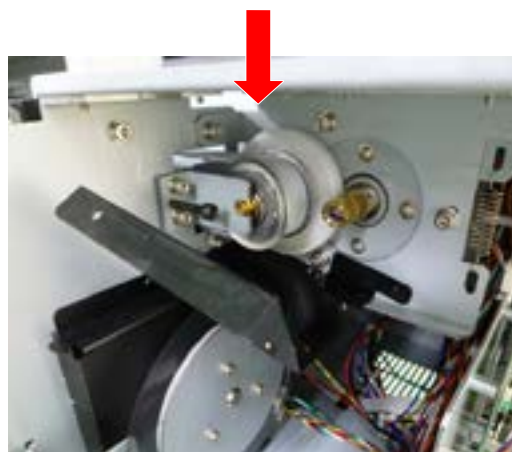
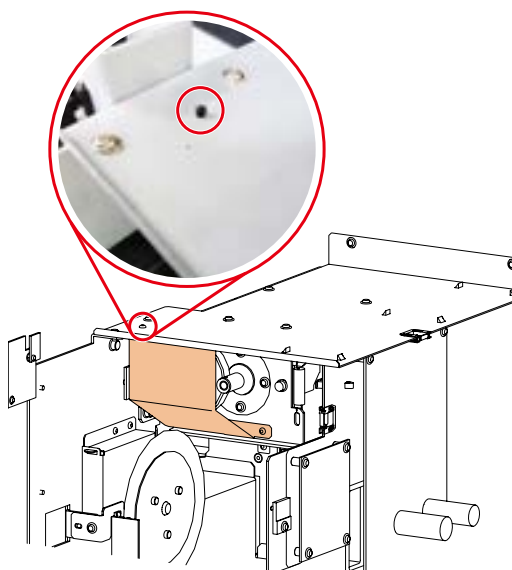
- 6.** Remove 18 screws that secure the cover.



- 7.** Open the clamps and the ferrite core.



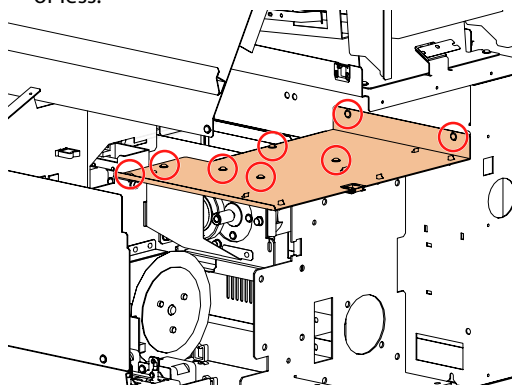
8. Detach the rivet.



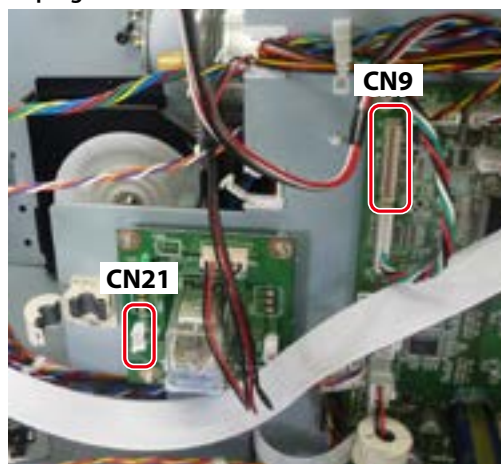
9. Remove eight screws that secure the cover.

NOTE

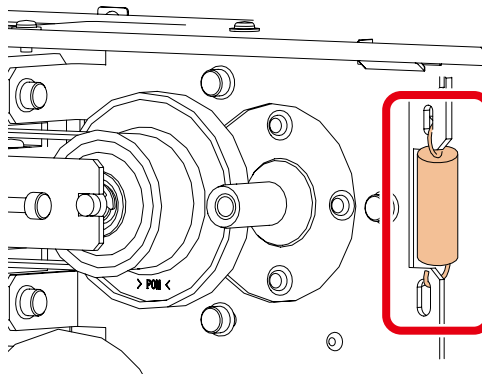
- The length of a Phillips screwdriver you can use is limited to 80 mm or less because the cleaning liquid pouch tray is just above it.
- Use a Phillips screwdriver with a length of 80 mm or less.



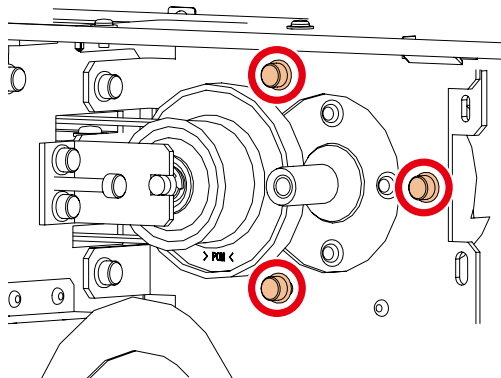
10. Unplug the connectors.



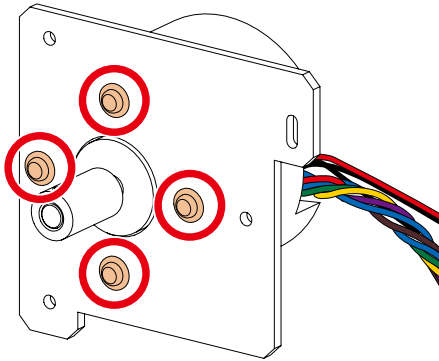
11. Unhook the spring.



12. Remove three screws, and remove the motor along with its flange.

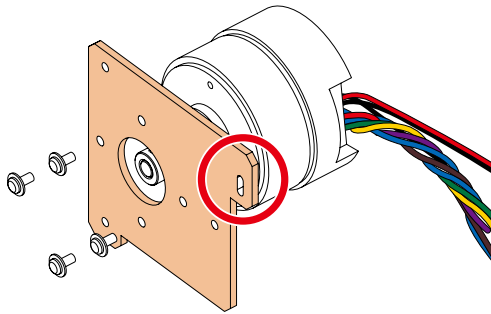


13. Remove four screws that secure the flange to the motor. Then, fasten the new motor to the flange.

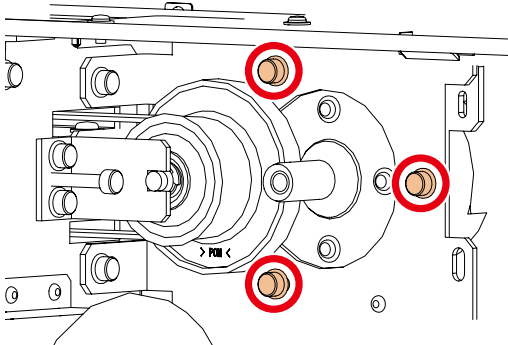


CAUTION

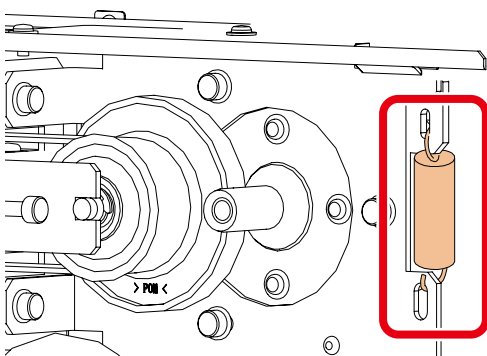
Be careful to correctly orient the flange in relation to the motor cables.



14. Temporarily fasten the flange with three screws.



15. Attach the spring.

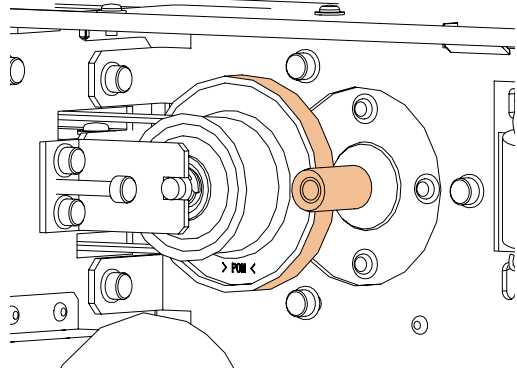


16. Turn the drive gear more than three times by hand and check that the gears mesh together.

CAUTION

Apply grease to the drive gear and the motor gear.

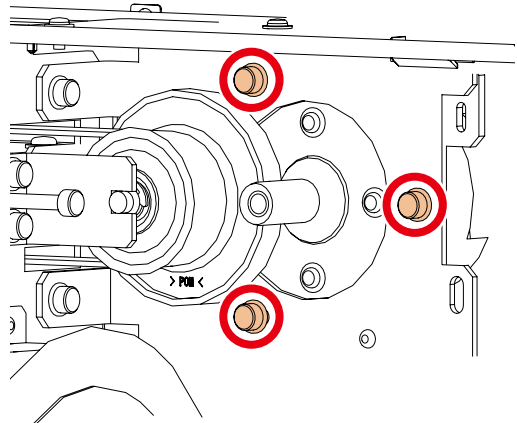
- Grease: FLOIL G-902 10ML_02
- Volume: as needed



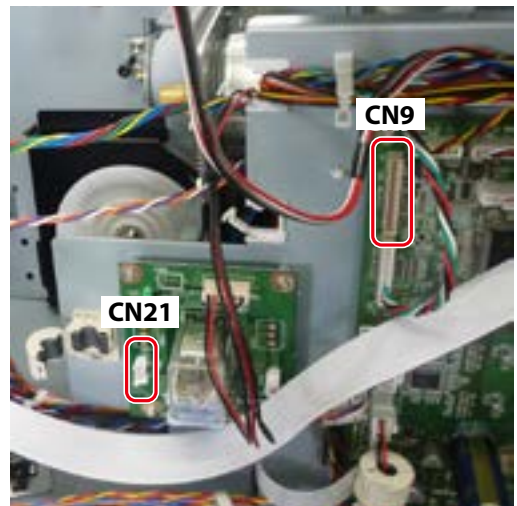
17. Fully tighten three screws to secure the flange.

NOTE

You can tighten the screws in any order.



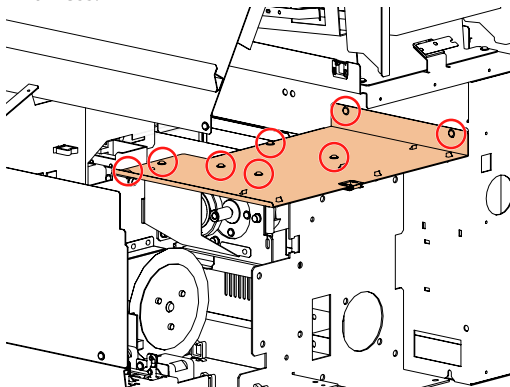
18. Plug in the connectors.



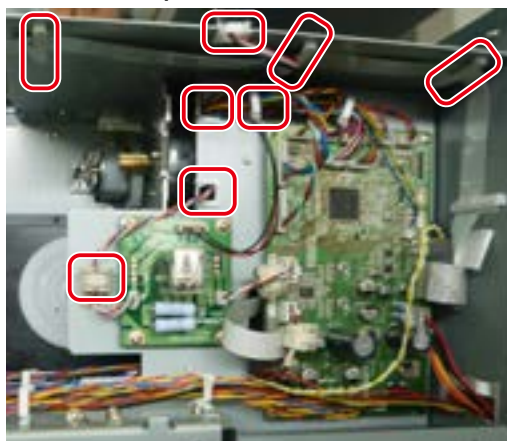
19. Tighten eight screws that secure the cover.

NOTE

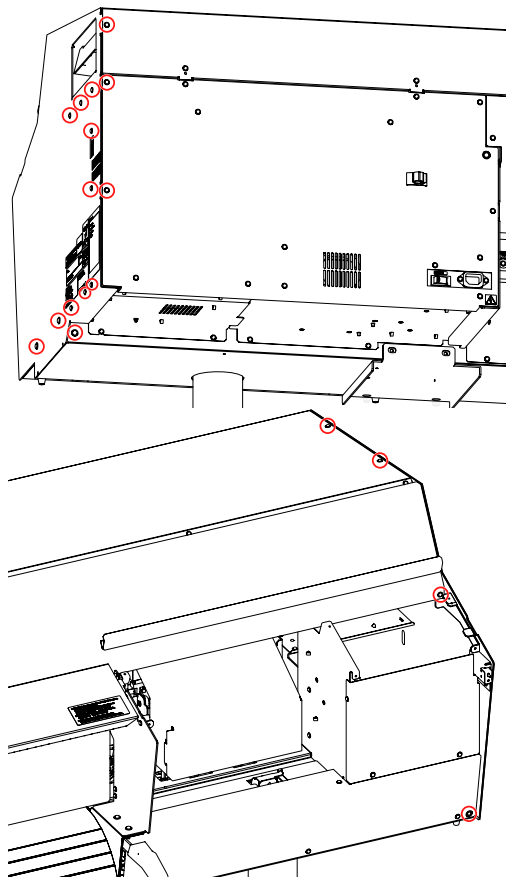
- The length of a Phillips screwdriver you can use is limited to 80 mm or less because the cleaning liquid pouch tray is just above it.
- Use a Phillips screwdriver with a length of 80 mm or less.



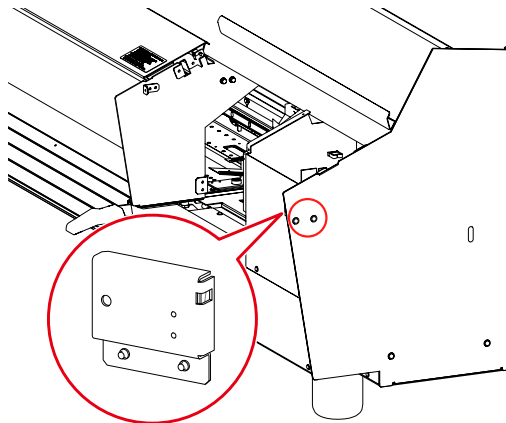
20. Fasten the clamps and one ferrite core.



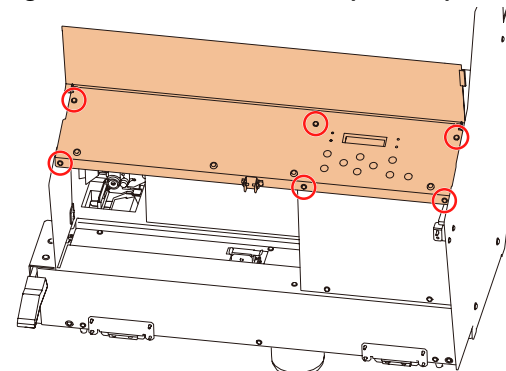
21. Tighten 18 screws to secure the cover.



22. Temporarily fasten the maintenance cover sensor R with two screws.

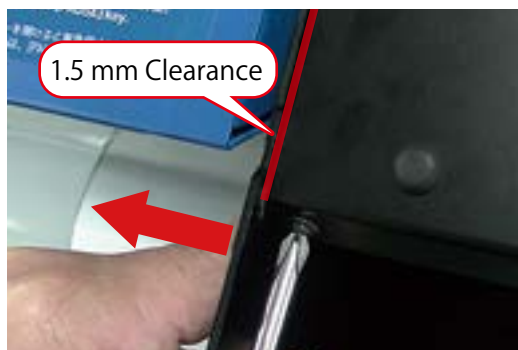


23. Tighten six screws to secure the operation panel.



CAUTION

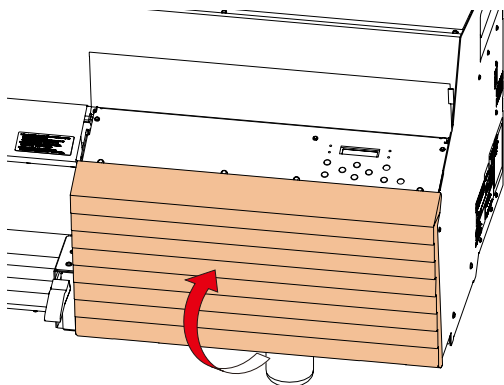
- Tighten two screws in the operation panel with holding up to the left, then make 1.5 mm clearance between the frame and the operation panel.



- Connect the ribbon cable to the operation panel.



- 24.** Close the maintenance cover R, then confirm the cover is fixed.

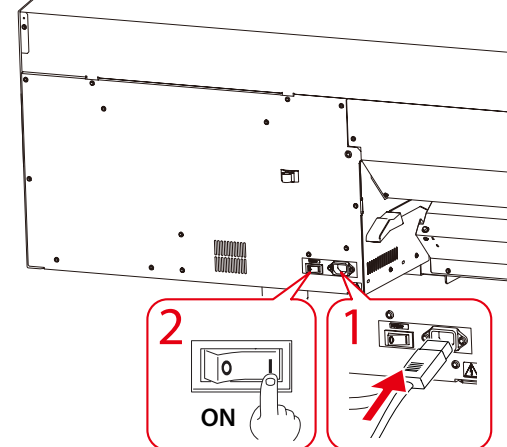


CAUTION

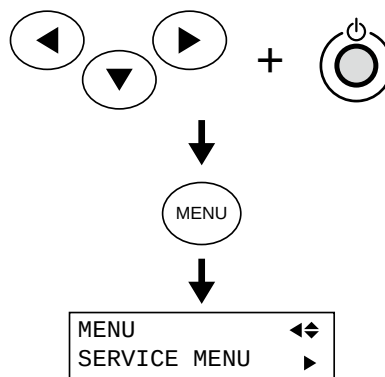
If the cover is not fixed, then maintenance sensor R does not work properly. Widen the clearance between the operation panel and the frame if the cover is not fixed by shaking the right and left ends of the cover back and forth with your hands.

- 25.** Plug in the power cord, and turn on the main power SW.

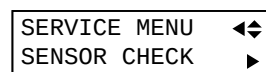
- Power cord
- Main power SW



- 26.** Turn on the sub power SW while pressing the [◀] [▼] [▶] keys to enter the service mode.



- 27.** Select [SERVICE MENU] > [SENSOR CHECK].

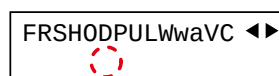


- 28.** Slide the maintenance cover sensor R to the front until " * " under "D" disappears. Then, tighten two screws to secure the sensor.

When the cover is open

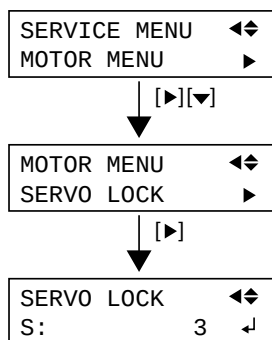


When the cover is closed

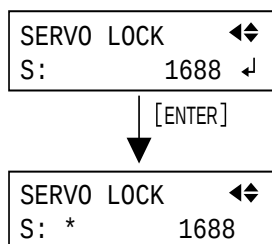


Servo Lock Check

29. Select [SERVICE MENU] > [MOTOR MENU] > [SERVO LOCK] > [S]. Move the head carriage left and right by hand and confirm that the value on the LCD changes as you move the print head.



30. Press the [ENTER] key to energize the motor. Confirm that the head carriage cannot be moved easily by hand and that the value on the LCD returns to the original value.

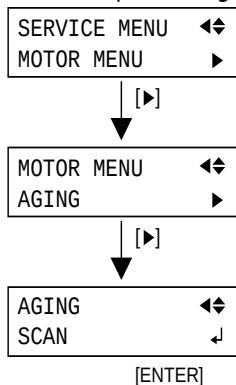


Aging Check

31. Go back to [MOTOR MENU]. Select [AGING] > [SCAN], and press the [ENTER] key. Make sure the printer performs aging, and then finish by pressing the [ENTER] key.

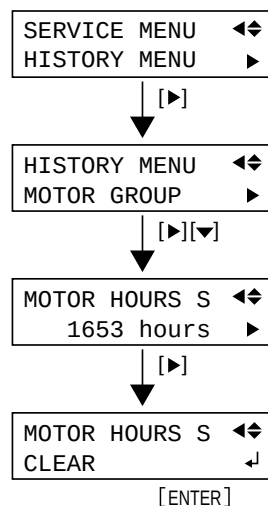
CAUTION

Remove media before performing aging.

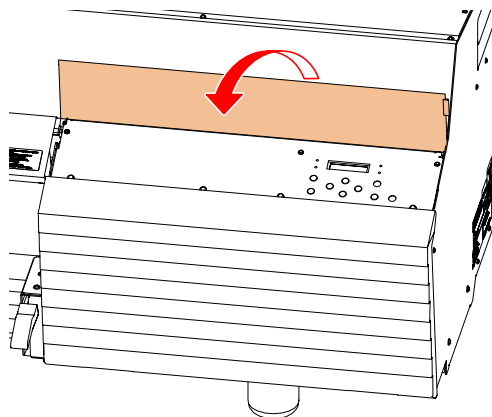


Motor Time Clear

32. 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.



33. Close the cover.



34. (End of procedure)

Information

Necessary tools

General tools

No.2 Phillips screwdriver

3.0 mm hexagonal wrench

2.0 mm hexagonal wrench

1.5 mm hexagonal wrench

Special Tools

6000004129 GREASE, FLOIL G-902 10ML_02

Workflow

1. Feed motor replacement

Typical work time

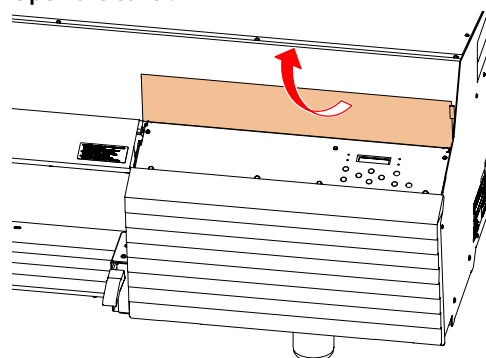
Contents of work	Time
Feed motor replacement	45 min.
Servo lock check	1 min.
Grit encoder check	1 min.
Aging check	5 min.
Motor time clear	1 min.

Procedure

CAUTION

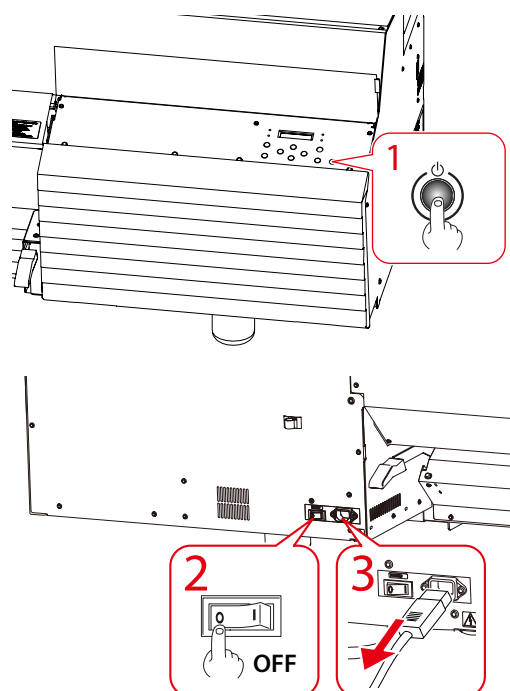
An interlock mechanism ordinarily prevents carriage movement when the printer's cover is opened. To operate the printer with the front cover open, press and hold the sensor switch.

1. Open the cover.

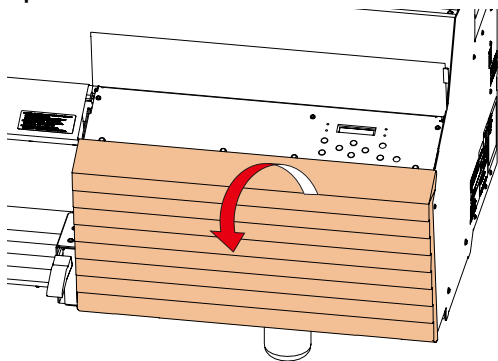


2. Turn off the sub power SW, and then turn off the main power SW. Unplug the power cord.

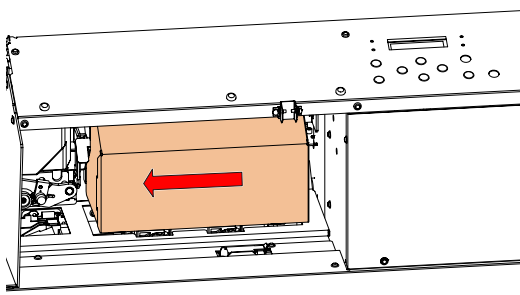
1. Sub power SW
2. Main power SW
3. Power cord



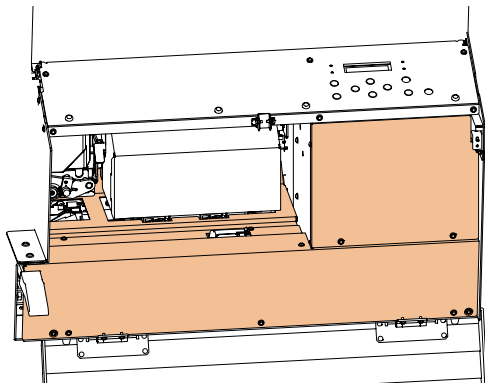
3. Open the maintenance cover R.



4. Unlock the head carriage, and move it to the left by hand.

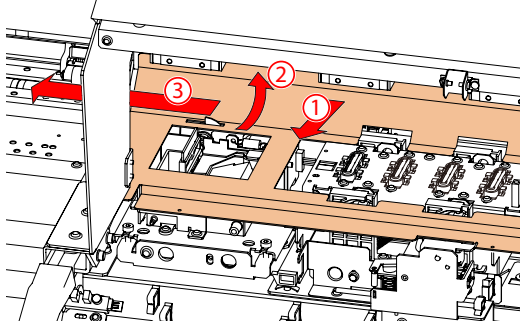


5. Remove the screws that secure the covers shown in orange in the figure.

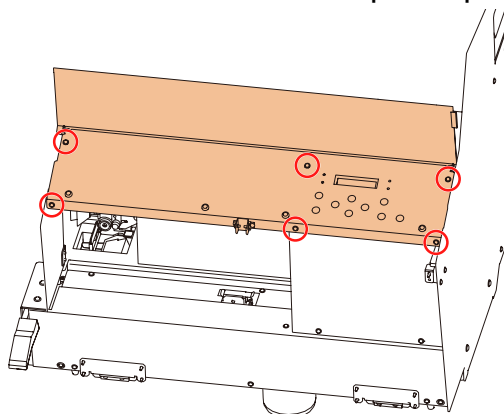


Memo

Easiest way to remove the cover shown below is to 1) slide the cover to the front, 2) lift up the rear side of the cover, and 3) remove the cover from the left side.



6. Remove six screws that secure the operation panel.

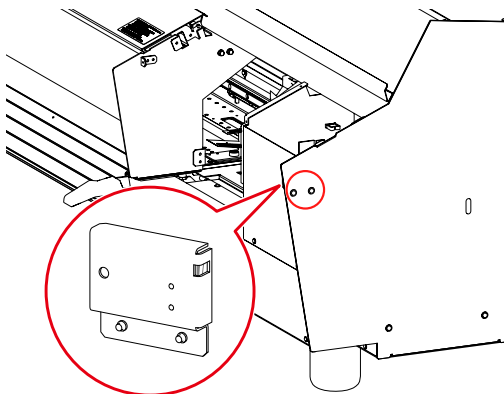


CAUTION

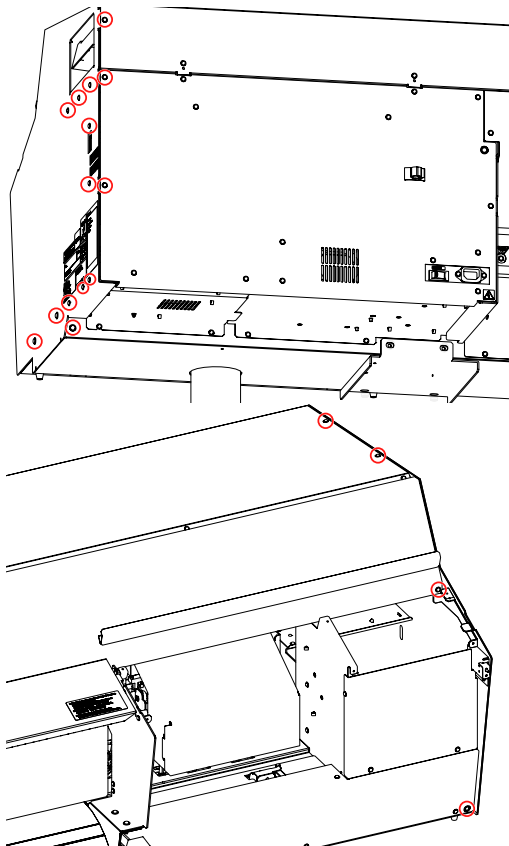
Before removing the operational panel, make sure to disconnect the ribbon cable from the panel board.



7. Remove two screws that secure the maintenance cover sensor R.



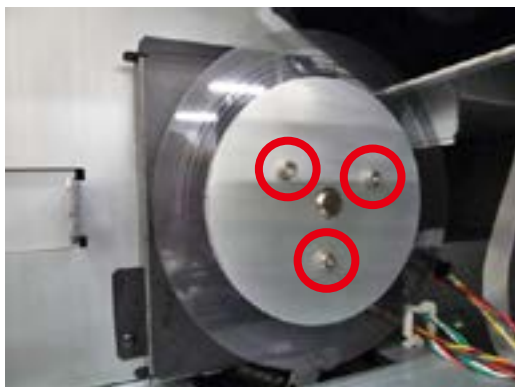
- 8.** Remove 18 screws that secure the cover.



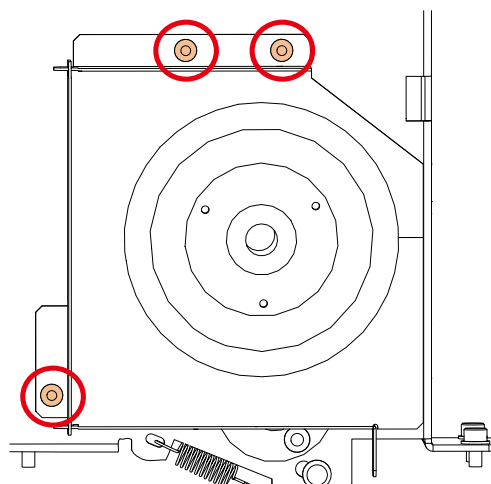
- 9.** Remove the screw that secures the grit encoder board.



- 10.** Remove three screws that secure the grit encoder stopper and the grit encoder.



- 11.** Detach three rivets from the motor cover.

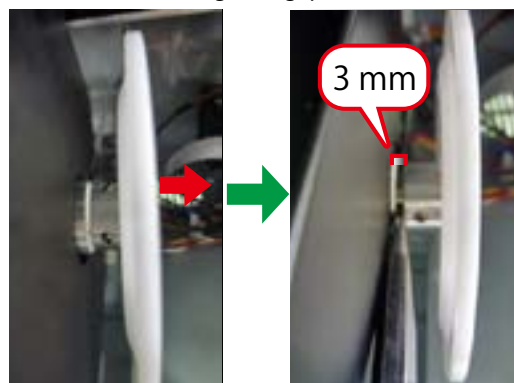


- 12.** Remove two screws that secure the grit encoder stay and the motor cover.

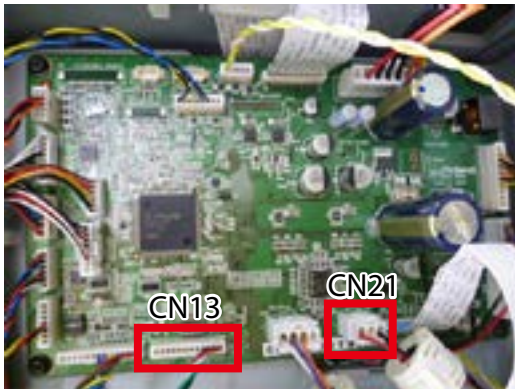


Memo

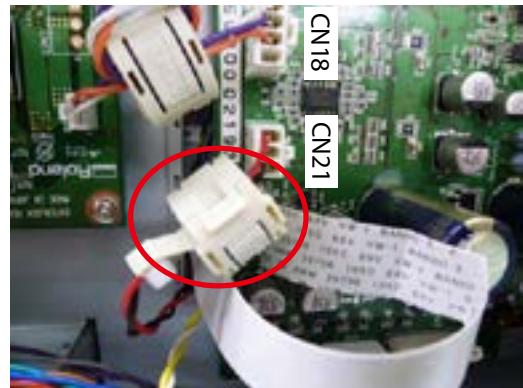
If it is difficult to remove the grit encoder stay, make gap of 3 mm by moving it to the right. Remove the motor cover through the gap.



- 13.** Unplug the connectors from the servo board.

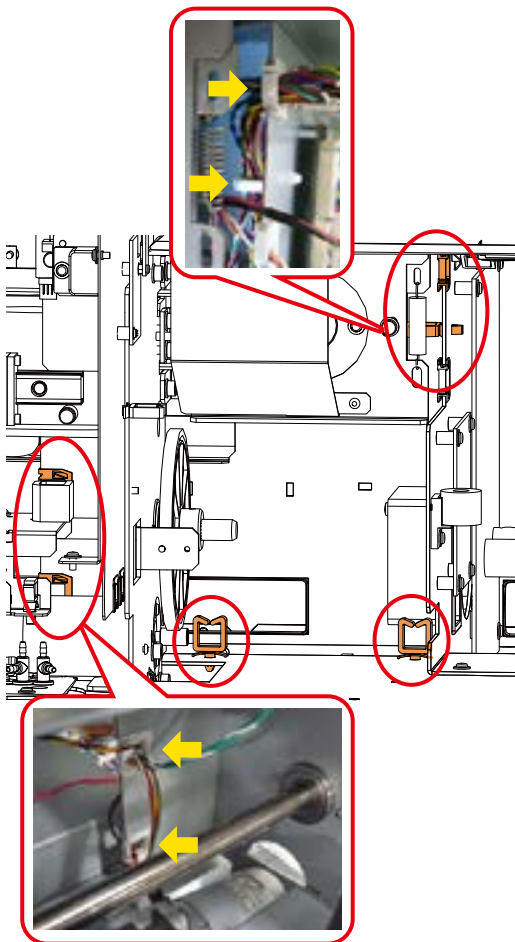


Ferrite core (1 location)



- 14.** Open six clamps and the ferrite core to release the cables which are connected to the feed motor.

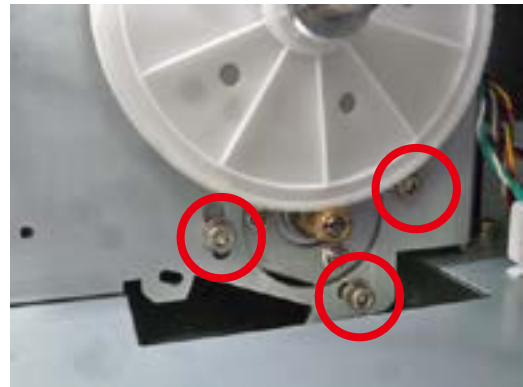
Clamps (6 locations)



- 15.** Unhook the spring.



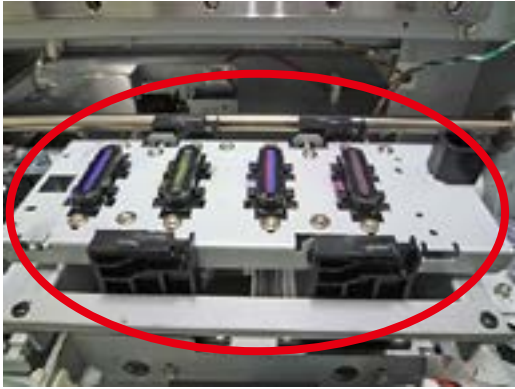
- 16.** Remove three screws, and remove the motor along with its flange.



- 17.** Unplug the connector from the motor.



18. Slide the cap-base frame to the right, and then lift it up to remove it. Put it in the front side.



19. Remove the feed motor from the right side of the cap-base frame.



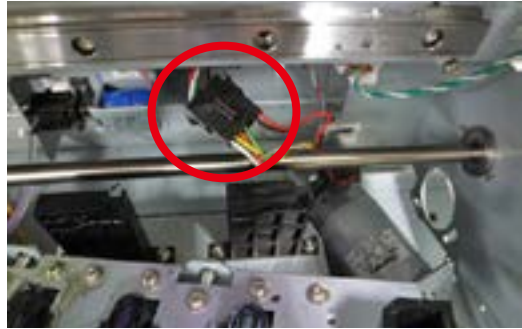
20. Remove three screws that secure the flange to the motor. Then, fasten the new motor to the flange.

CAUTION

Be careful to correctly orient the flange in relation to the motor cables.



21. Move the motor back to its original position. Then, plug the connector into the motor.



22. Temporarily fasten the flange with three screws.



23. Attach the spring.



- 24.** Turn the drive gear more than three times by hand and check that the gears mesh together.

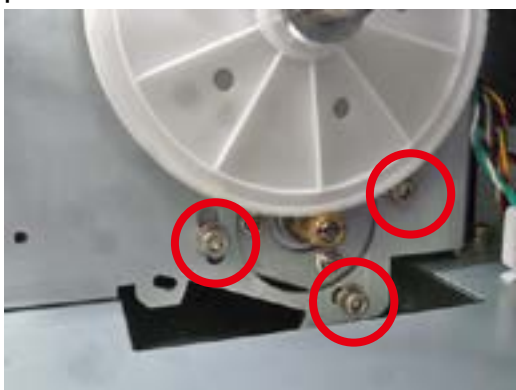


CAUTION

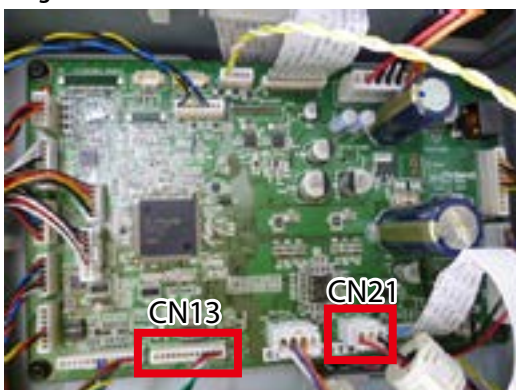
Apply grease to the drive gear and the motor gear.

- Grease: FLOIL G-902 10ML_02
- Volume: as needed

- 25.** Fully tighten three screws to secure the flange. And then, move the cap-base frame back to its original position.

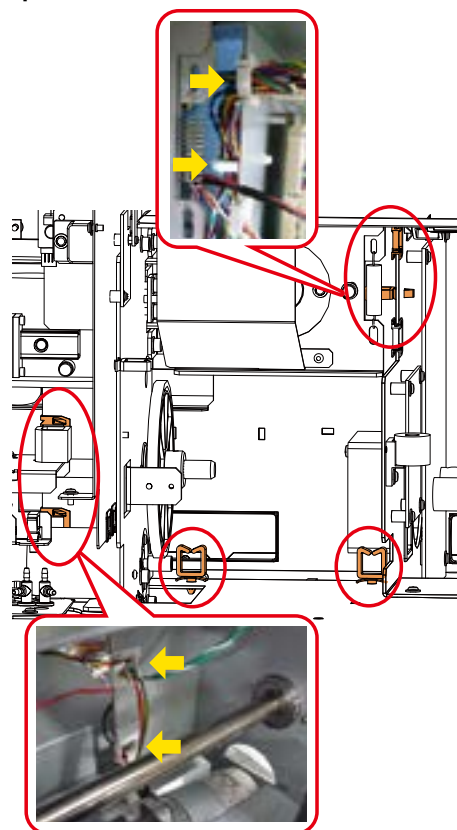


- 26.** Plug in the connectors.

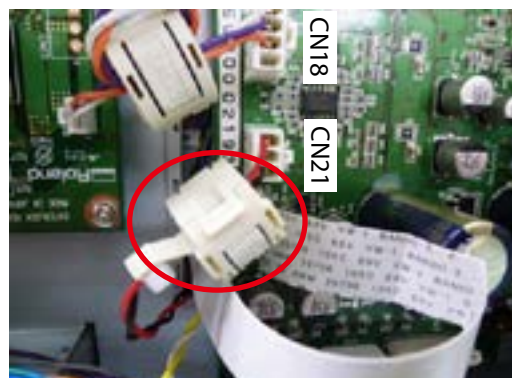


- 27.** Fasten the six clamps and one ferrite core.

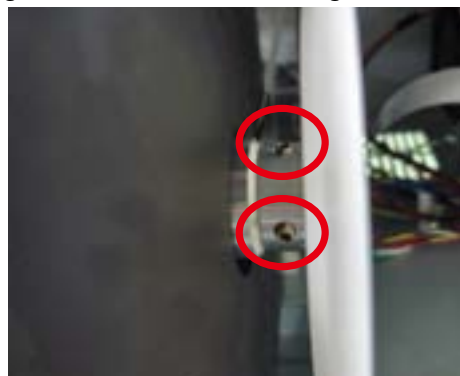
Clamps (6 locations)



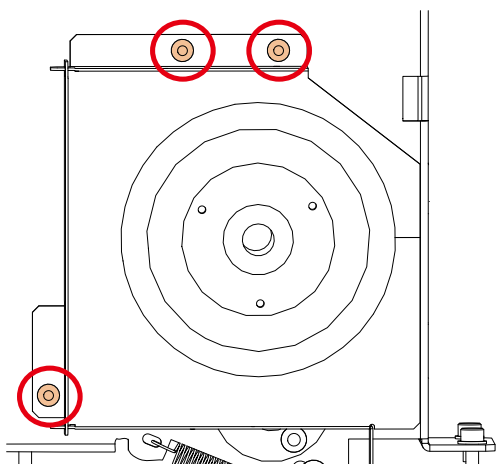
Ferrite core (1 location)



- 28.** Attach the motor cover and the grit encoder stay. Tighten two screws to secure the grit encoder stay.



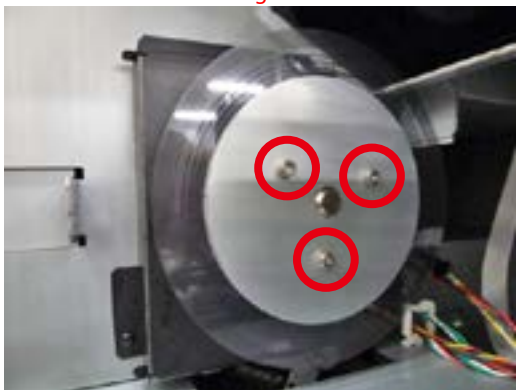
29. Attach three rivets to secure the motor cover.



30. Tighten three screws to secure the grit encoder stopper and the grit encoder.

CAUTION

Make sure not to scratch or get grease on the grit encoder when installing it.



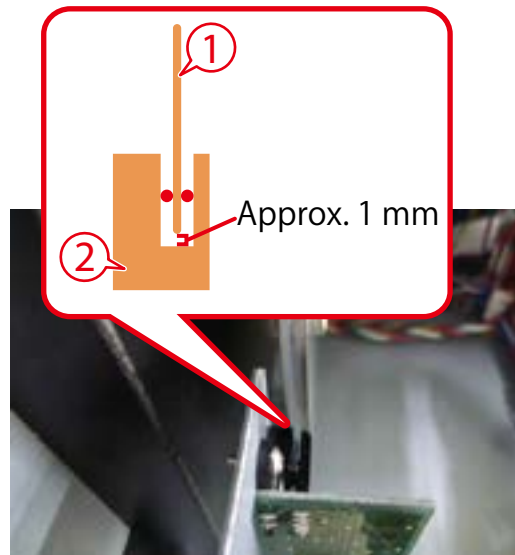
31. Tighten the screw to secure the grit encoder board.



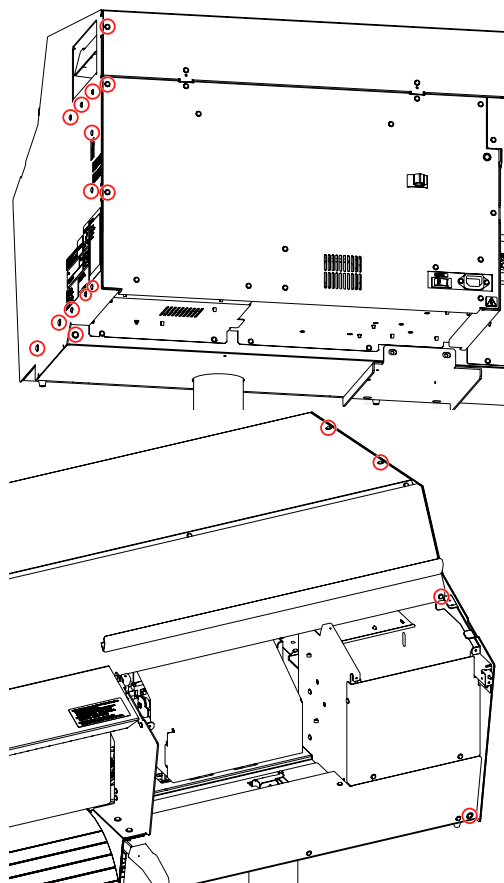
CAUTION

Secure the stay to keep the grit encoder sensor in the center position of the sensor. Make sure to keep the gap is approximately 1 mm to the front and rear to the sensor.

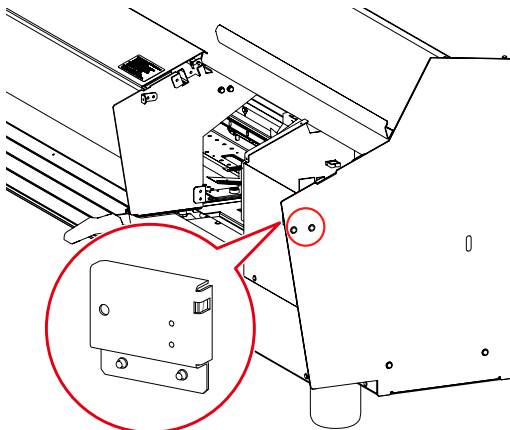
1. Grit encoder
2. Grit encoder sensor



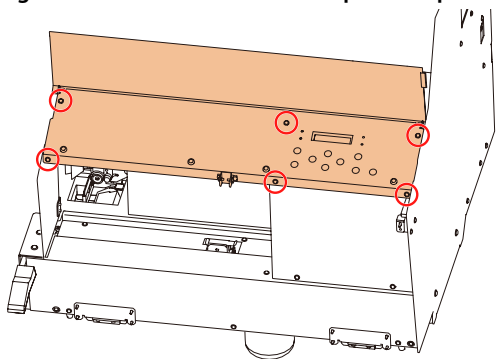
32. Tighten 18 screws to secure the cover.



- 33.** Temporarily fasten the maintenance cover sensor R with two screws.

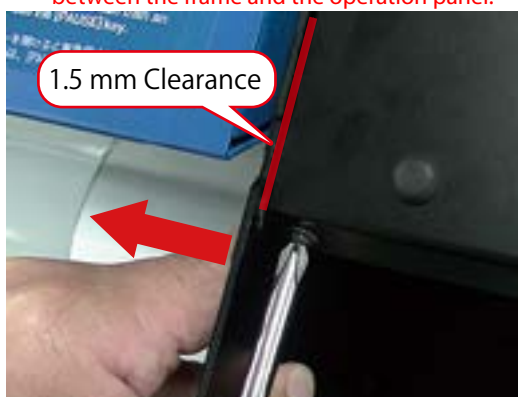


- 34.** Tighten six screws to secure the operation panel.



CAUTION

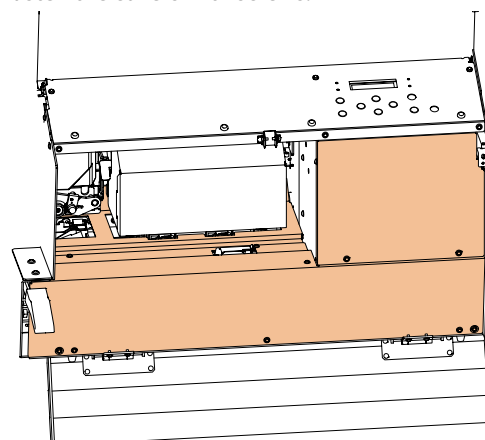
- Tighten two screws in the operation panel with holding up to the left, then make 1.5 mm clearance between the frame and the operation panel.



- Connect the ribbon cable to the panel board.

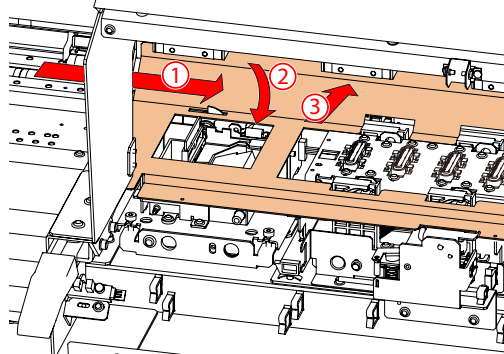


- 35.** Fasten the covers with screws.

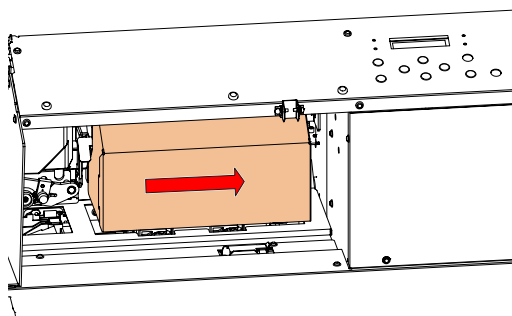


Memo

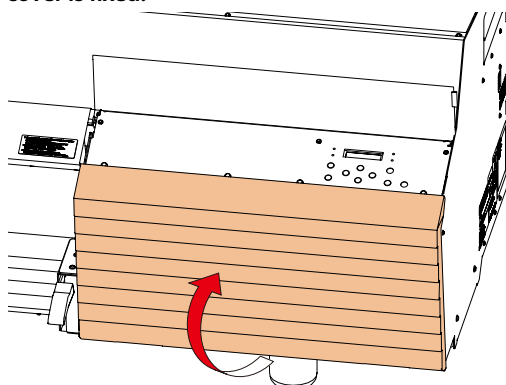
Easiest way to attach the cover shown below is to 1) insert the cover from the left side and 2) fit the rear part of the cover in place as you lift the front part of the cover.



36. Move the head carriage to the lock position.



37. Close the maintenance cover R, then confirm the cover is fixed.

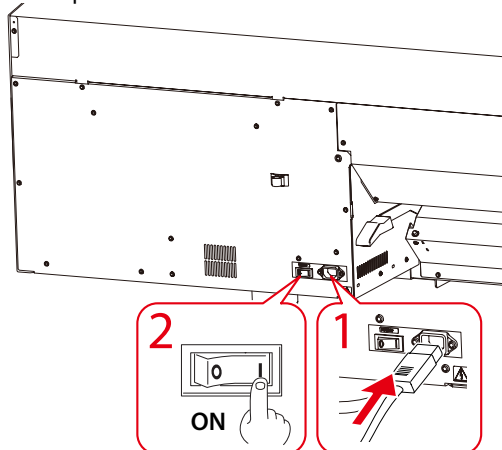


CAUTION

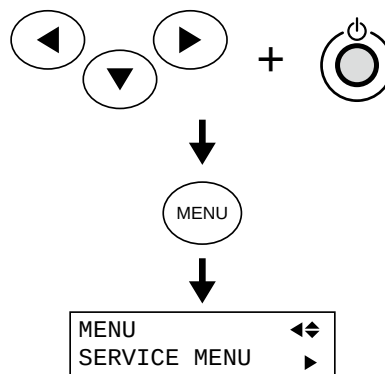
If the cover is not fixed, then maintenance sensor R does not work properly. Widen the clearance between the operation panel and the frame if the cover is not fixed by shaking the right and left ends of the cover back and forth with your hands.

38. Plug in the power cord, and turn on the main power SW.

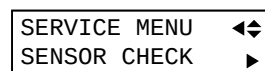
1. Power cord
2. Main power SW



39. Turn on the sub power SW while pressing the [◀] [▼] [▶] keys to enter the service menu.

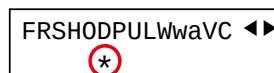


40. Select [SERVICE MENU] > [SENSOR CHECK].

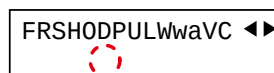


41. Slide the maintenance cover sensor R to the front until "※" under "D" disappears. Then, tighten two screws to secure the sensor.

When the cover is open

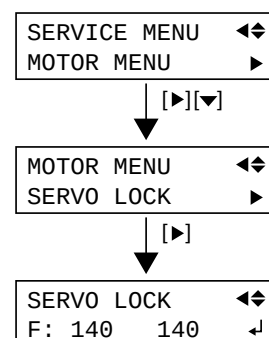


When the cover is closed

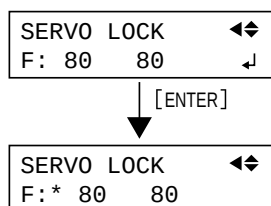


Servo Lock Check

42. Select [SERVICE MENU] > [MOTOR MENU] > [SERVO LOCK] > [F]. Rotate the grit roller by hand, and then confirm that the value on the LCD changes according to the grit roller rotation.



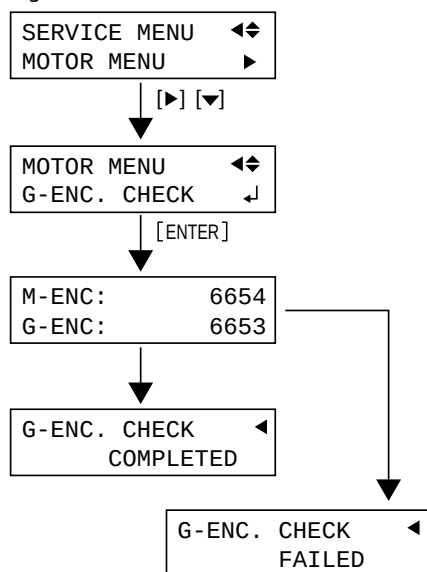
43. Press the [ENTER] key to energize the motor. Confirm that the grit roller cannot be moved easily by hand and that the value on the LCD returns to the original value.



Grit Encoder Check

44. Select [MOTOR MENU] > [G-ENC. CHECK] and press the [ENTER] key. Confirm that [G-ENC. CHECK COMPLETED] is displayed. When [G-ENC. CHECK FAILED] is displayed, check the followings.

1. The grit encoder is attached properly.
2. The feed motor is attached properly.
3. The grit encoder has no scratches or stains.

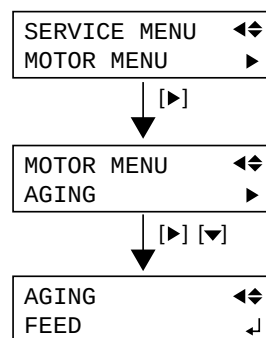


Aging Check

45. Go back to [MOTOR MENU]. Select [AGING] > [FEED], and press the [ENTER] key. Make sure the printer performs aging, and then finish by pressing the [ENTER] key.

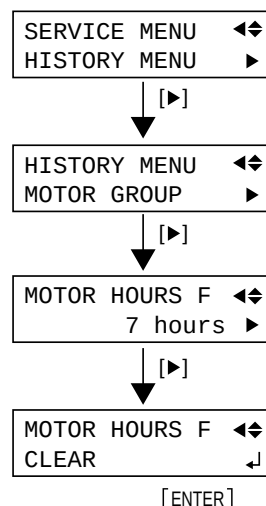
CAUTION

Remove media before performing aging.



Motor Time Clear

46. 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.



47. (End of procedure)

Information

Necessary tools

General tools

No.2 Phillips screwdriver

Waste cloth

Special tools

None

Workflow

1. Pressure pump replacement
2. Ink circulation pump replacement

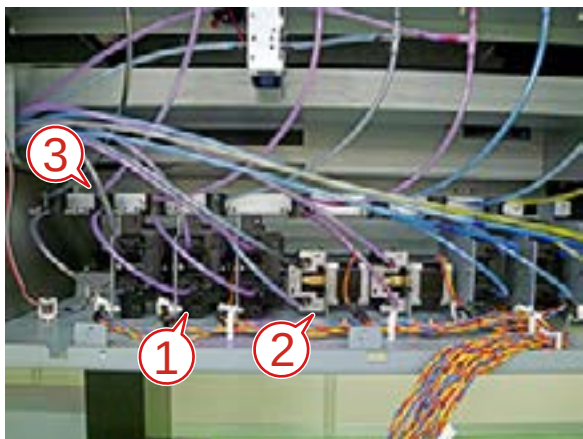
Typical work time

Contents of work	Time
Pressure pump replacement	120 min.
Ink circulation pump replacement	120 min.

Procedure

Pressure pump and ink circulation pump

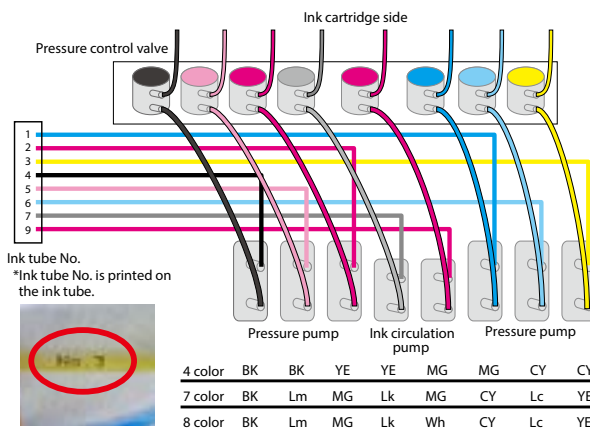
1. Pressure pump
2. Ink circulation pump
3. Pressure control valve



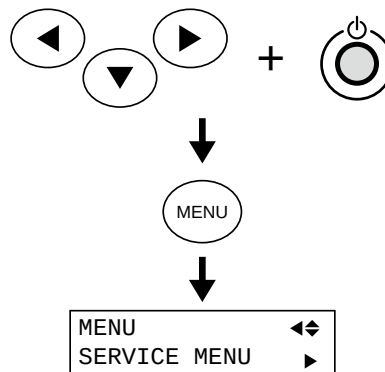
CAUTION

If you are replacing multiple pumps at the same time, be sure to connect the ink tubes to the correct pumps as shown in the figure below.

*This illustration shows the case of 7 colors.



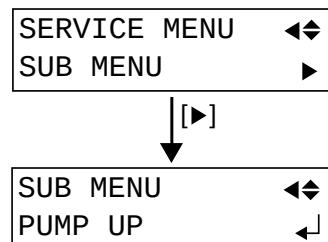
1. Turn on the sub power SW while pressing the [◀] [▼] [▶] keys to enter the service mode.



2. Perform [SERVICE MENU] > [SUB MENU] > [PUMP UP] and drain ink from the ink lines.

CAUTION

Be sure to discharge ink in accordance with the message on the panel. Failure to do so will cause ink to spill out of the drain bottle.

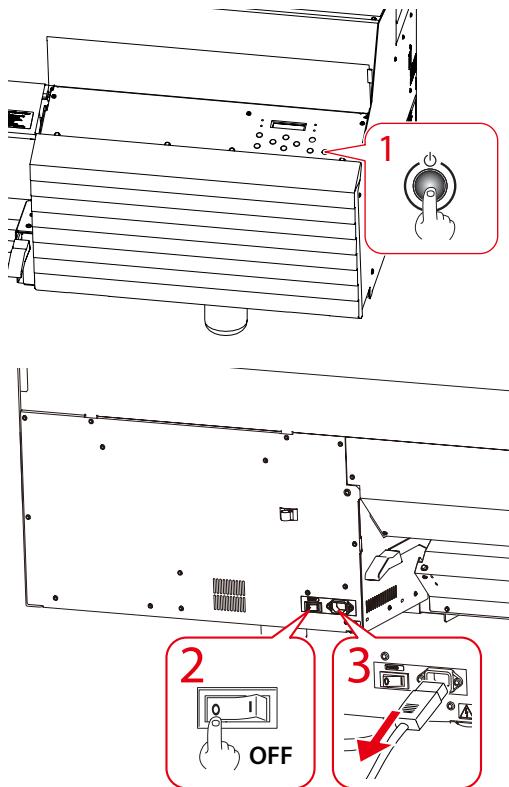


NOTE

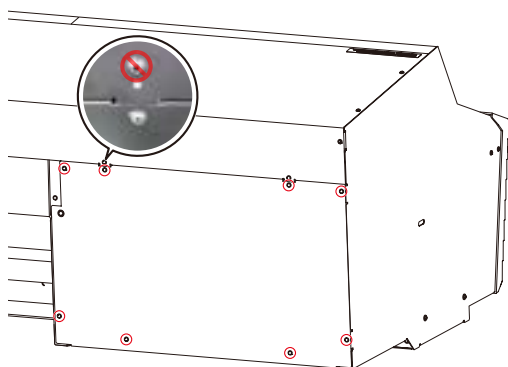
Required time for [PUMP UP]: approx. 60 min.

3. Turn off the sub power SW, and then turn off the main power SW. Unplug the power cord.

1. Sub power SW
2. Main power SW
3. Power cord



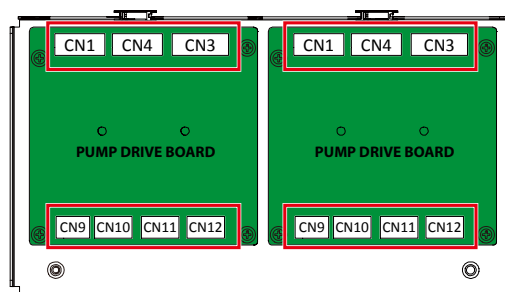
4. Remove eight screws that secure the cover.



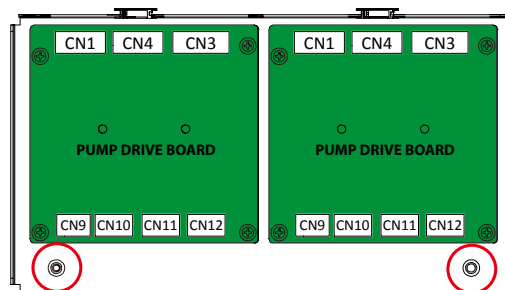
5. Unfasten seven clamps and release the cables from the clamps.



6. Unplug all the connectors from the pump drive boards.



7. Remove two screws that secure the pump drive board stay.



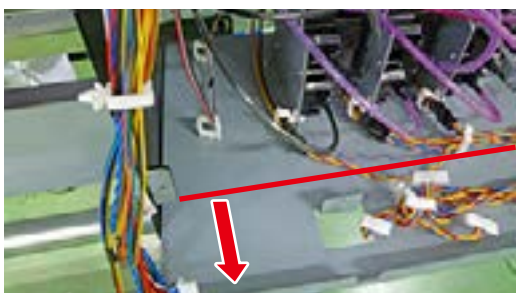
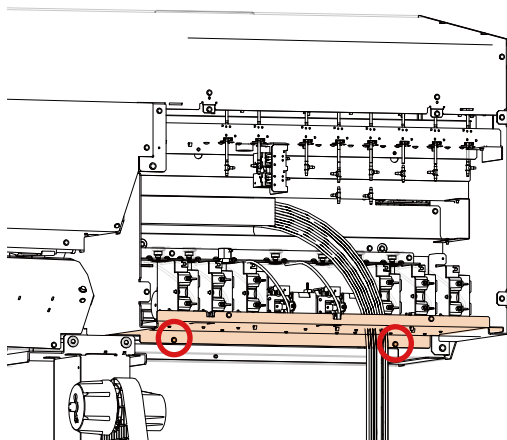
8. Release the ink tubes from the clamp which is on the back side of the pump drive board stay.



9. Release the cable from the clamp.

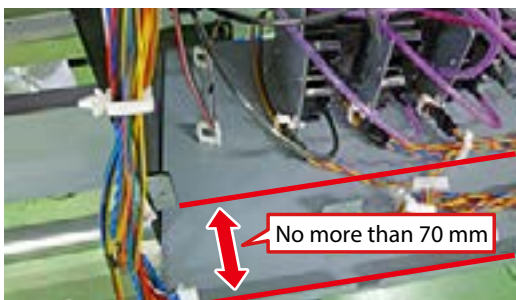


10. Remove two screws, and then pull out the tray about 70 mm.

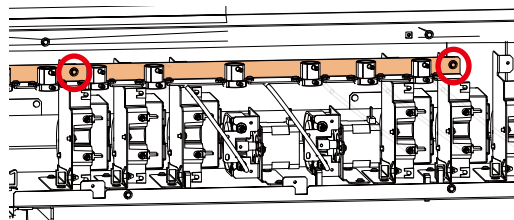


CAUTION

Do not pull out the tray more than 70 mm. Doing so may cause the ink tubes to bend. Be careful to avoid bending the ink tubes when pulling out the tray.

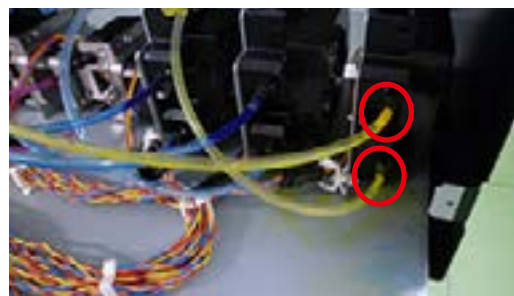


11. Remove two screws that secure the pressure-control-valve stay.

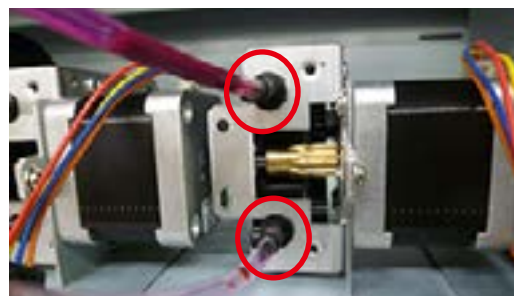


12. Remove the ink tubes from the pump you are going to replace.

Pressure pump



Ink circulation pump

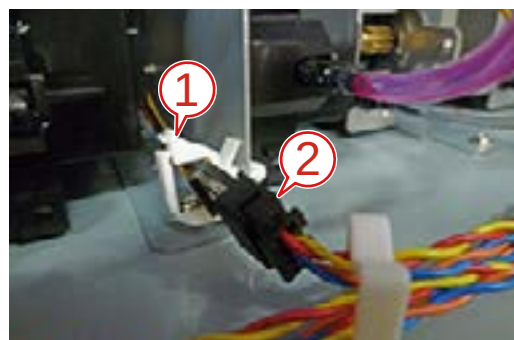


13. Unplug the connector from the pump cable.

Pressure pump

Release the pump cable from the clamp. Then, unplug the connector from the pump cable.

1. Clamp
2. Connector

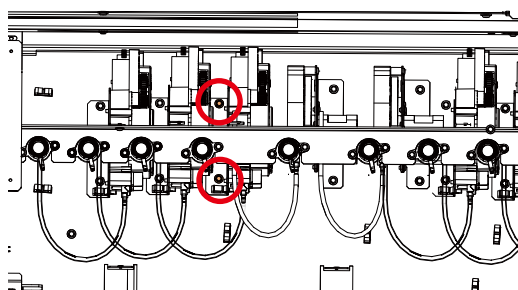


Ink circulation pump

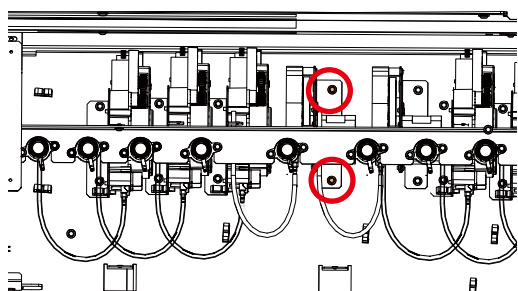


14. Remove two screws that secure the pump, and then remove the pump along with its stay.

Pressure pump



Ink circulation pump



NOTE

Remove the pump and its stay from behind the pressure-control-valve stay.

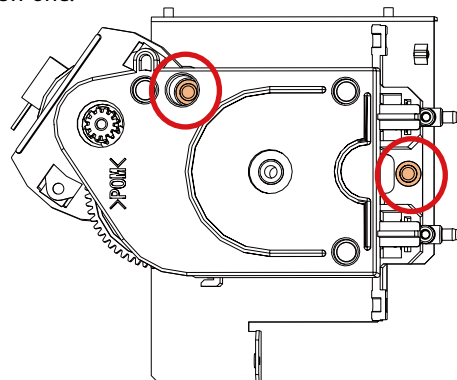
1. Pump you are going to replace
2. Pressure-control-valve stay



15. Remove the pump from its stay, and then attach the new pump to the stay.

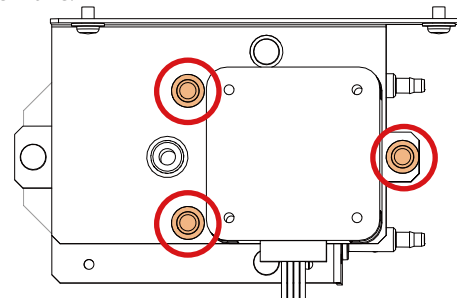
Pressure pump

Remove two screws and replace the pump with the new one.



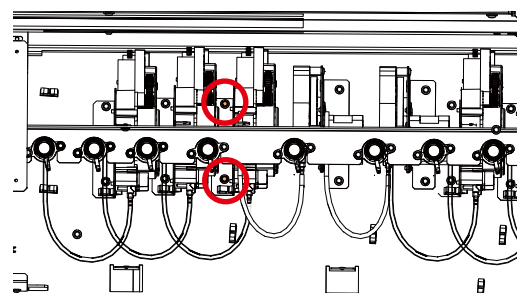
Ink circulation pump

Remove three screws and replace the pump with the new one.

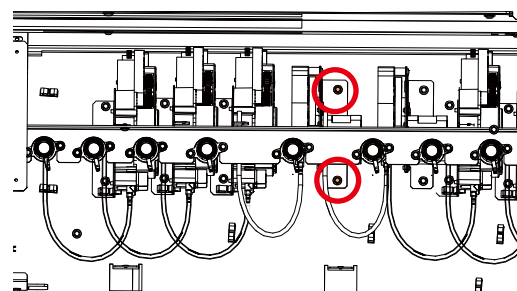


16. Attach the pump along with its stay.

Pressure pump



Ink circulation pump



NOTE

Attach the pump and its stay from behind the pressure-control-valve stay.

1. New pump
2. Pressure-control-valve stay

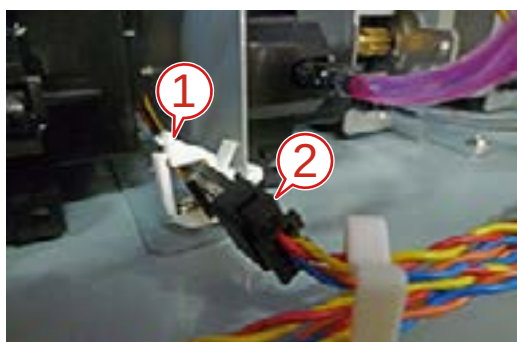


17. Plug the connector to the pump cable.

Pressure pump

Fasten the pump cable with the clamp. Then, plug the connector to the pump cable.

1. Clamp
2. Connector



Ink circulation pump



18. Cut the ink tubes 5 mm from the end before connecting them to the pressure pump.

CAUTION

Do not cut the ink tube end more than 5 mm. If you cut it more than 5 mm, the ink tube will become too short to reach the pressure control valve. If the ink tube becomes too short, replace it with the new one.

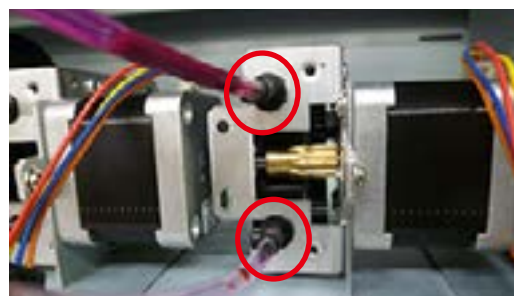


19. Connect the ink tubes to the pump.

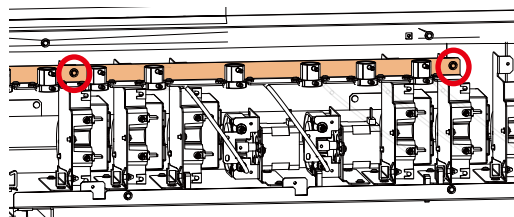
Pressure pump



Ink circulation pump



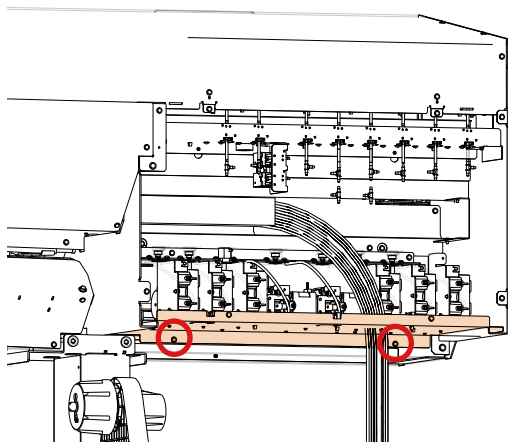
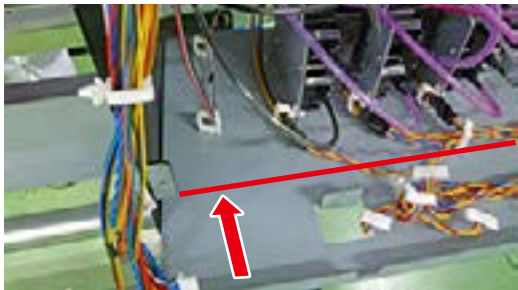
20. Tighten two screws to secure the pressure-control-valve stay.



21. Insert the tray back into the machine, and tighten two screws to secure it.

CAUTION

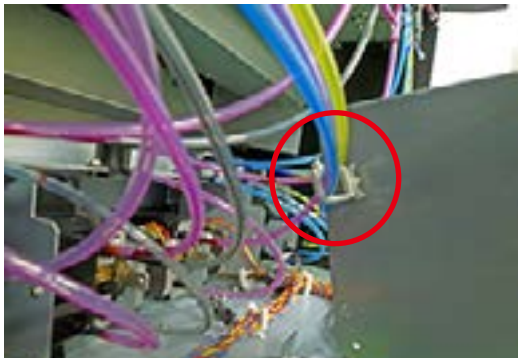
Be careful not to bend the tubes when inserting the tray.



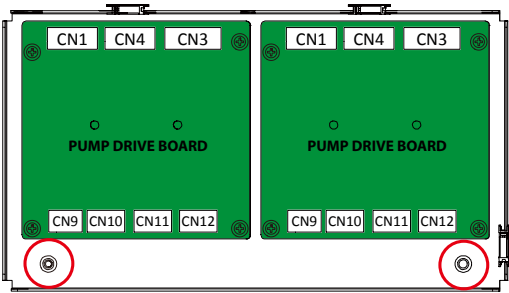
22. Fasten the cable with the clamp.



23. Bundle the ink tubes with the clamp which is on the back side of the pump drive board.



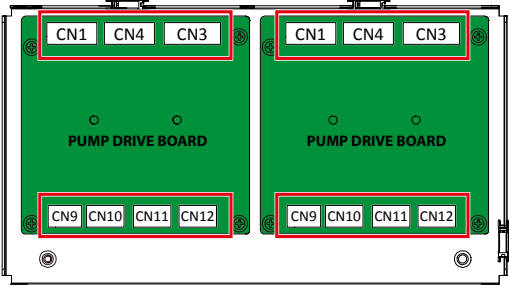
24. Tighten two screws to secure the pump drive board stay.



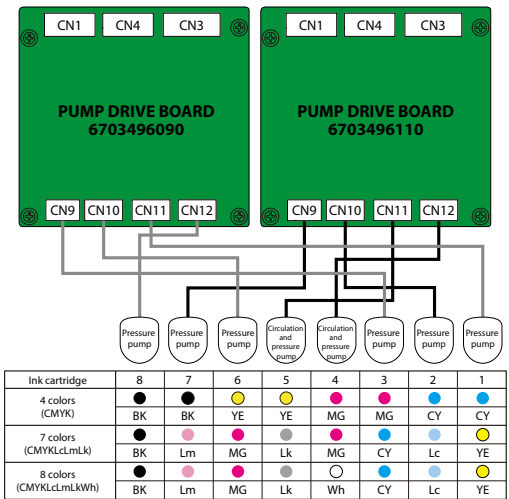
25. Plug all the connectors into the pump drive boards.

CAUTION

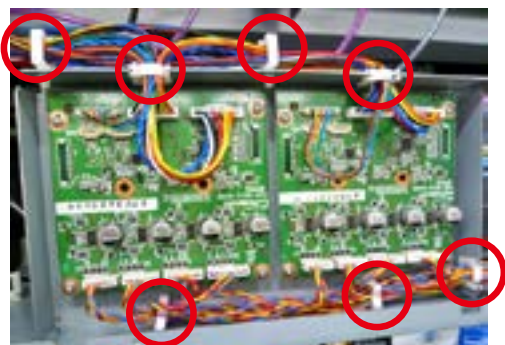
The connectors for the right pump drive board and the connectors for the left pump drive board look exactly alike. Be careful not to mix them up.



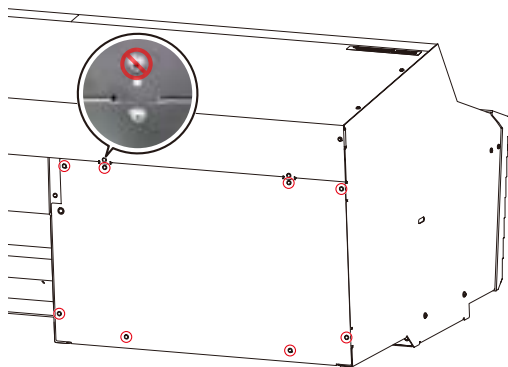
Wiring map of the pump drive boards



26. Bundle the cables with seven clamps.

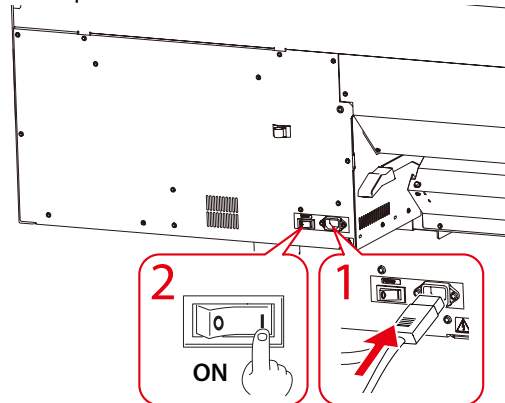


27. Tighten eight screws to secure the cover.

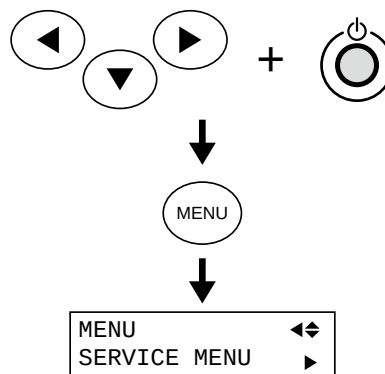


28. Plug in the power cord, and turn on the main power SW.

1. Power cord
2. Main power SW



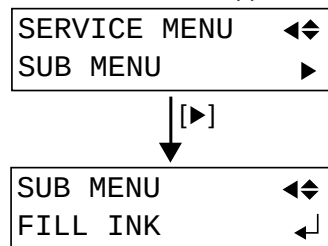
29. Turn on the sub power SW while pressing the [◀] [▼] [▶] keys to enter the service mode.



30. Perform [SERVICE MENU] > [SUB MENU] > [FILL INK] and fill the ink lines with ink.

NOTE

Required time for [FILL INK]: approx. 30 min.



31. (End of procedure)

Information

Necessary tools

General tools

No.2 Phillips screwdriver

Waste cloth

Special tools

None

Workflow

1. Pressure control valve replacement

Typical work time

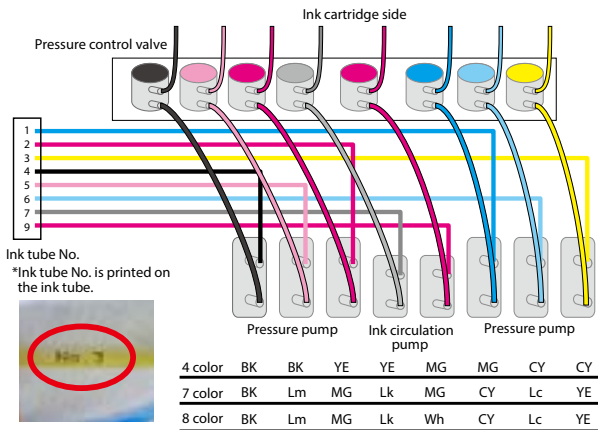
Contents of work	Time
Pressure control valve replacement	120 min.

Procedure

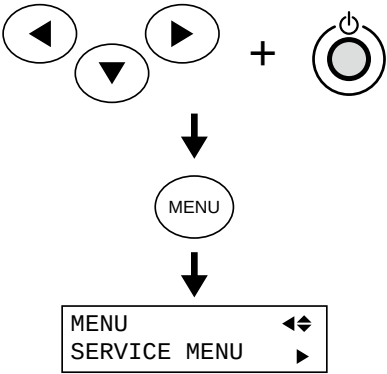
CAUTION

If you are replacing multiple pressure control valves at the same time, be sure to connect the ink tubes to the correct valves as shown in the figure below.

*This illustration shows the case of 7 colors.



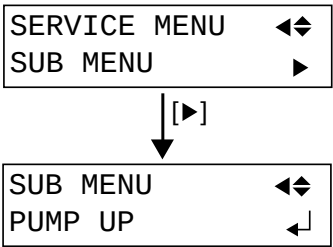
1. Turn on the sub power SW while pressing the [◀] [▼] [▶] keys to enter the service mode.



2. Perform [SERVICE MENU] > [SUB MENU] > [PUMP UP] and drain ink from the ink lines.

CAUTION

Be sure to discharge ink in accordance with the message on the panel. Failure to do so will cause ink to spill out of the drain bottle.

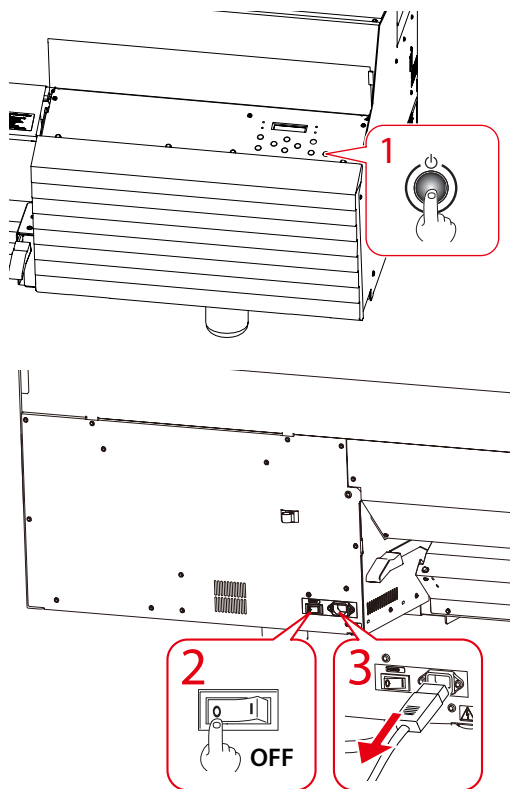


NOTE

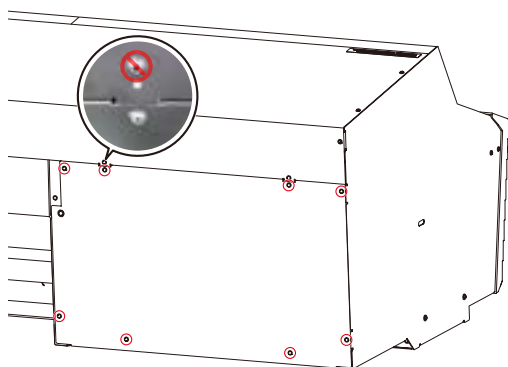
Required time for [PUMP UP]: approx. 60 min.

- 3.** Turn off the sub power SW, and then turn off the main power SW. Unplug the power cord.

1. Sub power SW
2. Main power SW
3. Power cord



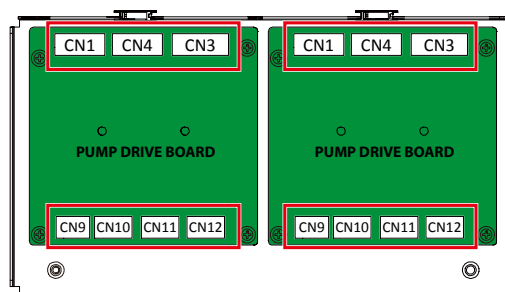
- 4.** Remove eight screws that secure the cover.



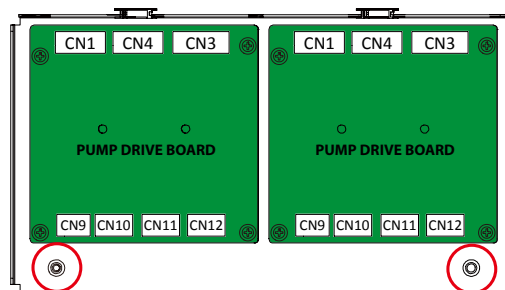
- 5.** Unfasten seven clamps and release the cables from the clamps.



- 6.** Unplug all the connectors from the pump drive boards.



- 7.** Remove two screws that secure the pump drive board stay.



- 8.** Release the ink tubes from the clamp which is on the back side of the pump drive board stay.



9. Remove the ink tubes from the pressure control valve you are going to replace.



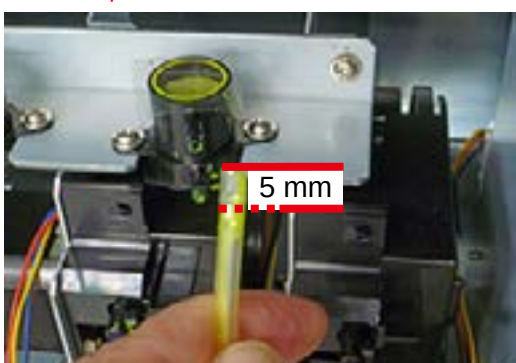
10. Remove two screws that secure the pressure control valve, and replace it with the new one.



11. Cut the ink tubes 5 mm from the end before connecting them to the new pressure control valve.

CAUTION

Do not cut the ink tube end more than 5 mm. If you cut it more than 5 mm, the ink tube will become too short to reach the choke valve, pressure pump, and/or ink circulation pump. If the ink tube becomes too short, replace it with the new one.



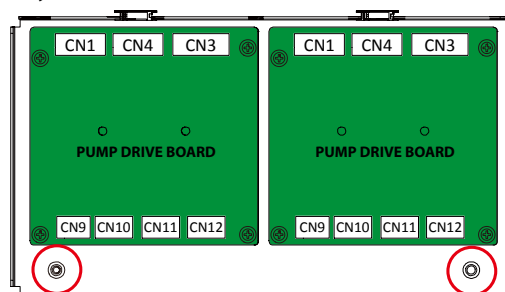
12. Connect the ink tubes to the pressure control valve.



13. Bundle the ink tubes with the clamp which is on the back side of the pump drive board.



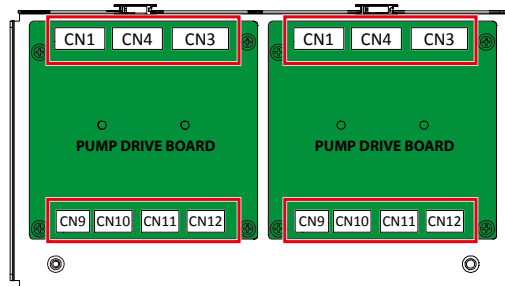
14. Tighten two screws to secure the pump drive board stay.



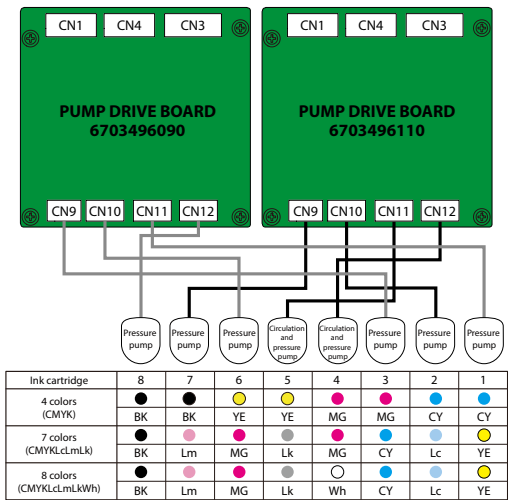
15. Plug all the connectors into the pump drive boards.

CAUTION

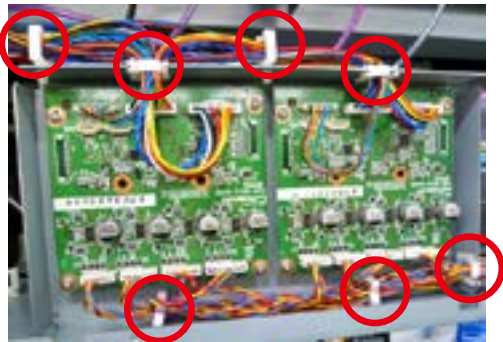
The connectors for the right pump drive board and the connectors for the left pump drive board look exactly alike. Be careful not to mix them up.



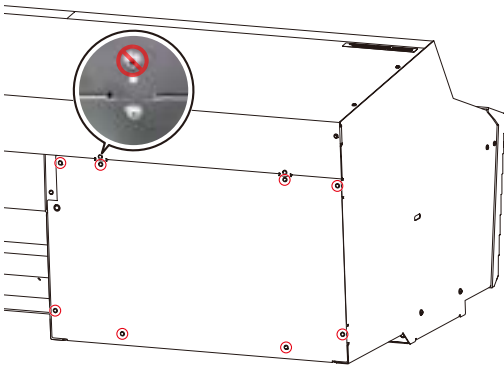
Wiring map of the pump drive boards



16. Bundle the cables with seven clamps.

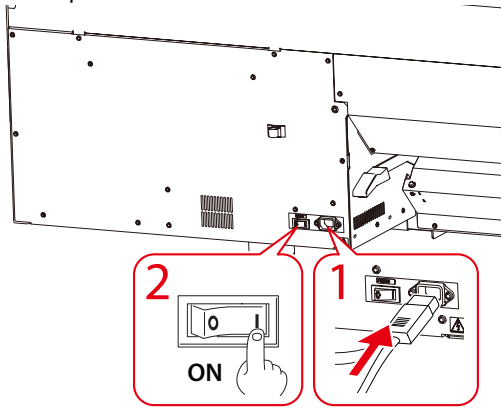


17. Tighten eight screws to secure the cover.

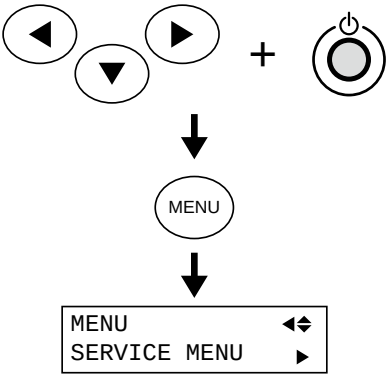


18. Plug in the power cord, and turn on the main power SW.

- 1. Power cord
- 2. Main power SW



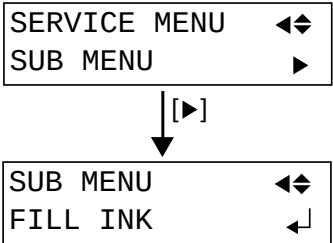
19. Turn on the sub power SW while pressing the [◀] [▼] [▶] keys to enter the service mode.



20. Perform [SERVICE MENU] > [SUB MENU] > [FILL INK] and fill the ink lines with ink.

NOTE

Required time for [FILL INK]: approx. 30 min.



21. (End of procedure)

Main Board Replacement

Information

Necessary tools

Software

Peck

General tools

No.2 Phillips screwdriver

Special tools

None

Workflow

1. Main board replacement

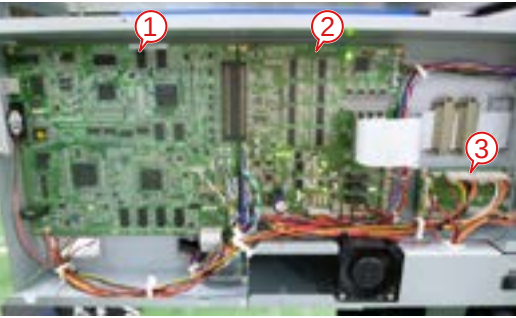
Typical work time

Contents of work	Time
Main board replacement (When parameters cannot be transferred by Peck)	40 min.
Main board replacement (When parameters can be transferred by Peck)	20 min.

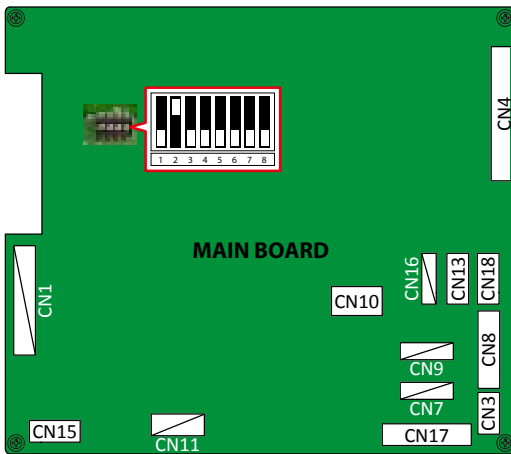
Procedure

Board layout (inside the cover)

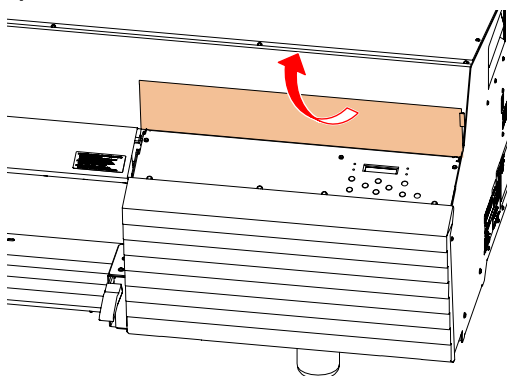
1. Main board
2. Head board
3. DC junction board



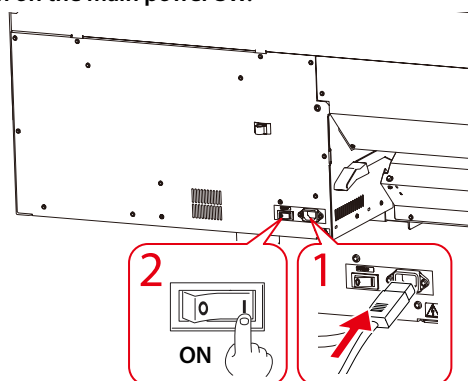
Connector layout



1. Open the cover.



2. Turn on the main power SW.



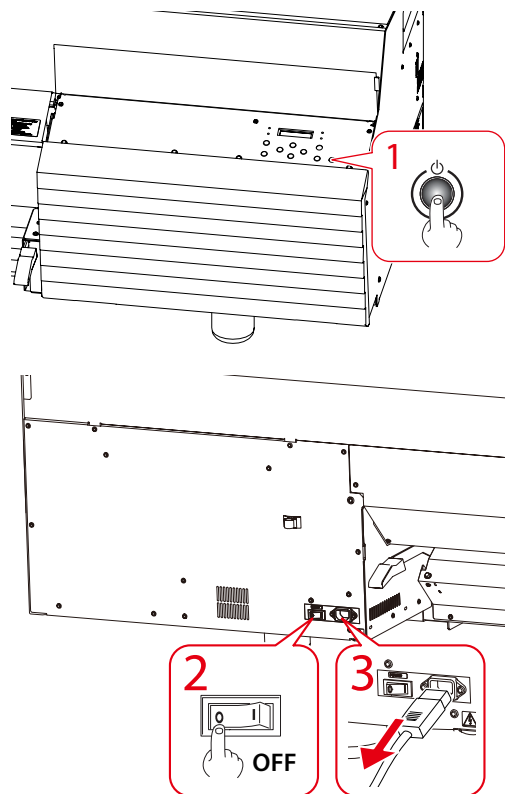
3. Start Peck.

4. Click [Get Report] and [Get Parameters], and save the service report and the parameters.

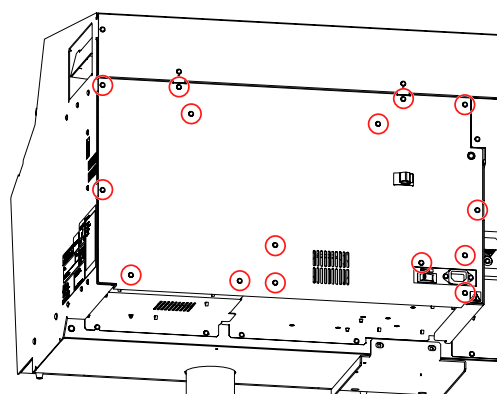


5. Turn off the sub power SW, and then turn off the main power SW. Unplug the power cord.

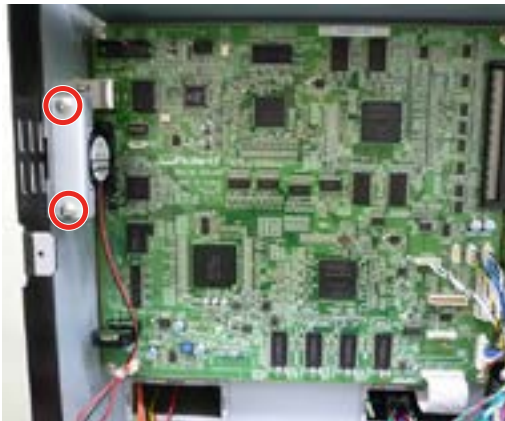
1. Sub power SW
2. Main power SW
3. Power cord



6. Remove 15 screws that secure the cover.

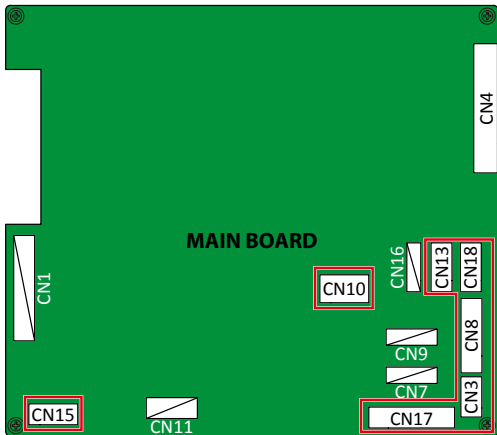


7. Remove two screws that secure the fan.

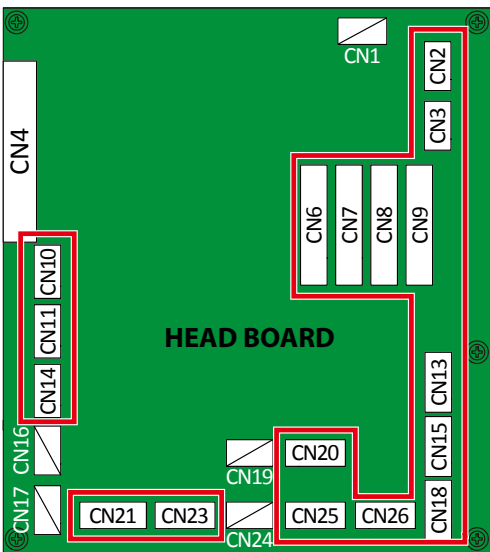


8. Disconnect all the ribbon cables and unplug all the connectors from the main board and the head board.

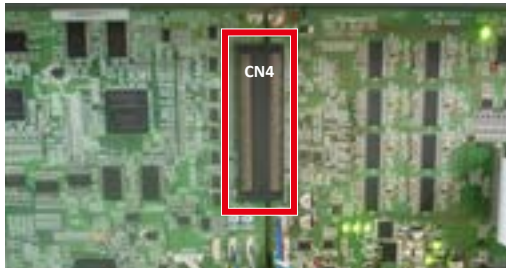
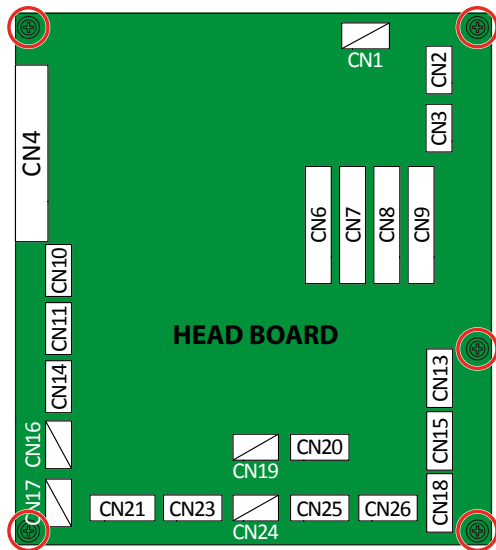
Main board



Head board

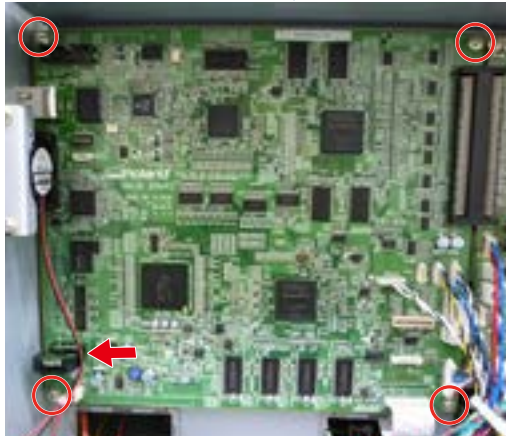


9. Remove five screws that secure the head board, and detach it from the main board.



10. Remove four screws that secure the main board, and fasten the new one. Attach the removed battery to the new main board.

Refer to Chapter 1 "Battery Replacement"



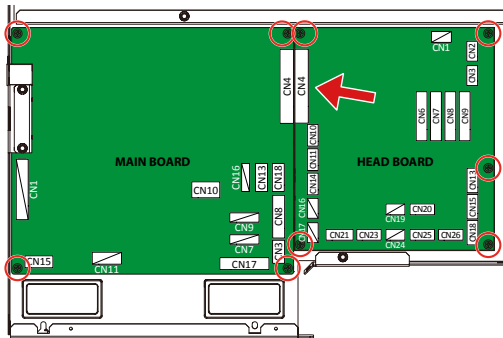
CAUTION

Make sure to attach the removed battery to the new main board.

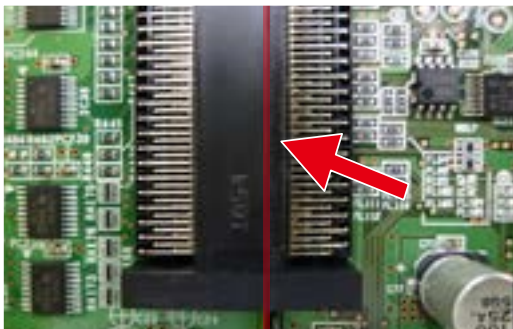
11. Connect the head board to the main board, and tighten nine screws.

CAUTION

Make sure that there is no gap in the connector joint with the main board when connecting the head board.



OK

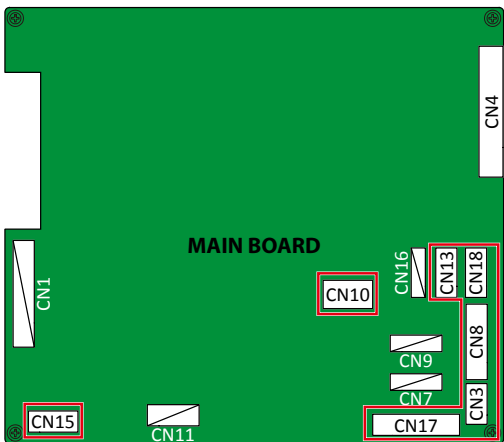


No Good

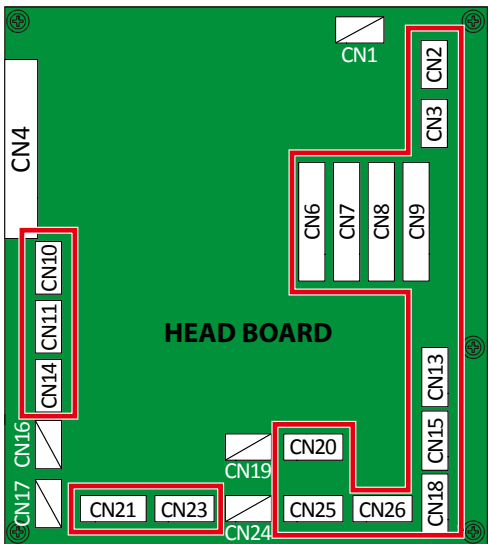


12. Connect all the ribbon cables and plug in all the connectors to the main board and the head board.

Main board

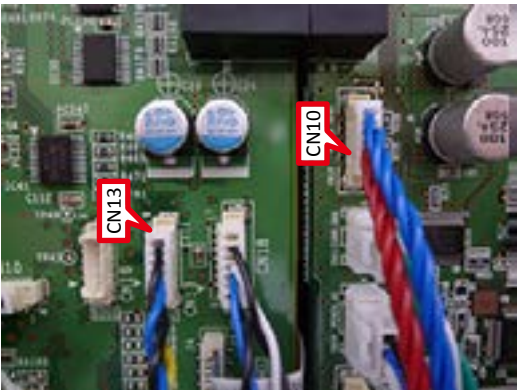


Head board

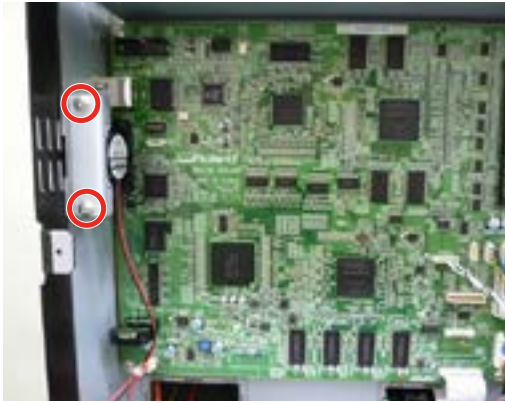


CAUTION

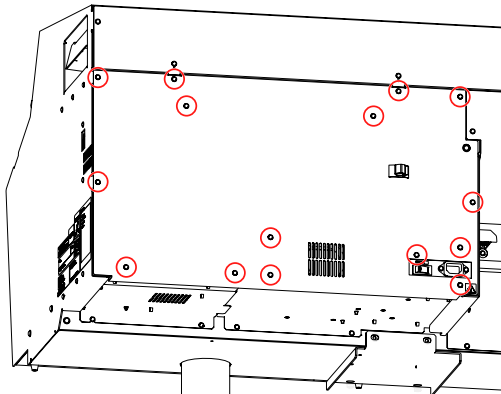
The connector (CN13) for the main board and the connector (CN10) for the head board look exactly alike. Be careful not to mix them up.



13. Tighten two screws to secure the fan.



14. Tighten 15 screws to secure the cover.



15. Perform the following adjustments and checks after replacement.

15-1. Firmware installation

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

15-2. System parameter initialization

- ☞ Refer to Chapter 2 "[Other Factory Modes](#)".

15-3. IP address setting

- * Start the printer in the service mode and set the IP address in the user menu.

15-4. Put parameters

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

15-5. Time and date setting

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

15-6. Sensor check

- ☞ Set from [SERVICE MENU] > [SENSOR CHECK].

16. Perform the following when parameters cannot be transferred by Peck.

16-1. Firmware installation

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

16-2. System parameter initialization

- ☞ Refer to Chapter 2 "[Other Factory Modes](#)".

16-3. Time and date setting

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

16-4. IP address setting

- * Start the printer in the service mode and set the IP address in the user menu.

16-5. Head rank setting

- * Set from [PRINT MENU] > [HEAD RANK].

16-6. Serial number input

- * Set from [SUB MENU] > [SERIAL NO.].

16-7. Ink type setting

- * Set from [SUB MENU] > [CHANGE INKTYPE].

16-8. Sensor check

- * Set from [SERVICE MENU] > [SENSOR CHECK].

16-9. Limit position & cut down position initialization

- ☞ Refer to Chapter 2 "[Limit Position & Cut Down Position Initialization](#)".

16-10. Flushing position adjustment

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

16-11. Linear encoder setup

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

16-12. Wiper position adjustment

- ☞ Refer to Chapter 2 "[Wiper Position Adjustment](#)".

16-13. Print head alignment

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

16-14. Feed calibration

- ☞ Refer to Chapter 2 "[Feed Calibration](#)".

16-15. Crop mark sensor adjustment

- ☞ Refer to Chapter 2 "[Crop Mark Sensor Adjustment](#)".

16-16. Crop cut adjustment

- * Adjust the crop cut position by selecting [CUTTING MENU] > [CROP-CUT ADJ.].

16-17. Print/cut position adjustment

- * Adjust the print/cut position by selecting [CUTTING MENU] > [PRINT-CUT ADJ.].

17. (End of procedure)

Head Board Replacement

Information

Necessary tools

Software

Peck

General tools

No.2 Phillips screwdriver

Special tools

None

Workflow

1. Head board replacement

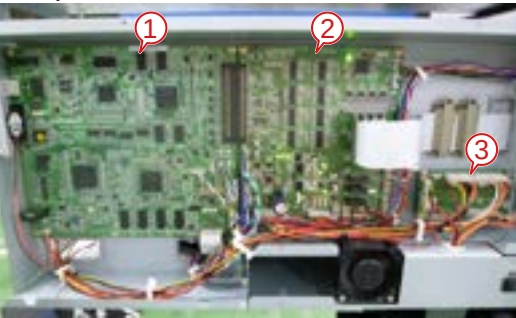
Typical work time

Contents of work	Time
Head board replacement	18 min.

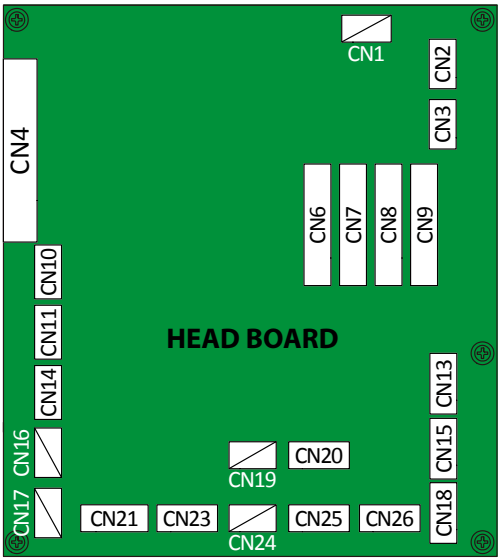
Procedure

Board layout (inside the cover)

1. Main board
2. Head board
3. DC junction board

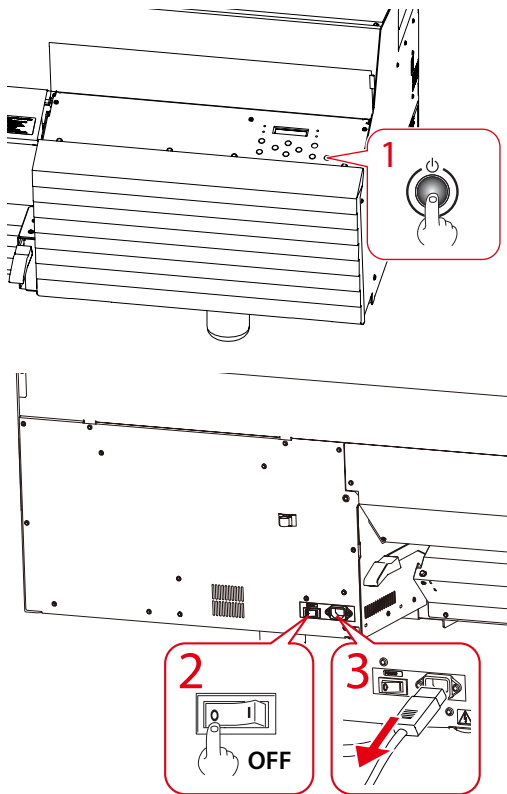


Connector layout

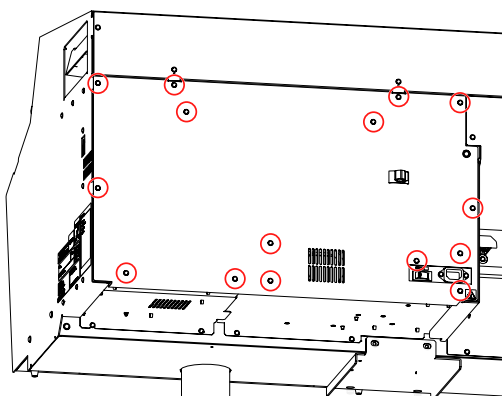


1. Turn off the sub power SW, and then turn off the main power SW. Unplug the power cord.

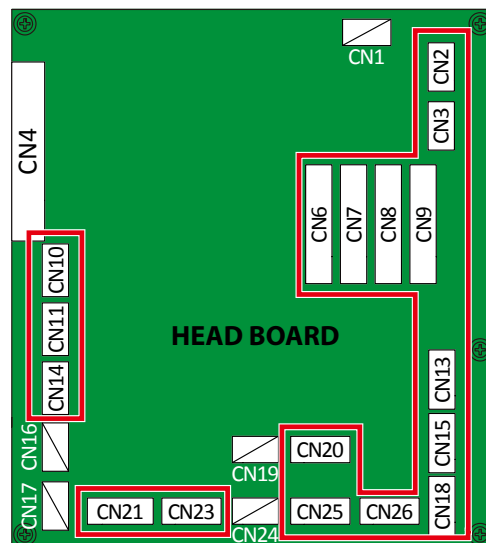
1. Sub power SW
2. Main power SW
3. Power cord



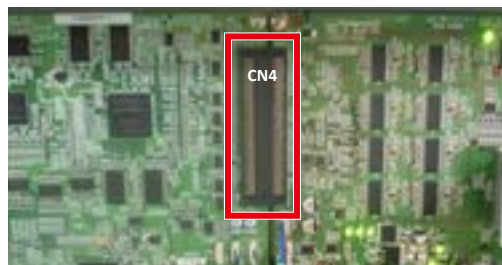
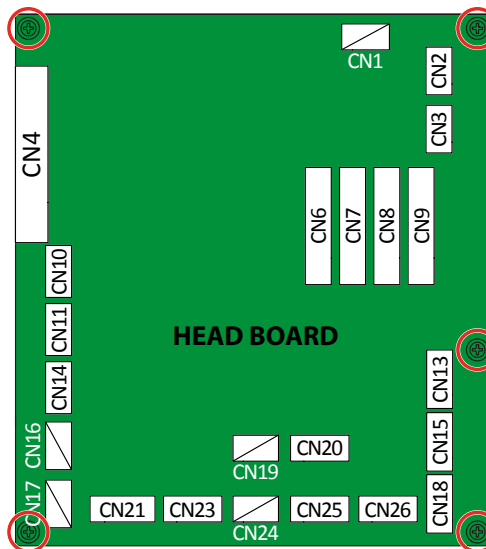
2. Remove 15 screws that secure the cover.



3. Unplug all the cables from the head board.



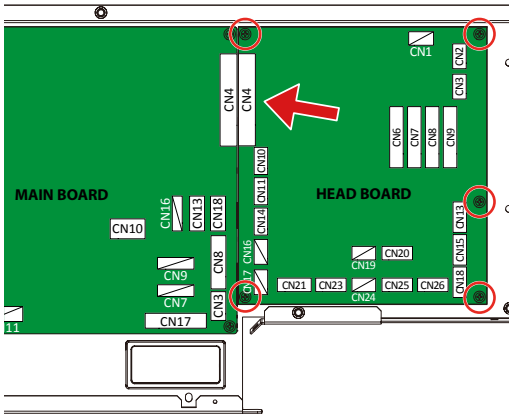
4. Remove five screws that secure the head board, and detach it from the main board.



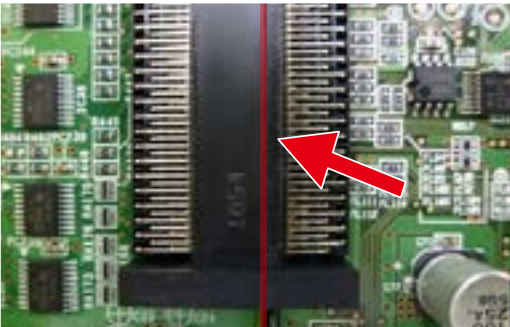
5. Connect the new head board to the main board, and tighten five screws to secure the head board.

CAUTION

Make sure that there is no gap in the connector joint with the main board when connecting the head board.



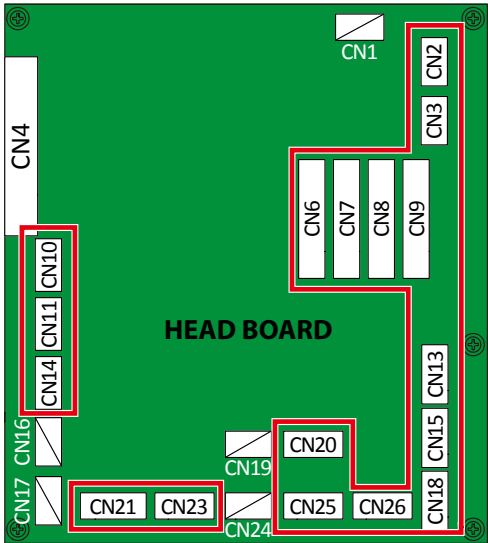
OK



No Good

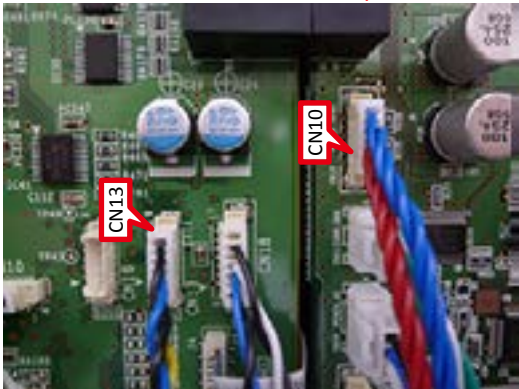


6. Connect all the ribbon cables and plug all the connectors into the head board.

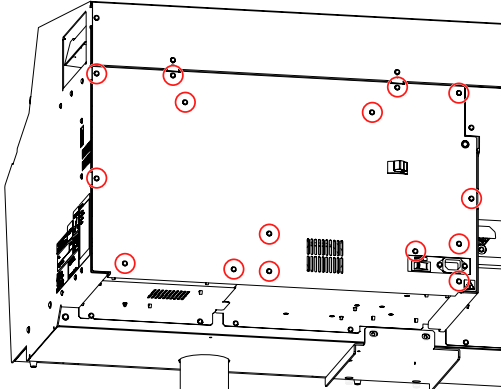


CAUTION

The connector (CN13) for the main board and the connector (CN10) for the head board look exactly alike. Be careful not to mix them up.



7. Tighten 15 screws to secure the cover.



- 8.** Perform the following adjustments and checks after replacement.

- 8-1.** Thermistor check

- 8-2.** Print head up/down sensor check

Perform [SENSOR CHECK].

- 9.** (End of procedure)

Information

Necessary tools

General tools

No.2 Phillips screwdriver

Special tools

None

Workflow

1. Servo board replacement

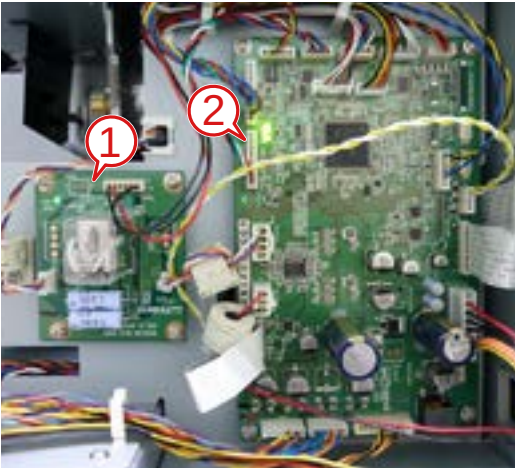
Typical work time

Contents of work	Time
Servo board replacement	20 min.

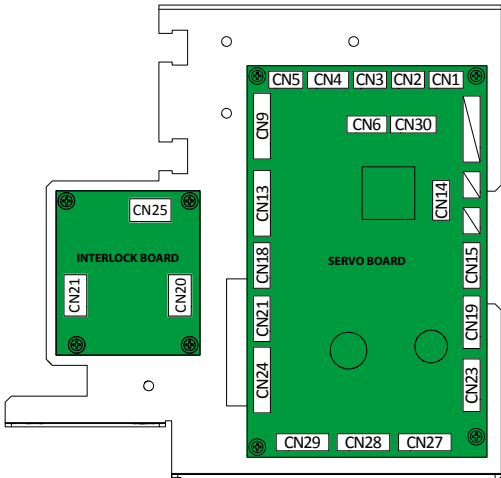
Procedure

Board layout (inside the cover)

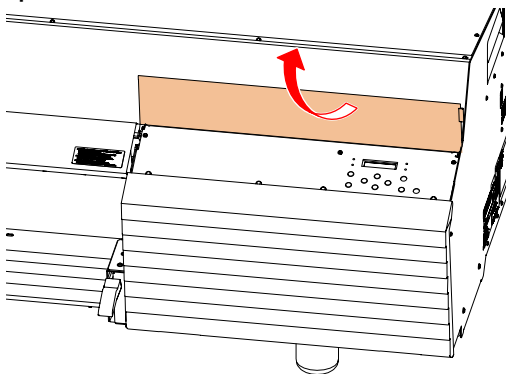
1. Interlock board
2. Servo board



Connector layout

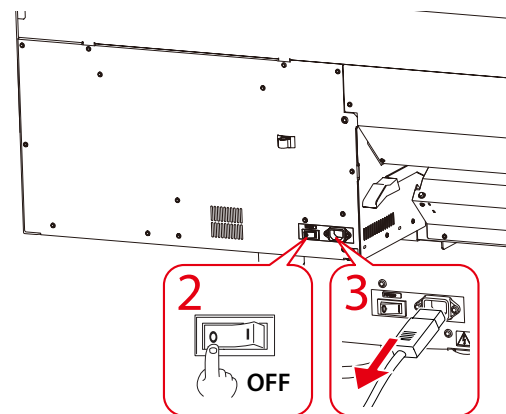
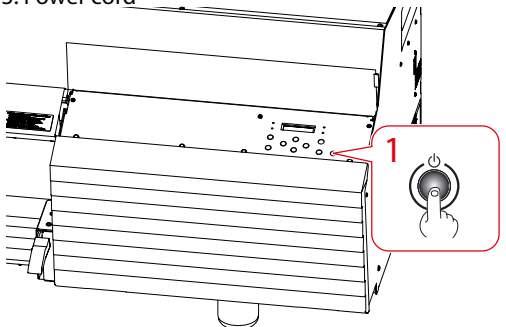


1. Open the cover.

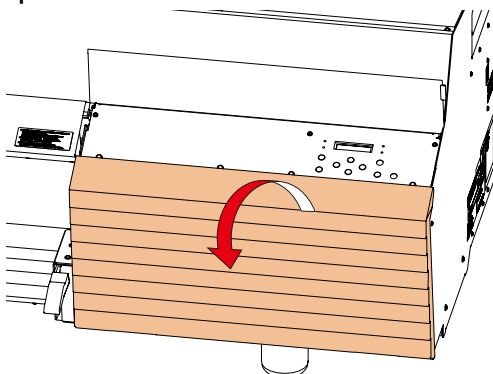


2. Turn off the sub power SW, and then turn off the main power SW. Unplug the power cord.

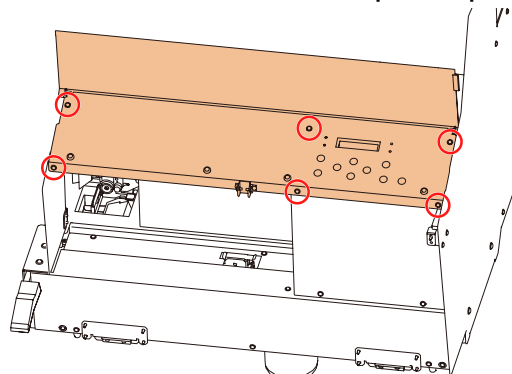
1. Sub power SW
2. Main power SW
3. Power cord



3. Open the maintenance cover R.



4. Remove six screws that secure the operation panel.

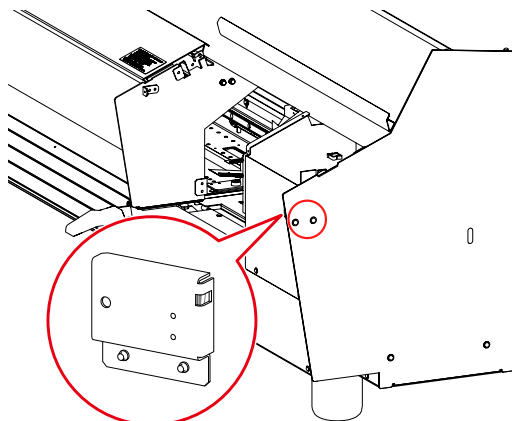


CAUTION

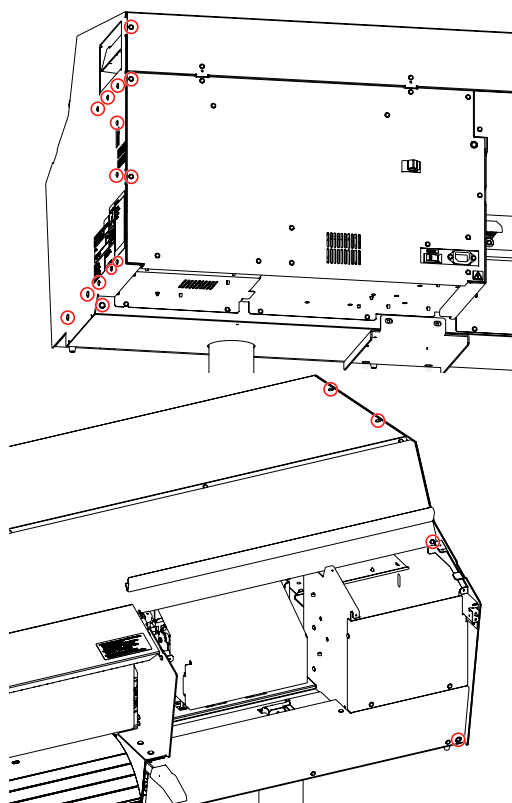
Before removing the operation panel, make sure to disconnect the ribbon cable from the operation panel.



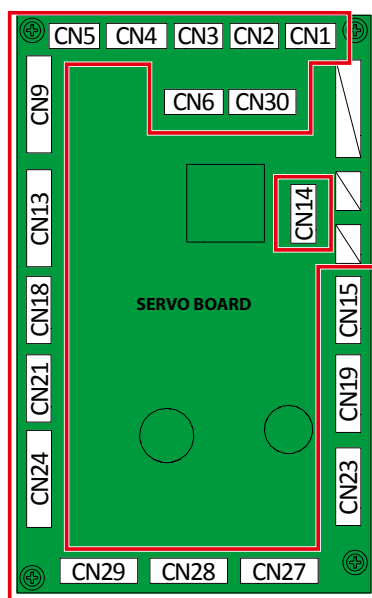
5. Remove two screws that secure the maintenance cover sensor R.



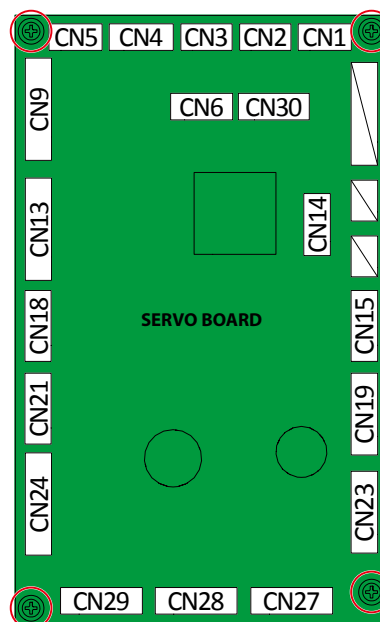
6. Remove 18 screws that secure the cover.



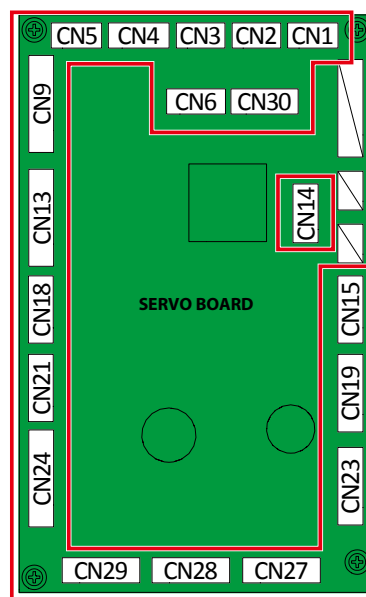
7. Disconnect all the ribbon cables and unplug all the connectors.



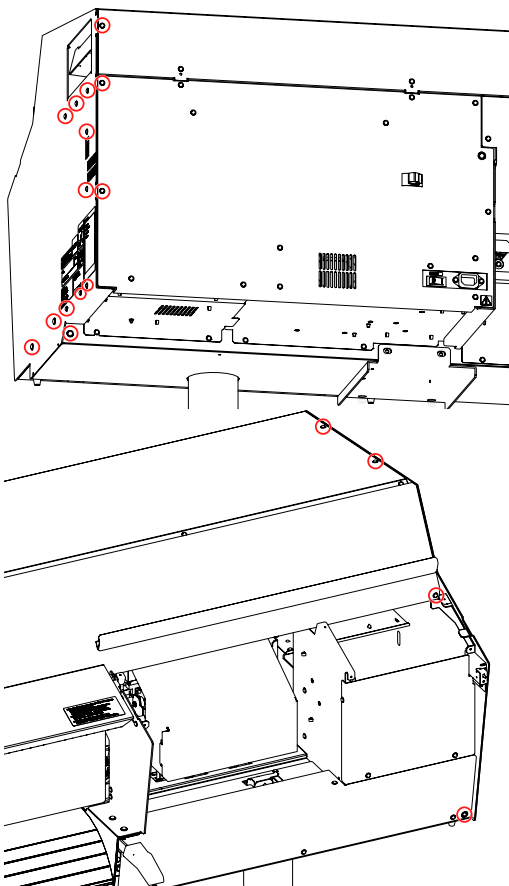
8. Remove four screws that secure the servo board. Then, fasten the new servo board.



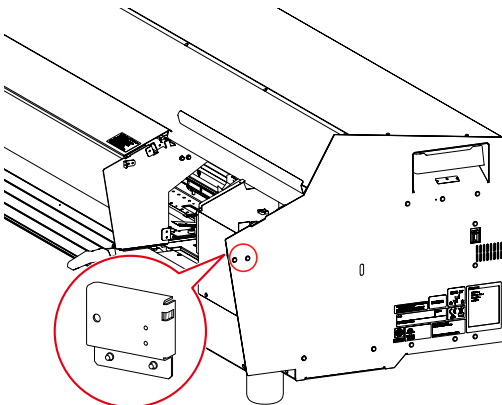
9. Connect all the ribbon cables and plug in all the connectors.



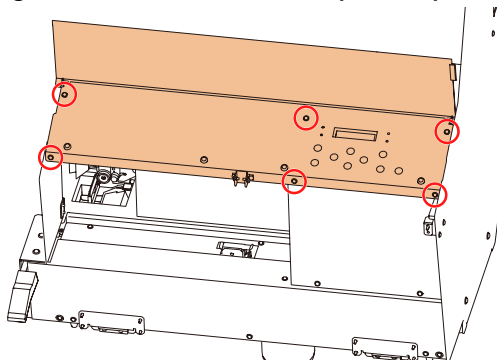
10. Tighten 18 screws to secure the cover.



11. Temporarily fasten the maintenance cover sensor R with two screws.

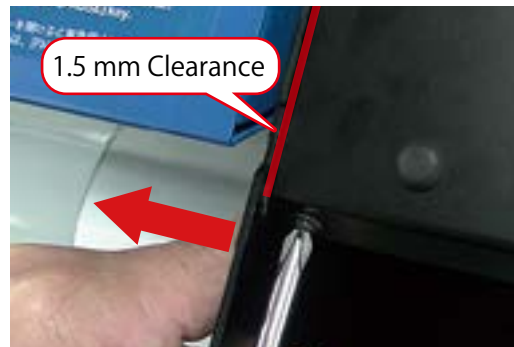


12. Tighten six screws to secure the operation panel.



CAUTION

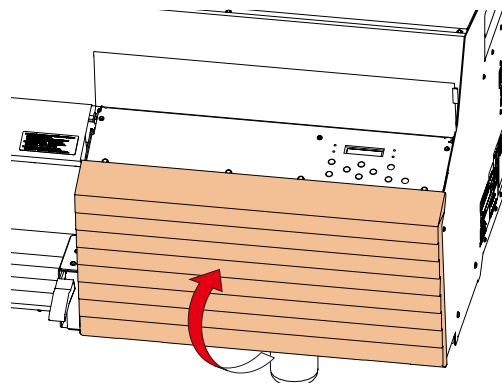
- Tighten two screws in the operation panel with holding up to the left, then make 1.5 mm clearance between the frame and the operation panel.



- Connect the ribbon cable to the operation panel.



13. Close the maintenance cover R, then confirm the cover is fixed.

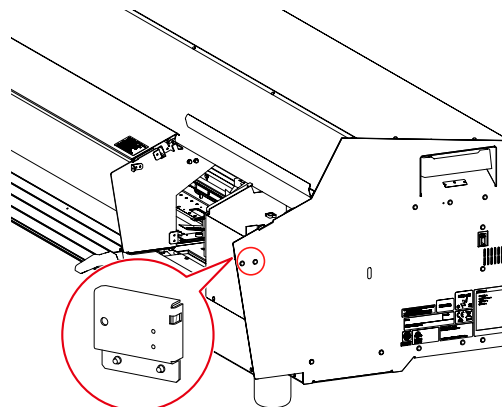
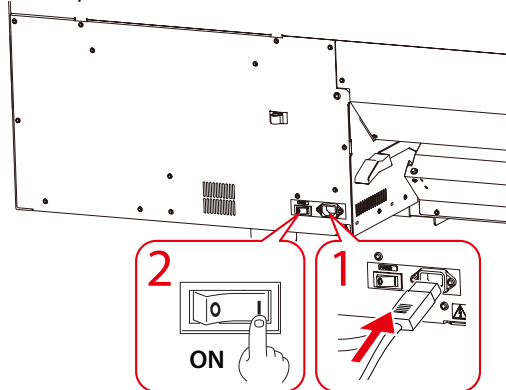


CAUTION

- If the cover is not fixed, then maintenance sensor R does not work properly. Widen the clearance between the operation panel and the frame if the cover is not fixed by shaking the right and left ends of the cover back and forth with your hands.

- 14.** Plug in the power cord, and turn on the main power SW.

1. Power cord
2. Main power SW

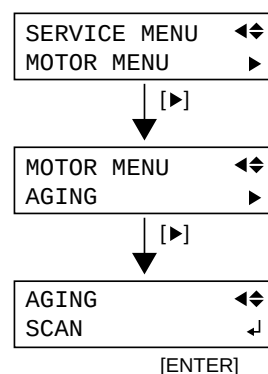


Aging / Checking the Interlock Mechanism

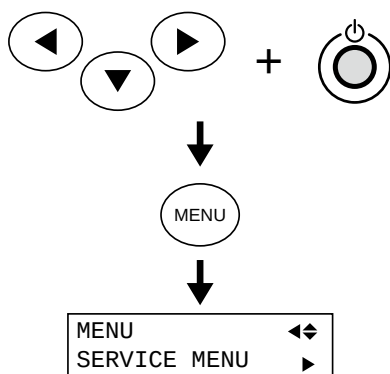
- 18.** Go back to [MOTOR MENU]. Select [AGING] > [SCAN], and press the [ENTER] key.

CAUTION

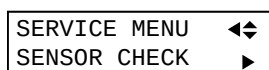
Remove media before performing aging.



- 15.** Turn on the sub power SW while pressing the [◀] [▼] [▶] keys to enter the service mode.

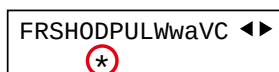


- 16.** Select [SERVICE MENU] > [SENSOR CHECK].

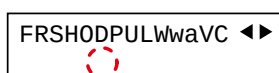


- 17.** Slide the maintenance cover sensor R to the front until " * " under "D" disappears. Then, tighten two screws to secure the sensor.

When the cover is open



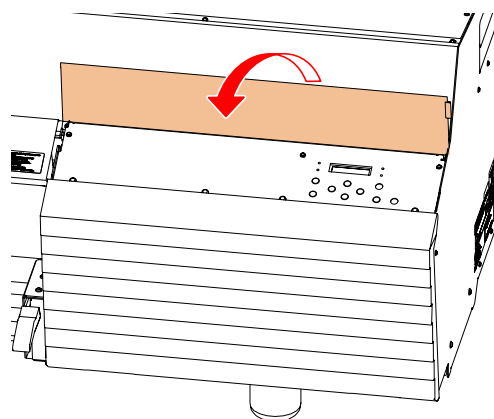
When the cover is closed



- 19.** Confirm that the interlock mechanism works properly. Open the cover during aging and confirm that emergency stop occurs.

- 20.** Press the [ENTER] key to finish aging.

- 21.** Close the cover.



- 22.** (End of procedure)

Information

Necessary tools

General tools

No.2 Phillips screwdriver

Special tools

None

Workflow

1. Interlock board replacement

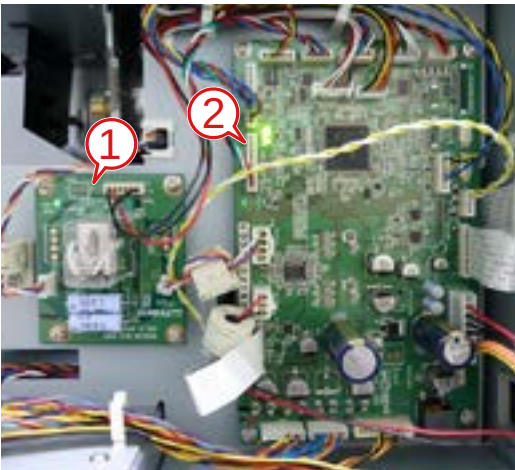
Typical work time

Contents of work	Time
Interlock board replacement	18 min.

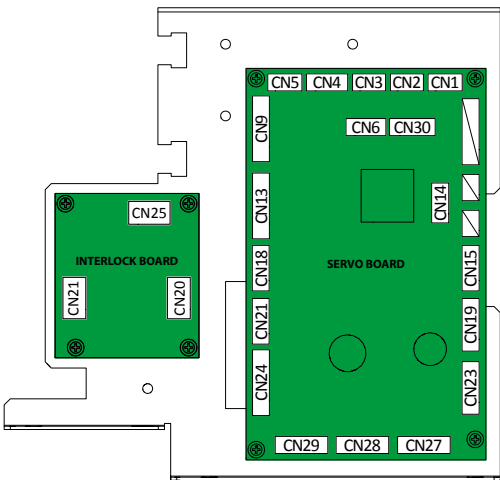
Procedure

Board layout (inside the cover)

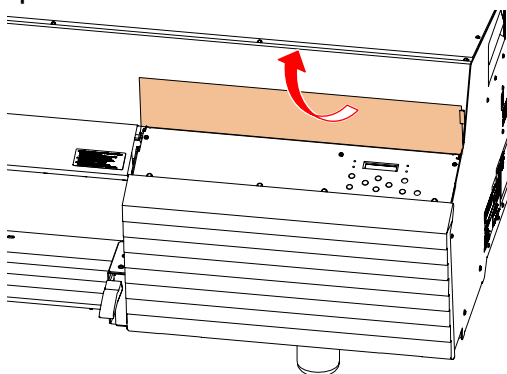
1. Interlock board
2. Servo board



Connector layout

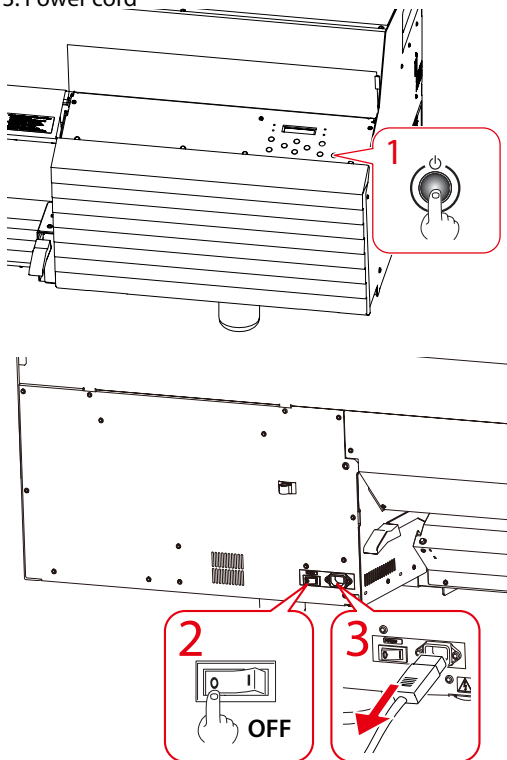


1. Open the cover.

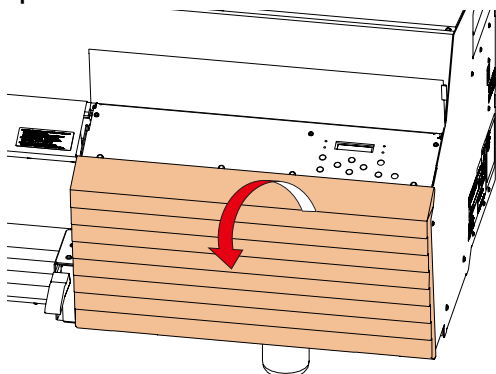


2. Turn off the sub power SW, and then turn off the main power SW. Unplug the power cord.

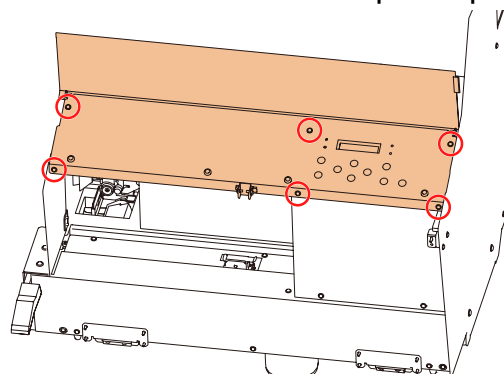
1. Sub power SW
2. Main power SW
3. Power cord



3. Open the maintenance cover R.



4. Remove six screws that secure the operation panel.

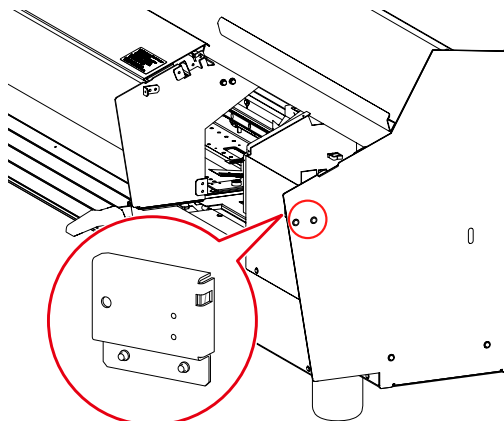


CAUTION

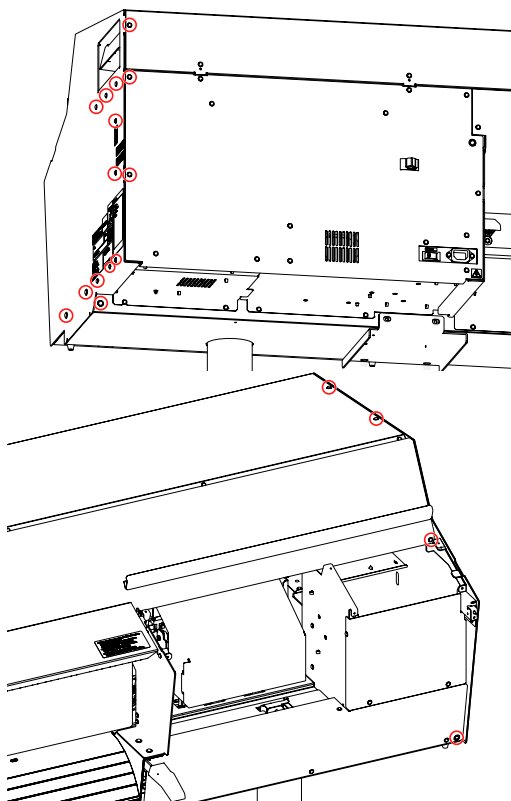
Before removing the operation panel, make sure to disconnect the ribbon cable from the operation panel.



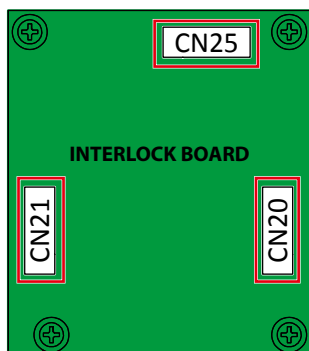
5. Remove two screws that secure the maintenance cover sensor R.



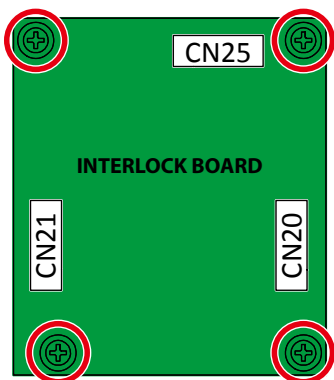
- 6.** Remove 18 screws that secure the cover.



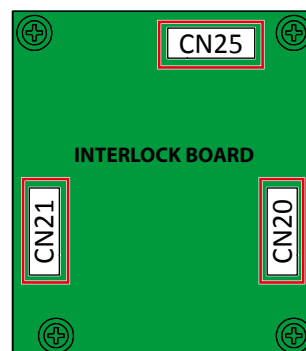
- 7.** Unplug the connectors.



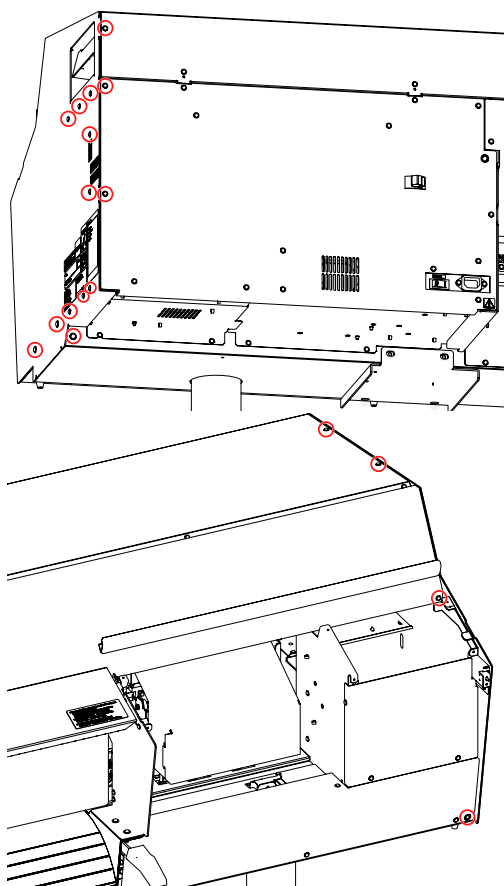
- 8.** Remove four screws that secure the interlock board. Then, fasten the new interlock board.



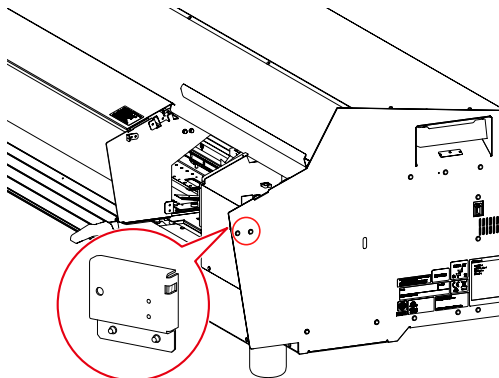
- 9.** Plug in the connectors.



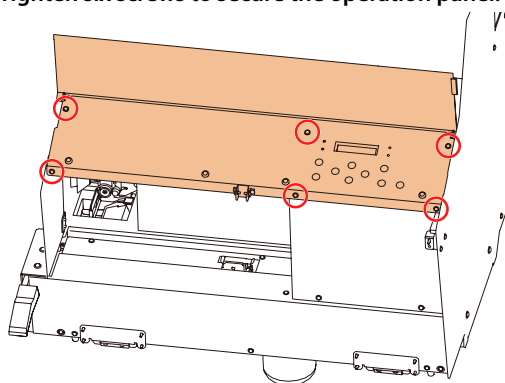
- 10.** Tighten 18 screws to secure the cover.



- 11.** Temporarily fasten the maintenance cover sensor R with two screws..



12. Tighten six screws to secure the operation panel.



CAUTION

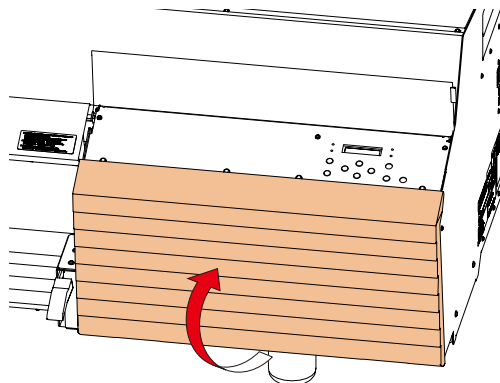
- Tighten two screws in the operation panel with holding up to the left, then make 1.5 mm clearance between the frame and the operation panel.



- Connect the ribbon cable to the operation panel.



13. Close the maintenance cover R, then confirm the cover is fixed.

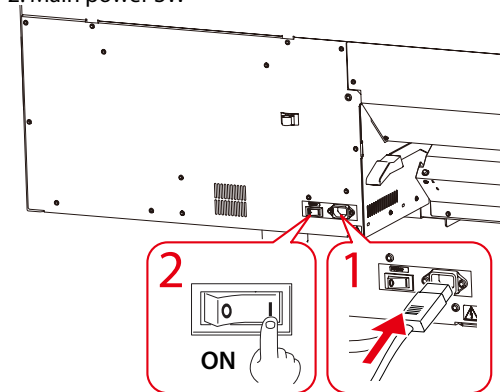


CAUTION

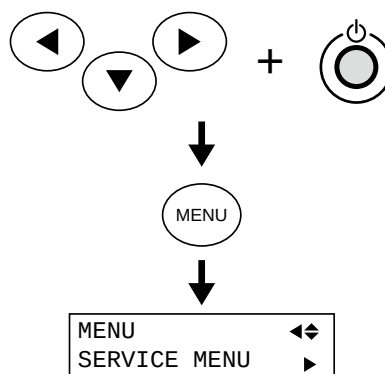
If the cover is not fixed, then maintenance sensor R does not work properly. Widen the clearance between the operation panel and the frame if the cover is not fixed by shaking the right and left ends of the cover back and forth with your hands.

14. Plug in the power cord, and turn on the main power SW.

1. Power cord
2. Main power SW



15. Turn on the sub power SW while pressing the [◀] [▼] [▶] keys to enter the service mode.



16. Select [SERVICE MENU] > [SENSOR CHECK].

SERVICE MENU	◀▶
SENSOR CHECK	▶

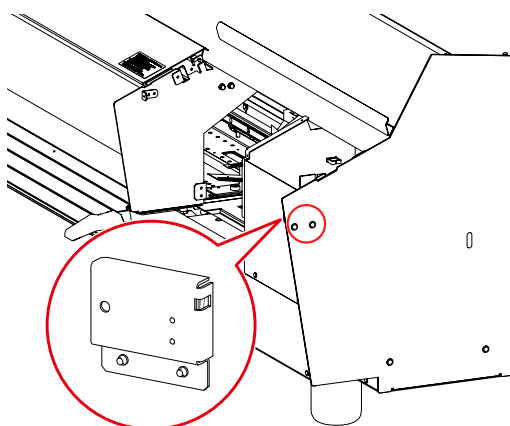
17. Slide the maintenance cover sensor R to the front until " * " under "D" disappears. Then, tighten two screws to secure the sensor.

When the cover is open

FRSH0DPULWwaVC	◀▶
*	

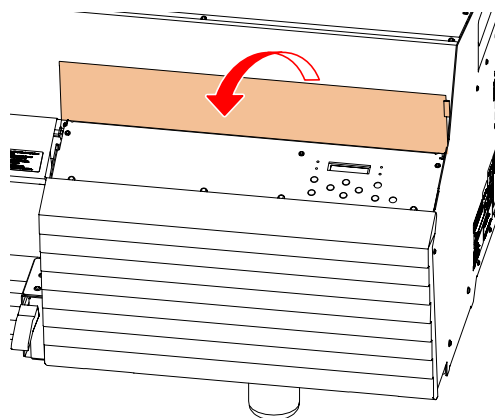
When the cover is closed

FRSH0DPULWwaVC	◀▶
⋄	



20. Press the [ENTER] key to finish aging.

21. Close the cover.



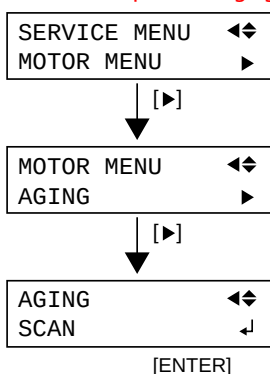
22. (End of procedure)

Aging / Checking the Interlock Mechanism

18. Go back to [MOTOR MENU]. Select [AGING] > [SCAN], and press the [ENTER] key.

CAUTION

Remove media before performing aging.



19. Confirm that the interlock mechanism works properly. Open the cover during aging and confirm that emergency stop occurs.

DC Junction Board/AC Junction Board Replacement

Information

Necessary tools

General tools

No.2 Phillips screwdriver

Special tools

None

Workflow

1. DC junction board
2. AC junction board

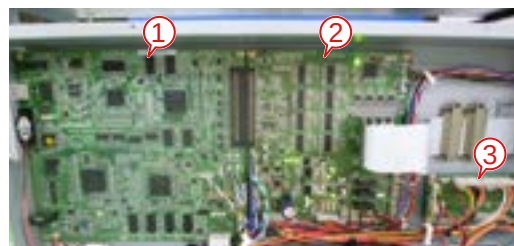
Typical work time

Contents of work	Time
DC junction board	13 min.
AC junction board	18 min.

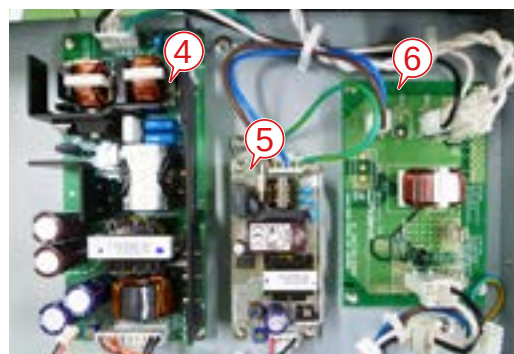
Procedure

Board layout (inside the cover)

1. Main board
2. Head board
3. DC junction board



4. SW power supply (37V)
5. SW power supply (5V)
6. AC junction board



Connector layout

DC junction board

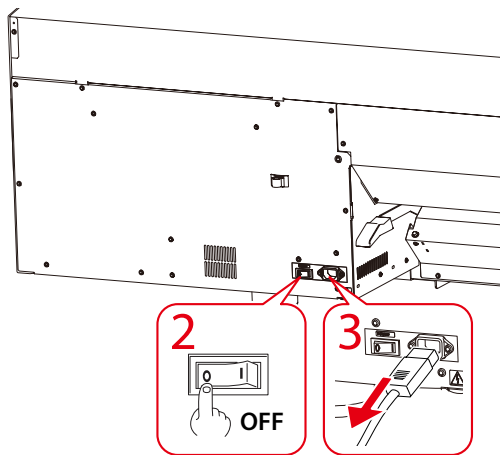
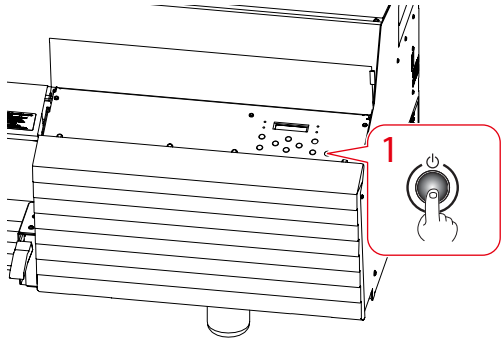


AC junction board

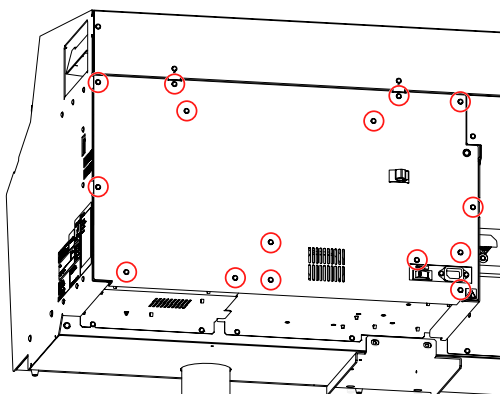


1. Turn off the sub power SW, and then turn off the main power SW. Unplug the power cord.

1. Sub power SW
2. Main power SW
3. Power cord

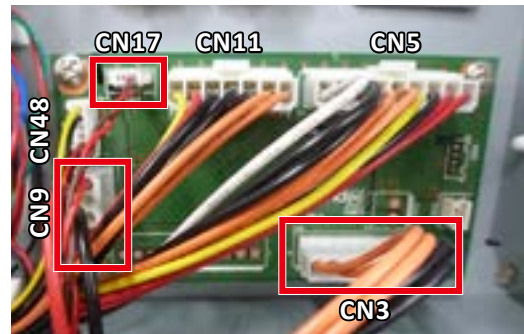


2. Remove 15 screws that secure the cover.



DC Junction Board Replacement

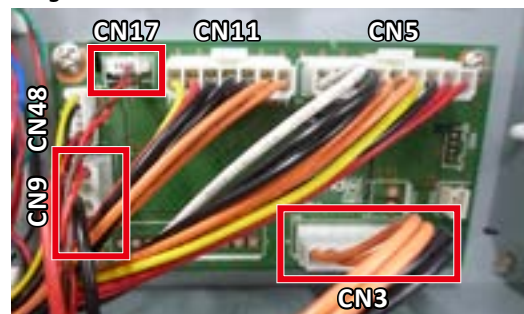
3. Unplug all the connectors from the DC junction board.



4. Remove four screws that secure the DC junction board, and fasten the new one.

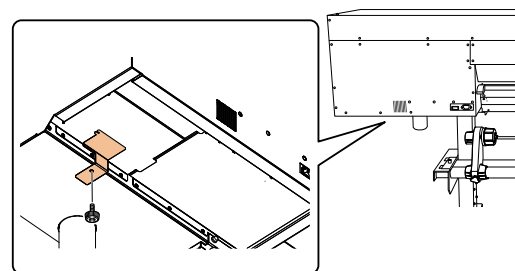


5. Plug in all the connectors.



AC Junction Board Replacement

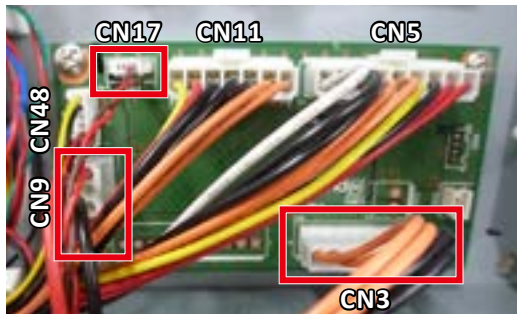
6. Remove the screw that secures the carriage retainer.



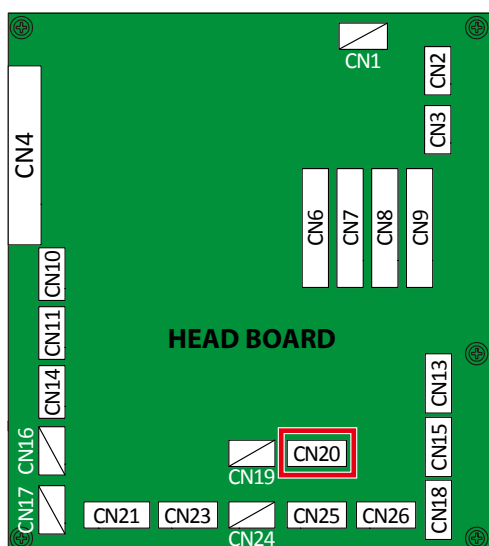
7. Remove four screws that secure the chassis tray.



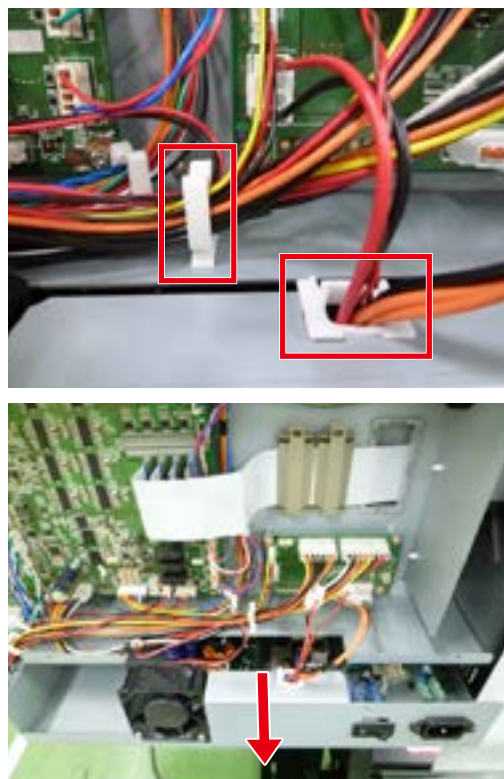
8. Unplug the connectors highlighted with the red squares in the figure below from the DC junction board.



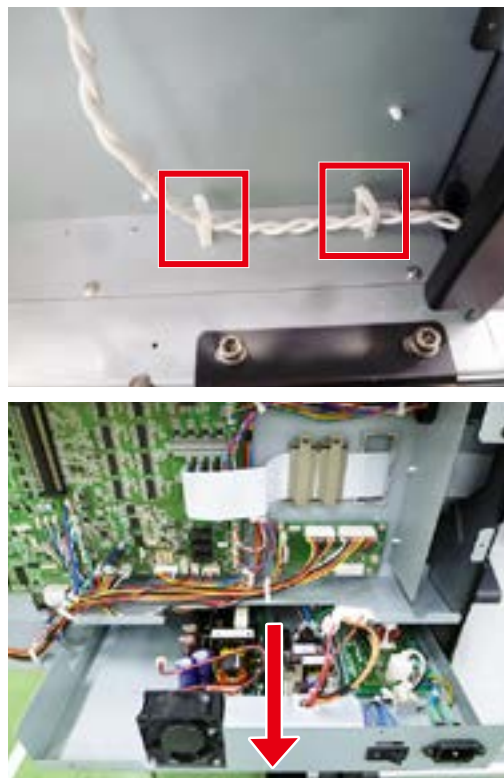
9. Unplug the connector highlighted with the red square in the figure below from the head board.



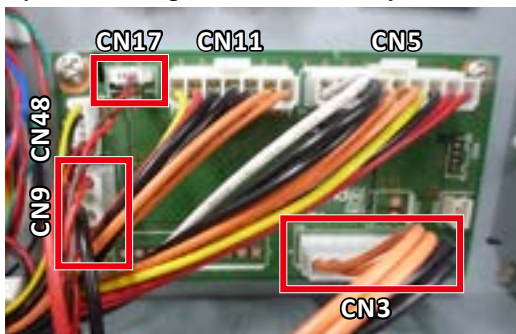
10. Unfasten the clamps. Pull the chassis tray halfway out.



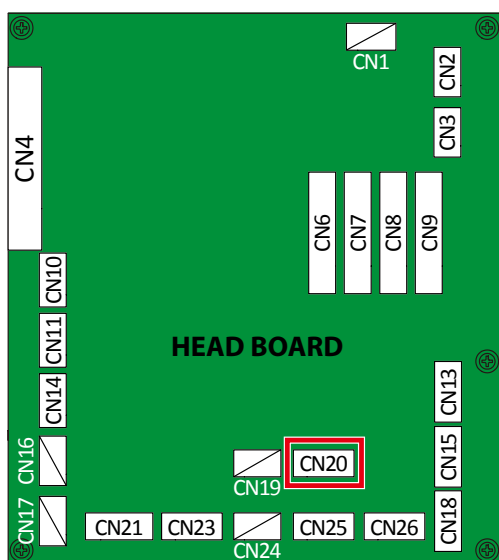
11. Unfasten the clamps which are on the back part of the chassis tray. Then, pull out the chassis tray further.



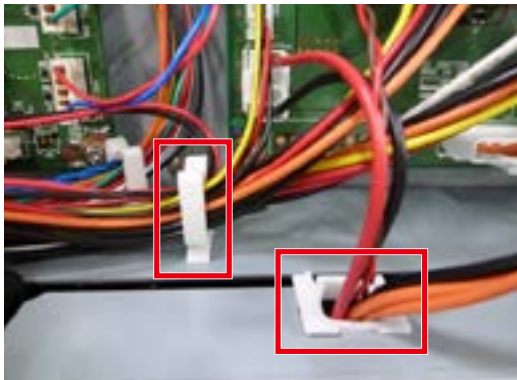
- 12.** Plug in the connectors highlighted with the red squares in the figure below to the DC junction board.



- 13.** Plug in the connector highlighted with the red square in the figure below to the head board.



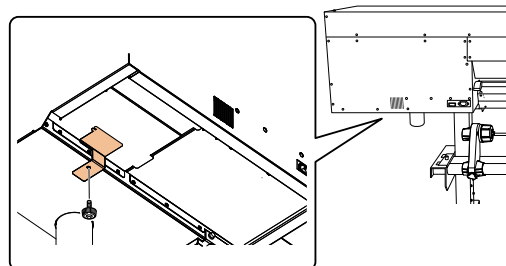
- 14.** Fasten the clamps.



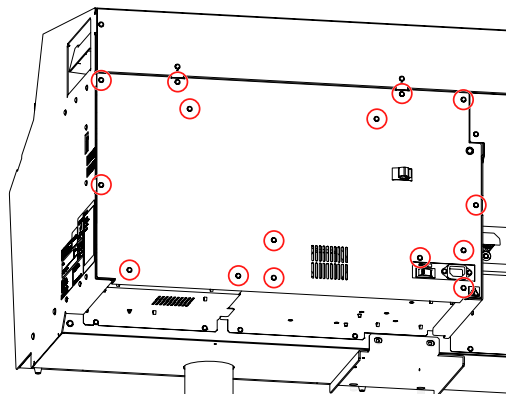
- 15.** Remove four screws that secure the chassis tray.



- 16.** Tighten one screw to secure the carriage retainer.



- 17.** Tighten 15 screws to secure the cover.



- 18.** (End of procedure)

SW Power Supply Replacement

Information

Necessary tools

General tools

No.2 Phillips screwdriver

Special tools

None

Workflow

1. SW power supply (5V)
2. SW power supply (37V)

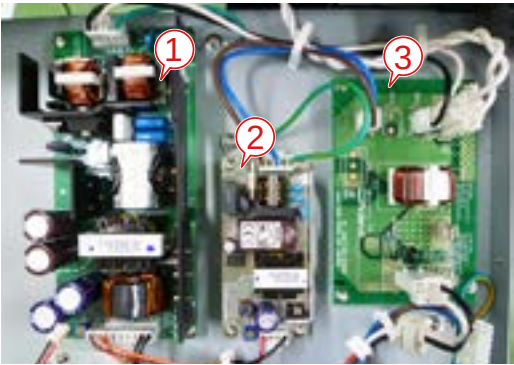
Typical work time

Contents of work	Time
SW power supply (5V)	18 min.
SW power supply (37V)	18 min.

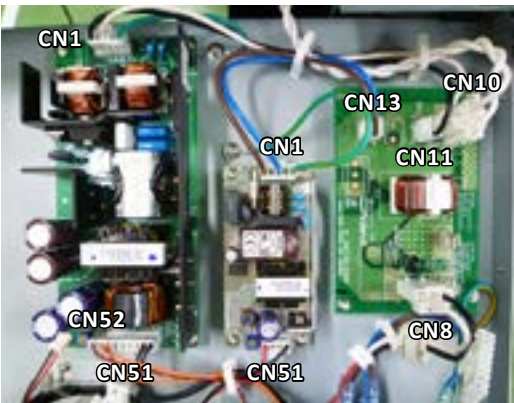
Procedure

Board layout (inside the cover)

1. SW power supply (37V)
2. SW power supply (5V)
3. AC junction board



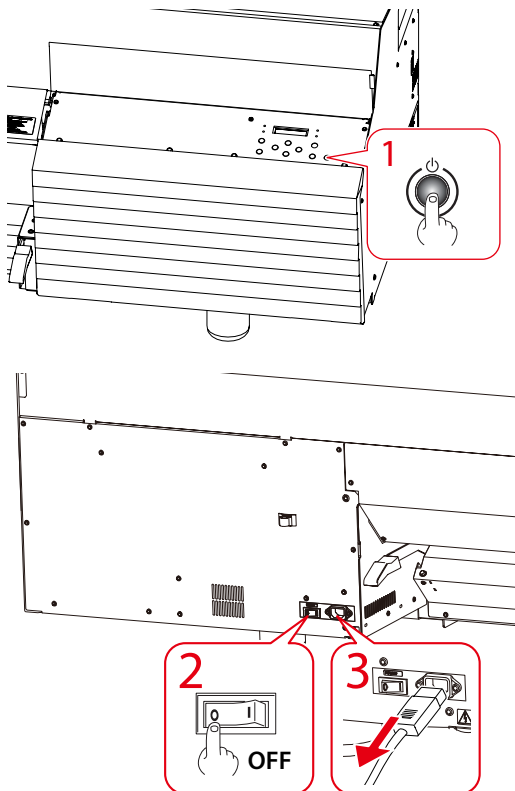
Connector layout



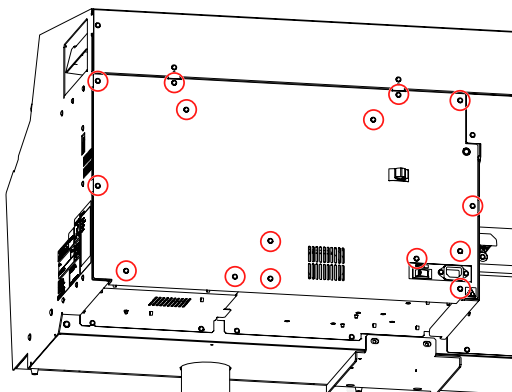
Removing the Chassis

1. Turn off the sub power SW, and then turn off the main power SW. Unplug the power cord.

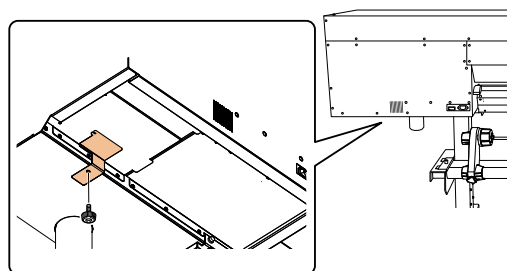
1. Sub power SW
2. Main power SW
3. Power cord



2. Remove 15 screws that secure the cover.



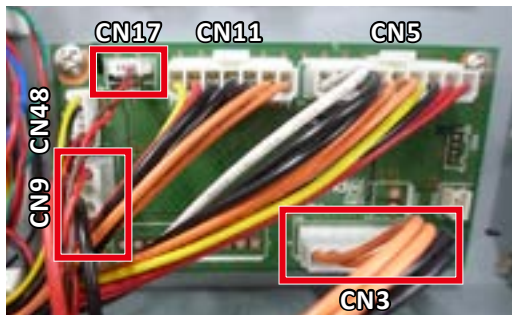
3. Remove the screw that secures the carriage retainer.



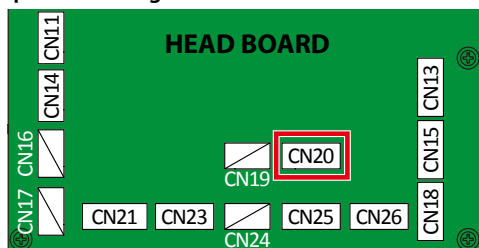
4. Remove four screws that secure the chassis tray.



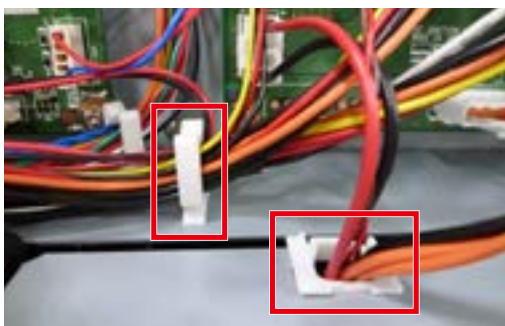
5. Unplug the connectors highlighted with the red squares in the figure below from the DC junction board.



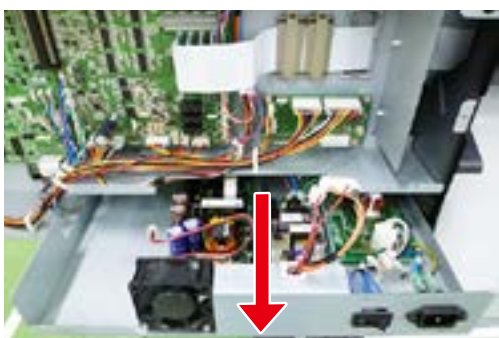
- Unplug the connector highlighted with the red square in the figure below from the head board.



- Unfasten the clamps. Pull the chassis tray halfway out.



- Unfasten the clamps which are on the back part of the chassis tray. Then, pull out the chassis tray further.



SW Power Supply (5V) Replacement

SW power supply (5V) connector layout

- Connects to [CN13] on the AC junction board
- Connects to [CN9] on the DC junction board



- Unplug all the connectors from the SW power supply.



- Remove four screws, and replace the SW power supply (5V) with the new one.



CAUTION

In case you accidentally turn the potentiometer, adjust the output voltage value to $+5 \pm 0.1$.



- Plug in all the connectors.



SW Power Supply (37V) Replacement

SW power supply (37V) connector layout

1. Connects to [CN11] on the AC junction board
2. Connects to [CN3] on the DC junction board
3. Connects to [CN17] on the DC junction board



12. Unplug all the connectors from the SW power supply.



13. Remove four screws, and replace the SW power supply (37V) with the new one.



CAUTION

In case you accidentally turn the potentiometer, adjust the output voltage value to +37 +/- 0.1.

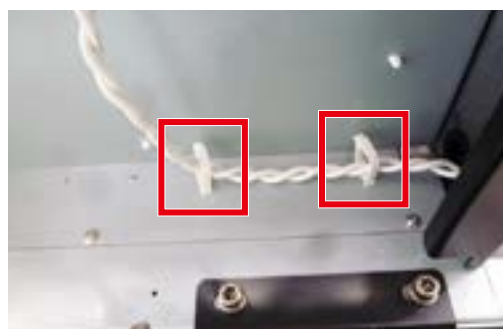
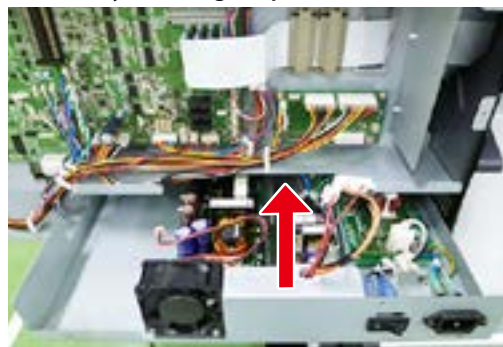


14. Plug in all the connectors.



Fastening the Chassis Tray

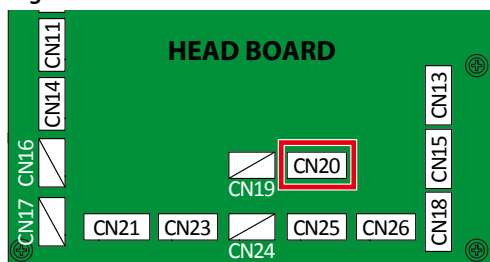
15. Fasten the cable with the clamps. Then, attach the chassis tray to its original position.



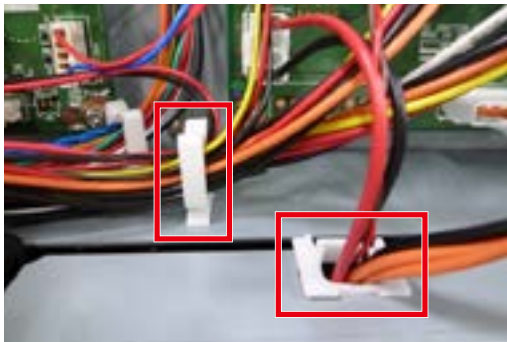
16. Plug the connectors into the DC junction board.



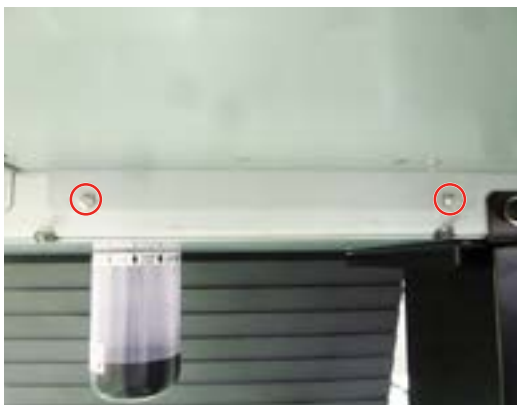
17. Plug the connector into the head board.



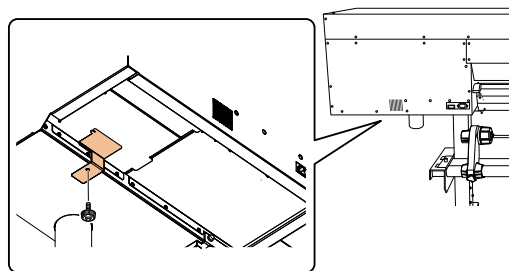
18. Fasten the cables with the clamps.



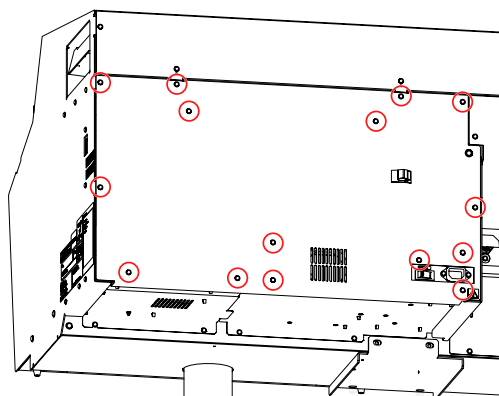
19. Tighten four screws to secure the chassis tray.



20. Tighten one screw to secure the carriage retainer.



21. Tighten 15 screws to secure the cover.



22. (End of procedure)

Pump Drive Board Replacement

Information

Necessary tools

General tools

No.2 Phillips screwdriver

Special tools

None

Workflow

1. Pump drive board replacement

Typical work time

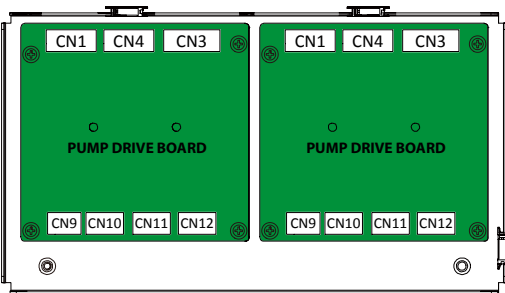
Contents of work	Time
Pump drive board replacement	10 min.

Procedure

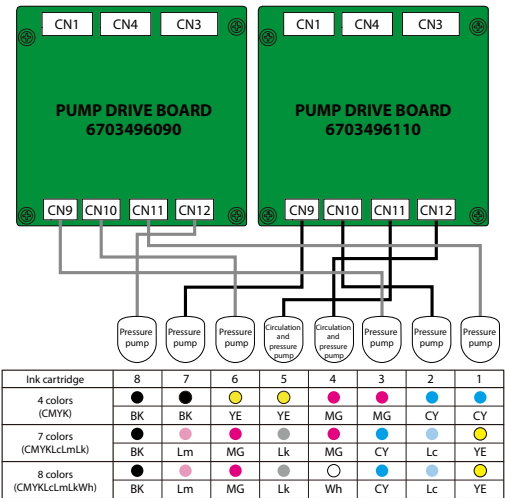
CAUTION

On the printer, there are two pump drive boards with different functionality. After replacement, make sure to put each board back to its original position, and be careful not to mix them up. If you mix them up and attach them to the wrong position, inks cannot be supplied to the print heads.

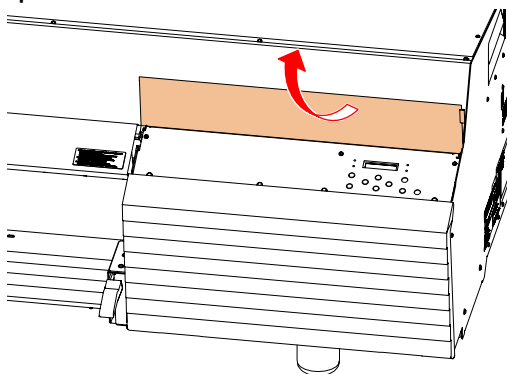
Connector layout



Wiring map of the pump drive boards

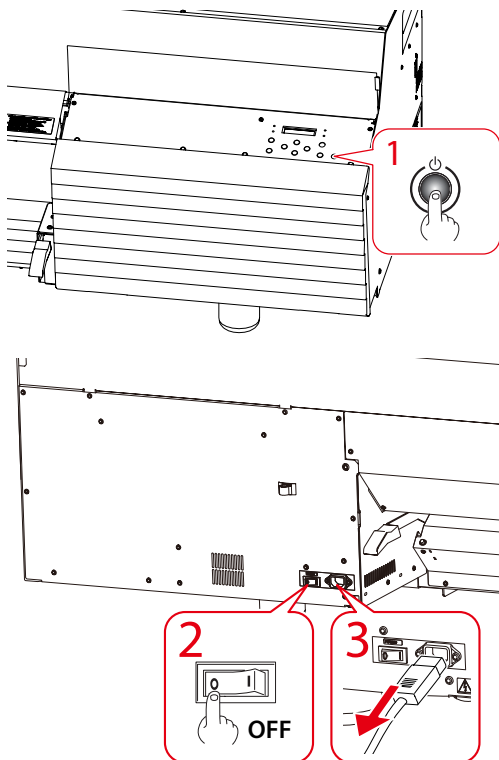


1. Open the cover.

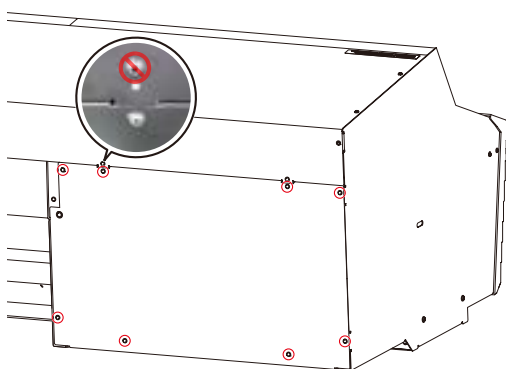


2. Turn off the sub power SW, and then turn off the main power SW. Unplug the power cord.

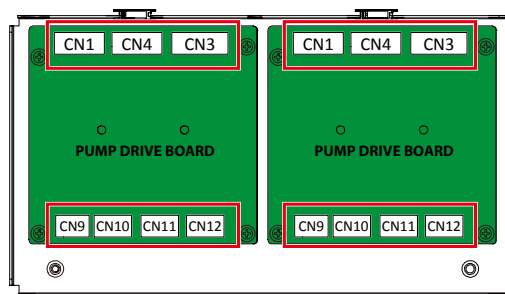
1. Sub power SW
2. Main power SW
3. Power cord



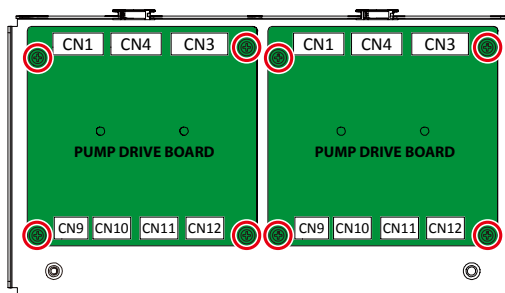
3. Remove eight screws that secure the cover.



4. Unplug all the connectors from the pump drive board.



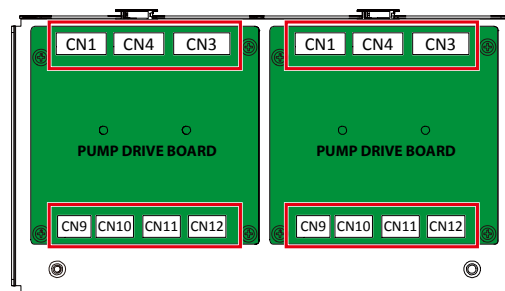
5. Remove four screws that secure the pump drive board. Then, replace it with the new one.



6. Plug all the connectors into the pump drive boards.

CAUTION

The connectors for the right pump drive board and the connectors for the left pump drive board look exactly alike. Be careful not to mix them up.



7. Perform the following.

- 7-1. Perform powerful cleaning and check that the filler sensor works properly.

8. (End of procedure)

Ink System RFID Board Replacement

Information

Necessary tools

General tools

No.2 Phillips screwdriver

Special tools

None

Workflow

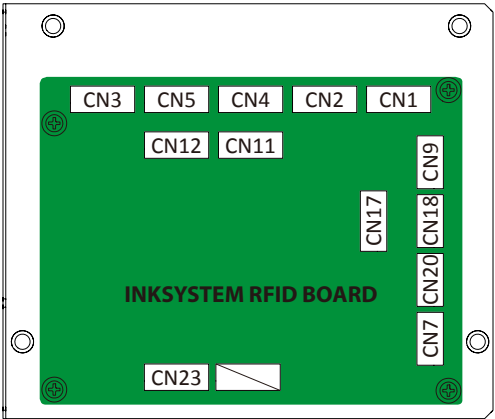
1. Ink system RFID board replacement

Typical work time

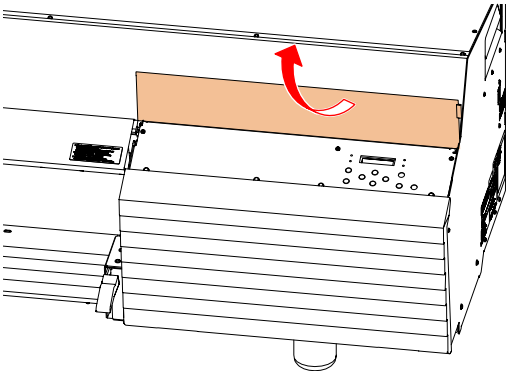
Contents of work	Time
Ink system RFID board replacement	10 min.

Procedure

Connector layout



1. Open the cover.

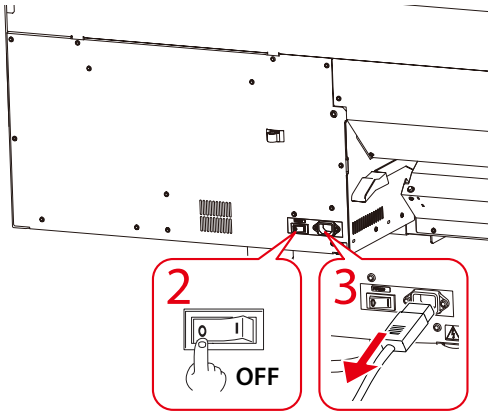
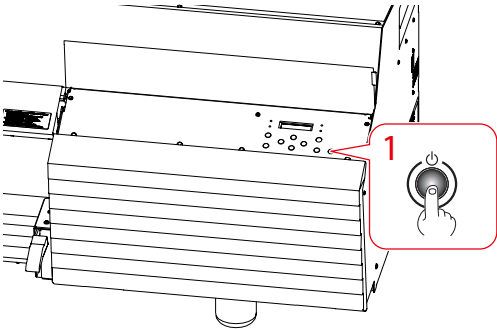


2. Turn off the sub power SW, and then turn off the main power SW. Unplug the power cord.

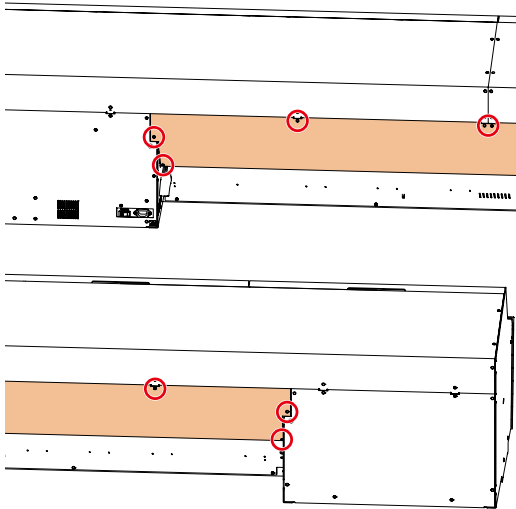
1. Sub power SW

2. Main power SW

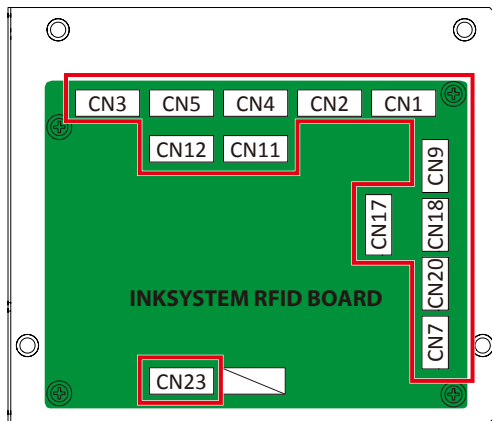
3. Power cord



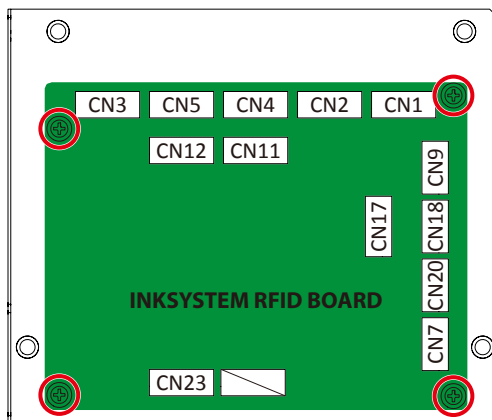
- 3.** Remove eight screws that secure the cover.



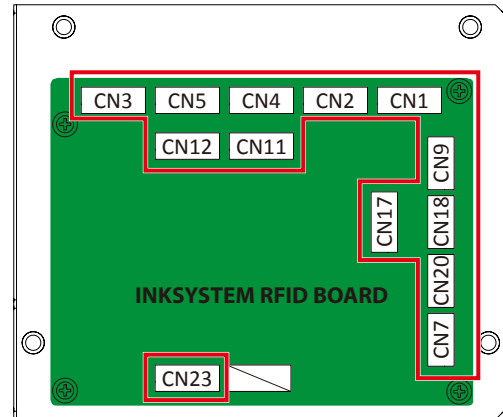
- 4.** Unplug all the connectors from the ink system RFID board.



- 5.** Remove four screws that secure the ink system RFID board. Then, replace it with the new one.



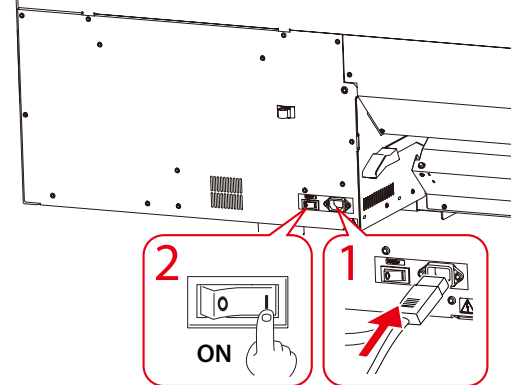
- 6.** Plug all the connectors into the ink system RFID board.



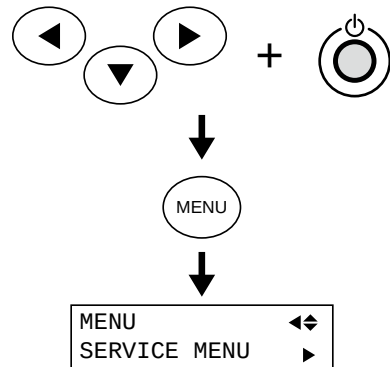
- 7.** Plug in the power cord, and turn on the main power SW.

1. Power cord

2. Main power SW



- 8.** Turn on the sub power SW while pressing the [◀] [▼] [▶] keys to enter the service mode.



- 9.** Perform the following.

9-1. Go to [SERVICE MENU] > [I/S MENU] > [CARTRIDGE] > [SLOT1] to [SLOT8], and check that the printer has read the serial numbers of each ink cartridge IC properly.

- 10.** (End of procedure)

RFID R/W Board Replacement

Information

Necessary tools

General tools

No.2 Phillips screwdriver

Special tools

None

Workflow

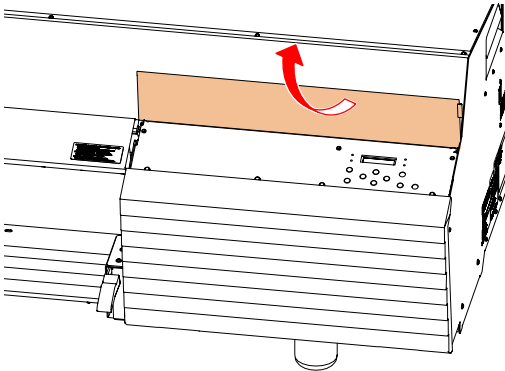
1. RFID R/W board replacement

Typical work time

Contents of work	Time
RFID R/W board replacement	45 min.

Procedure

1. Open the cover.

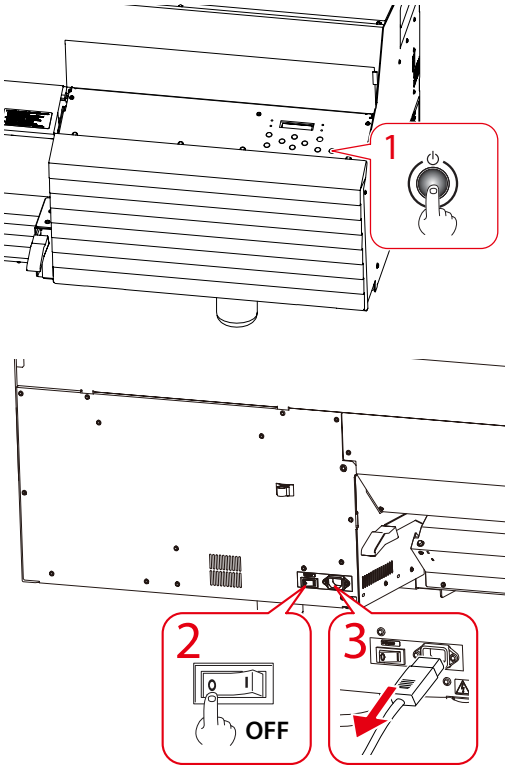


2. Turn off the sub power SW, and then turn off the main power SW. Unplug the power cord.

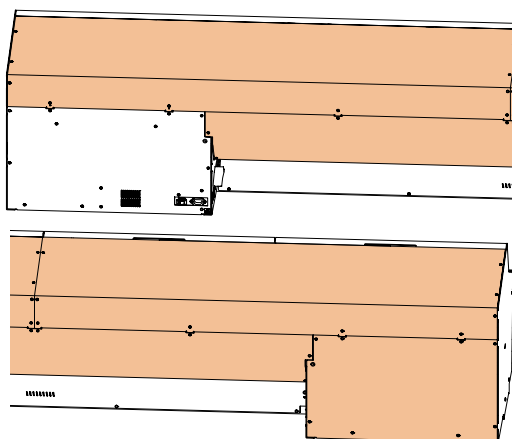
1. Sub power SW

2. Main power SW

3. Power cord

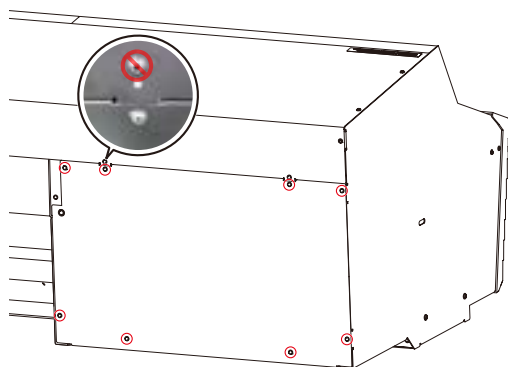


3. Remove the covers shown in orange in the figure.

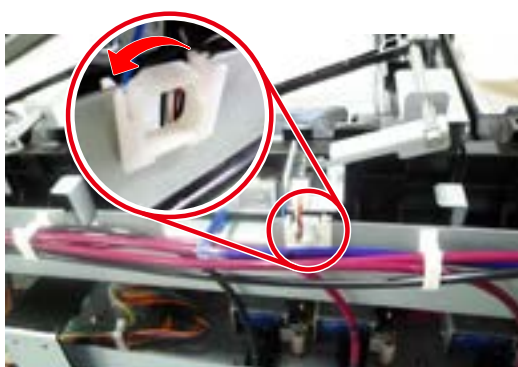


CAUTION

Do not remove the upper screw. Remove only the bottom screw. If you remove both upper and bottom screws, a small plate that the two screws are securing will fall off inside the printer.



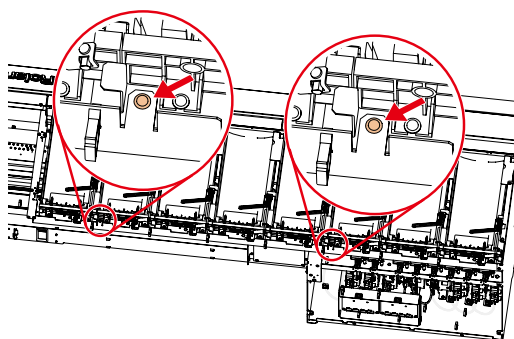
4. Unfasten eight clamps and release all the cables from the clamps.



5. Unfasten seven clamps and release all the ink tubes from the clamps.



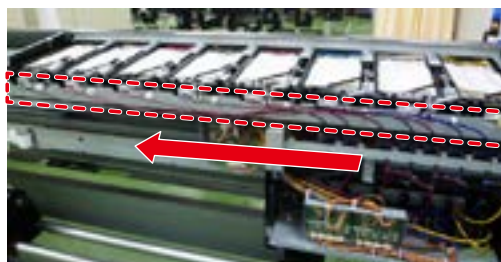
6. Remove two screws that secure the ink absorption pad tray.



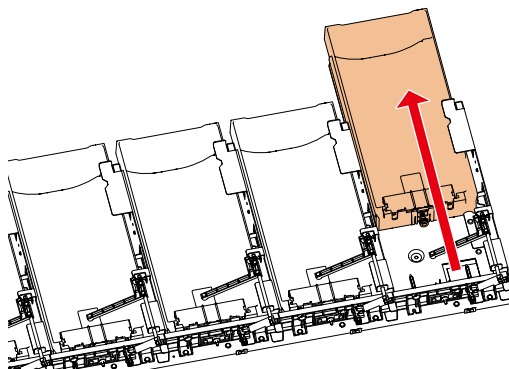
7. Slide the ink absorption pad tray to the left and remove it.

CAUTION

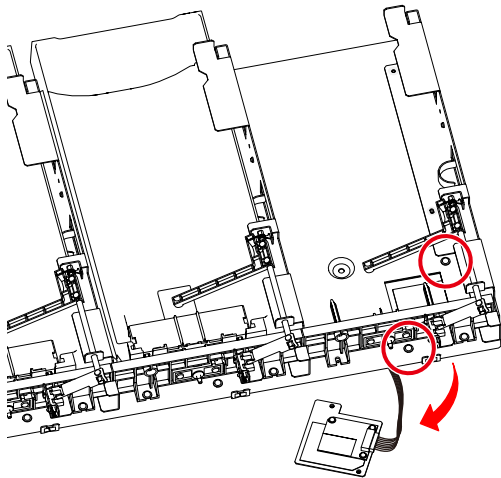
When removing the pad tray, be careful not to get the ink tubes and cables caught on the clamps.



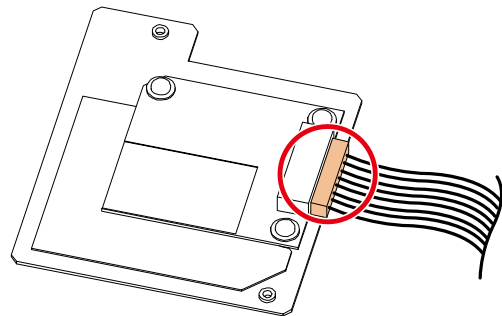
8. Slide and remove the ink cartridge.



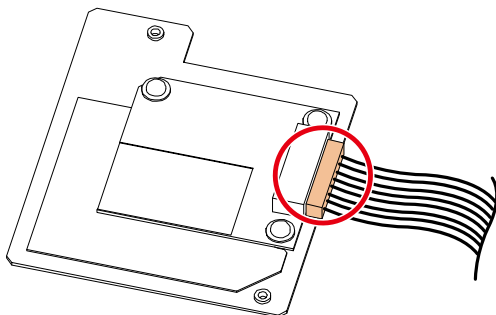
- 9.** Remove two screws and remove the RFID R/W board along with its stay.



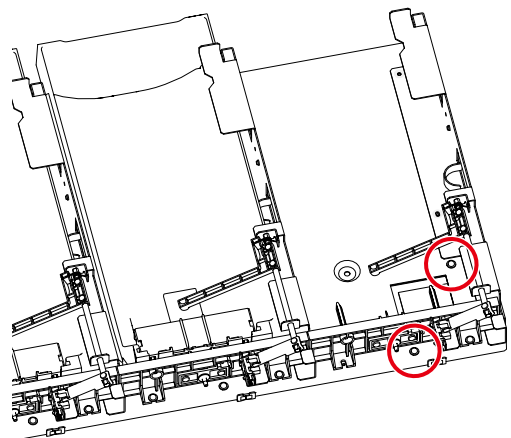
- 12.** Plug the connector into the RFID R/W board.



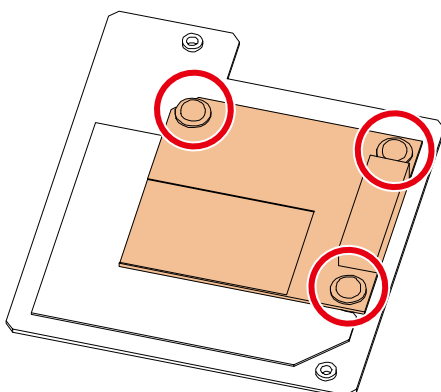
- 10.** Unplug the connector from the RFID R/W board.



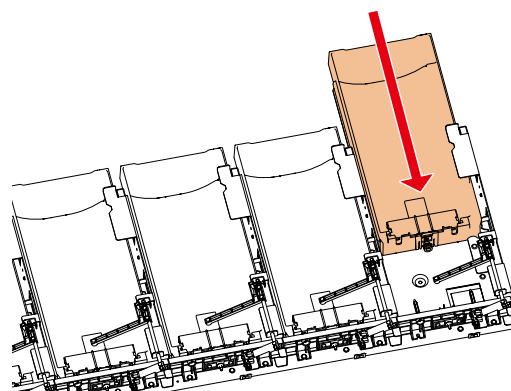
- 13.** Tighten two screws to secure the RFID R/W board along with its stay.



- 11.** Remove three screws that secure the RFID R/W board, and then install the new one.



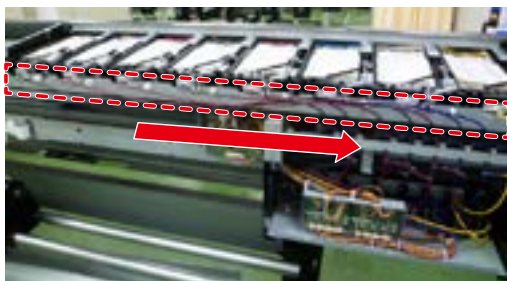
- 14.** Slide and set the ink cartridge.



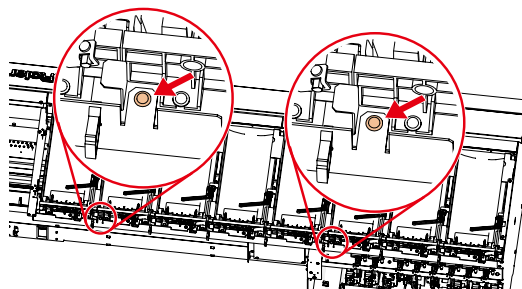
- Slide and insert the ink absorption pad tray.

CAUTION

When inserting the pad tray, be careful not to get the ink tubes and cables caught on the clamps.



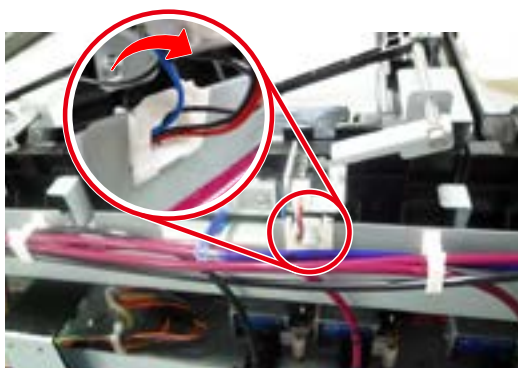
- Tighten two screws to secure the ink absorption pad tray.



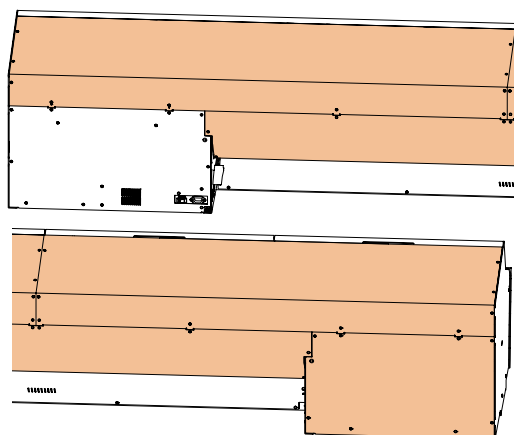
- Fasten all the ink tubes with seven clamps.



- Fasten all the cables with eight clamps.

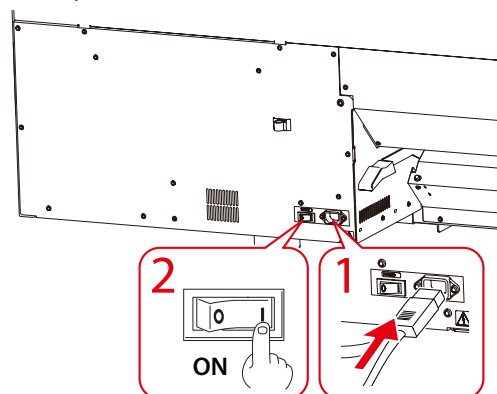


- Fasten the covers shown in orange in the figure.

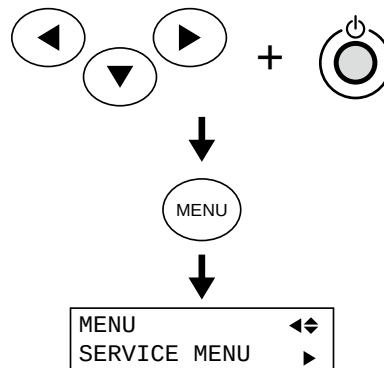


- Plug in the power cord, and turn on the main power SW.

- Power cord
- Main power SW



- Turn on the sub power SW while pressing the [◀] [▼] [▶] keys to enter the service mode.



- Perform the following.

- Go to [SERVICE MENU] > [I/S MENU] > [CARTRIDGE] > [SLOT1] to [SLOT8], and check that the printer has read the serial numbers of each ink cartridge IC properly.

- (End of procedure)

Information

Necessary tools

General tools

No.2 Phillips screwdriver

3.0 mm hexagonal wrench

Scotch tape

Special tools

6000004129

GREASE, FLOIL G-902 10ML_02

Workflow

1. Carriage belt replacement

Typical work time

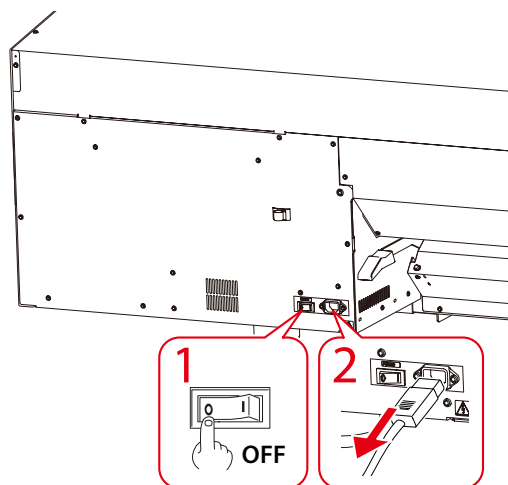
Contents of work	Time
Carriage belt replacement	45 min.

Procedure

1. Turn off the main power SW, and then unplug the power cord.

1. Main power SW

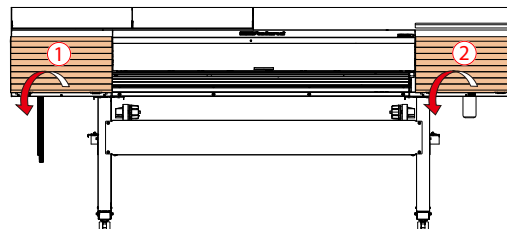
2. Power cord



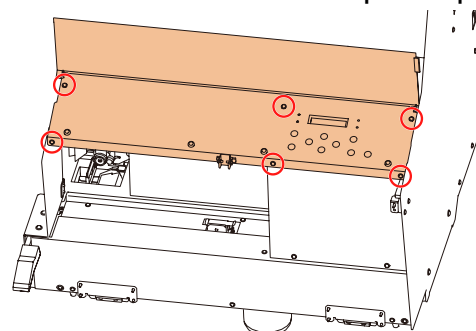
2. Open the maintenance cover L and the maintenance cover R.

1. Maintenance cover L

2. Maintenance cover R



3. Remove six screws that secure the operation panel.

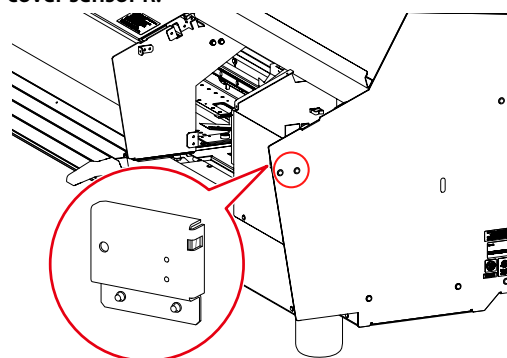


CAUTION

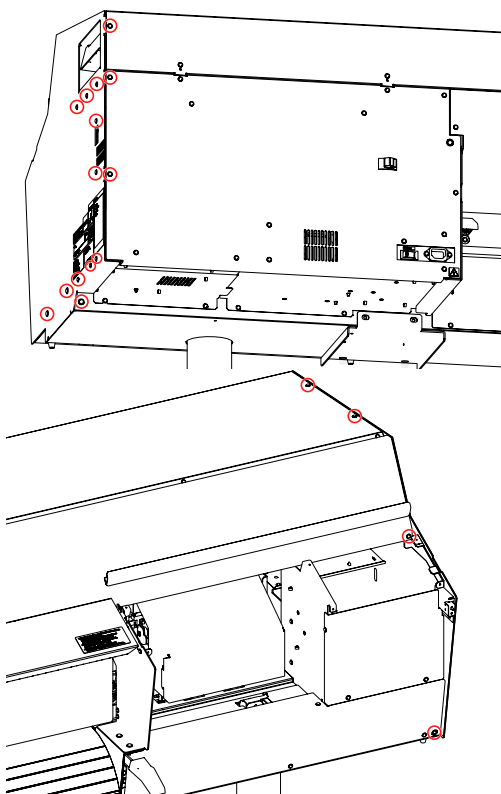
Before removing the operation panel, make sure to disconnect the ribbon cable from the operation panel.



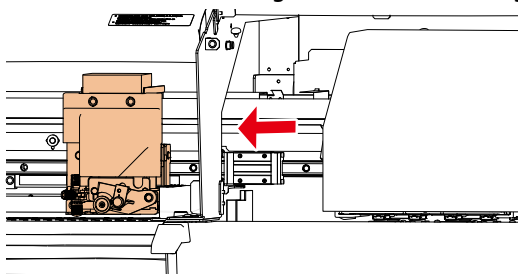
4. Remove two screws that secure the maintenance cover sensor R.



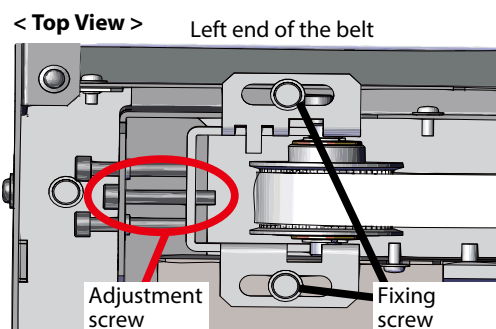
5. Remove 18 screws that secure the cover.



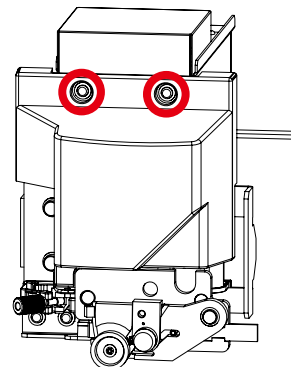
6. Disconnect the tool carriage from the head carriage.



7. Loosen two fixing screws located at the left end of the belt. Then, loosen the adjustment screw.



8. Remove two screws that secure the cover.



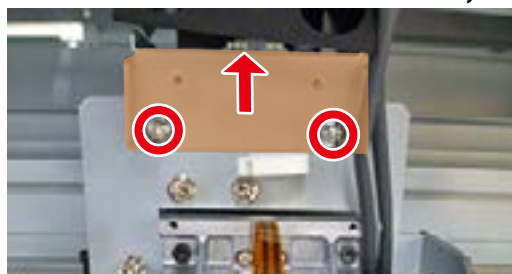
9. Unplug the solenoid cable and two connectors.



10. Release the cable from the clamp.



11. Loosen two screws. Slide and remove the stay.



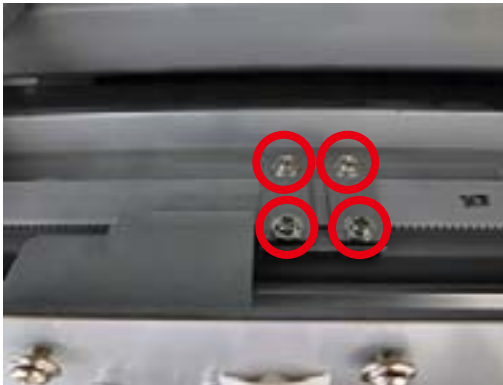
12. Slide the tool carriage away from the stay.



13. Remove four screws and remove the carriage belt.

CAUTION

When removing the carriage belt, make sure the carriage belt does not touch the encoder scale. If the grease applied to the carriage belt gets on the encoder scale, printing problems may occur.

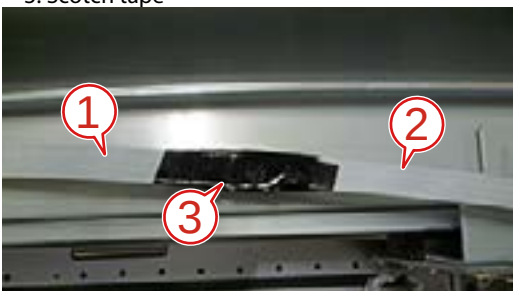


14. Remove the carriage belt from the stay. Then, connect the new carriage belt to the old carriage belt using scotch tape.

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. New carriage belt
3. Scotch tape



15. 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

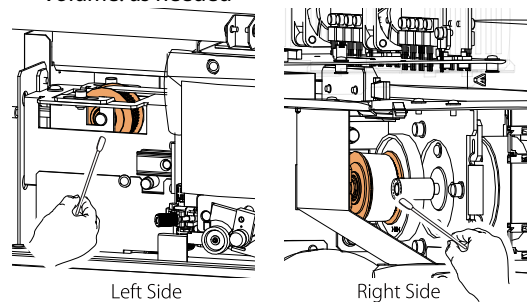
Check that the belt is not twisted.

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



16. Apply grease to the pulleys.

- Grease: FLOIL G-902 10ML_02
- Volume: as needed



17. 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.

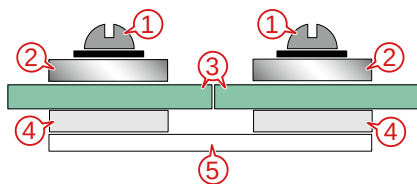
CAUTION

- 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.

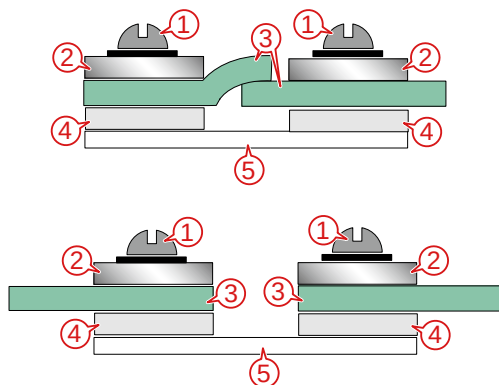
1. Screw
2. Metal plate
3. Carriage belt
4. Plastic plate
5. Belt holder

Cross-section diagram

OK



No Good

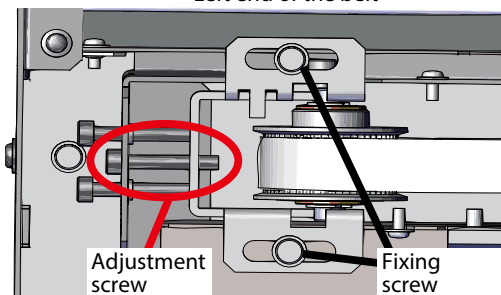


18. Tighten the adjustment screw to remove the slack in the belt. Then, tighten two fixing screws.

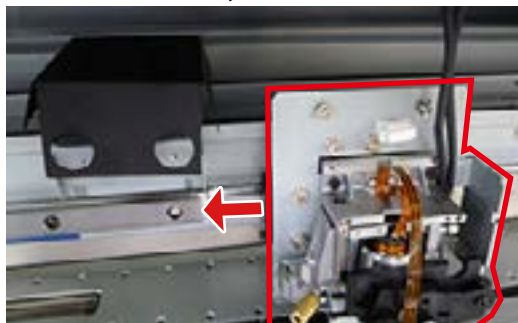
CAUTION

Do not overtighten the screws.

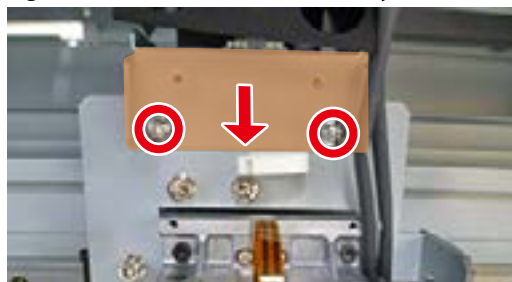
< Top View > Left end of the belt



19. Slide the tool carriage back to the original position, and align the screws on the tool carriage and the screw holes of the stay.



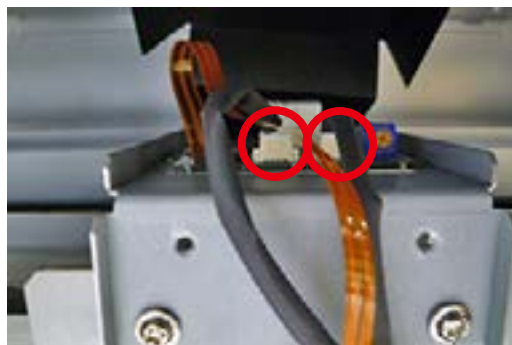
20. Tighten two screws to secure the stay.



21. Plug the solenoid cable into the tool carriage board.

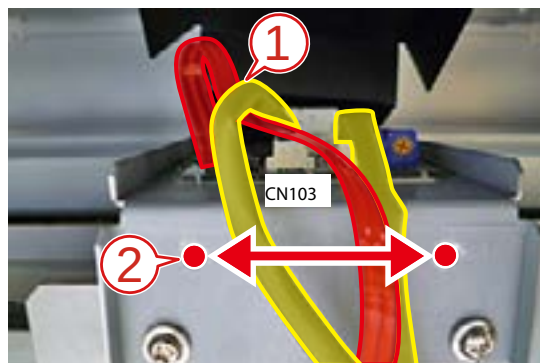


22. Plug two connectors into the tool carriage board.



CAUTION

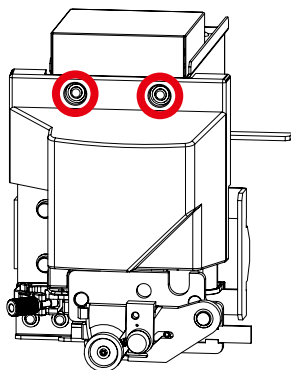
1. Place the two CN103 cables (shown in yellow in the figure) on top of the solenoid cable (shown in orange).
2. Place the three cables in between the two screws as shown in the figure.



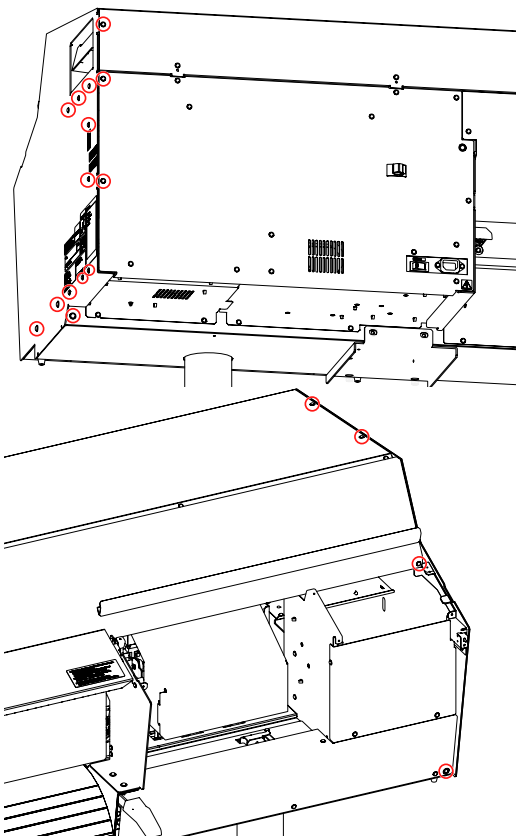
23. Fasten the three cables with the clamp.



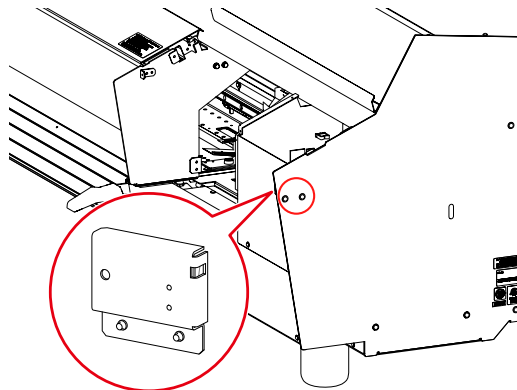
24. Tighten two screws to secure the cover.



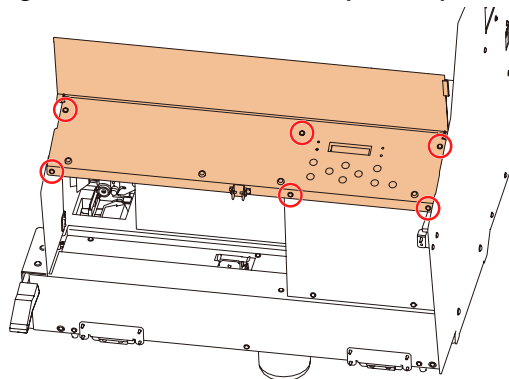
25. Tighten 18 screws to secure the cover.



26. Temporarily fasten the maintenance cover sensor R with two screws.

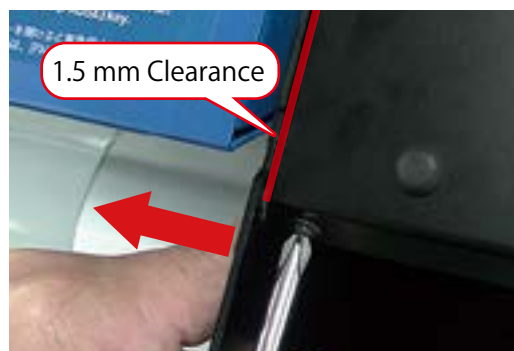


27. Tighten six screws to secure the operation panel.



CAUTION

- Tighten two screws in the operation panel with holding up to the left, then make 1.5 mm clearance between the frame and the operation panel.

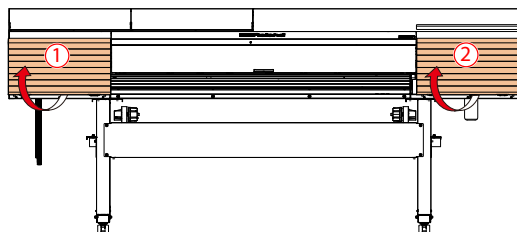


- Connect the ribbon cable to the operation panel.



- 28.** Close the maintenance cover L and the maintenance cover R. Confirm the maintenance cover R is fixed.

1. Maintenance cover L
2. Maintenance cover R

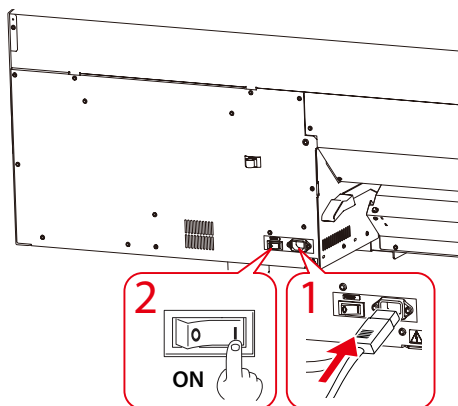


CAUTION

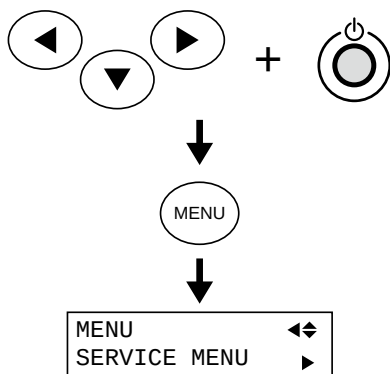
If the cover is not fixed, then maintenance sensor R does not work properly. Widen the clearance between the operation panel and the frame if the cover is not fixed by shaking the right and left ends of the cover back and forth with your hands.

- 29.** Plug in the power cord, and turn on the main power SW.

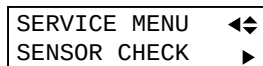
1. Power cord
2. Main power SW



- 30.** Turn on the sub power SW while pressing the [◀] [▼] [▶] keys to enter the service mode.

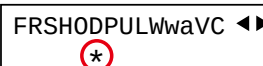


- 31.** Select [SERVICE MENU] > [SENSOR CHECK].

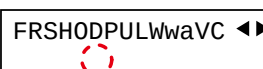


- 32.** Slide the maintenance cover sensor R to the front until " * " under "D" disappears. Then, tighten two screws to secure the sensor.

When the cover is open



When the cover is closed



- 33.** Move the head carriage across the whole width of the guide rail several times to remove the slack in the carriage belt. Then, perform the following adjustments.

33-1. Chapter 2 "[Belt Tension Adjustment](#)"

33-2. Chapter 2 "[Belt Position Adjustment](#)"

33-3. Chapter 2 "[Limit Position & Cut Down Position Initialization](#)"

- 34.** (End of procedure)

Encoder Scale Replacement

Information

Necessary tools

General tools

No.2 Phillips screwdriver

Special tools

None

Workflow

1. Encoder scale replacement
2. Linear encoder setup

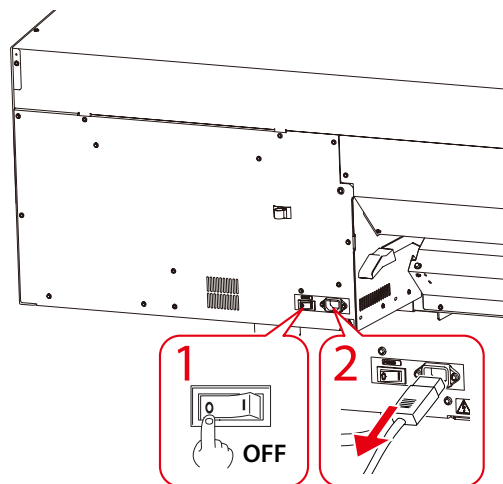
Typical work time

Contents of work	Time
Encoder scale replacement	15 min.
Linear encoder setup	5 min

Procedure

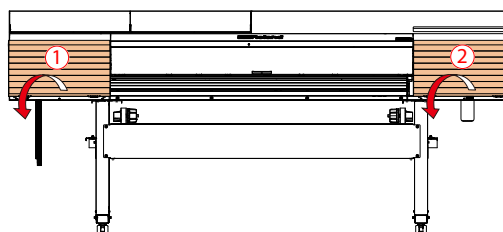
1. Turn off the main power SW, and then unplug the power cord.

1. Main power SW
2. Power cord

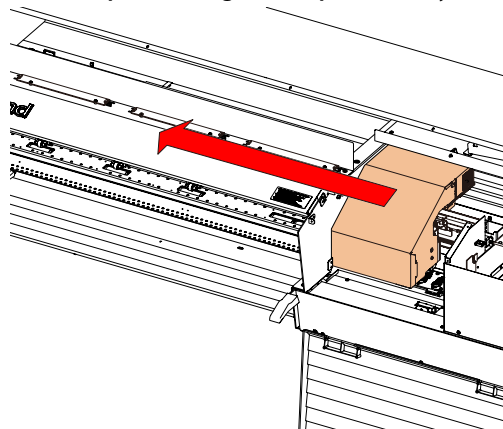


2. Open the maintenance cover L and the maintenance cover R.

1. Maintenance cover L
2. Maintenance cover R

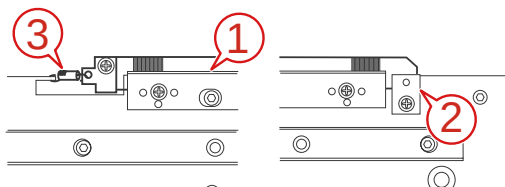


3. Move the print carriage to the print area by hand.



4. Remove the encoder scale by removing the plate holding the encoder scale at its right end and the spring on its left end.

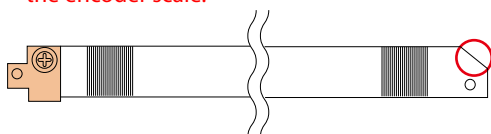
1. Encoder scale
2. Encoder plate
3. Spring



5. Remove the spring plate from the encoder scale and fasten it to the end of the new encoder scale that does not have a clipped corner.

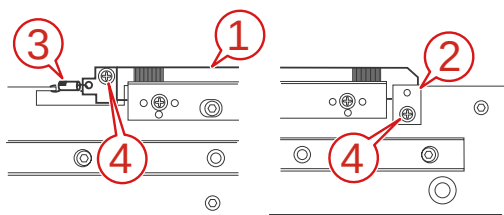
CAUTION

Make sure not to scratch or get grease on the encoder scale when installing it. Do not touch the surface of the encoder scale.

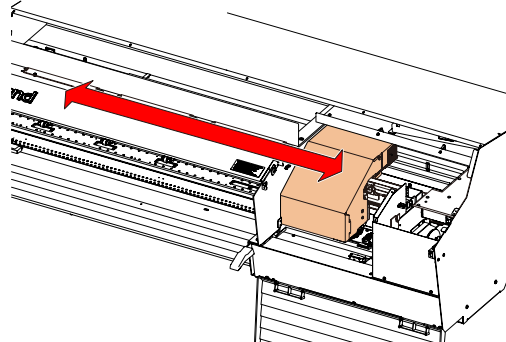


6. Put the encoder scale in between the encoder plate and the guide rail. Then, fasten the right end with the plate, and hook up the spring on the left end. Make sure that the encoder scale is in place.

1. Encoder scale
2. Encoder plate
3. Spring
4. Screw

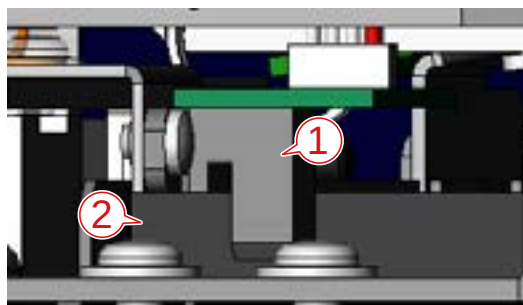


7. Move the head carriage across the whole width of the machine manually and confirm that the encoder scale does not make contact with the encoder sensor. Also, check that the encoder scale is in between the slit of the encoder sensor. Carry out Chapter 2 "[Linear Encoder Setup](#)".



Close-up image of the encoder scale and the encoder sensor

1. Encoder sensor
2. Encoder scale



8. (End of procedure)

Linear Encoder Board Replacement

Information

Necessary tools

General tools

No.1 Phillips screwdriver

No.2 Phillips screwdriver

Special tools

None

Workflow

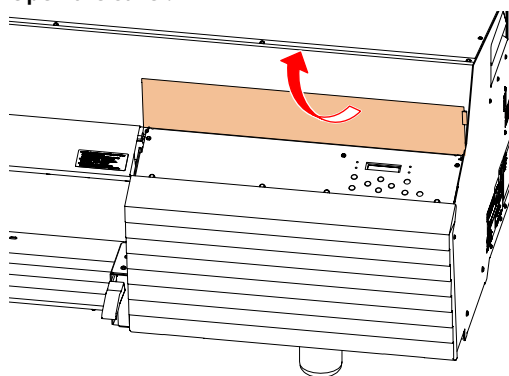
1. Linear Encoder Board Replacement
2. Linear encoder setup

Typical work time

Contents of work	Time
Linear Encoder Board Replacement	25 min.
Linear encoder setup	5 min

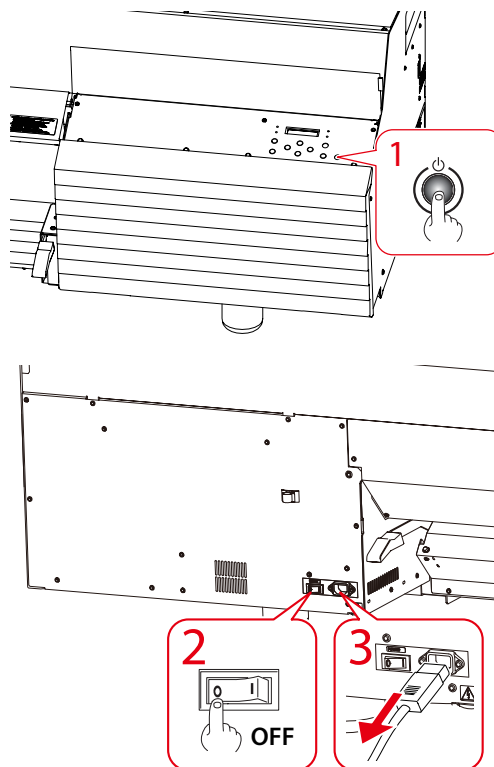
Procedure

1. Open the cover.

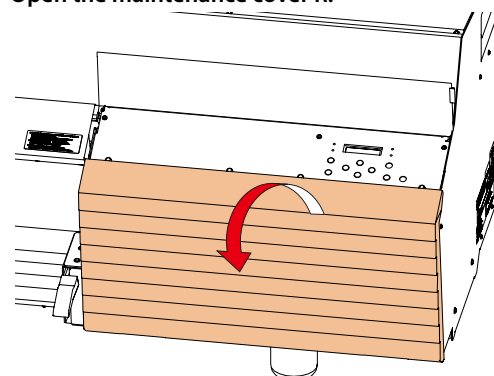


2. Turn off the sub power SW, and then turn off the main power SW. Unplug the power cord.

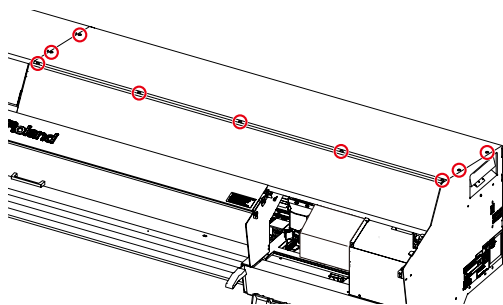
1. Sub power SW
2. Main power SW
3. Power cord



3. Open the maintenance cover R.



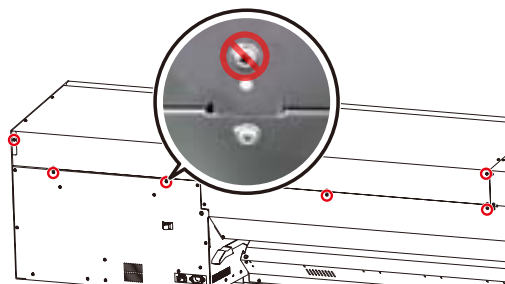
4. Remove 15 screws that secure the cover.



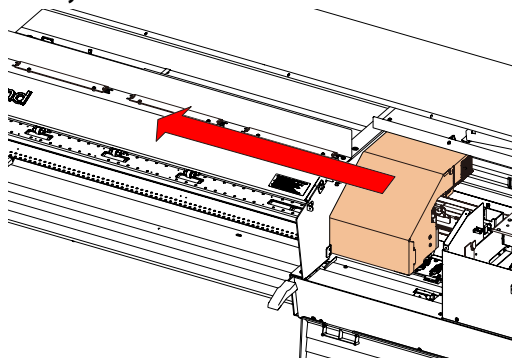
CAUTION

Do not remove the upper screw. Remove only the bottom screw. If you remove both upper and bottom screws, a small plate that the two screws are securing will fall off inside the printer.

Rear view



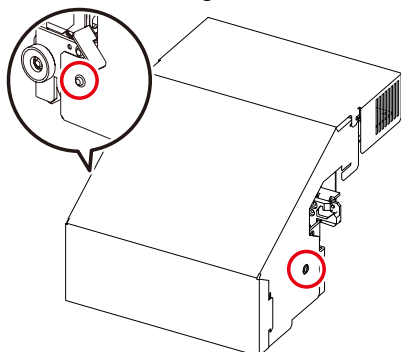
5. Unlock the print carriage, and move it to the print area by hand.



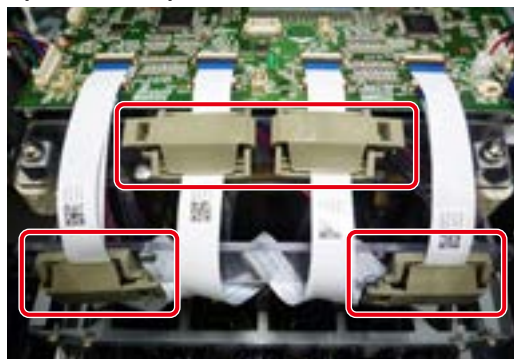
6. Remove two screws that secure the cover.

NOTE

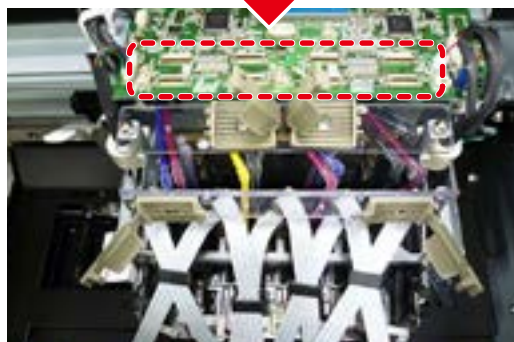
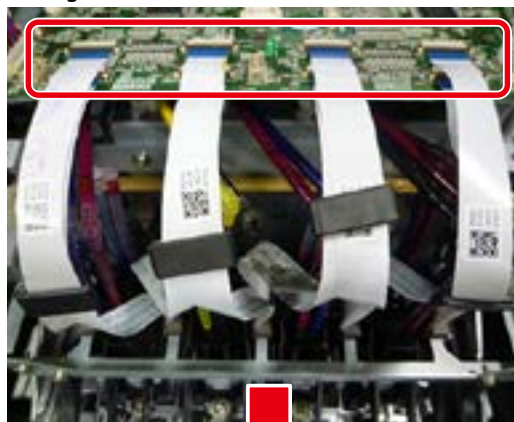
The screws are on the right and left side of the cover.



7. Open four clamps that secure the ferrite cores.

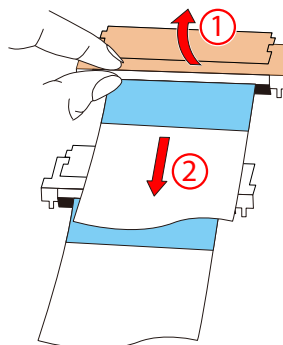


8. Disconnect all the ribbon cables from the print carriage board.

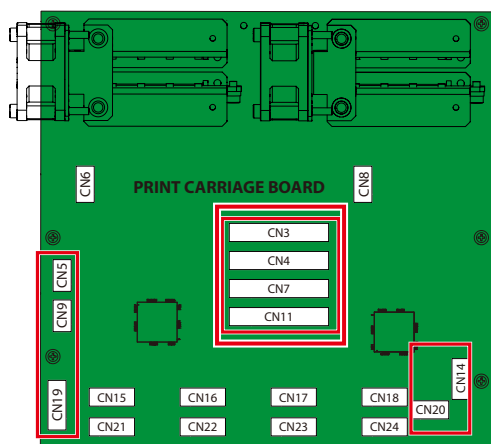


CAUTION

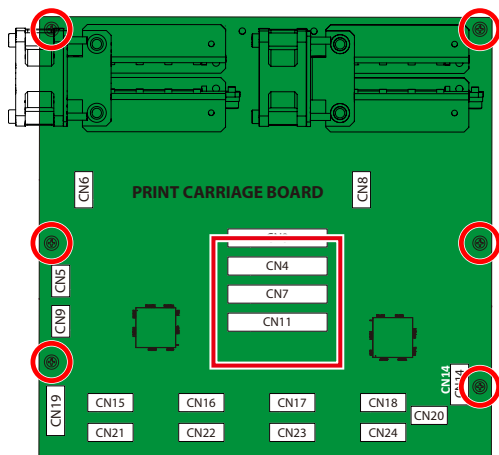
Open the cover in the direction of the arrow marked "1". Then, disconnect the ribbon cable from the print carriage board.



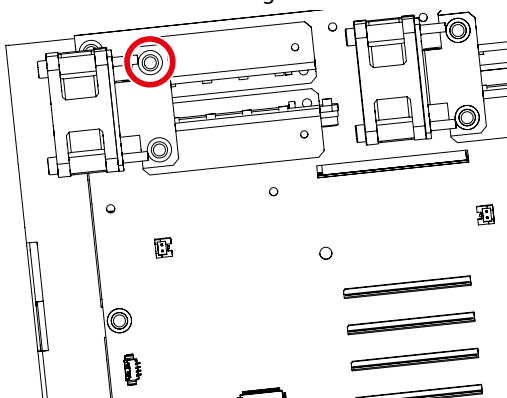
9. Unplug the connectors.



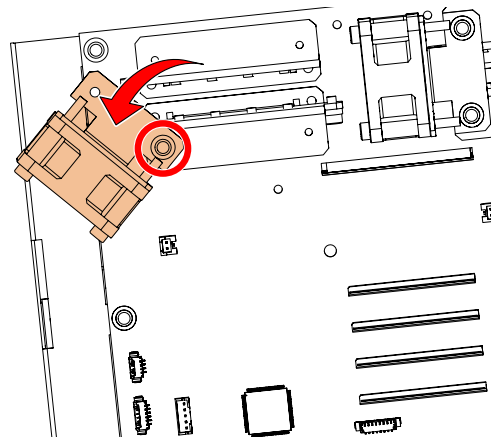
10. Remove the print carriage board.



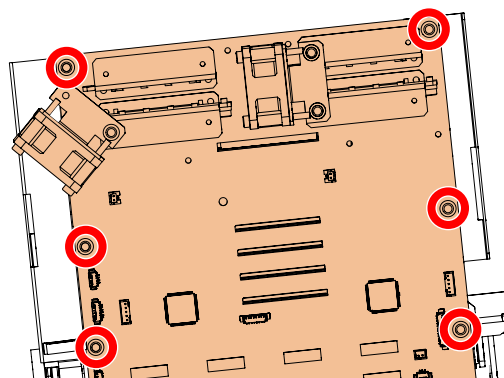
10-1. The screw on the top left corner of the print carriage board is hidden under the fan. To access the hidden screw, first remove the screw that secures the left side of the fan using a Phillips screwdriver with a length of 150 mm or less.



10-2. Then, loosen the screw indicated by the red circle in the figure below and slide the fan toward the front.



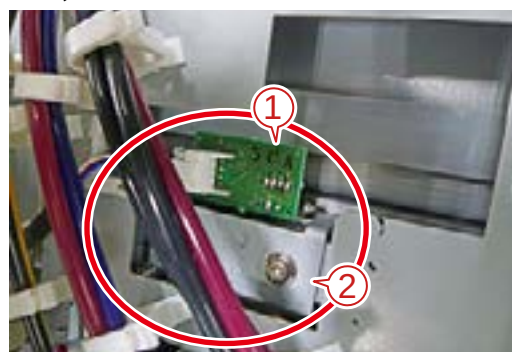
10-3. Remove six screws that secure the print carriage board.



11. Remove the linear encoder board along with the stay.

1. Linear encoder board

2. Stay

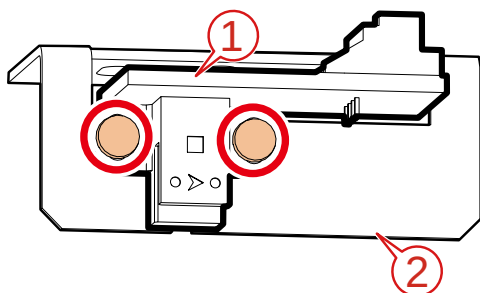


12. Unplug the connector from the linear encoder board. Then, plug the connector into the new linear encoder board.



13. Remove the linear encoder board from the stay. Then, attach the new linear encoder board to the stay.

1. Linear encoder board
2. Stay

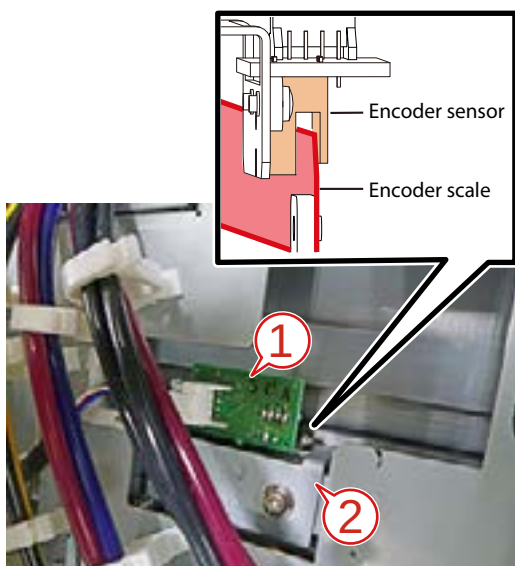


14. Fasten the linear encoder board along with the stay.

CAUTION

Make sure 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.

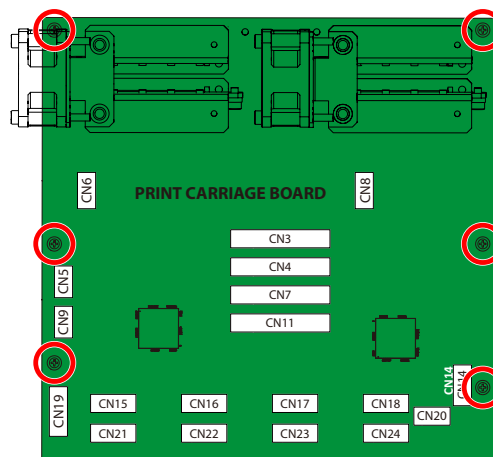
1. Linear encoder board
2. Stay



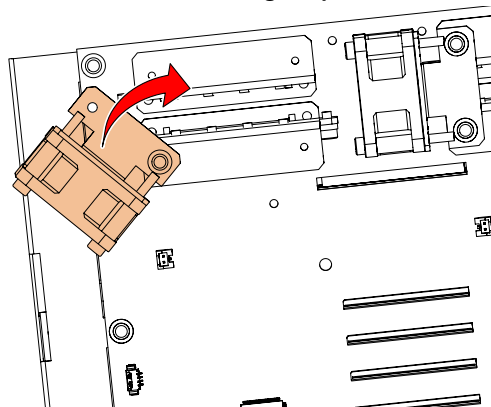
Encoder sensor wiring



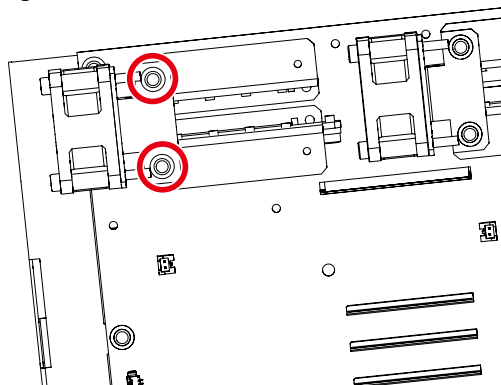
15. Tighten six screws to secure the print carriage board.



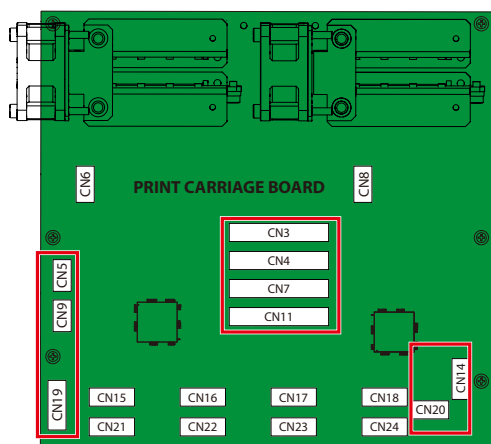
16. Slide the fan back to its original position.



17. Tighten two screws to secure the fan.

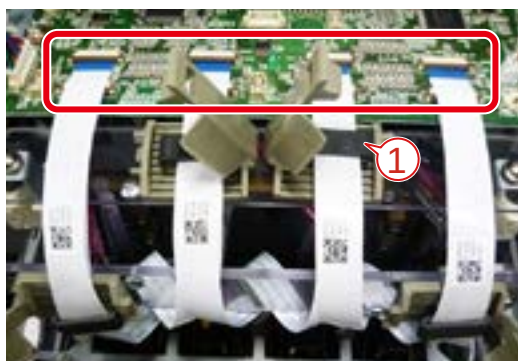


18. Plug in the connectors.



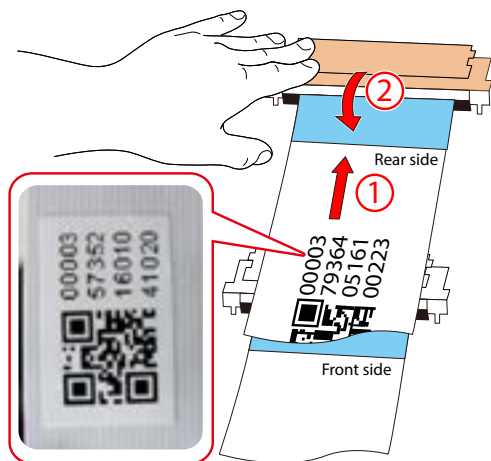
19. Connect all the print head ribbon cables to the print carriage board.

1. Ferrite core

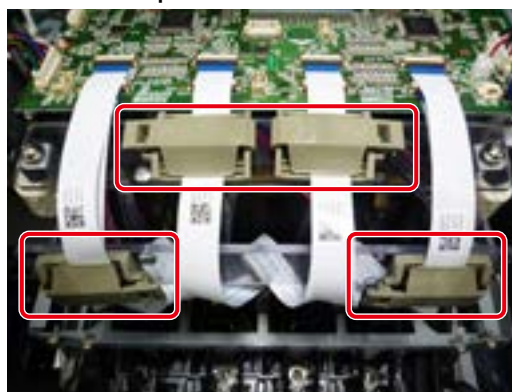


CAUTION

- Be sure to connect each ribbon cable to the correct connector.
- Be sure to find head rank code in Rear side ribbon cable



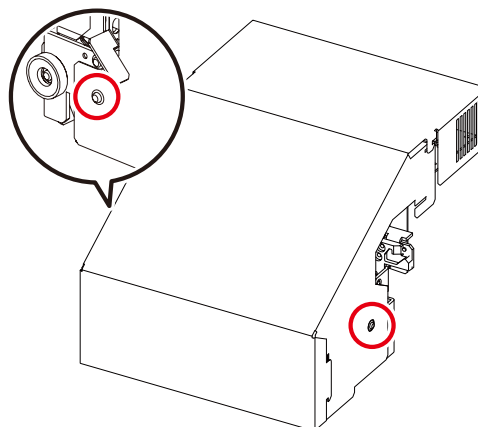
20. Close the clamps to secure the ferrite cores.



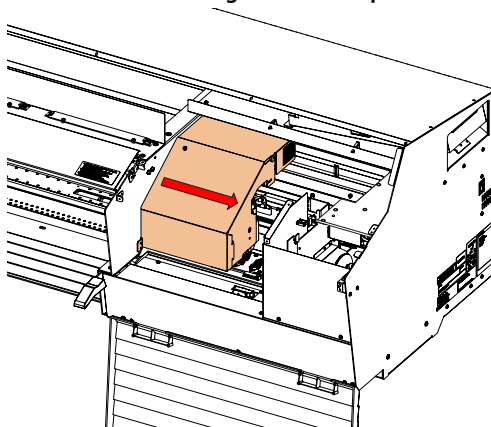
21. Tighten two screws to secure the cover.

NOTE

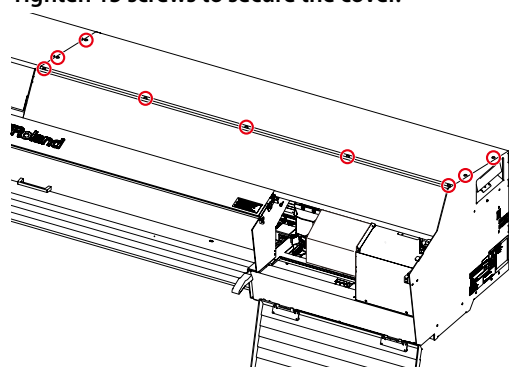
Install the screws on the right and left side of the cover.



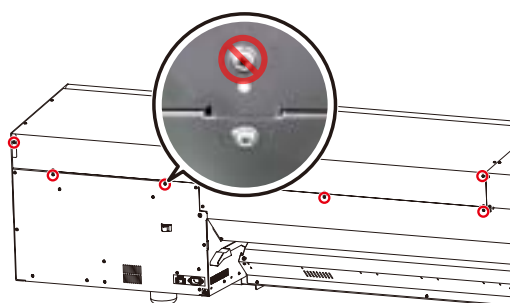
22. Move the head carriage to the lock position.



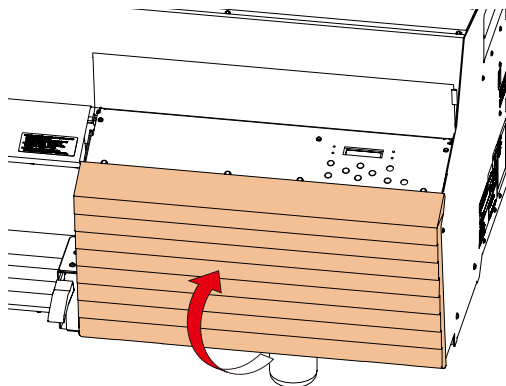
23. Tighten 15 screws to secure the cover.



Rear view



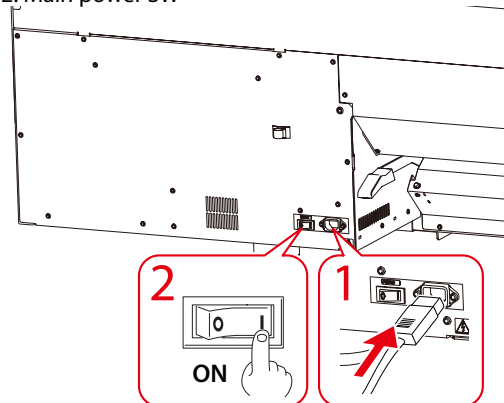
24. Close the maintenance cover R.



25. Plug in the power cord, and turn on the main power SW.

1. Power cord

2. Main power SW



26. (End of procedure)

Battery Replacement

Information

Necessary tools

General tools

No.2 Phillips screwdriver

Workflow

1. Battery replacement
2. Time and date setting

Typical work time

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

Procedure

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.

Lithium battery: CR2032

ATTENTION

Il y a danger d'explosion s'il y a remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur. Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

Pile au lithium: CR2032

ADVARSEL!

Lithiumbatteri – Eksplosionsfare ved fejlagtig handling. Udskiftning må kun ske med batteri af samme fabrikat og type. Levér det brugte batteri tilbage til leveranøren.

Lithiumbatteri: CR2032

CAUTION



Do not recharge, short-circuit, disassembly the lithium battery, nor put it into fire.

It may cause heat, explosion and fire.



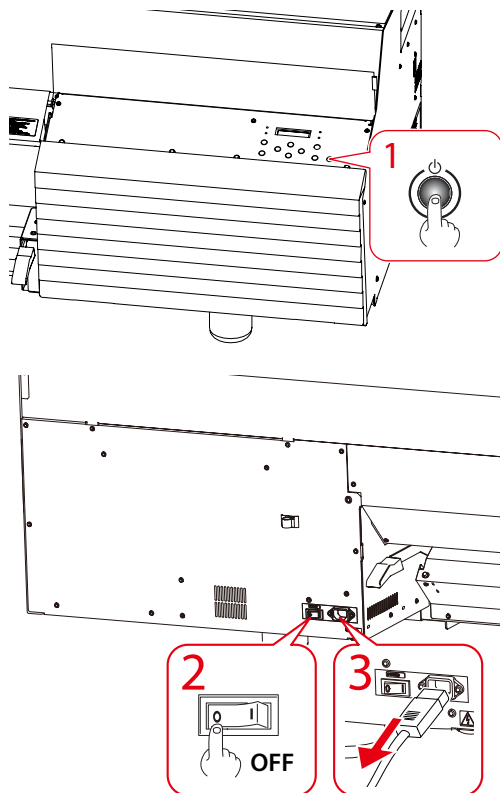
Put tape around the lithium battery for insulation for disposal or preservation. It may cause heat, explosion and fire.

1. Turn off the sub power SW, and then turn off the main power SW. Unplug the power cord.

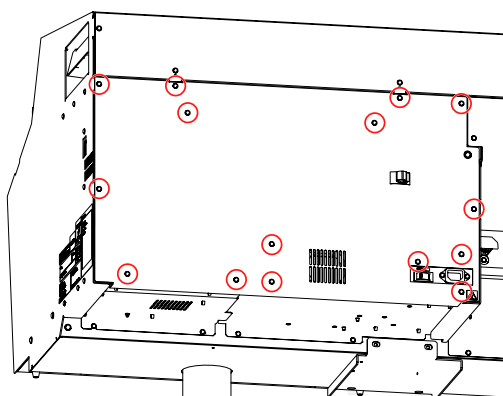
1. Sub power SW

2. Main power SW

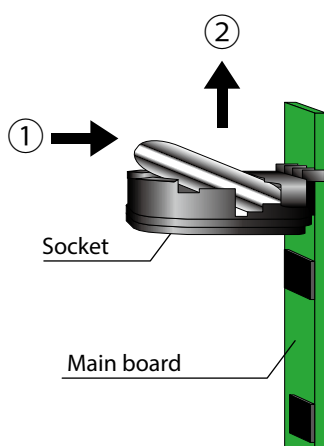
3. Power cord



- Remove 15 screws that secure the cover.



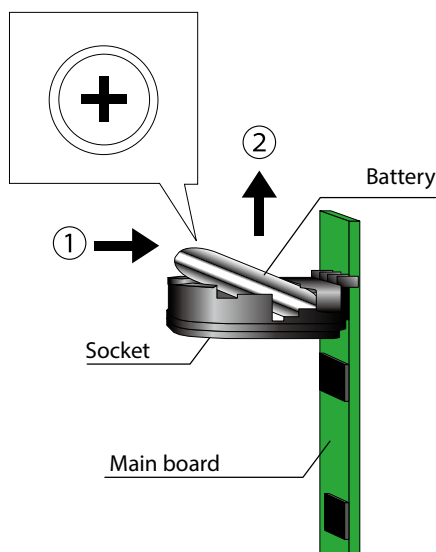
- Remove the battery on the main board by pushing it back and tilting upward.



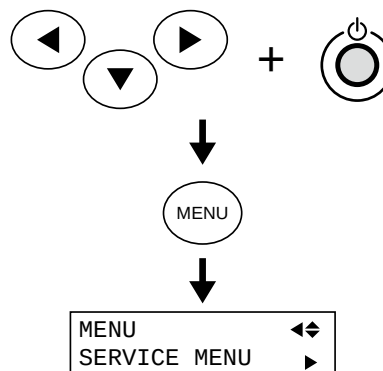
- Replace the battery with a new one.

CAUTION

Be sure to correctly orient the battery.



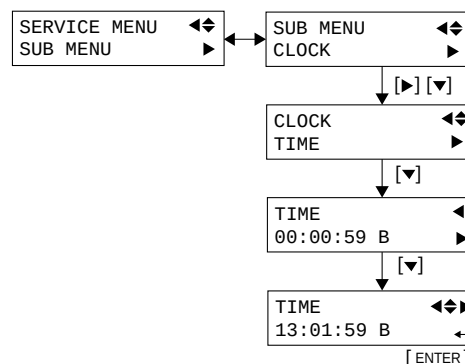
- Turn on the main power SW, and then turn on the sub power SW while pressing [◀] [▼] [▶] keys to enter the service mode.



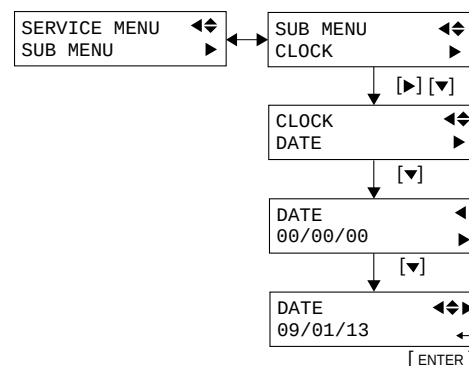
- Select [SUB MENU] > [CLOCK] > [TIME]. Set the time, and press the [ENTER] key.

CAUTION

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

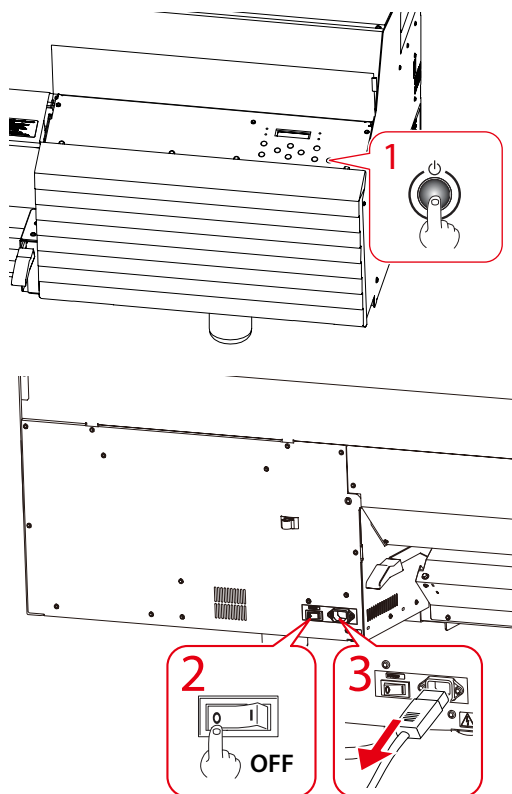


- Select [SUB MENU] > [CLOCK] > [DATE]. Set the date, and press the [ENTER] key.

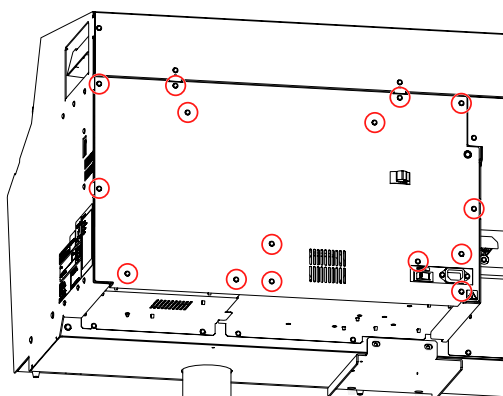


- 8.** Turn off the sub power SW, and then turn off the main power SW. Unplug the power cord.

1. Sub power SW
2. Main power SW
3. Power cord



- 9.** Tighten 15 screws to secure the cover.



- 10.** Dispose of the removed battery.

- 11.** (End of procedure)

Choke Valve Replacement

Information

Necessary tools

General tools

No.2 Phillips screwdriver

No.1 Phillips screwdriver

Waste cloth

Special tools

None

Workflow

1. Choke valve replacement

Typical work time

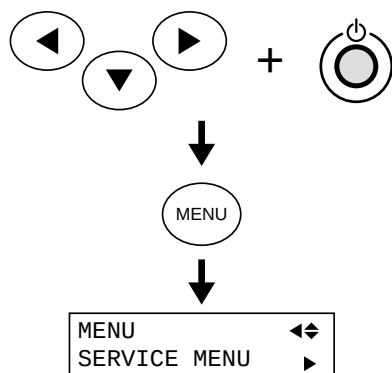
Contents of work	Time
Choke valve replacement	120 min.

Procedure

CAUTION

If you are replacing multiple choke valves at the same time, be sure to reconnect each tube to the correct choke valve (be careful not to connect it to the wrong choke valve).

1. Turn on the main power SW, and then turn on the sub power SW while pressing the [◀] [▼] [▶] keys to enter the service mode.



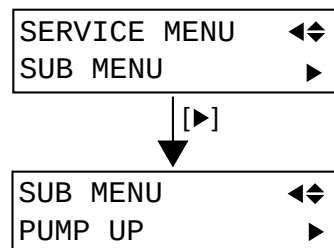
2. Perform [SERVICE MENU] > [SUB MENU] > [PUMP UP] and drain ink from the ink lines.

CAUTION

Be sure to discharge ink in accordance with the message on the panel. Failure to do so will cause ink to spill out of the drain bottle.

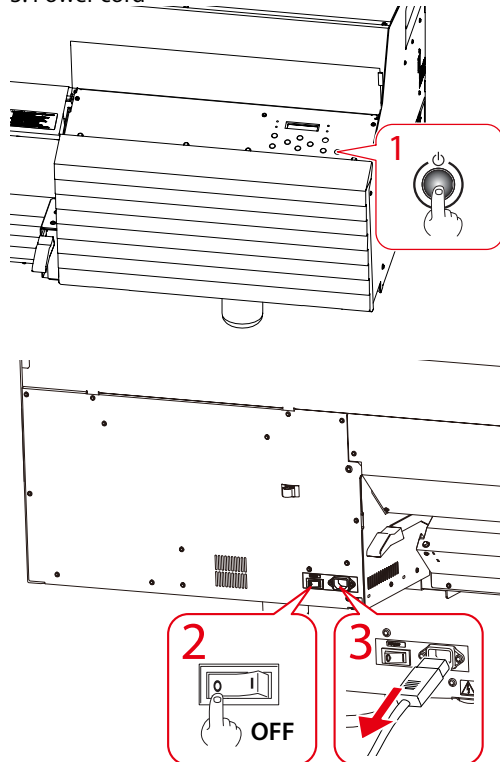
NOTE

Required time for [PUMP UP]: approx. 60 minutes.



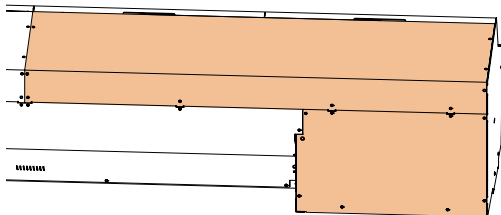
3. Turn off the sub power SW, and then turn off the main power SW. Unplug the power cord.

1. Sub power SW
2. Main power SW
3. Power cord



4. Remove the covers shown in orange in the figure.

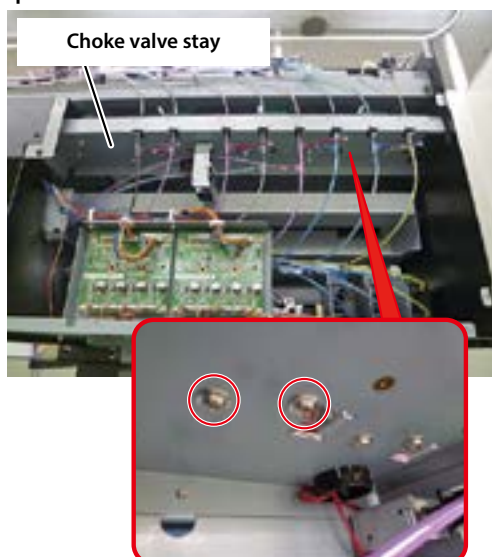
Rear view



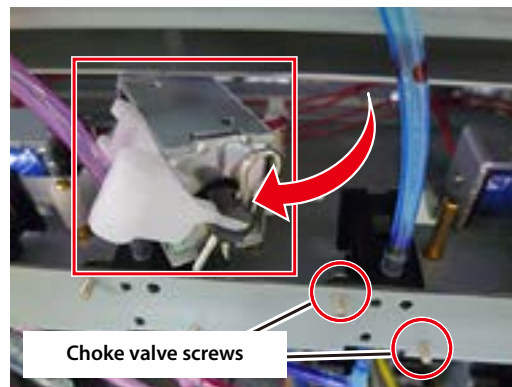
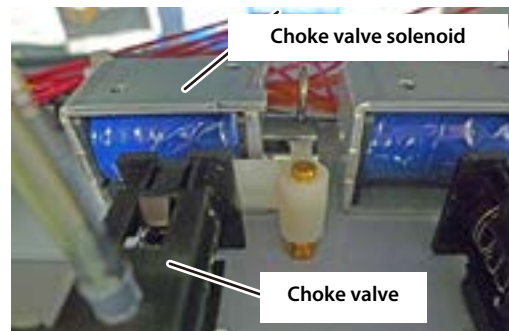
5. Loosen two screws, and remove the cover.



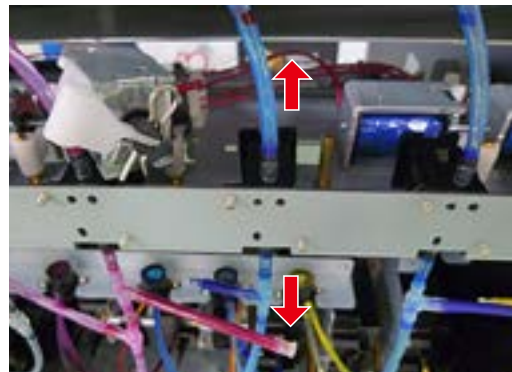
6. Remove the two screws that secure the choke valve solenoid (the screws are on the underside of the choke valve stay). Then, detach the choke valve solenoid from the choke valve you are going to replace.



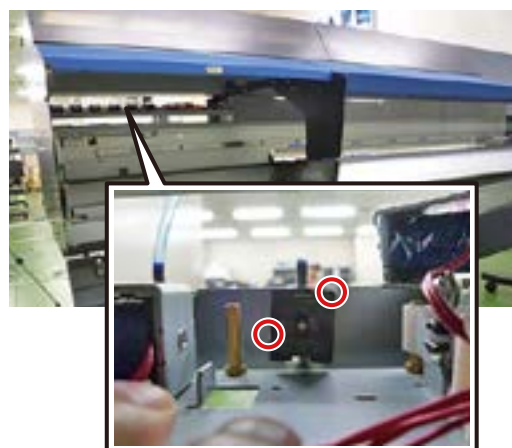
7. Move the choke valve solenoid to the side as shown in the figure below so that you can easily access and remove the two choke valve screws.



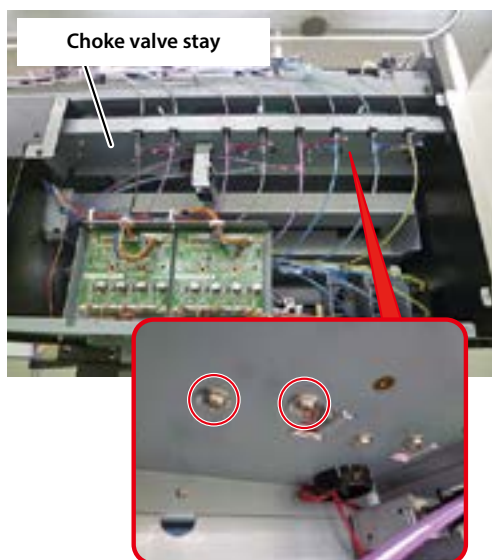
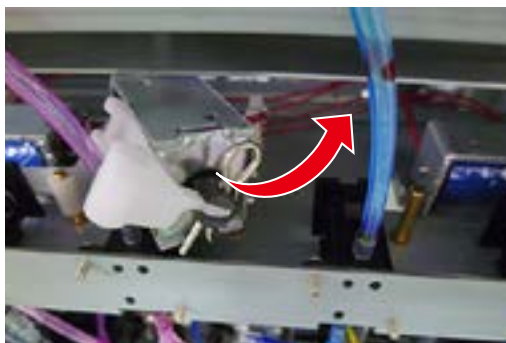
8. Remove the two ink tubes from the choke valve.



9. From the machine front, remove two screws that secure the choke valve. Then, replace it with the new one.



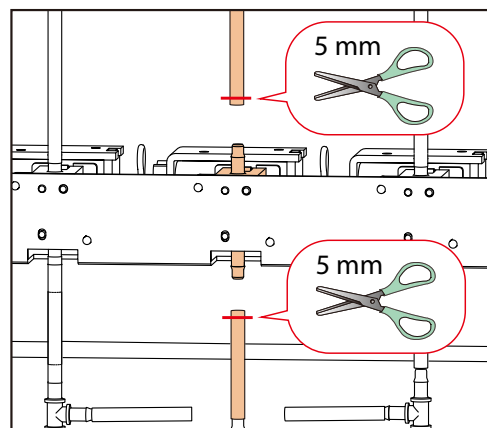
10. Put the choke valve solenoid back to its original position, and then secure it with two screws.



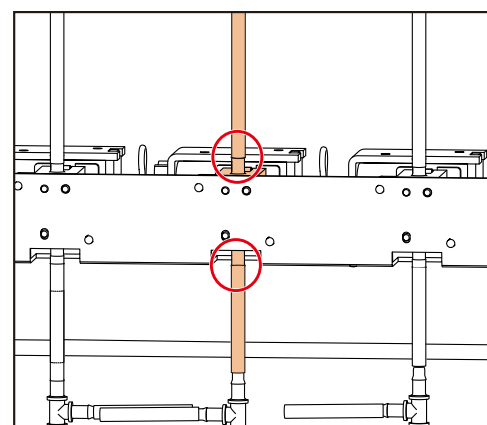
11. Cut the ink tubes 5 mm from the end before connecting them to the choke valve.

CAUTION

Do not cut the ink tube end more than 5 mm. If you cut it more than 5 mm, the ink tube will become too short to reach the choke valve. If the ink tube becomes too short, replace it with the new one.



12. Connect the ink tubes to the choke valve.

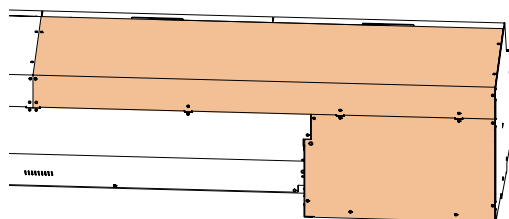


13. Attach the cover, and then tighten two screws to secure it.



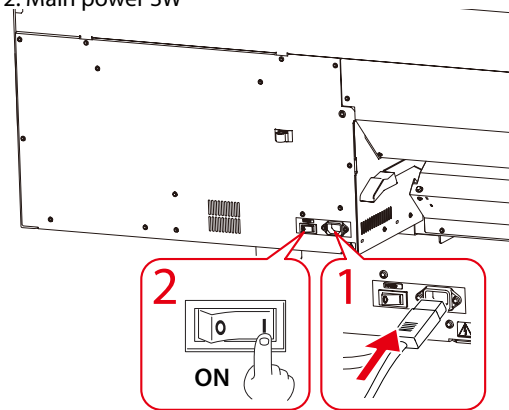
- 14.** Fasten the covers shown in orange in the figure.

Rear view



- 15.** Plug in the power cord, and turn on the main power SW.

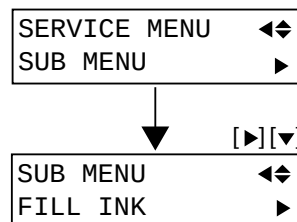
1. Power cord
2. Main power SW



- 17.** Perform [SERVICE MENU] > [SUB MENU] > [FILL INK] and fill the ink lines with ink.

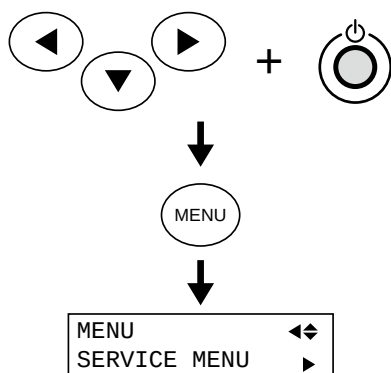
NOTE

Required time for [FILL INK]: approx. 30 min.



- 18.** (End of procedure)

- 16.** Turn on the sub power SW while pressing the [◀] [▼] [▶] keys to enter the service mode.



Information

Necessary tools

General tools

No.2 Phillips screwdriver

2.0 mm hexagonal wrench

Waste cloth

Gloves (anti-slip)

Tape

Special tools

None

Workflow

1. Ink tube replacement

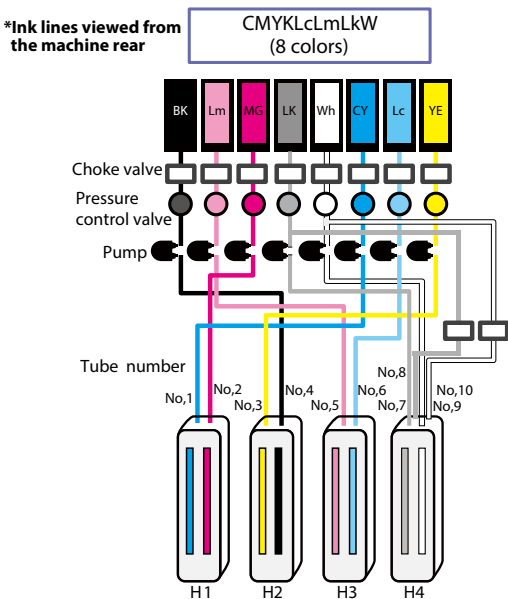
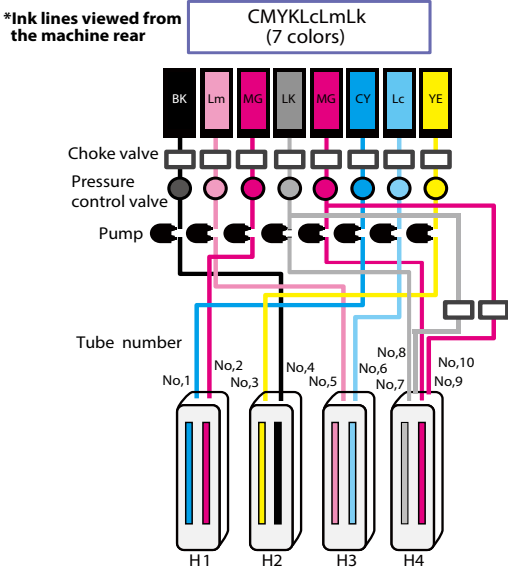
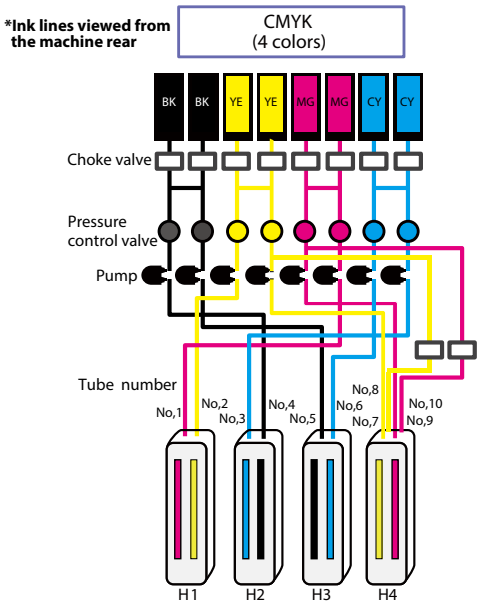
Typical work time

Contents of work	Time
Ink tube replacement	120 min.

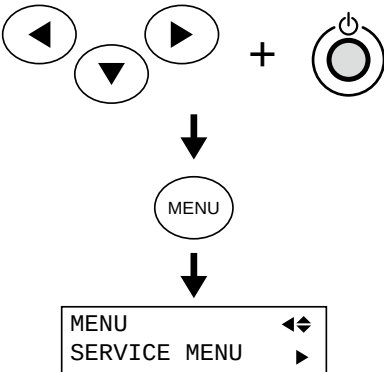
Procedure

CAUTION

The figures below show which color connects to which tube. Be sure to observe the figures before replacing the ink tubes.



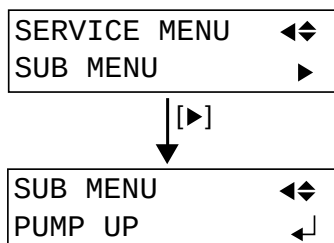
1. Turn on the main power SW, and then turn on the sub power SW while pressing the [◀] [▼] [▶] keys to enter the service mode.



2. Perform [SERVICE MENU] > [SUB MENU] > [PUMP UP] and drain ink from the ink lines.

CAUTION

Be sure to discharge ink in accordance with the message on the panel. Failure to do so will cause ink to spill out of the drain bottle.

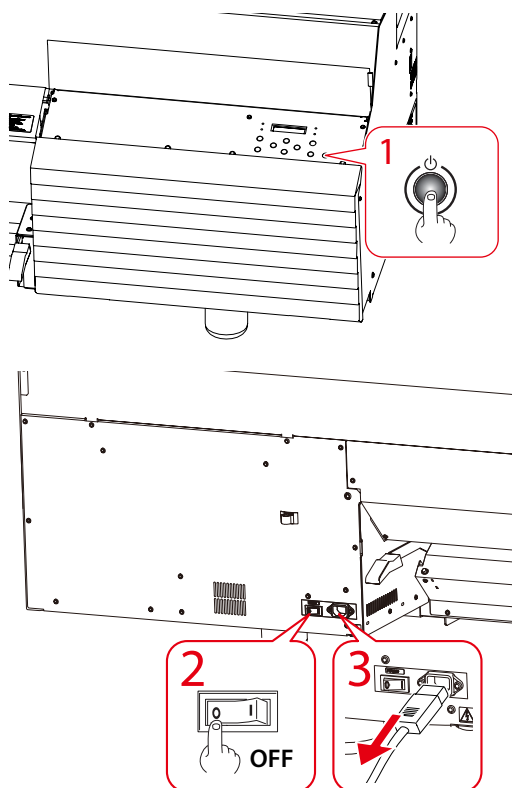


NOTE

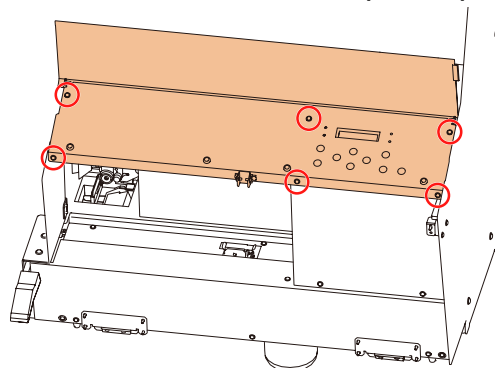
Required time for [PUMP UP]: approx. 60 min.

3. Turn off the sub power SW, and then turn off the main power SW. Unplug the power cord.

1. Sub power SW
2. Main power SW
3. Power cord



4. Remove six screws that secure the operation panel.



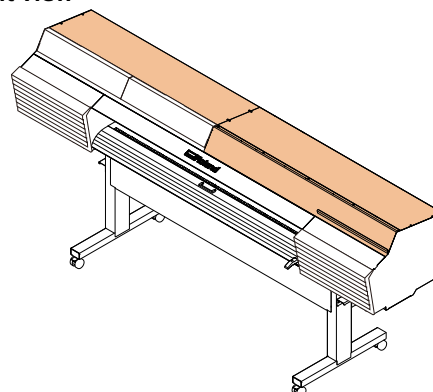
CAUTION

Before removing the operation panel, make sure to disconnect the ribbon cable from the operation panel.

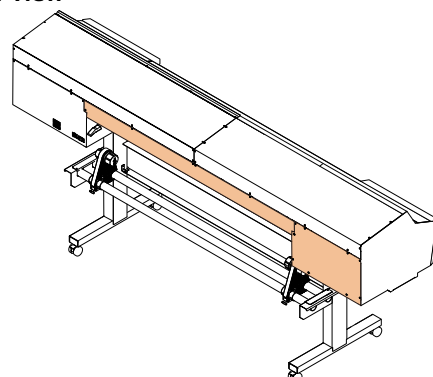


5. Remove the five covers shown in orange in the figures below.

Front view

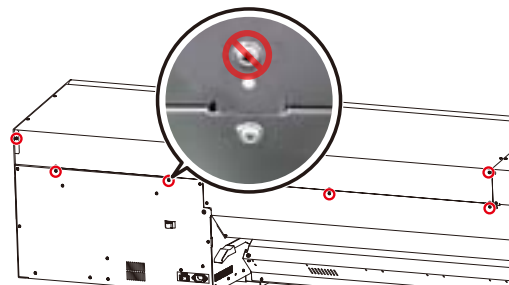


Rear view

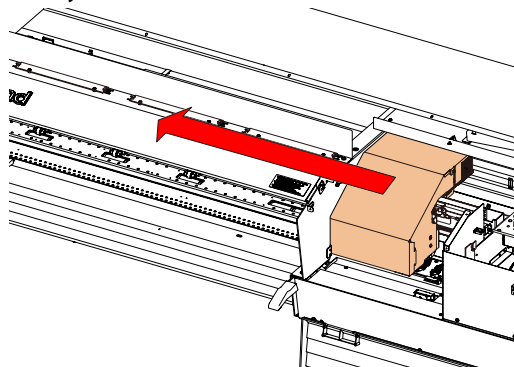


CAUTION

Do not remove the upper screw. Remove only the bottom screw. If you remove both upper and bottom screws, a small plate that the two screws are securing will fall off inside the machine.



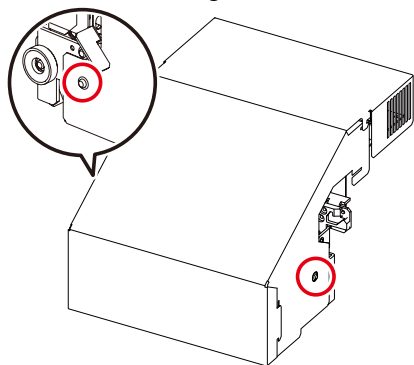
6. Unlock the print carriage, and move it to the print area by hand.



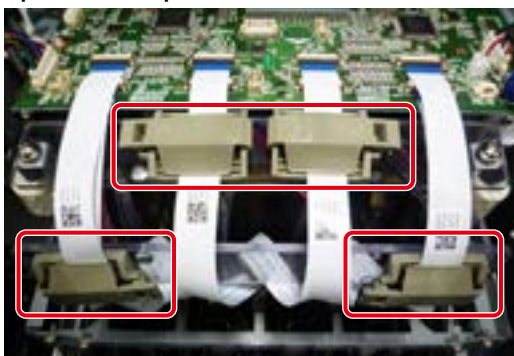
7. Remove two screws that secure the cover.

NOTE

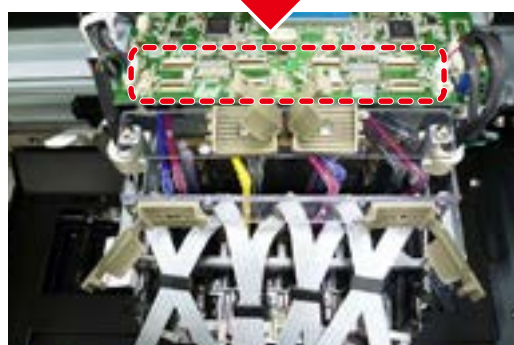
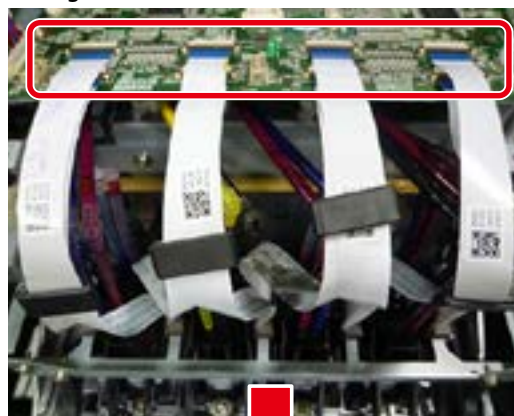
The screws are on the right and left side of the cover.



8. Open four clamps that secure the ferrite cores.

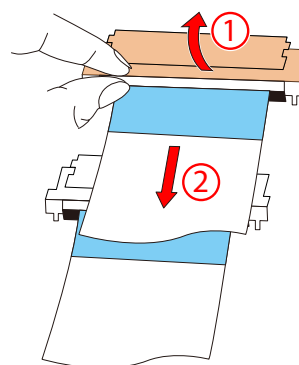


9. Disconnect all the ribbon cables from the print carriage board.

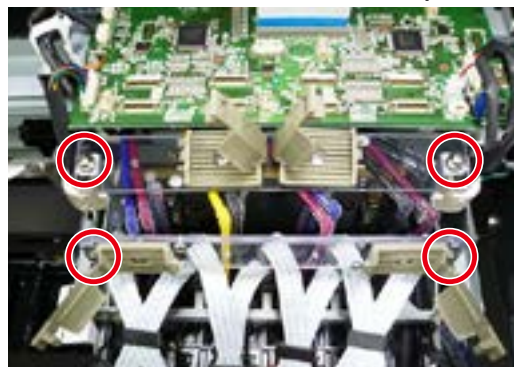


CAUTION

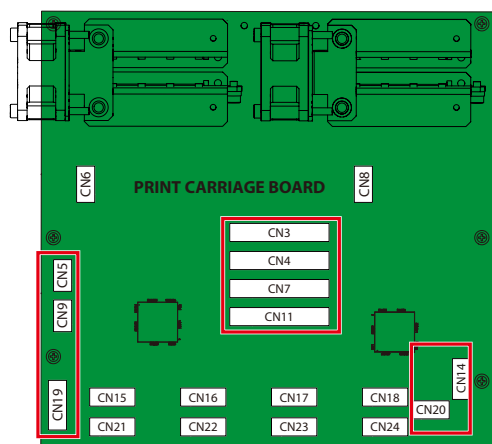
Open the cover in the direction of the arrow marked "1". Then, disconnect the ribbon cable from the print carriage board



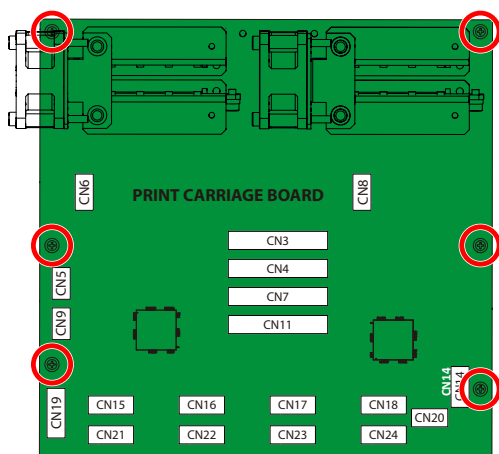
10. Remove four screws that secure the two plates.



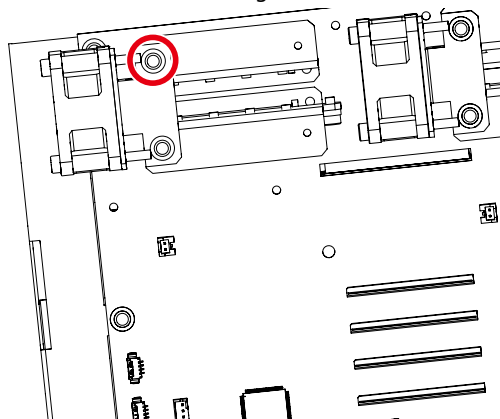
11. Unplug the connectors.



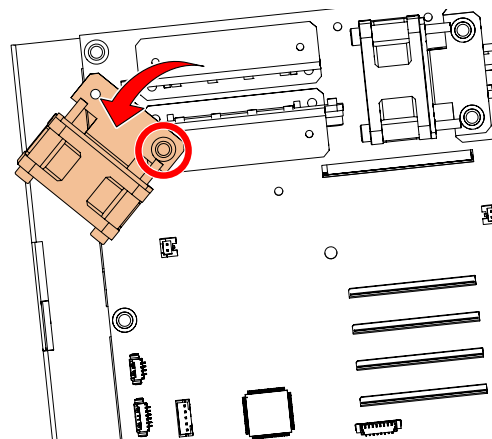
12. Remove the print carriage board.



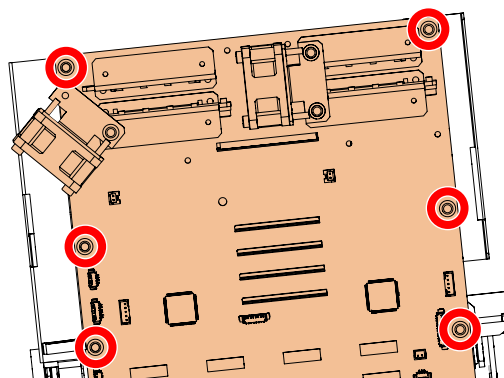
12-1. The screw on the top left corner of the print carriage board is hidden under the fan. To access the hidden screw, first remove the screw that secures the left side of the fan using a Phillips screwdriver with a length of 150 mm or less.



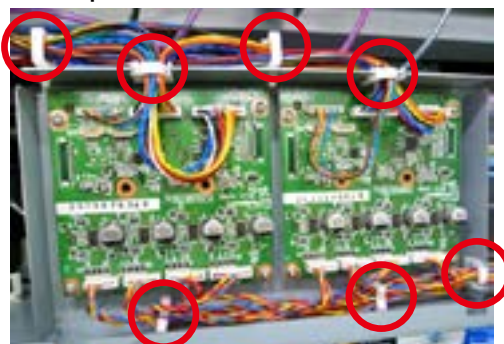
12-2. Then, loosen the screw indicated by the red circle in the figure below and slide the fan toward the front.



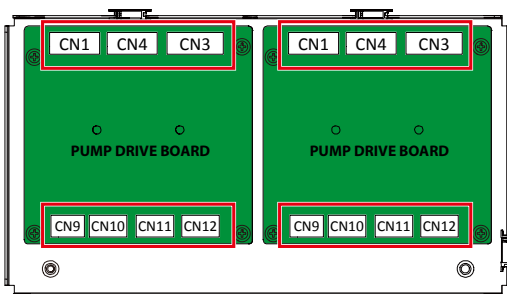
12-3. Remove six screws that secure the print carriage board.



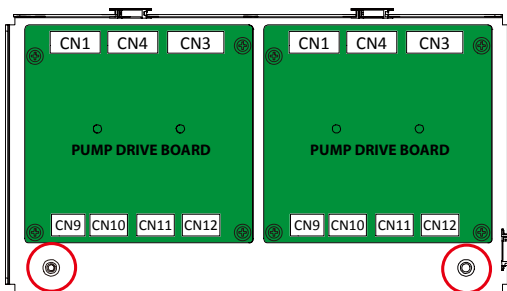
13. Unfasten seven clamps. Then, release the cables, which are connected to the pump drive boards, from the clamps.



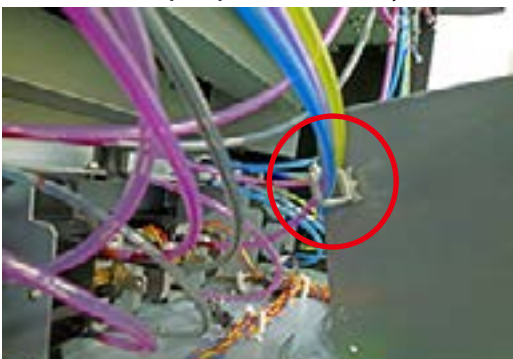
14. Unplug all the connectors from the pump drive boards.



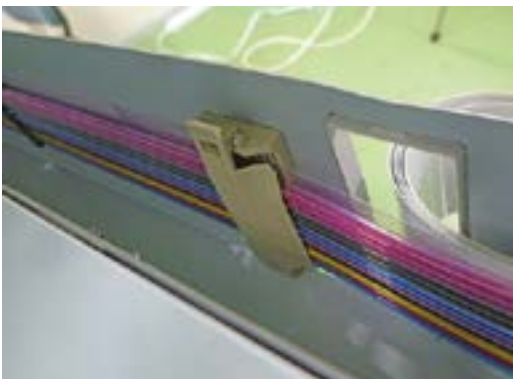
15. Remove two screws that secure the pump drive board stay.



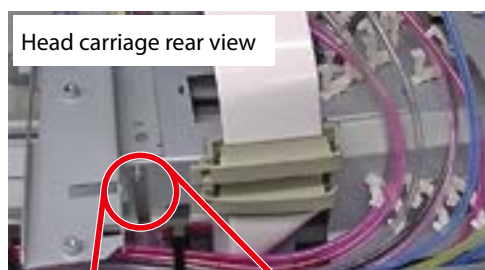
16. Release the ink tubes from the clamp which is on the back side of the pump drive board stay.



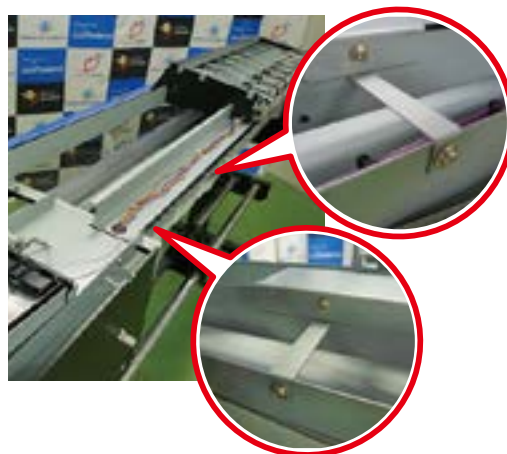
17. Unfasten the clamp.



18. Remove two plates. Each plate is secured with one screw.



19. Remove two plates. Each plate is secured with two screws.



- 20.** Unfasten 11 clamps and release the tubes from the clamps.



VG-640: Serial No. ZCU0988 or later
VG-540: Serial No. KCV0355 or later

Unfasten 12 clamps on the print carriage to remove the tubes.



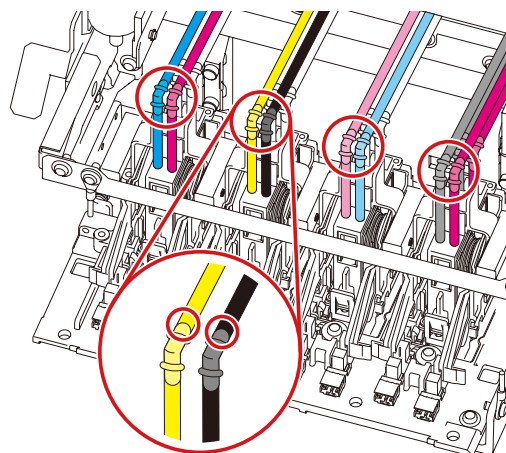
- 21.** Remove the tubes from the L-shaped joints.

CAUTION

Remove the ink tubes slowly so that ink will not drip or spatter. Putting waste cloth under the L-shaped tubes is recommended.

NOTE

Wipe off any ink from the ribbon cables and print heads with waste cloth.



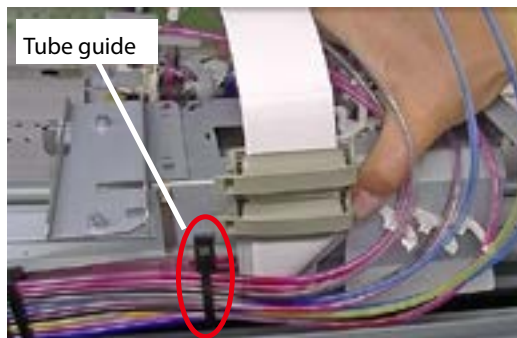
- 22.** Close the tube end with tape so that ink will not come out.



- 23.** Remove four screws.



- 24.** Lift up the print carriage plate and detach one tube guide.

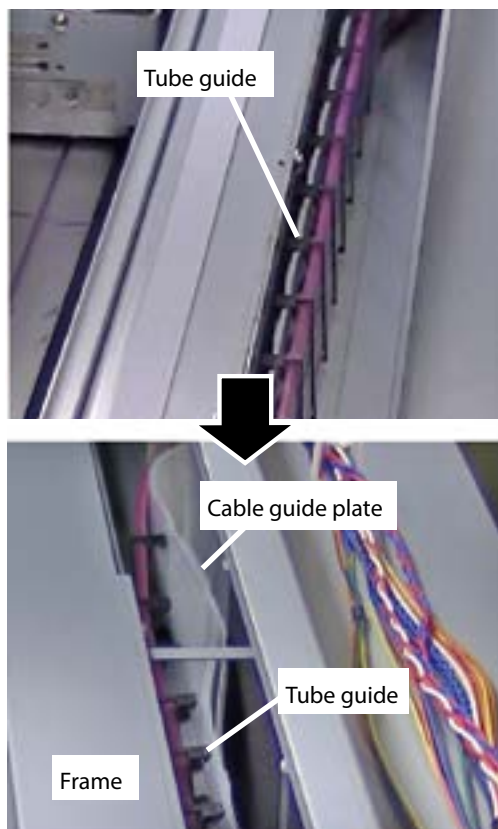


- 25.** Detach the rest of the tube guides from the cable guide plate and frame.

The number of tube guides to remove in this step:

VG-640: 30 tube guides

VG-540: 28 tube guides

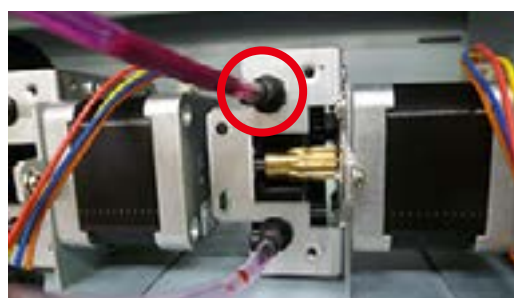


- 26.** Remove the upper ink tube from the pressure pump and ink circulation pump.

Pressure pump



Ink circulation pump



- 27.** Close the tube end with tape so that ink will not come out.



- 28.** Remove the ink tube, which is connected to the choke valves.



- 29.** Close the tube end with tape so that ink will not come out.



- 30.** Remove the ink tubes along with the tube guides.

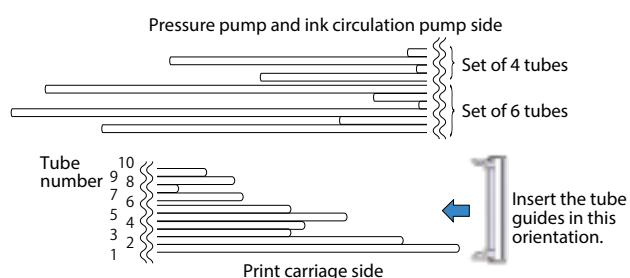


- 31.** Insert the new ink tubes through the tube guides.

Total number of tube guides:

VG-640: 31 tube guides

VG-540: 29 tube guides



- 32.** Insert the new ink tubes into the machine.

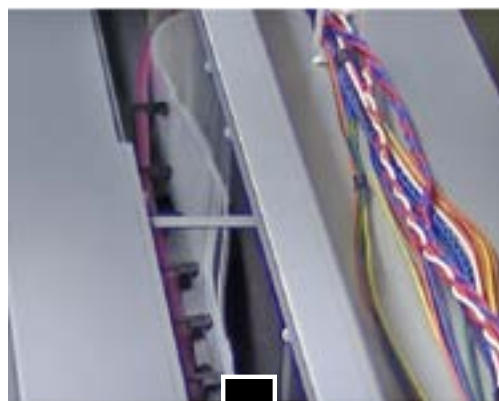


- 33.** Attach the tube guides to the tube guide plate and the frame.

The number of tube guides to attach in this step:

VG-640: 30 tube guides

VG-540: 28 tube guides



- 34.** Lift up the print carriage plate and attach the tube guide to the print carriage.

CAUTION

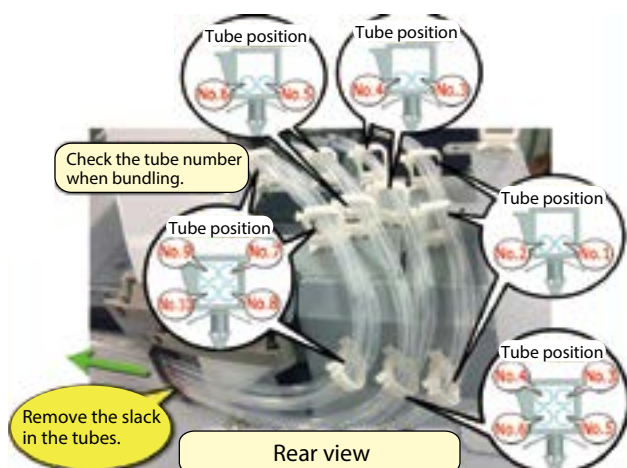
If you press the tube guide too hard, the tube guide will break. Be sure to align the tube guide plate with the cutout of the print carriage, and then attach the tube guide.



35. Tighten four screws.



36. Fasten the tubes with 11 clamps.



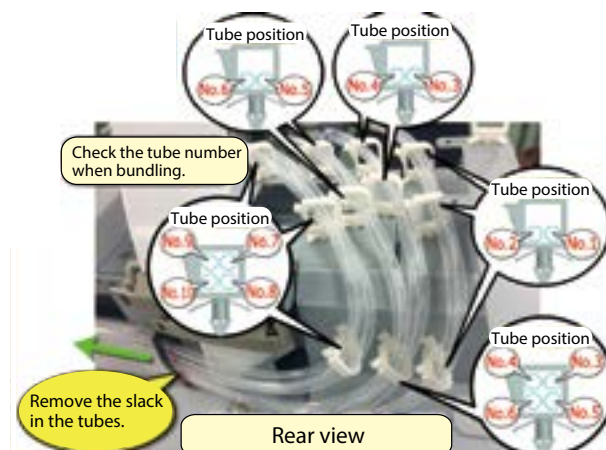
VG-640: Serial No. ZCU0988 or later
VG-540: Serial No. KCV0355 or later

Fasten 12 clamps to secure the tubes.

Rear side



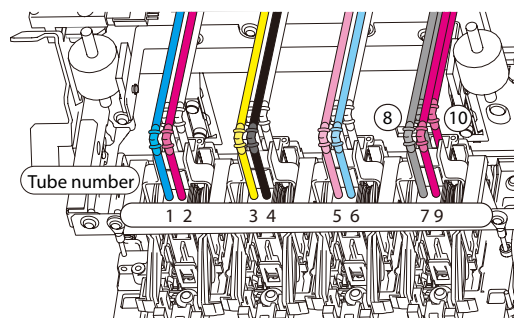
No.1 to No.6



37. Connect the ink tubes to the L-shaped joints.

CAUTION

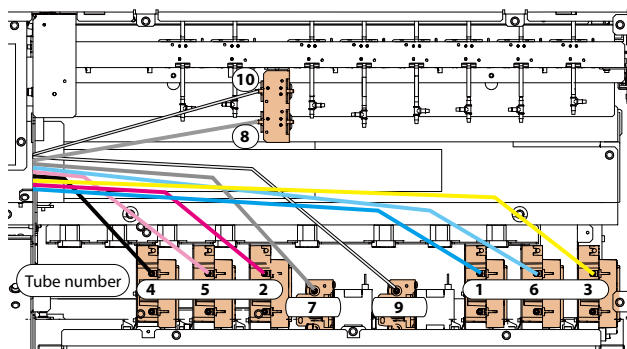
- Be sure to wear gloves (anti-slip).
- Hold the tube about ten mm from the end and insert it straight so that it does not bend.
- See the figure below and connect each tube to the correct joint.



38. Connect the ink tubes to the pressure pumps, ink circulation pumps, and the choke valve.

CAUTION

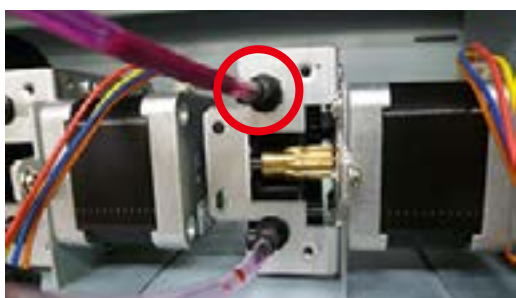
- Be sure to wear gloves (anti-slip).
- Hold the tube about ten mm from the end and insert it straight so that it does not bend.
- See the figure below and connect each tube to the correct joint.



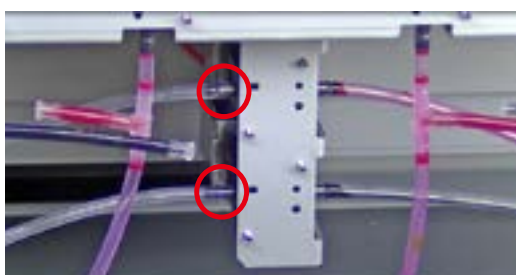
Pressure pump



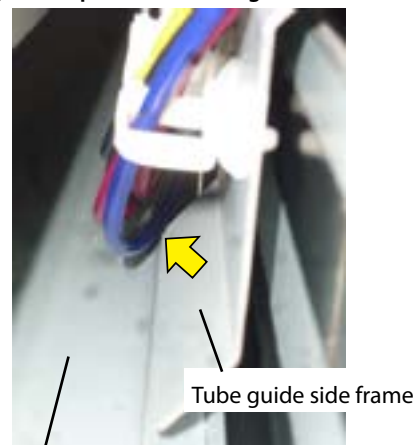
Ink circulation pump



Choke valve



39. Move the print 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.
40. Move the print carriage across the whole width of the guide rail several times and check that the ink tubes do not come in contact with the tube guide side frame and/or tube guide bottom frame. If they do, adjust the position and length of the ink tubes.

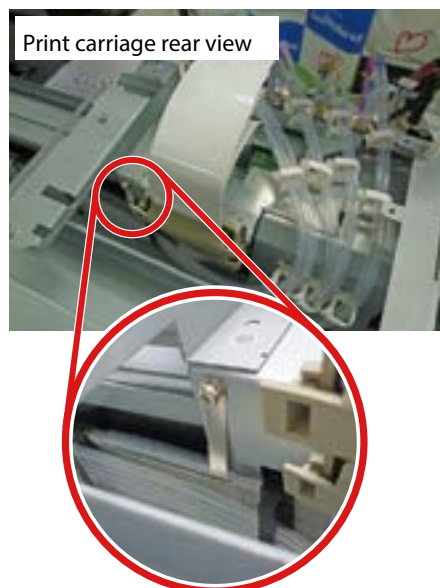


Tube guide bottom frame

41. Tighten two screws to secure the two plates.

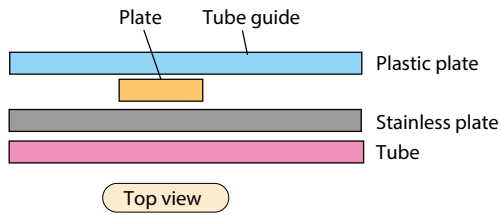


Print carriage rear view

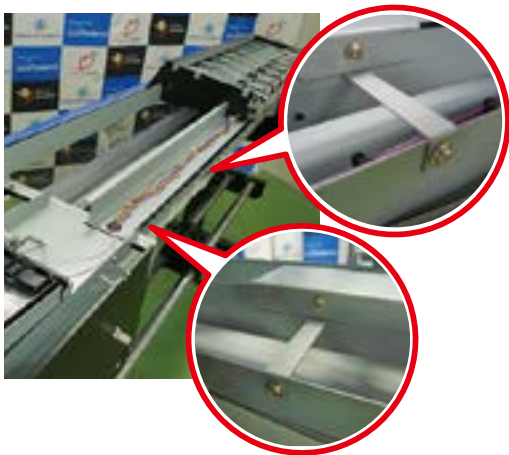


NOTE

Insert the plate in between the plastic plate and stainless plate.



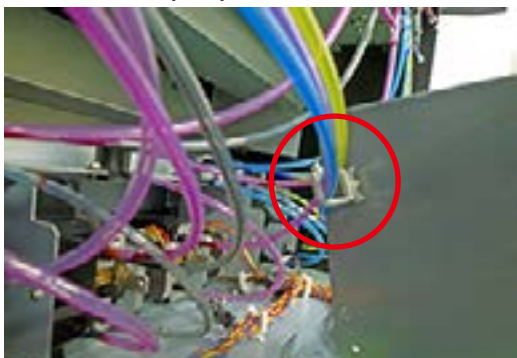
42. Tighten four screws to secure the two plates.



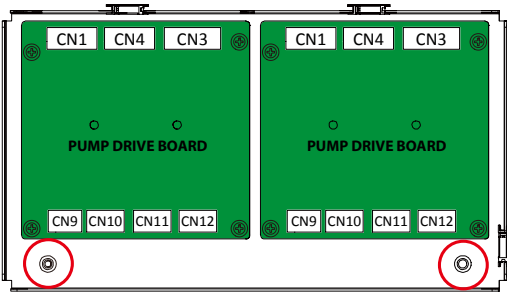
43. Bundle the ink tubes with the clamp.



44. Bundle the ink tubes with the clamp which is on the back side of the pump drive boards.



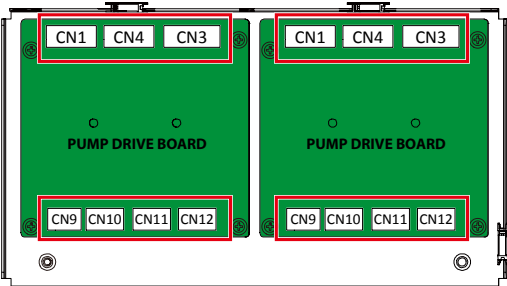
45. Tighten two screws to secure the pump drive board stay.



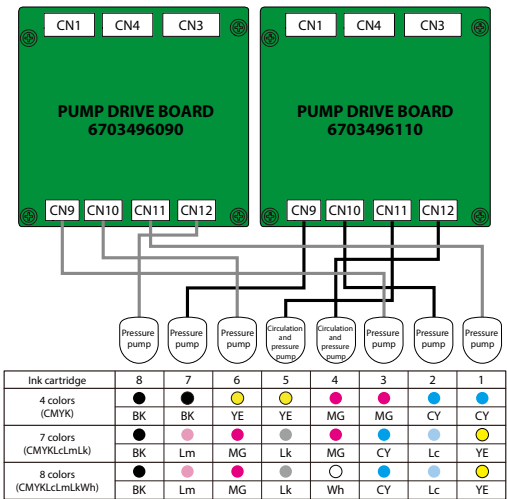
46. Plug all the connectors into the pump drive boards.

CAUTION

The connectors for the right pump drive board and the connectors for the left pump drive board look exactly alike. Be careful not to mix them up.



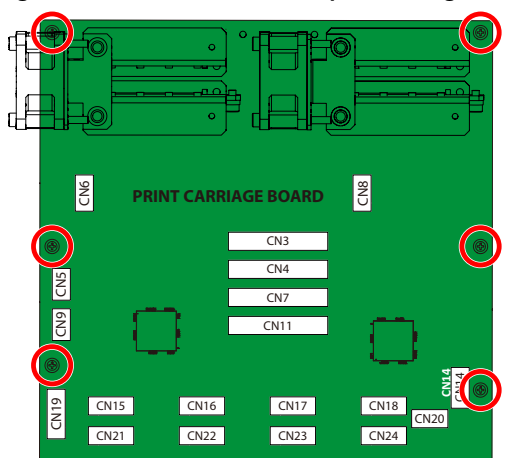
Wiring map of the pump drive boards



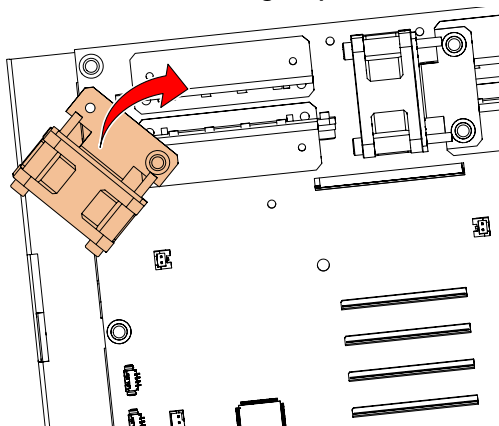
- 47.** Bundle the cables with seven clamps.



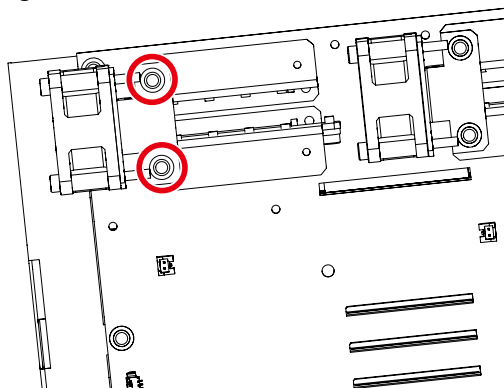
- 48.** Tighten six screws to secure the print carriage board.



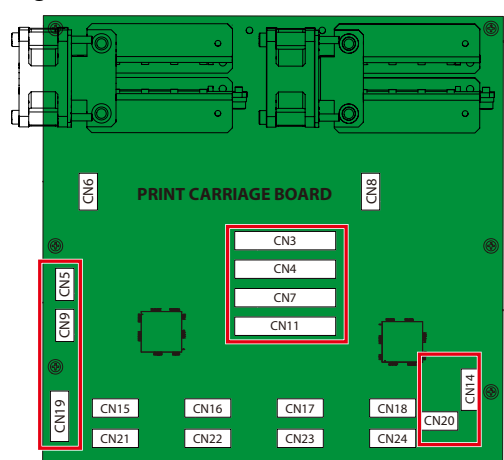
- 49.** Slide the fan back to its original position.



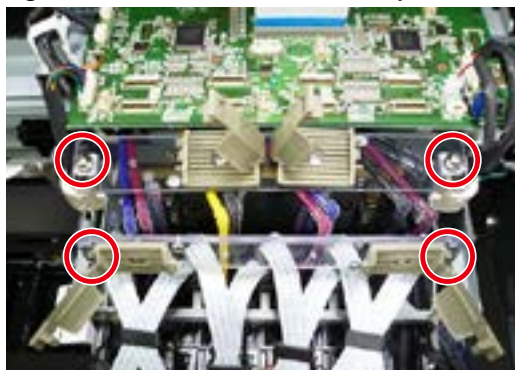
- 50.** Tighten two screws to secure the fan.



- 51.** Plug in the connectors.

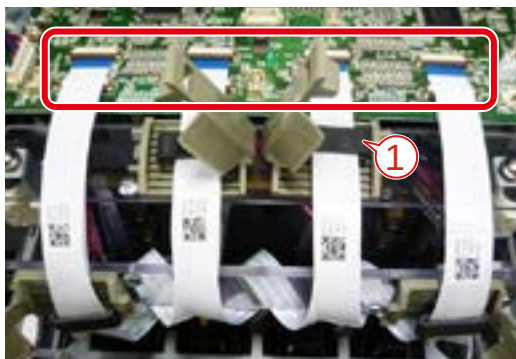


- 52.** Tighten four screws to secure the two plates.



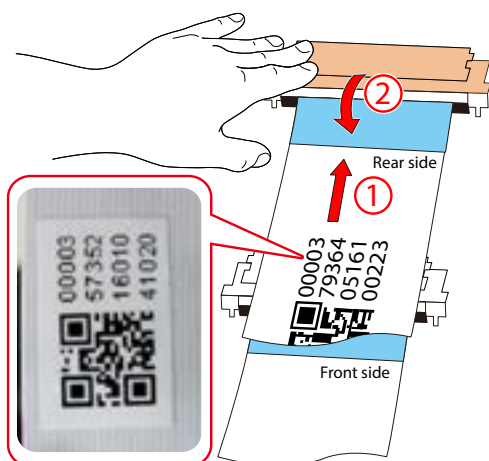
53. Connect the ribbon cables to the print carriage board.

1. Ferrite core

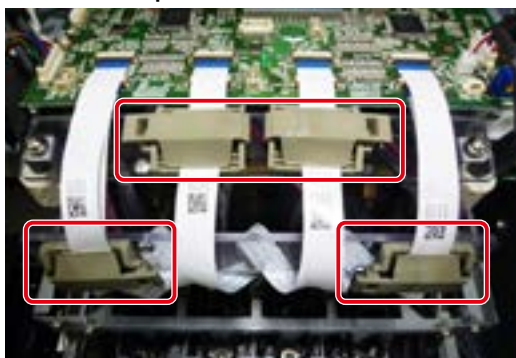


CAUTION

- Be sure to connect each ribbon cable to the correct connector.
- Be sure to find head rank code in Rear side ribbon cable



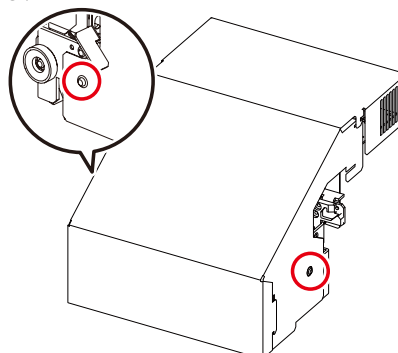
54. Close the clamps to secure the ferrite cores.



55. Tighten two screws to secure the cover.

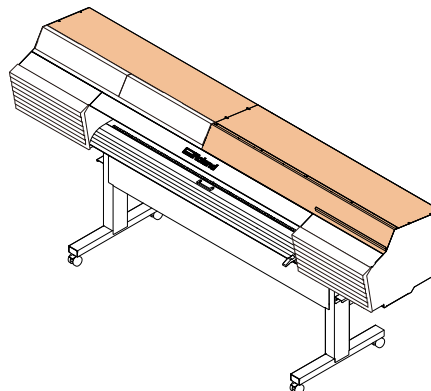
NOTE

Install the screws on the right and left side of the cover.

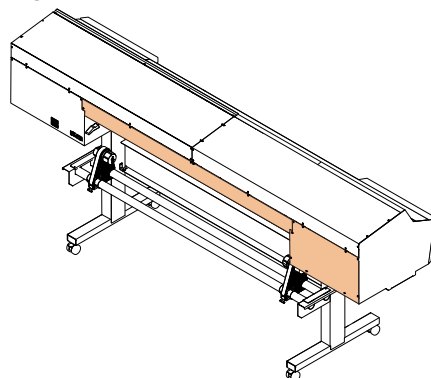


56. Fasten the five covers shown in orange in the figures below.

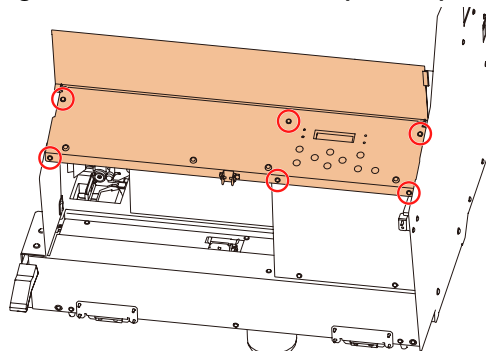
Front view



Rear view



57. Tighten six screws to secure the operation panel.



CAUTION

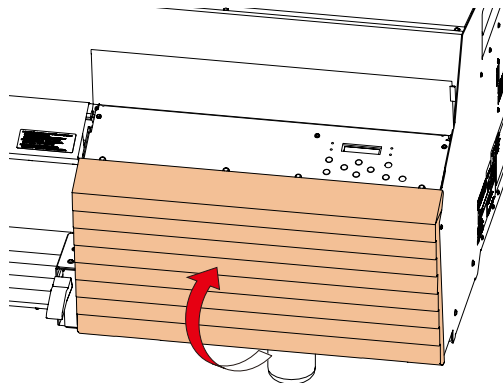
- Tighten two screws in the operation panel with holding up to the left, then make 1.5 mm clearance between the frame and the operation panel.



- Connect the ribbon cable to the operation panel.



- 58.** Close the maintenance cover R, then confirm the cover is fixed.

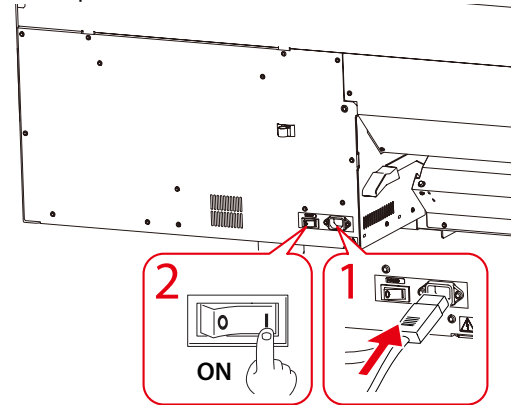


CAUTION

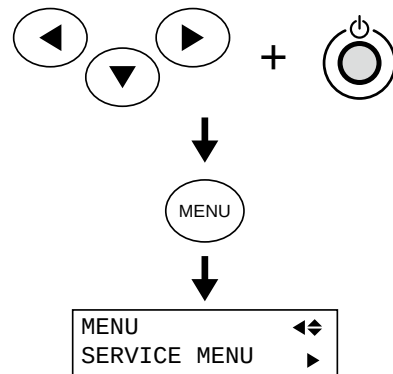
If the cover is not fixed, then maintenance sensor R does not work properly. Widen the clearance between the operation panel and the frame if the cover is not fixed by shaking the right and left ends of the cover back and forth with your hands.

- 59.** Plug in the power cord, and turn on the main power SW.

- Power cord
- Main power SW



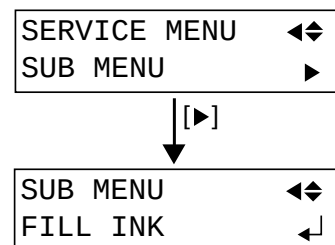
- 60.** Turn on the sub power SW while pressing the [◀] [▼] [▶] keys to enter the service mode.



- 61.** Perform [SERVICE MENU] > [SUB MENU] > [FILL INK] and fill the ink lines with ink.

NOTE

Required time for [FILL INK]: approx.30 min.



- 62.** (End of procedure)

Chapter 1 Replacement of Main Parts

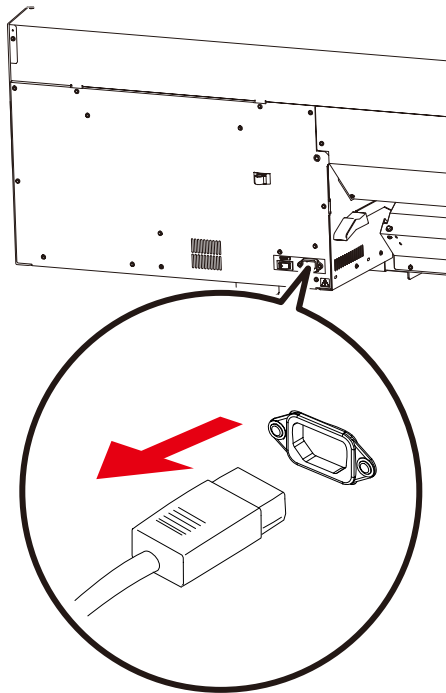
VG640: ADC0100 or later/VG540: LDA0100 or later

Important Points	1-128	Switching Power Supply Replacement	1-185
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Procedure	1-148	Information	1-196
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Signal JC Board Replacement	1-183	Procedure	1-222
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To Ensure Safe Work



Turn off the sub power switch and main power switch, and unplug the power cord of the printer 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.



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.

Information

Necessary tools

General tools

No.2 Phillips screwdriver

No.2 Phillips screwdriver (150 mm or less)

Gloves (anti-slip)

Waste cloth

Service parts

Old parts

6000003425 ASSY,INKJET HEAD (HEAD ONLY) SV CG2048

1000018349 HEAD CABLE-CARD 250L SET SV CG2048

New parts

(Refer to SERVICE INFORMATION RSB-0143)

6000003991 ASSY,INKJET HEAD 250L SV CG2032

1000015256 ASSY,DAMPER DOUBLE CIR 2 VG-640

Replace the above parts all at the same time.

Special tools

ST-056 TORQUE DRIVER N6

~~1000015724~~
1000015274 BIT, PHILLIPS NO.2 L200MM

Workflow

1. Print head assembling
2. Print head replacement
3. Clearing the print head information
4. Print head alignment

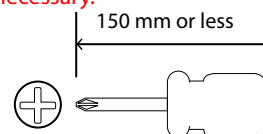
Time

Contents of work	Time
Print head assembling	5 min.
Print head replacement	60 min.
Clearing the print head information	1 min.
Print head alignment	25 min.

Procedure

CAUTION

- A Phillips screwdriver with a length of 150 mm or less is necessary.



- Pump up and ink filling of the damper cannot be performed with the front cover open due to the interlock mechanism (the interlock mechanism prevents printer's operation while the front cover is open). To operate the printer with the front cover open, press and hold the sensor switch.

NOTE

If you use an assembled print head (6000003077 ASSY,INKJET HEAD VG-640_01), make sure to replace the ribbon cable.

See the following URL for the detailed procedure.

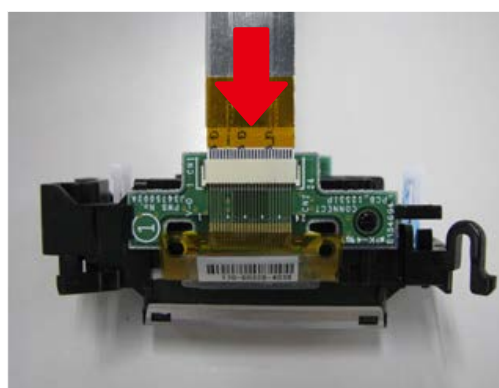
https://365rolanddg.sharepoint.com/sites/extranet/Service%20Notes/VG-640_supplemental_procedure_for_print_head_replacement_en.pdf

Print Head Assembling

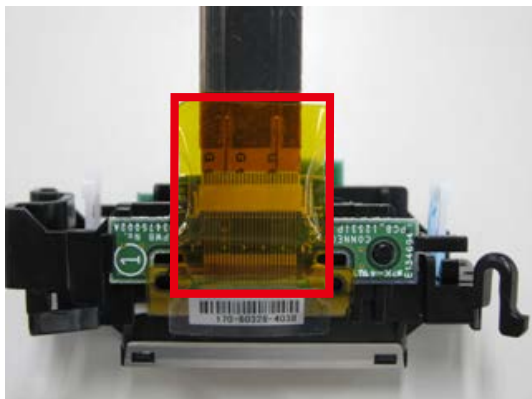
1. Insert the ribbon cable into the print head.

CAUTION

Insert the ribbon cable with the orientation shown in the figure.

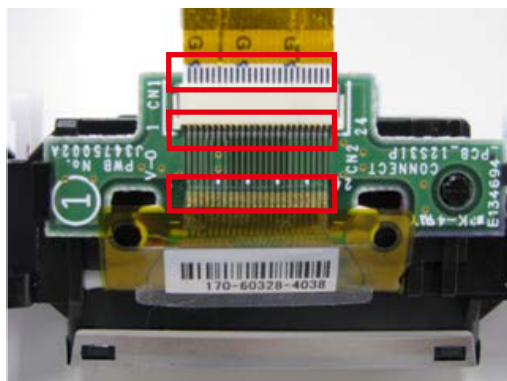


2. Cut the protective tape (TAPE, 650S-25-20X20) into 20+/-3 mm, and attach it to the print head.

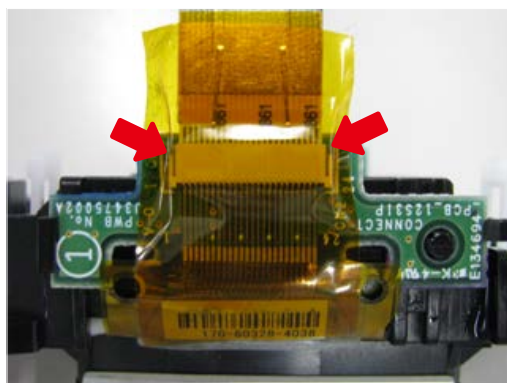


CAUTION

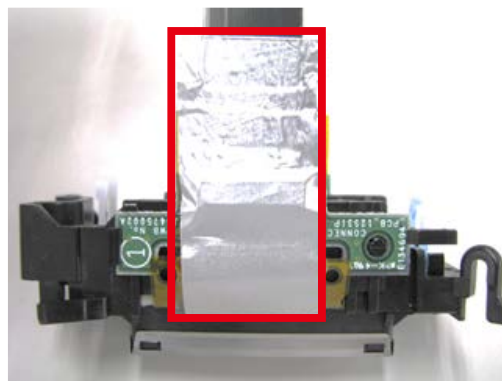
- Be sure to cover all the terminals indicated in red when you attach the protective tape.



- Press the protective tape at the stepped parts of the connector.

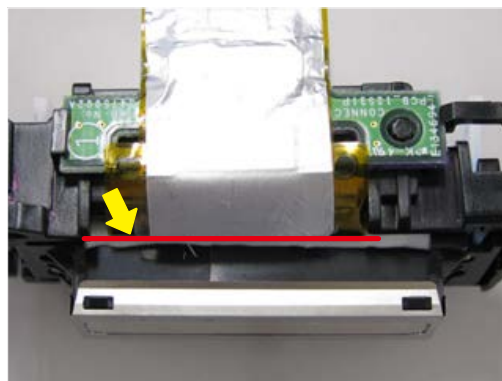


3. Cut the aluminum tape (TAPE, AL-19ST 19MM*50M) into 40+/-3 mm and attach it to the print head.

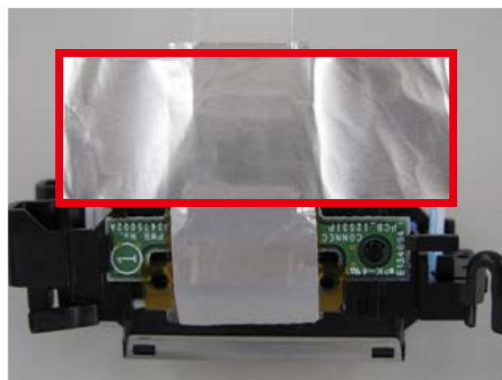


CAUTION

Attach the aluminum tape with the red line in the figure as the reference position.

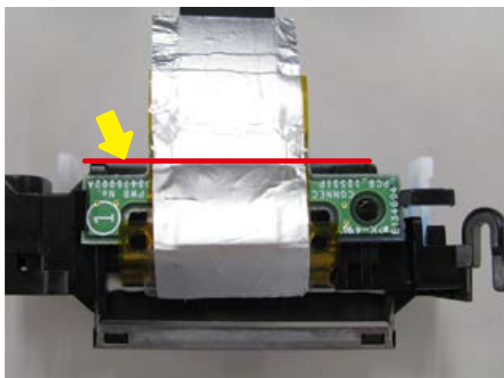


4. Cut the aluminum tape (TAPE, AL-19ST 19MM*50M) into 50+/-3 mm and attach it to the print head.

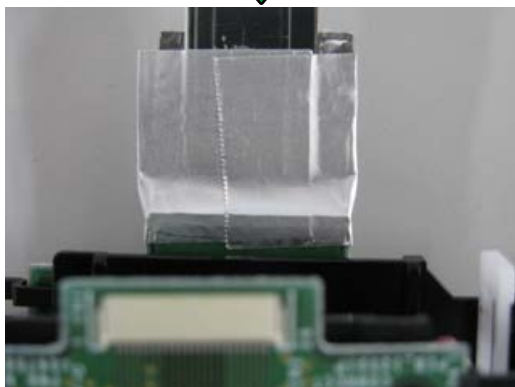
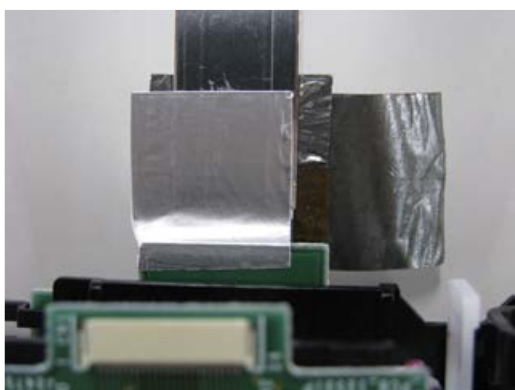


CAUTION

Attach the aluminum tape with the red line in the figure as the reference position.



5. Fold the aluminum tape to the back side.

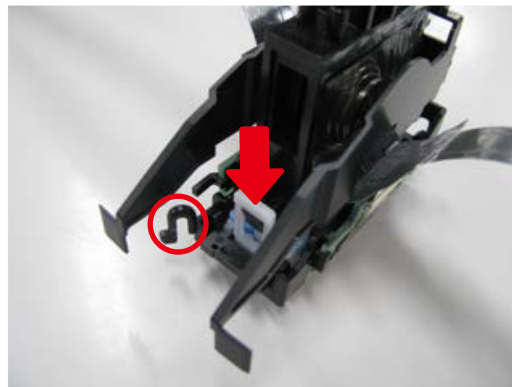


6. Attach the protective tape and the aluminum tape to the ribbon cable on the other side in the same way by following the steps 1 through 5.

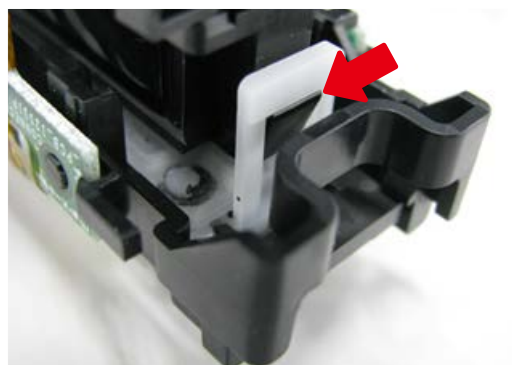
7. Attach the damper.

CAUTION

- Check the orientation of the damper.
- The resin spring side comes the filler side
- Attach one of the two hooks indicated with the red arrow first.



- Check that the hook has been caught securely.



8. Attach the head rank sticker to the right ribbon cable.



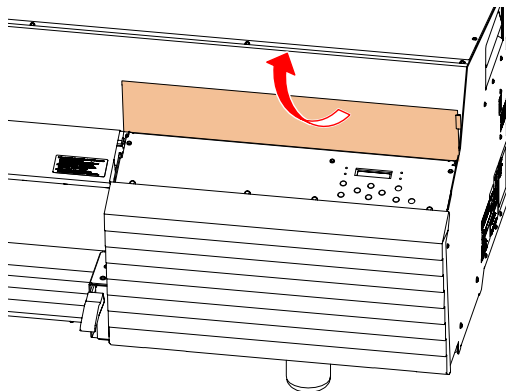
NOTE

Attach the sticker near the terminal that will be connected to the print carriage board.



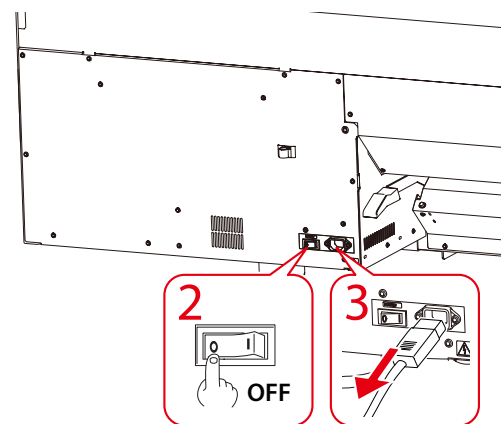
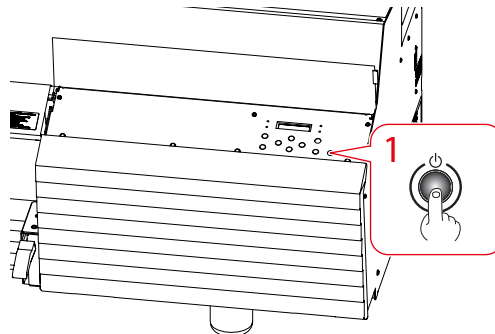
Print Head Replacement

9. Open the cover.

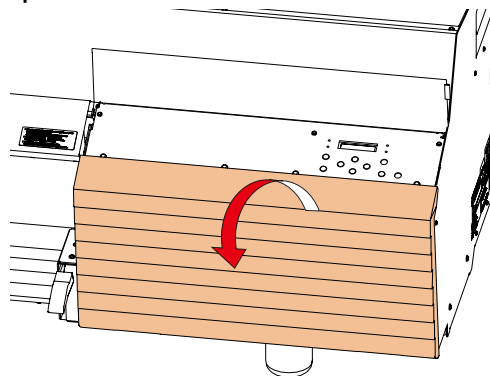


10. Turn off the sub power switch, and then turn off the main power switch. Unplug the power cord.

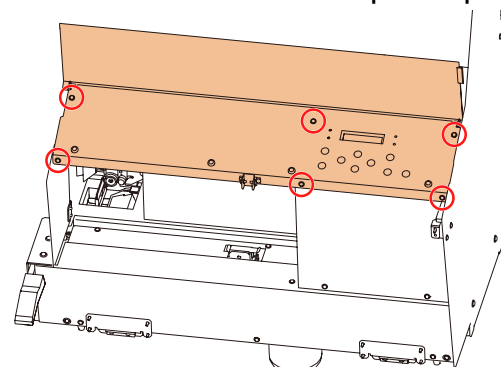
1. Sub power switch
2. Main power switch
3. Power cord



11. Open the maintenance cover R.

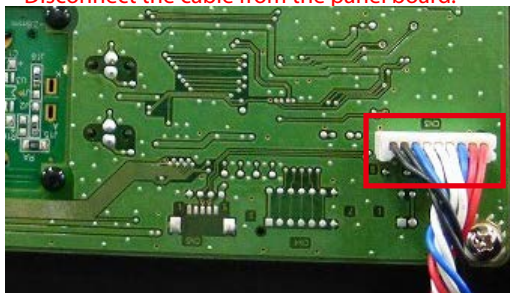


12. Remove six screws that secure the operation panel.

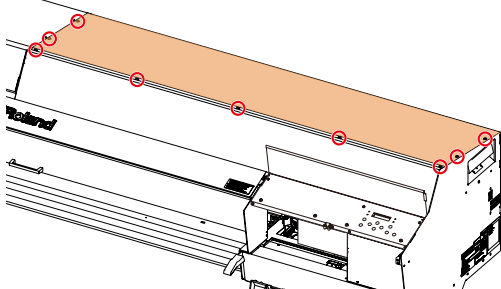


CAUTION

Disconnect the cable from the panel board.



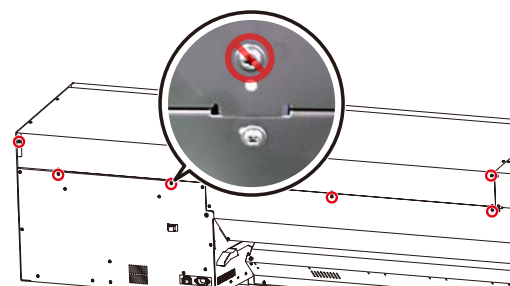
13. Remove 15 screws that secure the cover.



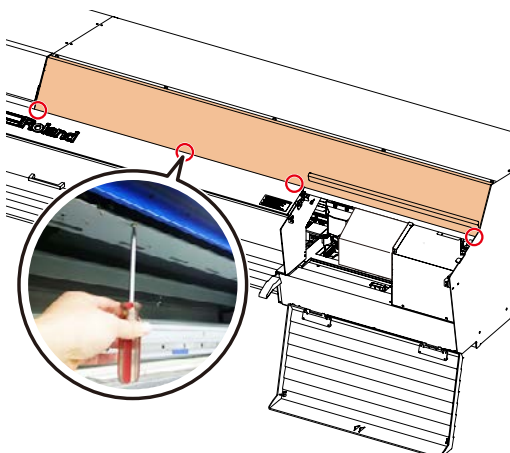
Rear view

CAUTION

Do not remove the upper screw. Remove only the bottom screw. If you remove both upper and bottom screws, a small plate that the two screws are securing will fall off inside the printer.



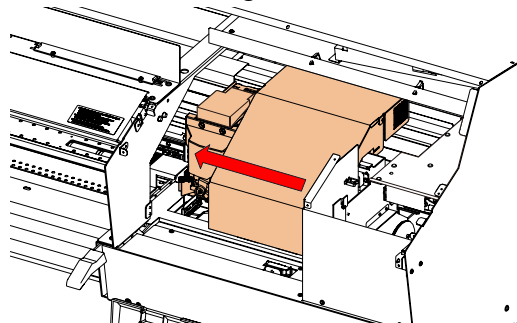
14. Remove four screws that secure the cover.



NOTE

Access the right end screw from the front, and the three screws on the left from below.

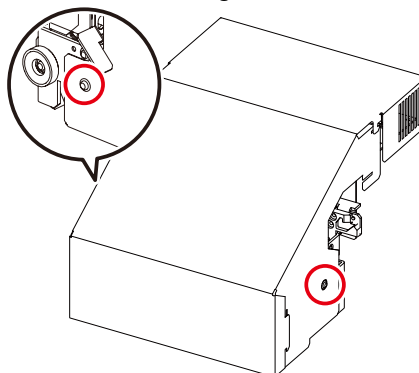
15. Unlock the head carriage.



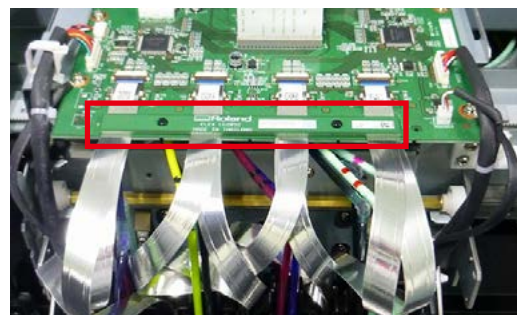
16. Remove two screws that secure the cover.

NOTE

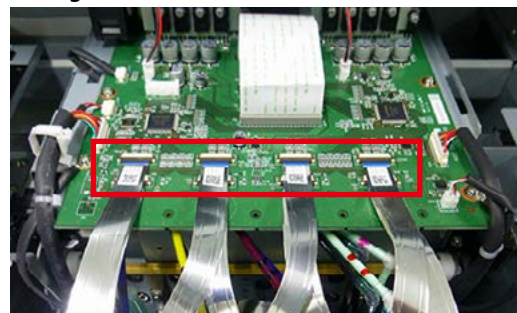
The screws are on the right and left side of the cover.



17. Remove two rivets that secure the cable retainer.

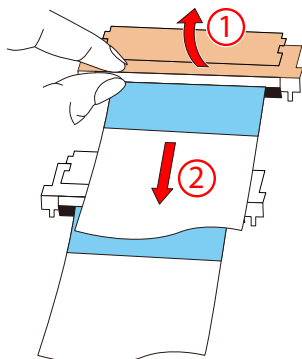


18. Disconnect all the ribbon cables from the print carriage board.



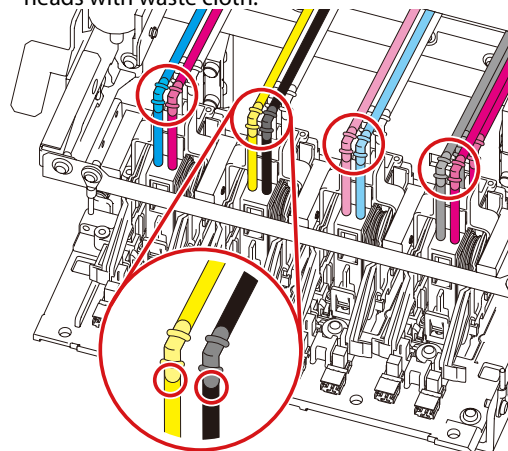
CAUTION

Open the cover in the direction of the arrow marked "1". Then, disconnect the ribbon cable from the print carriage board.

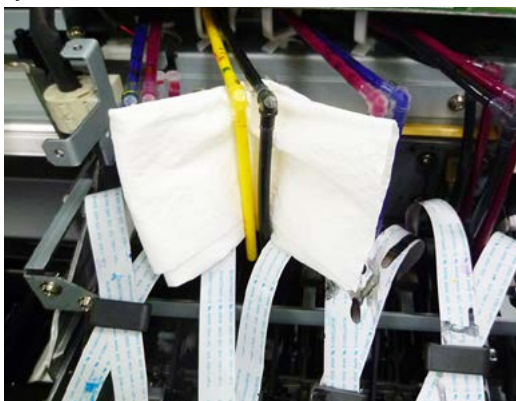


NOTE

Wipe off any ink from the ribbon cables and print heads with waste cloth.



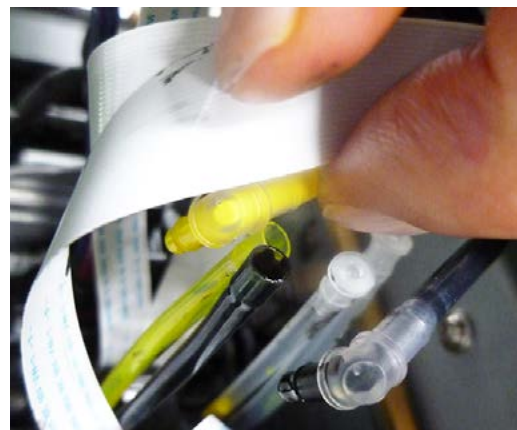
19. Place waste cloth under the tube joints. Ink may splatter and cause stains.



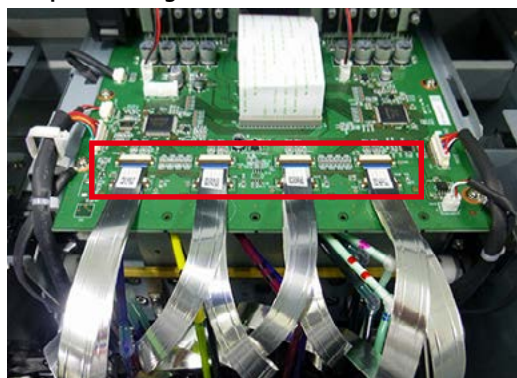
20. Remove the ink tubes, which are attached to the print head you are going to replace, from the L-shaped tubes.

CAUTION

Remove the ink tubes slowly to prevent ink from dripping or splattering. Even after the ink tubes are removed from the L-shaped tubes, ink will not leak from the L-shaped tubes because the pressure control valves prevent it.



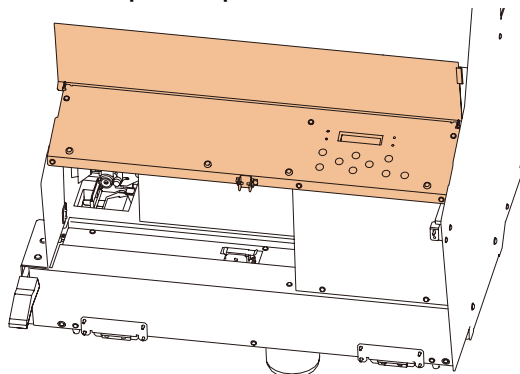
21. Connect all the ribbon cables of the print heads to the print carriage board.



CAUTION

Be sure to connect each ribbon cable to the correct connector.

22. Tighten one or a couple of screws to temporarily fasten the operation panel.

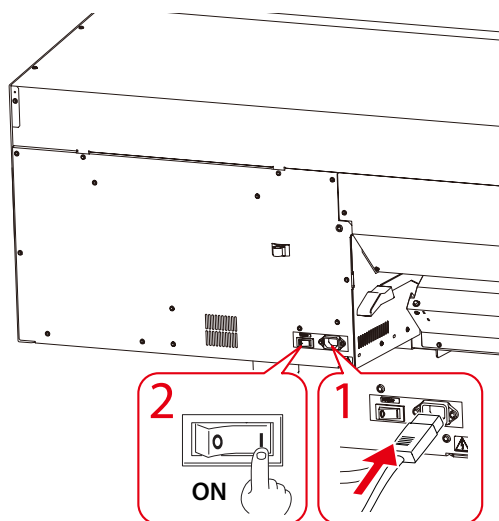


CAUTION

Connect the cable to the panel board.

23. Plug in the power cord, and turn on the main power switch.

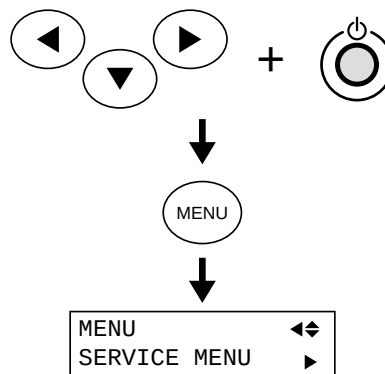
1. Power cord
2. Main power switch



24. Turn on the sub power switch while pressing the [◀] [▼] [▶] keys to enter the service menu.

CAUTION

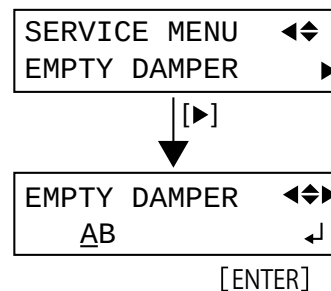
The machine may perform automatic cleaning if you do not turn on the sub power for a while and the certain time interval has passed. To avoid automatic cleaning, be sure to put the machine into service mode within 30 seconds after the main power is switched on.



25. Go to [SERVICE MENU] > [SUB MENU] > [EMPTY DAMPER] and select the head group being replaced. Then, perform [EMPTY DAMPER]. Required time for [EMPTY DAMPER]: Approx. 3 min.

CAUTION

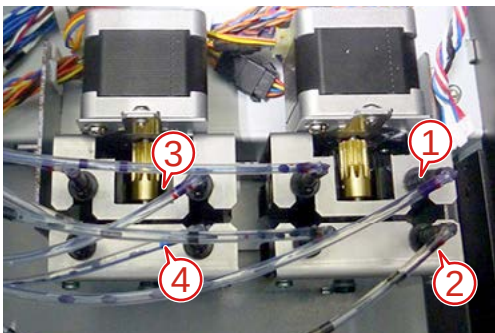
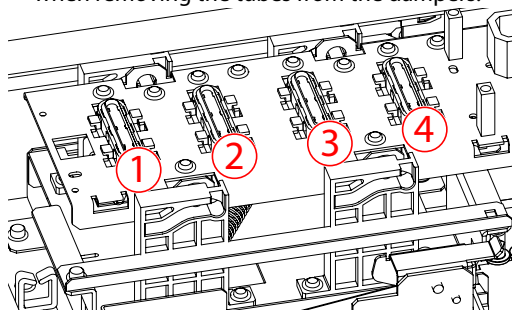
Be sure to perform [EMPTY DAMPER]. Otherwise, ink may leak from the dampers while you are removing the print head.



NOTE

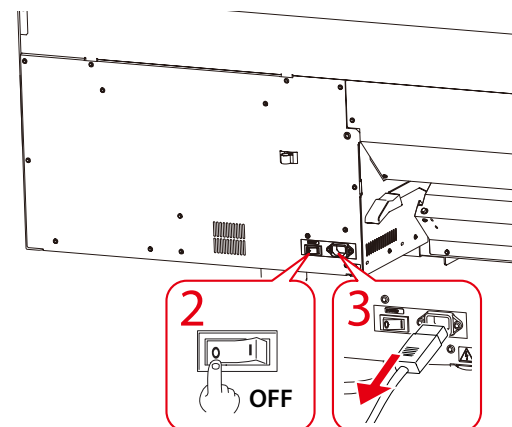
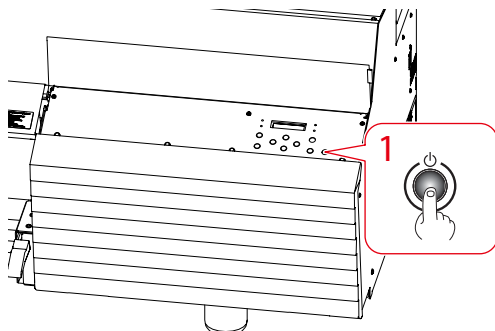
- To save ink, refer to the figures below and remove the tubes, which are connected to the print heads NOT being replaced, from the pumps. Be sure to reconnect the tubes to the pumps when [EMPTY DAMPER] is completed and after performing step 52.

- Be careful not to spatter ink on the feed encoder when removing the tubes from the dampers.

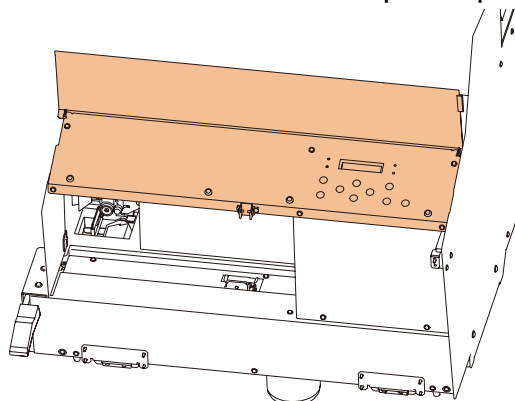


- 26.** Turn off the sub power switch, and then turn off the main power switch. Unplug the power cord.

1. Sub power switch
2. Main power switch
3. Power cord



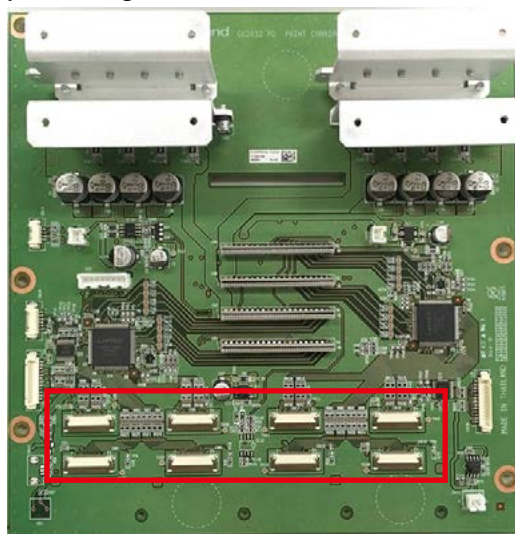
- 27.** Remove the screw that secures the operation panel.



CAUTION

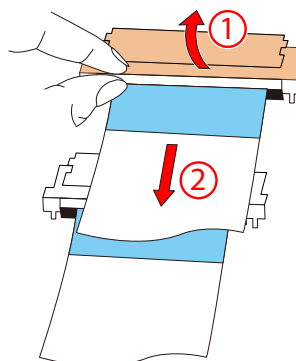
Before removing the operational panel, make sure to disconnect the ribbon cable from the panel board.

- 28.** Disconnect the ribbon cables (which are connected to the print head you are going to replace) from the print carriage board.

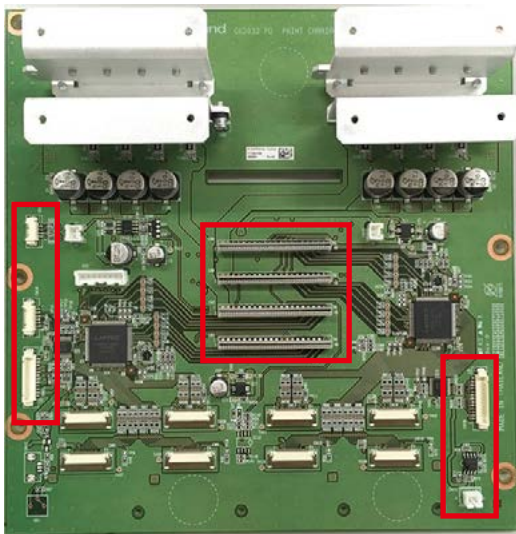


CAUTION

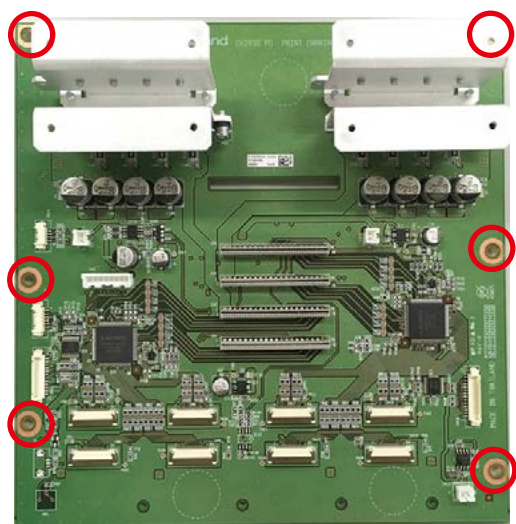
Open the cover in the direction of the arrow marked "1". Then, disconnect the ribbon cable from the print carriage board.



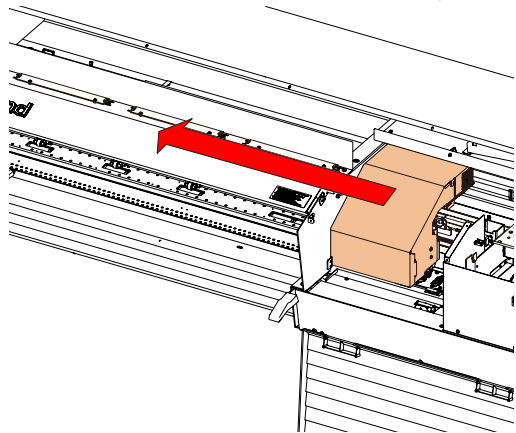
29. Unplug the connector.



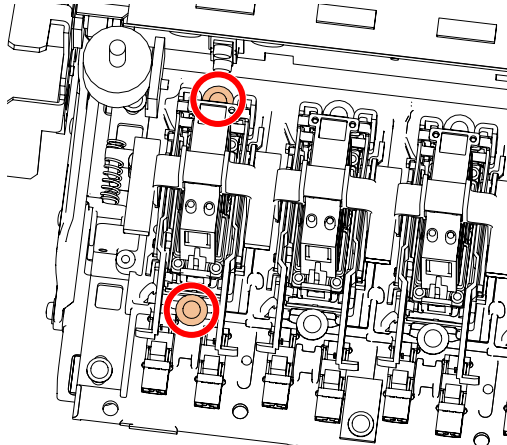
30. Remove six screws that secure the print carriage board. Then, slide the print carriage board toward the rear so that you can access the screw that secures



31. Move the print carriage to the print area by hand.



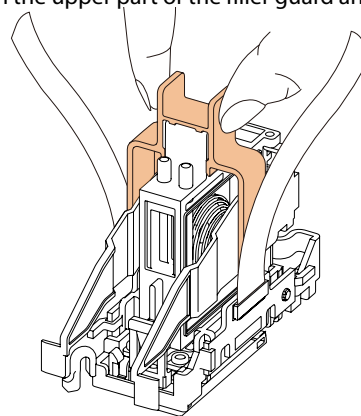
32. Remove two screws that secure the print head.



33. Detach the filler guard from the print head, and attach it to the new print head.

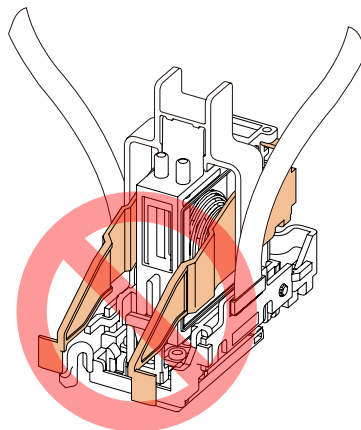
NOTE

Pinch the upper part of the filler guard and detach it.



CAUTION

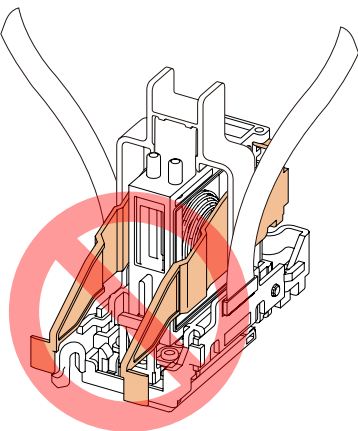
Be careful not to touch the filler.



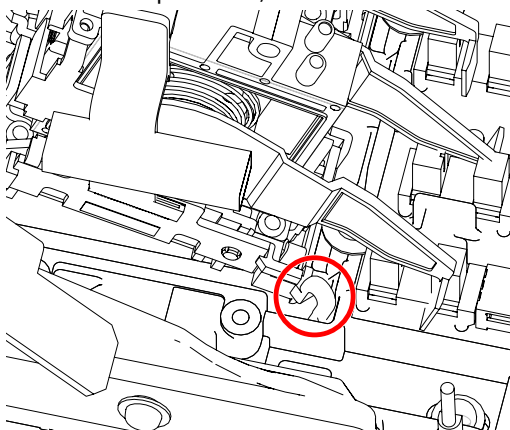
34. Attach the new print head to the head base.

CAUTION

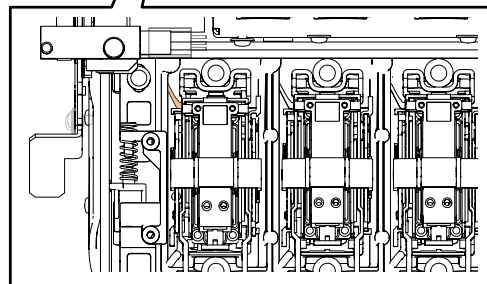
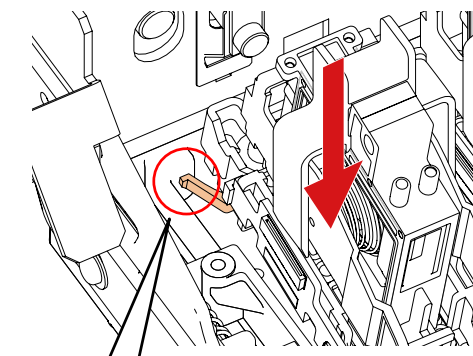
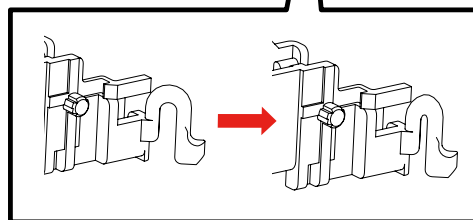
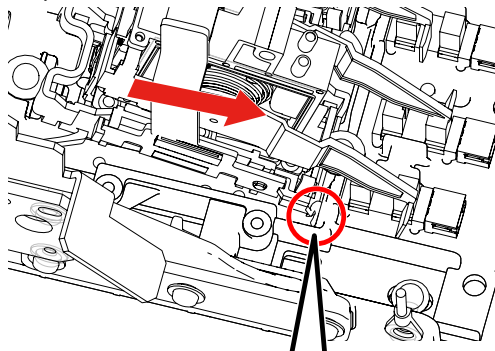
Be careful not to touch the filler.



34-1. First, hook the spring, which is on the right front side of the print head, to the head base.



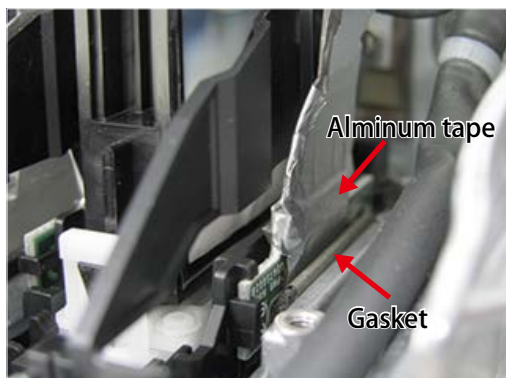
34-2. Then, press the spring against the head base until the spring bends, and then push the rear side of the print head into the head base.



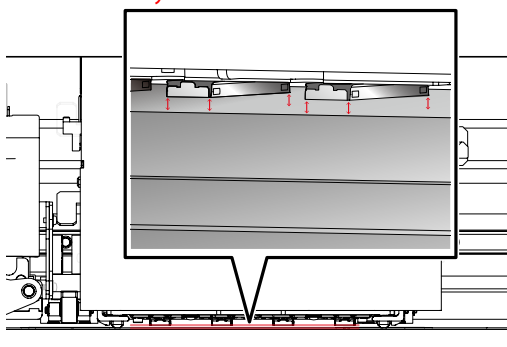
Make sure that the print head is attached to the base firmly.

CAUTION

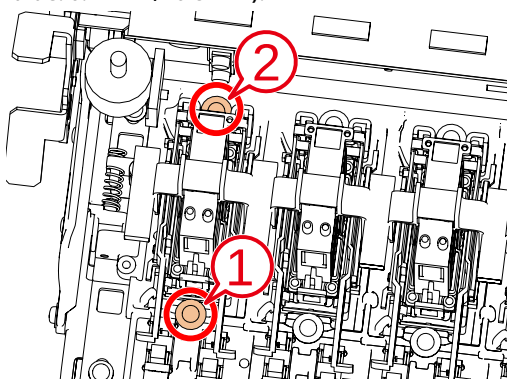
- If the print head is not attached firmly, it may crack when you secure it with screws.
- Make sure that the aluminum tape you attached to the print head is in contact with the gasket. (static electricity countermeasures)



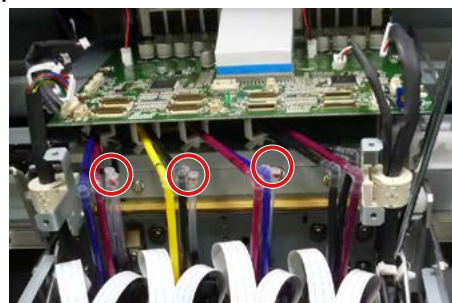
- Make sure that the all print heads are aligned horizontally.



- 35.** Tighten two screws with a torque screwdriver in the order shown below to secure the print head (torque value: 0.2 N•m/20 cN•m).



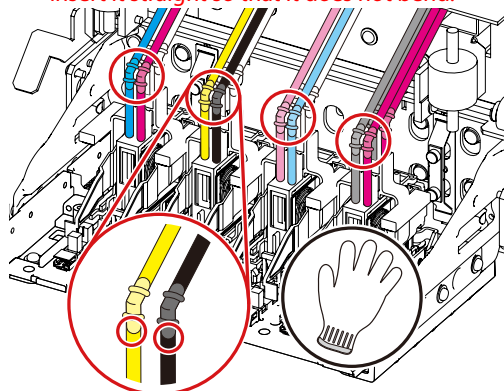
- 36.** For H1 to H3 and the left side of H4 which have no circulation route, insert included 20 mm tubes to the back side of the print heads. Then attach the included caps.



- 37.** Cut 100 mm tubes included with the print head to 70 mm, and attach them to the L-shaped joint.

CAUTION

- Be sure to wear gloves (anti-slip).
- Hold the tube about 10 mm from the end and insert it straight so that it does not bend.

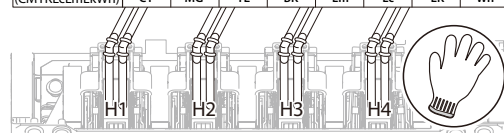


- 38.** Attach the tubes (which are connected to the L-shaped joint) to the print heads.

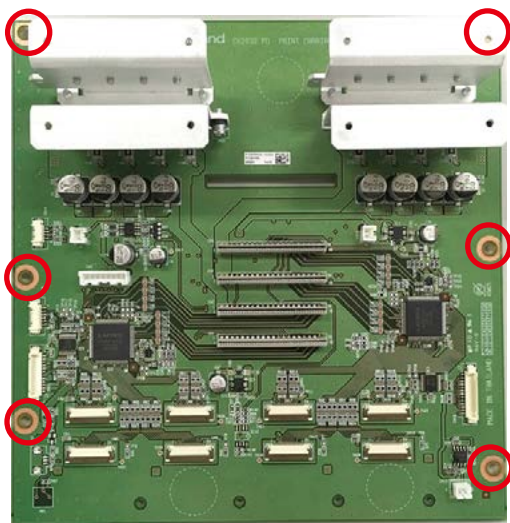
CAUTION

- Be sure to wear gloves (anti-slip).
- Insert the tube straight so that it does not bend.

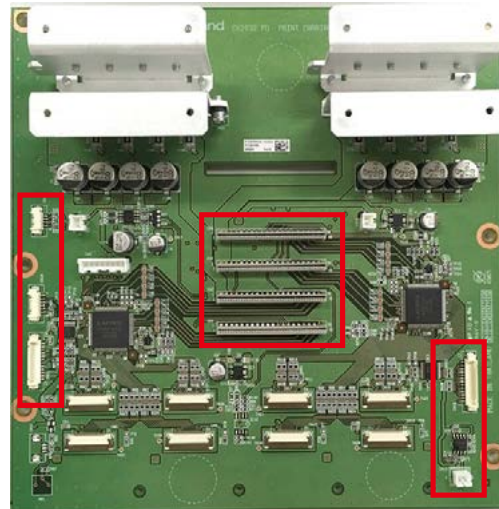
	H1		H2		H3		H4	
4 colors (CMYK)	MG	YE	CY	BK	BK	CY	YE	MG
7 colors (CMYKLcLmLk)	CY	MG	YE	BK	Lm	Lc	LK	MG
8 colors (CMYKLcLmLkWh)	CY	MG	YE	BK	Lm	Lc	LK	Wh



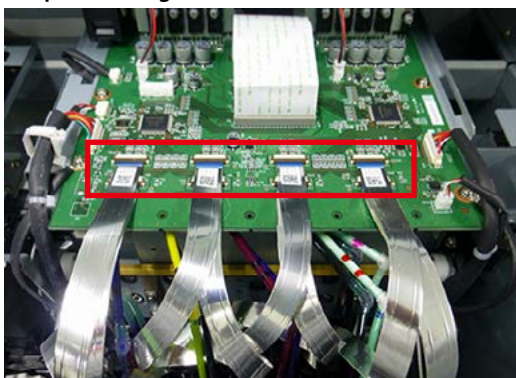
- 39.** Tighten six screws to secure the print carriage board.



- 42.** Plug in the connectors.



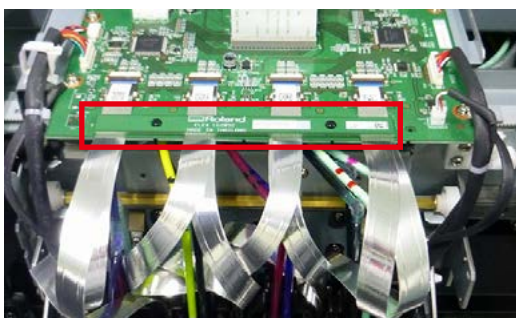
- 40.** Connect all the ribbon cables of the print heads to the print carriage board.



CAUTION

Be sure to connect each ribbon cable to the correct connector.

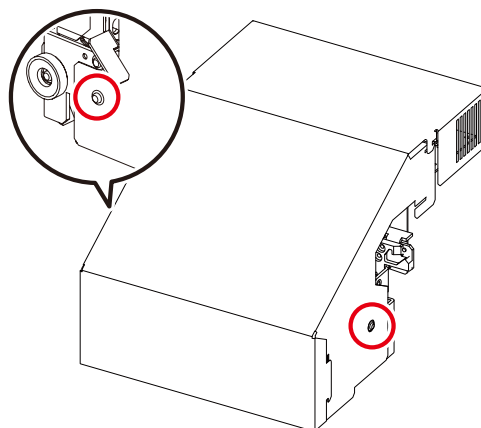
- 41.** Attach two rivets to secure the cable retainer.



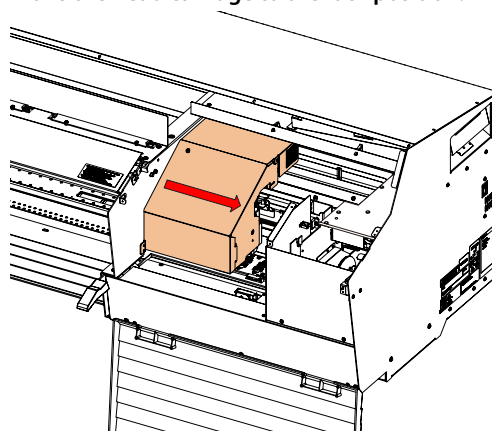
- 43.** Fasten the covers with screws.

NOTE

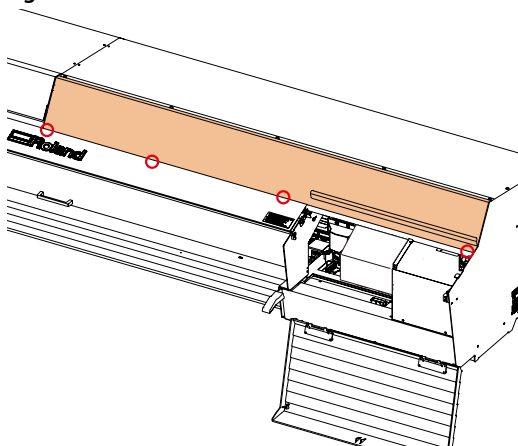
The screws are on the right and left side of the cover.



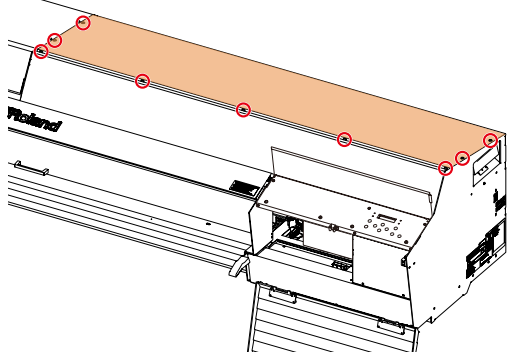
- 44.** Move the head carriage to the lock position.



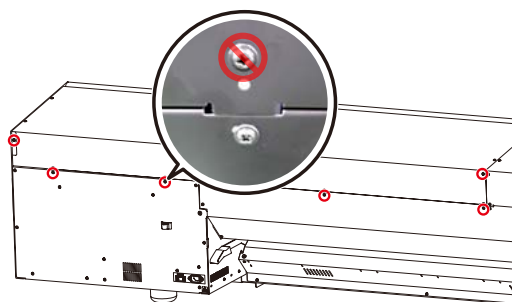
45. Tighten four screws to secure the cover.



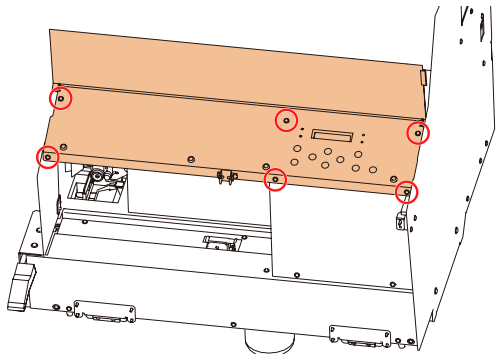
46. Tighten 15 screws to secure the cover.



Rear view

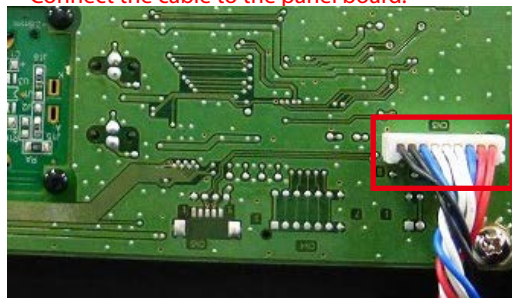


47. Tighten six screws to secure the operation panel.

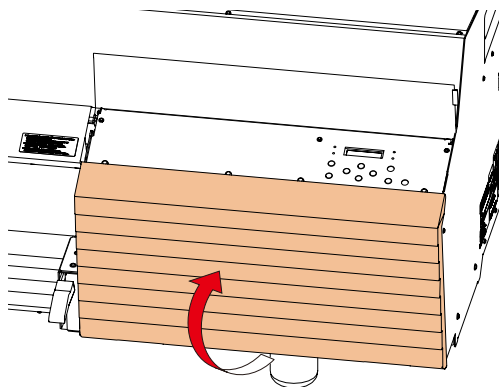


CAUTION

Connect the cable to the panel board.



48. Close the maintenance cover R, and then confirm the cover is fixed.



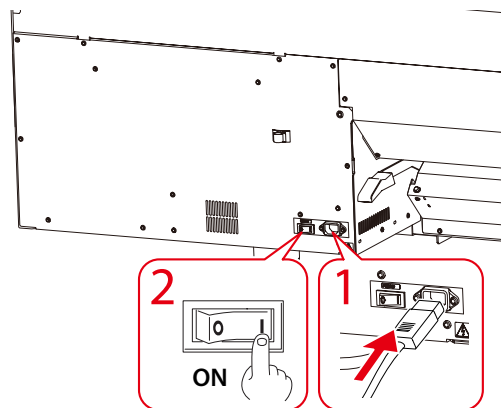
CAUTION

If the cover is not fixed, then maintenance cover sensor R does not work properly. Widen the clearance between the operation panel and the frame if the maintenance cover is not fixed by shaking the right and left ends of the cover back and forth with your hands.

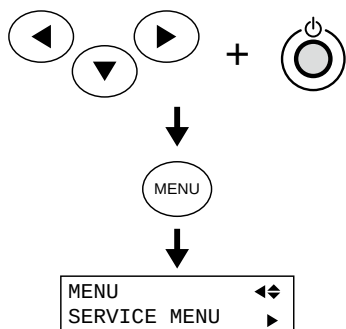
49. Plug in the power cord, and turn on the main power switch.

1. Power cord

2. Main power switch



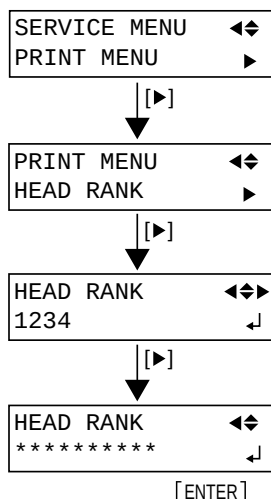
50. Turn on the sub power switch while pressing the [◀] [▼] [▶] keys to enter the service menu.



51. Select [SERVICE MENU] > [PRINT MENU] > [HEAD RANK], and input the head rank, which is written on the ribbon cable of the new print head. Input the head rank by selecting the corresponding digit with [◀] [▶] keys and changing the parameters with [▲] [▼] keys. Then press the [ENTER] key to save the setting.

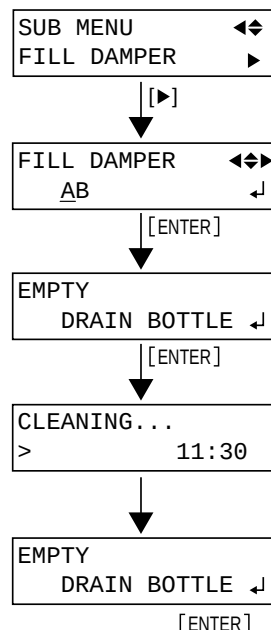
CAUTION

Even if you input a wrong head rank, a warning message will NOT appear. Make sure to input the head rank correctly.



52. Go to [SERVICE MENU] > [SUB MENU] > [FILL DAMPER] and select the head group of the print head you replaced. Then, perform [FILL DAMPER].

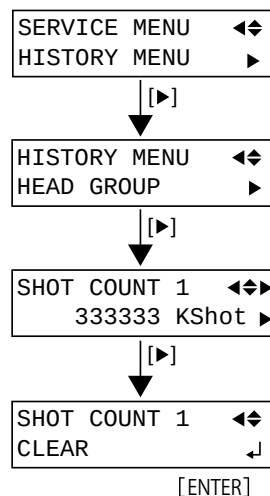
* Required time for [FILL DAMPER]: Approx. 18 min.



CAUTION

Make sure that the amount of remaining ink is more than approximately 50 ml before starting the [FILL DAMPER]. If ink runs out during the operation, it may cause cleaning error and ink mixture occurs. If ink mixture occurs, perform [FILL DAMPER] again after performing super cleaning. ([CHANGE TO NEW INK CARTRIDGE] is displayed.)

53. Clear print head information. Perform [SERVICE MENU] > [HISTORY MENU] > [HEAD GROUP] > [SHOT COUNT 1] to [SHOT COUNT 8] > [CLEAR].



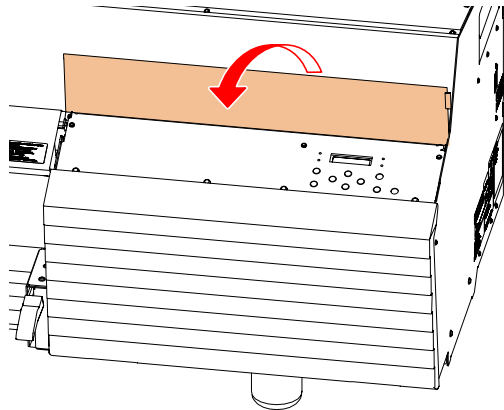
54. Perform the following.

54-1. Test Print

- ☞ When the printing result has missing dots or misaligned dots, perform the cleaning again.

54-2. Chapter 2 "[Print Head Alignment](#)"

55. Close the cover.



56. (End of procedure)

Cap Top Replacement

Information

Necessary tools

General tools

No.2 Phillips screwdriver

Special tools

None

Workflow

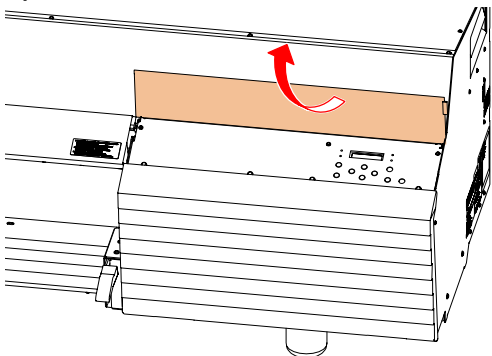
1. Cap top replacement

Time

Contents of work	Time
Cap top replacement	10 min.

Procedure

1. Open the cover.

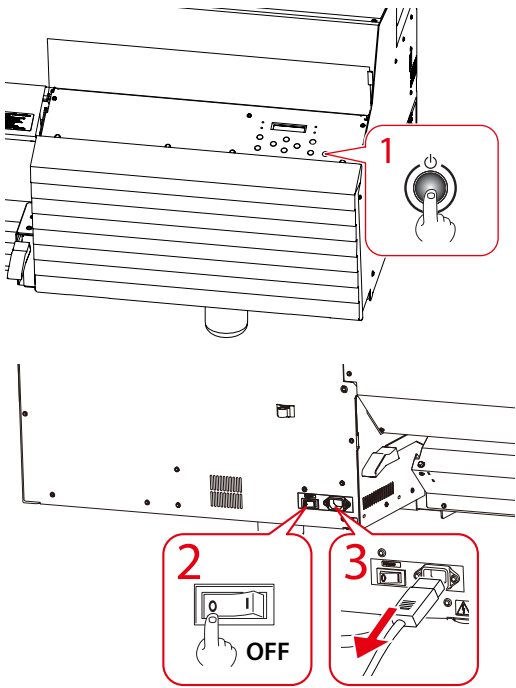


2. Turn off the sub power switch, and then turn off the main power switch. Unplug the power cord.

1. Sub power switch

2. Main power switch

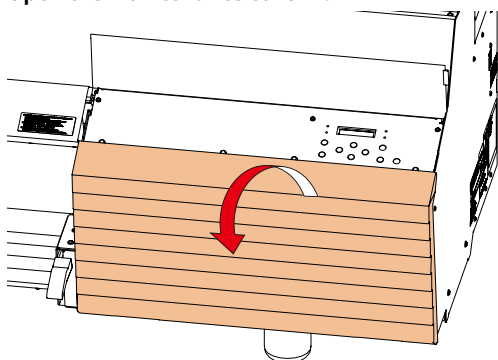
3. Power cord



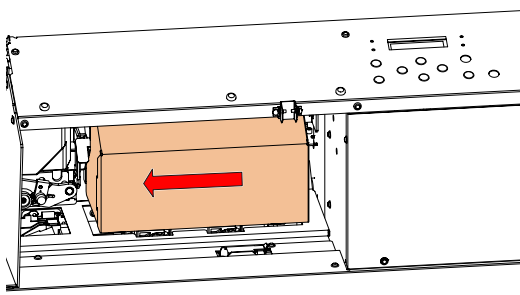
I

REPLACEMENT

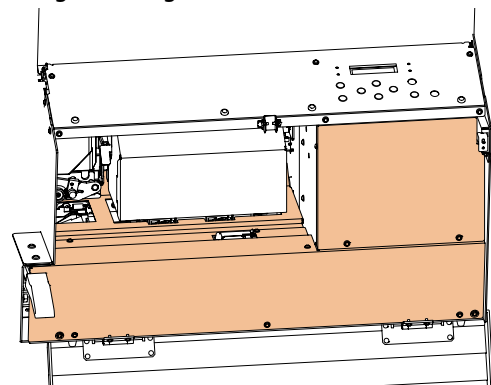
3. Open the maintenance cover R.



4. Unlock the head carriage, and move it to the left by hand.

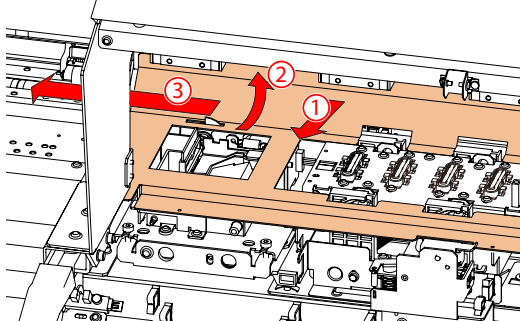


5. Remove the screws that secure the covers shown in orange in the figure.

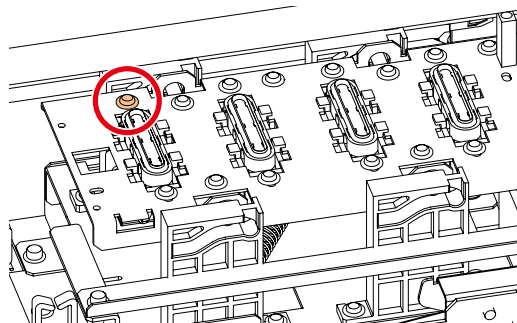


NOTE

Easiest way to remove the cover shown below is to 1) slide the cover to the front, 2) lift up the rear side of the cover, and 3) remove the cover from the left side.



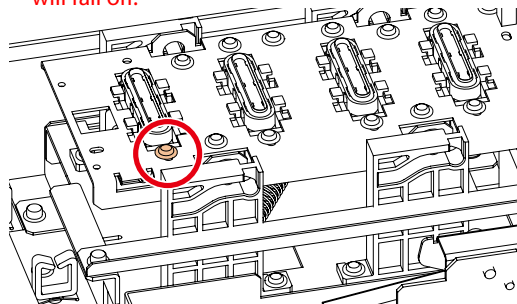
6. Remove the screw that secures the rear part of the cap top.



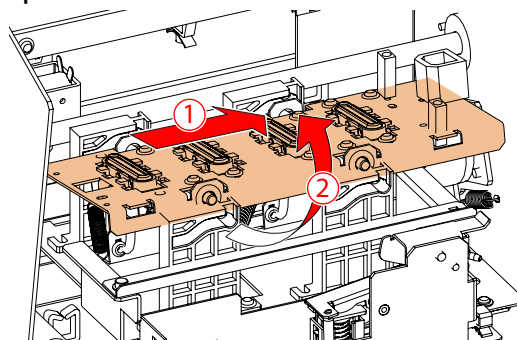
7. Loosen the screw that secures the front side of the cap top.

CAUTION

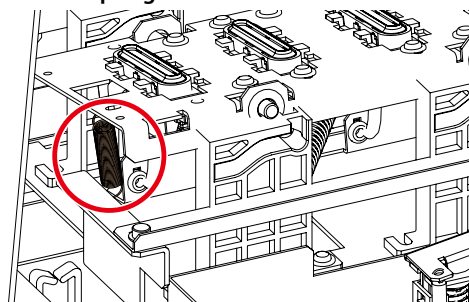
Do not remove the screw completely. Just loosen them. If you remove it, the base part of the cap top will fall off.



8. Slide the cap-base frame to the right, and then lift it up to remove it.

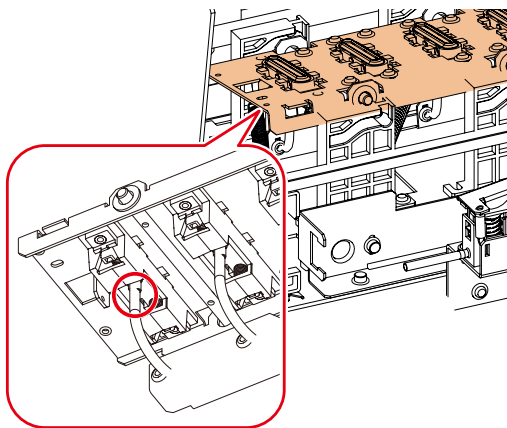


9. Remove the spring.



10. Detach the tube from the cap-base frame.

Bottom view

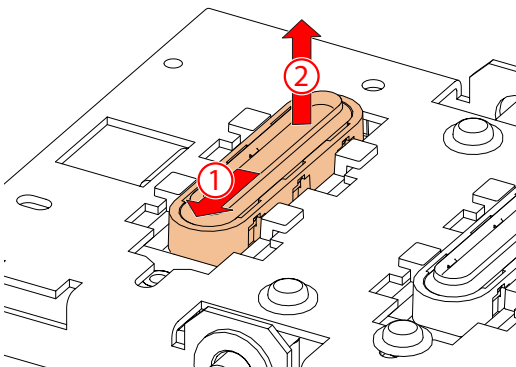


NOTE

Remove the tubes while leaving the joint on the lower tube as shown in the photo.

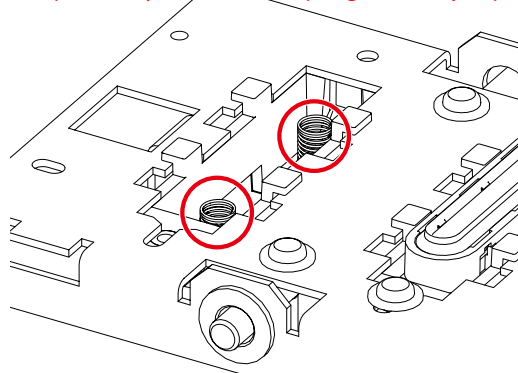


11. Slide the cap top to the front. Then, lift up the rear side of the cap top, and remove it.

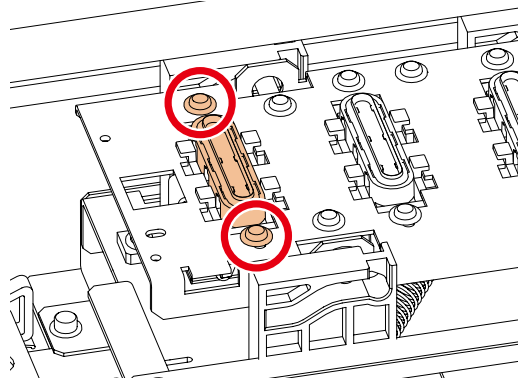


CAUTION

There are springs under the cap top. Remove the cap top carefully so that these springs will not jump out.

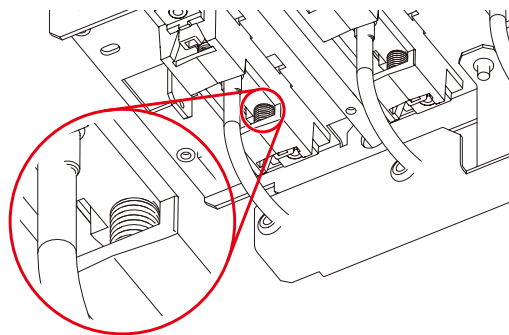


12. Tighten two screws to secure the new cap top.

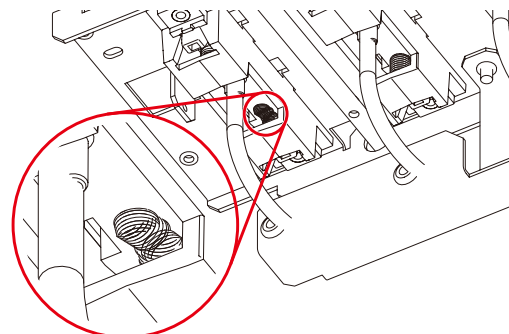


13. Check that the spring is attached properly.

OK

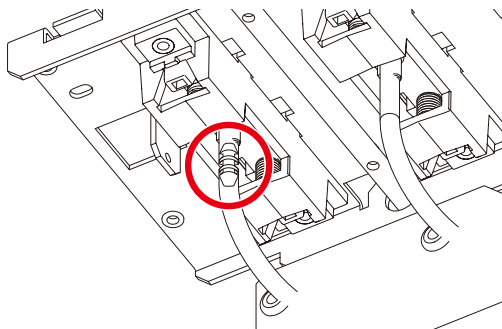


No Good

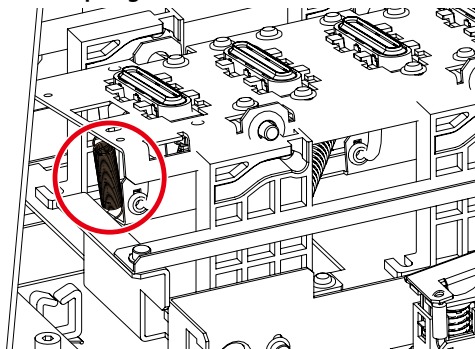


14. Attach the tube.

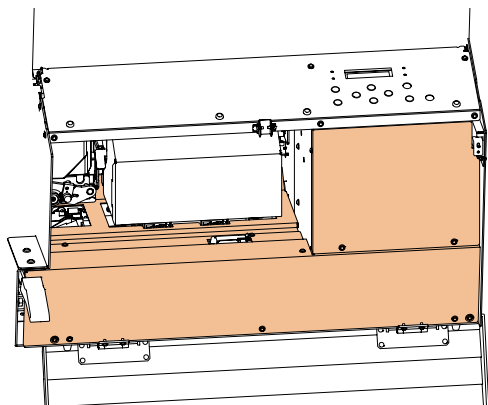
Bottom view



15. Attach the spring.

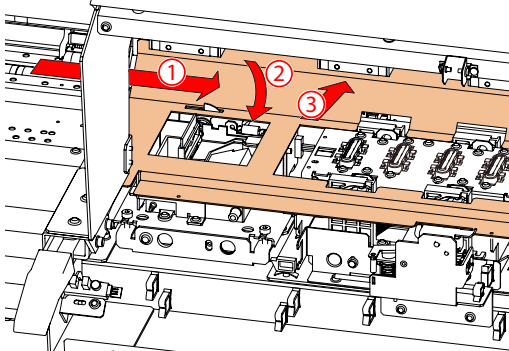


16. Fasten the covers with screws.

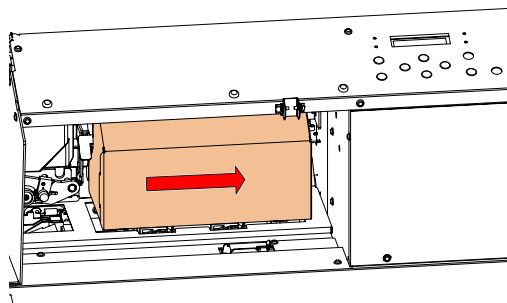


NOTE

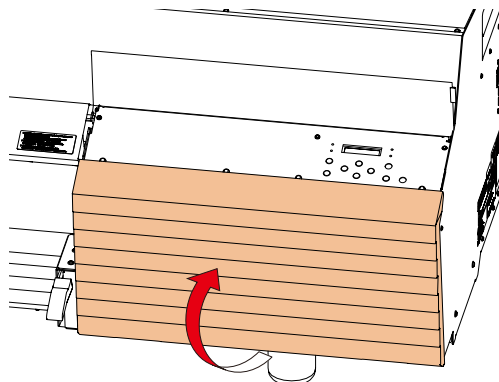
Easiest way to attach the cover shown below is to 1) insert the cover from the left side and 2) fit the rear part of the cover in place as you lift the front part of the cover.



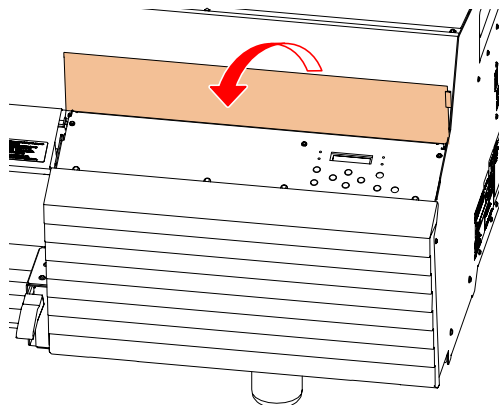
17. Move the head carriage to the lock position.



18. Close the maintenance coverR.



19. Close the cover.



20. (End of procedure)

Tool Carriage Replacement

Information

Necessary tools

General tools

No.2 Phillips screwdriver

2.5 mm hexagonal wrench

Special tools

None

Workflow

1. Tool carriage replacement

Time

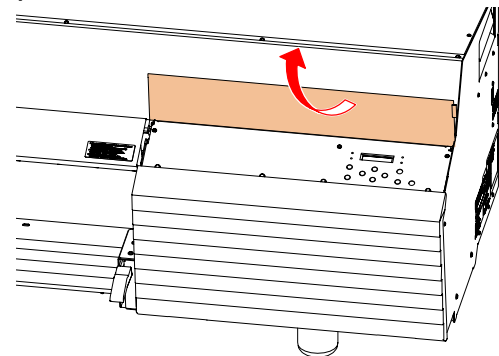
Contents of work	Time
Tool carriage replacement	20 min.

Procedure

CAUTION

An interlock mechanism ordinarily prevents carriage movement when the printer's cover is opened. To operate the printer with the front cover open, press and hold the sensor switch.

1. Open the cover.

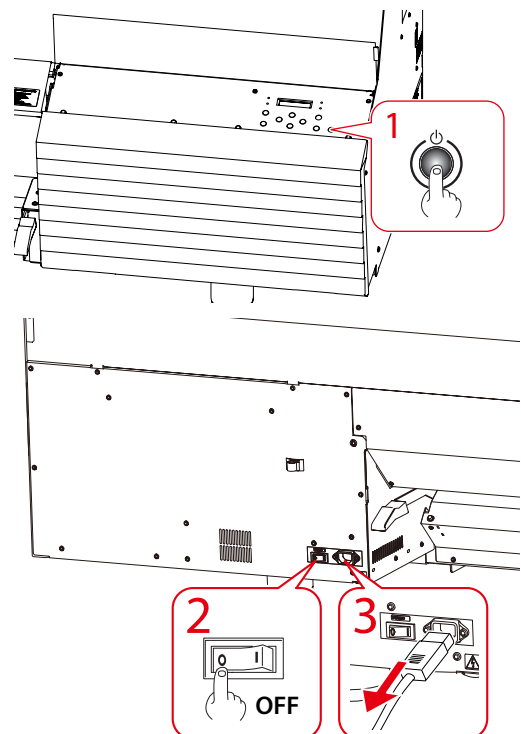


2. Turn off the sub power switch, and then turn off the main power switch. Unplug the power cord.

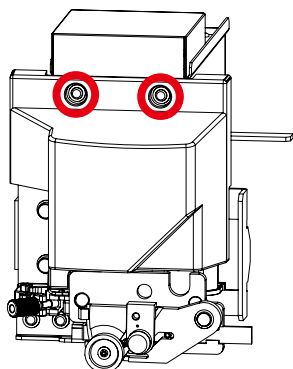
1. Sub power switch

2. Main power switch

3. Power cord



3. Remove two screws that secure the cover.



4. Remove the blade holder.



5. Unplug the solenoid cable and two connectors.



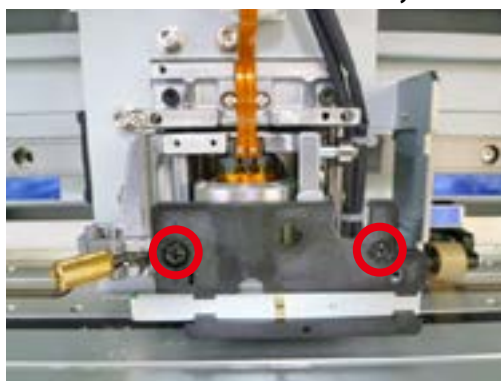
6. Unfasten the clamp and release the cable.



7. Remove the screw that secures the sheet cutter holder.



8. Remove two screws that secure the stay.



9. Detach the spring from the black stay.

CAUTION

When unhooking the spring, be careful not to lose it.



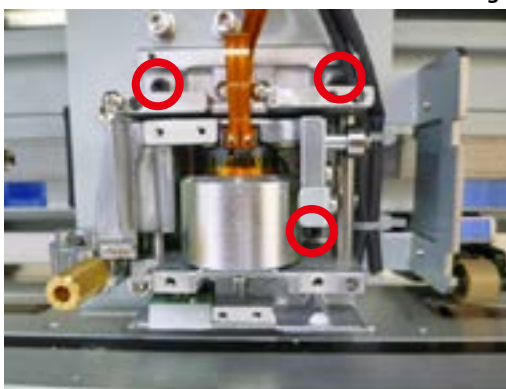
10. Remove two screws that secure the stay.



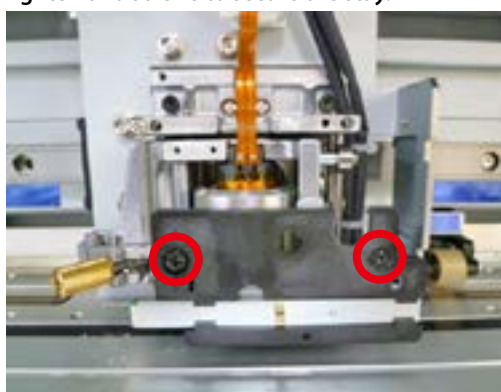
14. Attach the spring to the black stay.



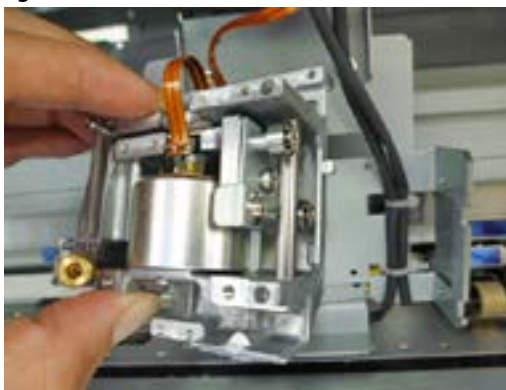
11. Remove three screws that secure the tool carriage.



15. Tighten two screws to secure the stay.



12. Tighten three screws to secure the new tool carriage.



16. Tighten the screw to secure the sheet cutter holder.



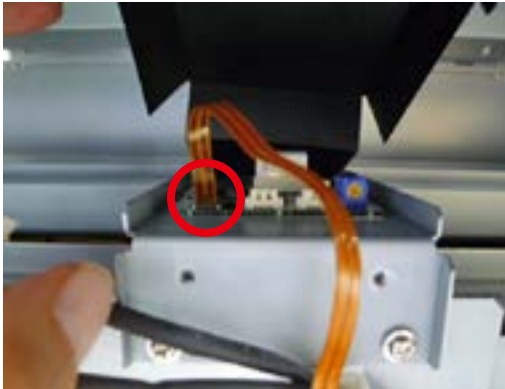
13. Tighten two screws to secure the stay.



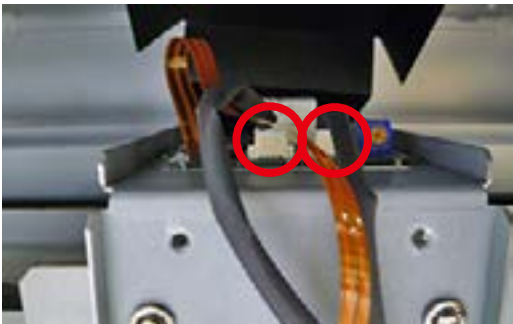
17. Bundle the cables with the clamp.



- 18.** Plug the solenoid cable into the tool carriage board.

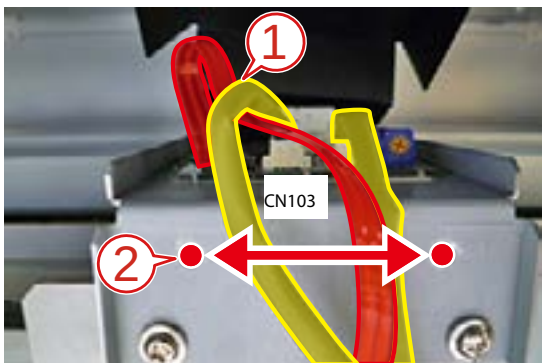


- 19.** Plug two connectors into the tool carriage board.

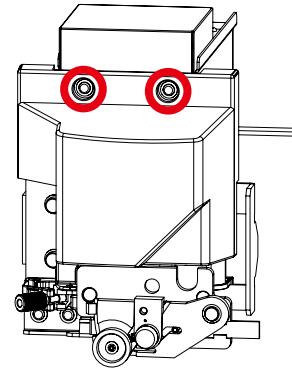


CAUTION

1. Place the two CN103 cables (shown in yellow in the figure) on top of the solenoid cable (shown in orange).
2. Place the three cables in between the two screws as shown in the figure.



- 20.** Tighten two screws to secure the cover.



- 21.** Perform the following adjustments.

21-1. Chapter 2 "[Limit Position & Cut Down Position Initialization](#)"

21-2. Chapter 2 "[Tool Height Adjustment](#)"

21-3. Chapter 2 "[Tool Pressure Adjustment](#)"

21-4. Chapter 2 "[Crop Mark Sensor Adjustment](#)"

21-5. Crop Cut Adjustment

- * Adjust the crop cut position by selecting [CUTTING MENU] > [CROP-CUT ADJ.].

21-6. Print & Cut Alignment

- * Adjust the print/cut position by selecting [CUTTING MENU] > [PRINT-CUT ADJ.].

- 22.** (End of procedure)

Information

Necessary tools

General tools

No.2 Phillips screwdriver

No.2 Phillips screwdriver (80 mm or less)

3.0 mm hexagonal wrench

Special tools

6000004129 GREASE, FLOIL G-902 10ML_02

Workflow

1. Scan motor replacement
2. Servo lock check
3. Aging check
4. Motor Time Clear

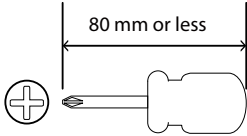
Time

Contents of work	Time
Scan Motor Replacement	30 min.
Servo Lock Check	1 min.
Aging Check	5 min.
Motor Time Clear	1 min.

Procedure

CAUTION

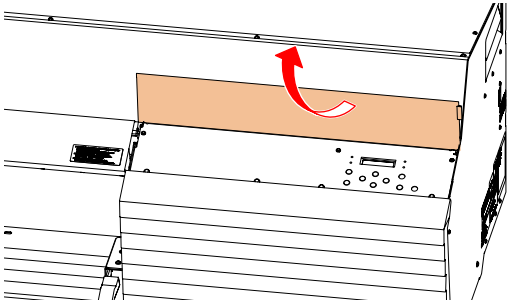
- A Phillips screwdriver with a length of 80 mm or less is necessary.



- An interlock mechanism ordinarily prevents carriage movement when the printer's cover is opened. To operate the printer with the front cover open, press and hold the sensor switch.

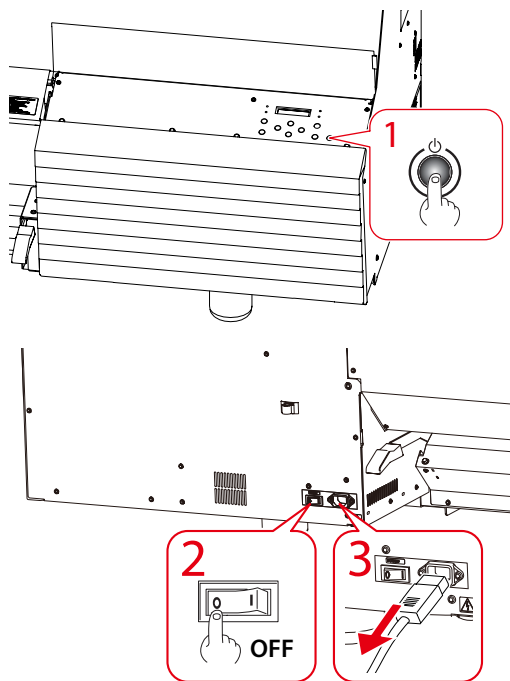
Scan Motor Replacement

1. Open the cover.

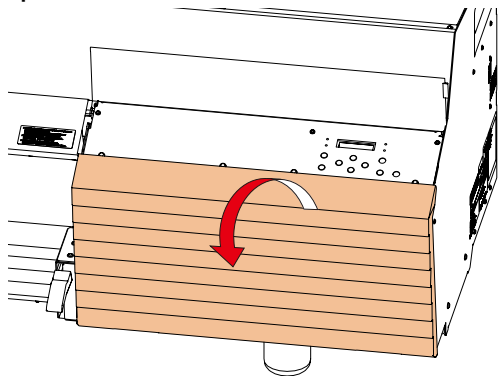


2. Turn off the sub power switch, and then turn off the main power switch. Unplug the power cord.

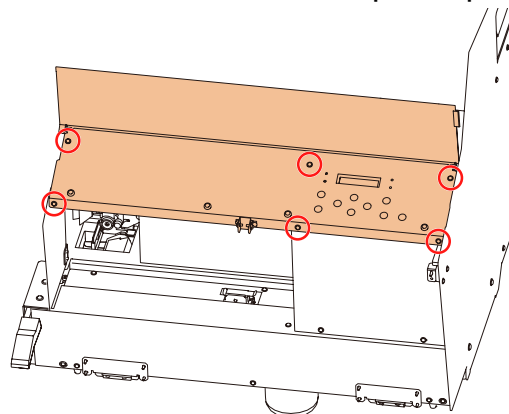
1. Sub power switch
2. Main power switch
3. Power cord



3. Open the maintenance cover R.



4. Remove six screws that secure the operation panel.

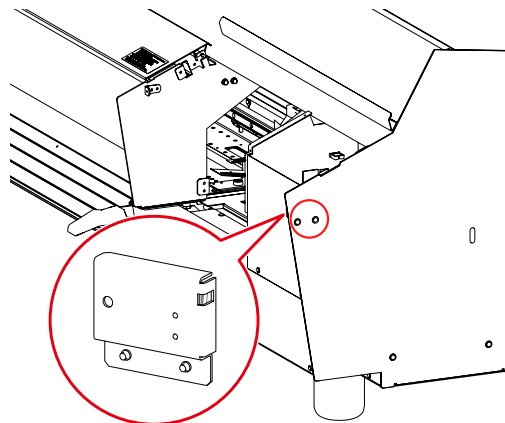


CAUTION

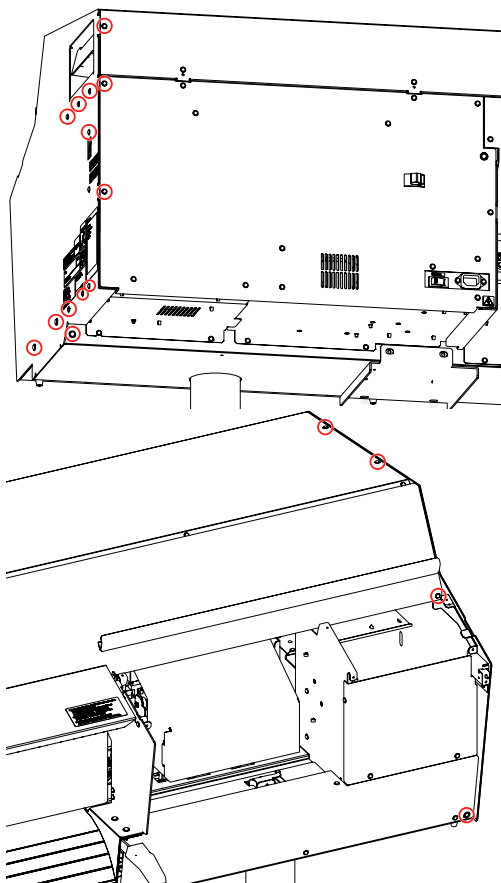
Disconnect the cable from the panel board.



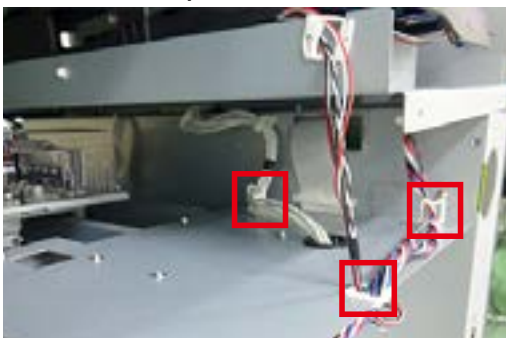
5. Remove two screws that secure the maintenance cover sensor R.



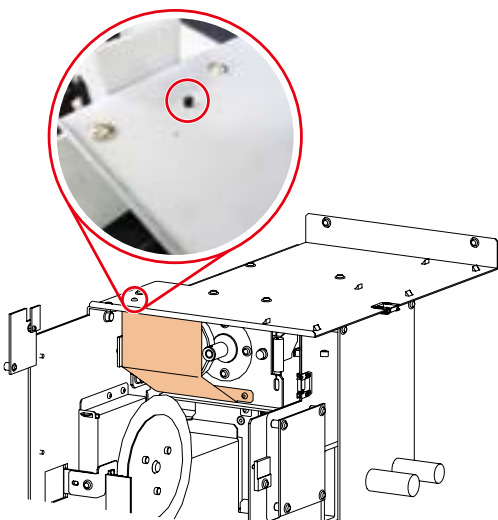
6. Remove 17 screws that secure the cover.



7. Unfasten the clamp.



8. Detach the rivet.

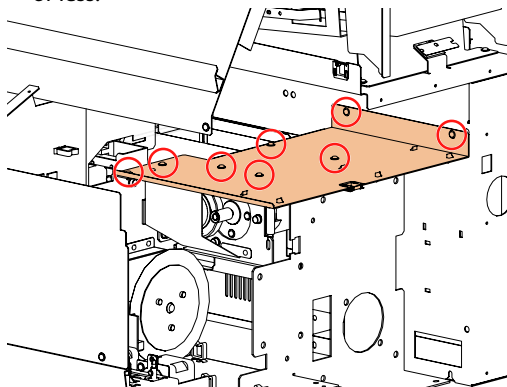


9. Remove eight screws that secure the covers.

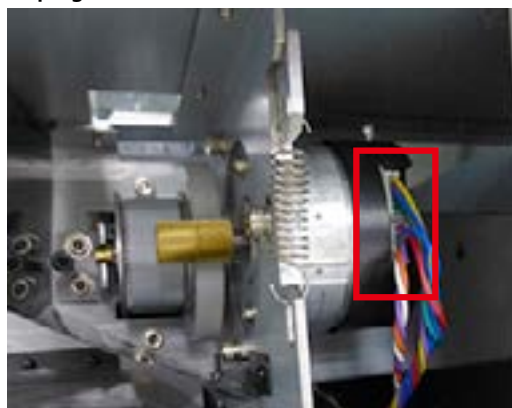
NOTE

- The length of a Phillips screwdriver you can use is limited to 80 mm or less because the cleaning liquid pouch tray is just above it.

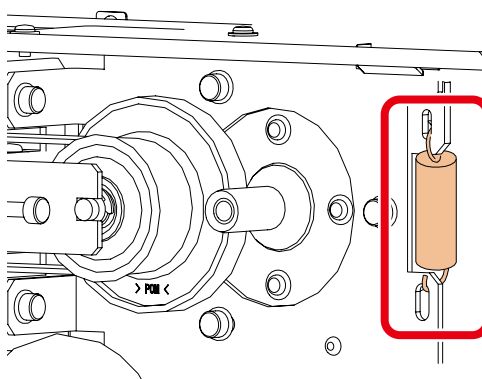
- Use a Phillips screwdriver with a length of 80 mm or less.



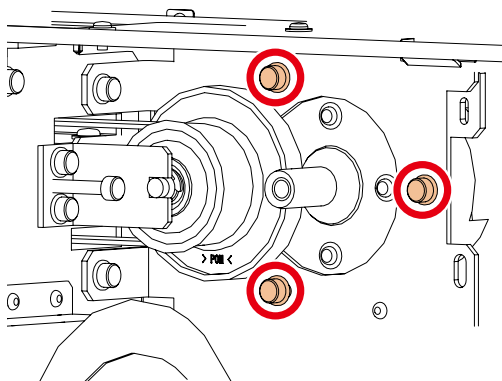
10. Unplug the connector.



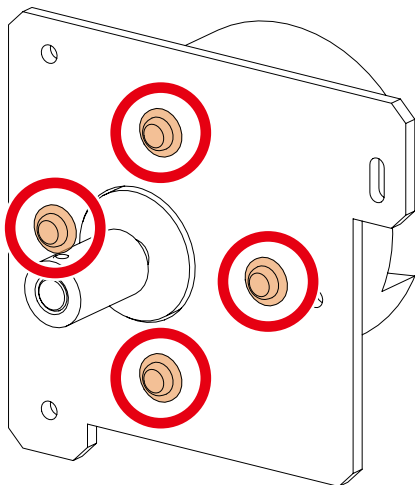
11. Remove the spring.



12. Remove three screws to remove the motor along with its flange.

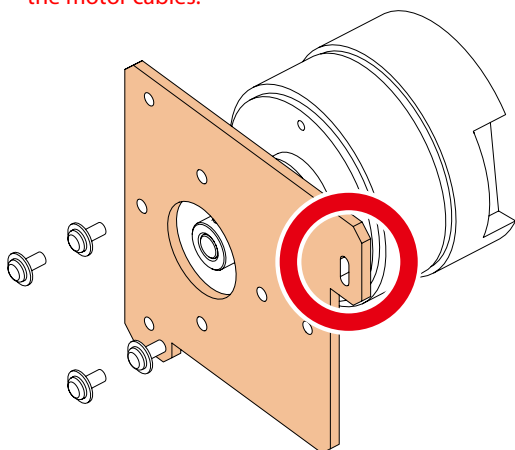


- 13.** Remove four screws that secure the flange to the motor. Then, fasten the new motor to the flange.

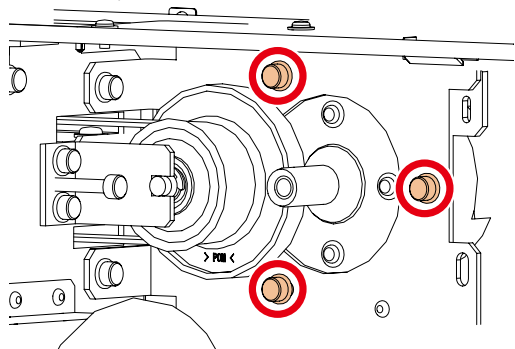


CAUTION

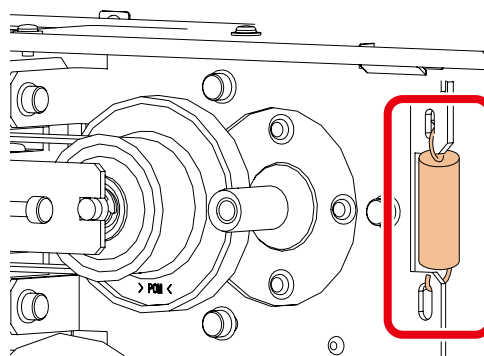
Be careful to correctly orient the flange in relation to the motor cables.



- 14.** Temporarily fasten the flange with three screws.



- 15.** Attach the spring.

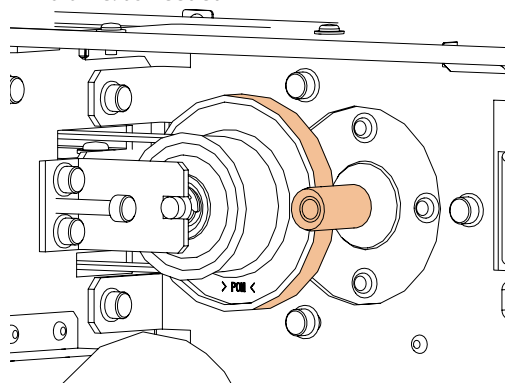


- 16.** Turn the drive gear more than three times by hand and check that the gears mesh together.

CAUTION

Apply grease to the drive gear and the motor gear.

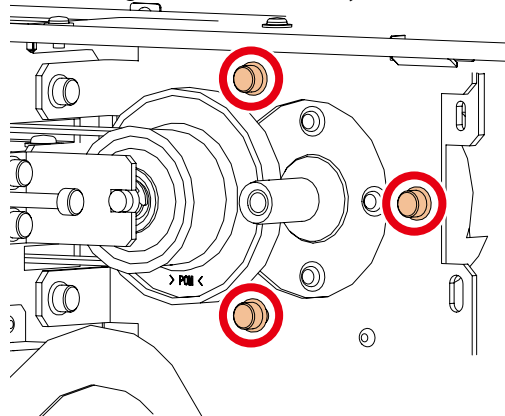
- Grease: FLOIL G-902 10ML_02
- Volume: as needed



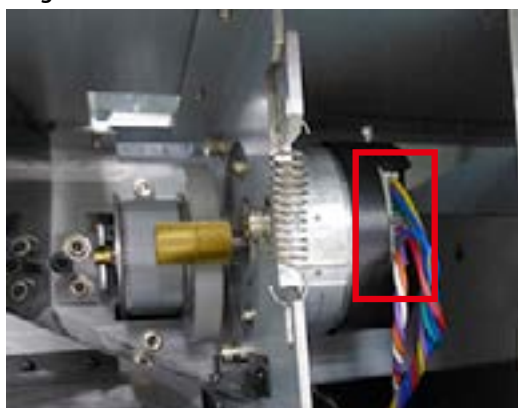
- 17.** Fully tighten three screws to secure the flange.

NOTE

You can tighten the screws in any order.



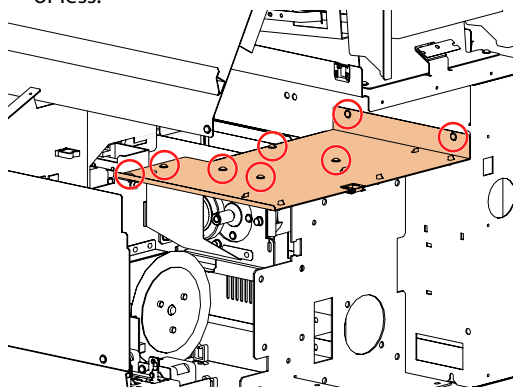
18. Plug in the connectors.



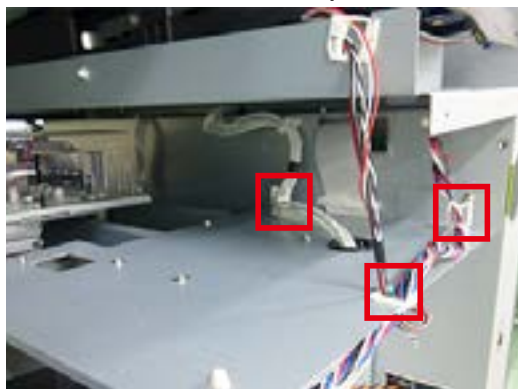
19. Tighten eight screws that secure the covers.

NOTE

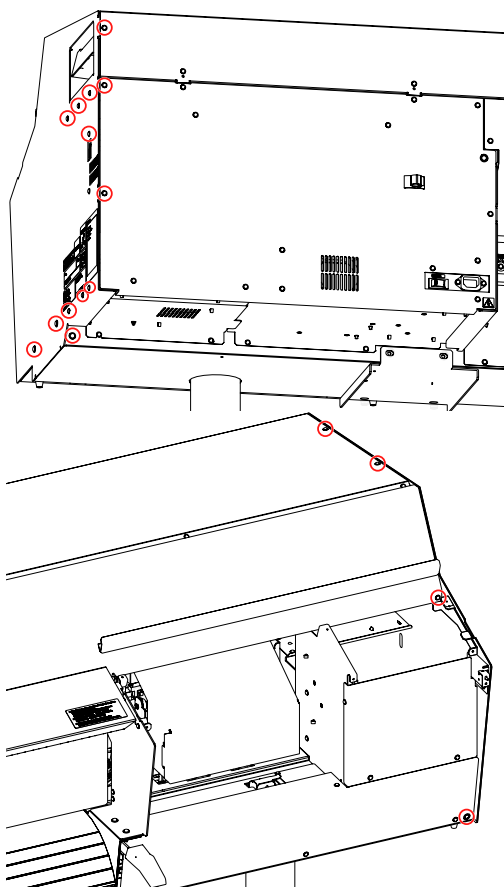
- The length of a Phillips screwdriver you can use is limited to 80 mm or less because the cleaning liquid pouch tray is just above it.
- Use a Phillips screwdriver with a length of 80 mm or less.



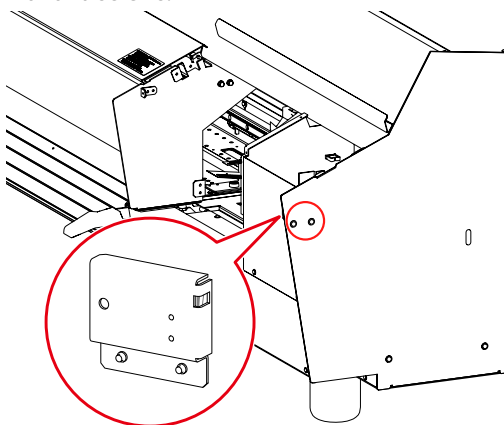
20. Bundle the cables with the clamps to attach the cover.



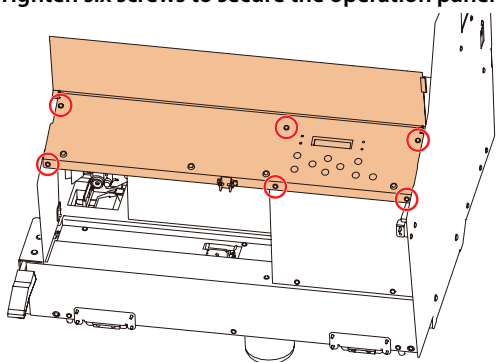
21. Tighten 17 screws to secure the cover.



22. Temporarily fasten the maintenance cover sensor R with two screws.



23. Tighten six screws to secure the operation panel.

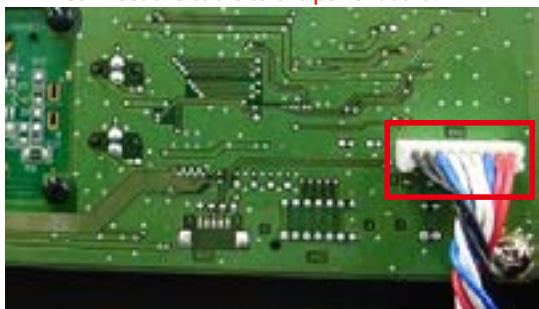


CAUTION

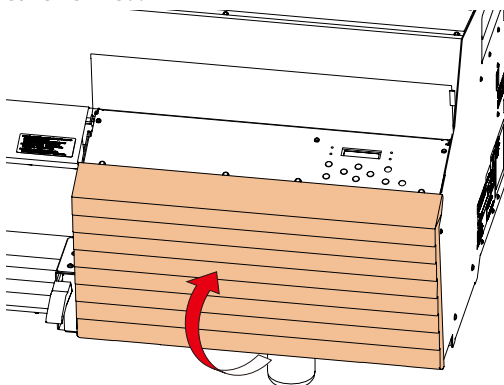
- Tighten two screws in the operation panel with holding up to the left, and then make 1.5 mm clearance between the frame and the operation panel.



- Connect the cable to the panel board.



24. Close the maintenance cover R, and then confirm the cover is fixed.

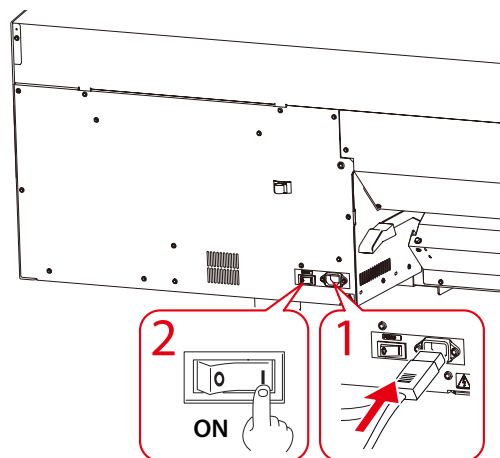


CAUTION

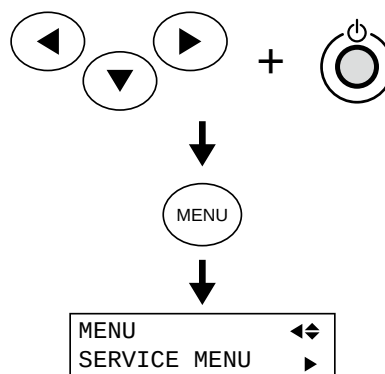
If the cover is not fixed, then maintenance cover sensor R does not work properly. Widen the clearance between the operation panel and the frame if the maintenance cover is not fixed by shaking the right and left ends of the cover back and forth with your hands.

25. Plug in the power cord, and turn on the main power switch.

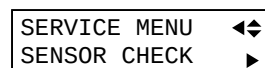
1. Power cord
2. Main power switch



26. Turn on the sub power switch while pressing the [◀] [▼] [▶] keys to enter the service menu.

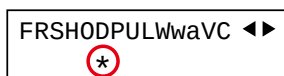


27. Select [SERVICE MENU] > [SENSOR CHECK].

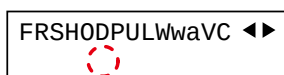


28. Slide the maintenance cover sensor R to the front until "*" under "D" disappears. Then, tighten two screws to secure the sensor.

When the cover is open

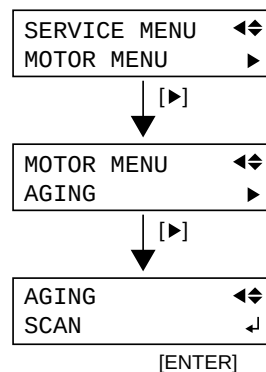


When the cover is closed



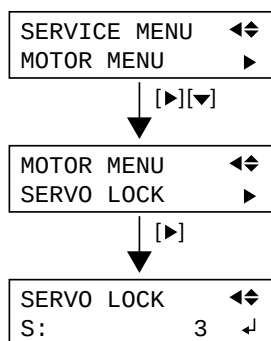
CAUTION

Remove media before performing aging.

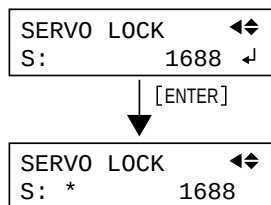


Servo Lock Check

29. Select [SERVICE MENU] > [MOTOR MENU] > [SERVO LOCK] > [S]. Move the head carriage left and right by hand and confirm that the value on the LCD changes as you move the print head.



30. Press the [ENTER] key to energize the motor. Confirm that the head carriage cannot be moved easily by hand and that the value on the LCD returns to the original value.

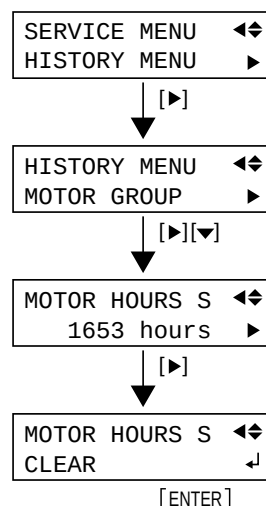


Aging Check

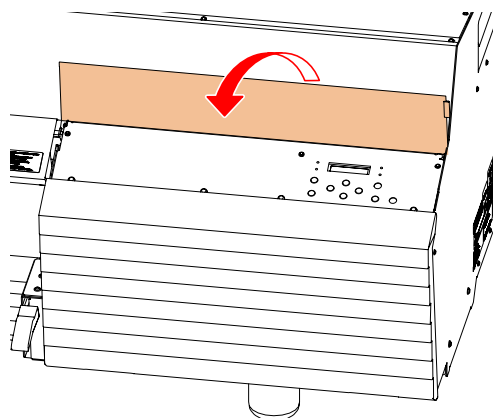
31. Go back to [MOTOR MENU]. Select [AGING] > [SCAN], and press the [ENTER] key. Make sure the printer performs aging, and then finish by pressing the [ENTER] key.

Motor Time Clear

32. 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.



33. Close the cover.



34. (End of procedure)

Information

Necessary tools

General tools

No.2 Phillips screwdriver
3.0 mm hexagonal wrench
2.0 mm hexagonal wrench
1.5 mm hexagonal wrench

Special tools

6000004129 GREASE, FLOIL G-902 10ML_02

Workflow

1. Feed motor replacement

Typical work time

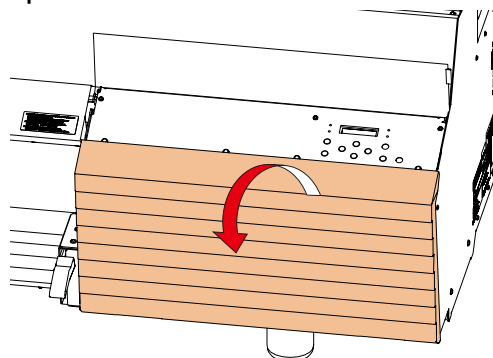
Contents of work	Time
Feed motor replacement	45 min.
Servo lock check	1 min.
Grit encoder check	1 min.
Aging check	5 min.
Motor Time Clear	1 min.

Procedure

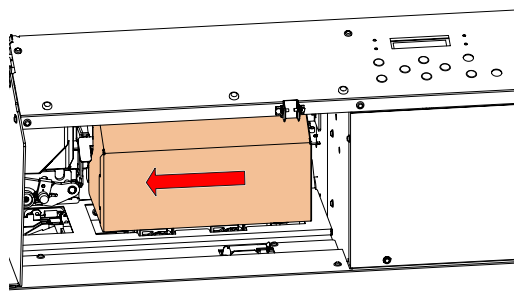
CAUTION

An interlock mechanism ordinarily prevents carriage movement when the printer's cover is open. To operate the printer with the front cover open, press and hold the sensor switch.

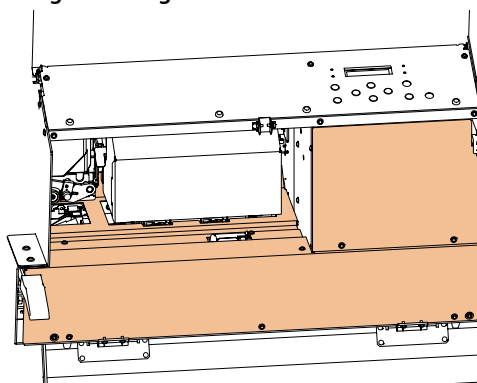
1. Turn off the main power switch.
2. Open the maintenance cover R.



3. Unlock the head carriage, and move it to the left by hand.

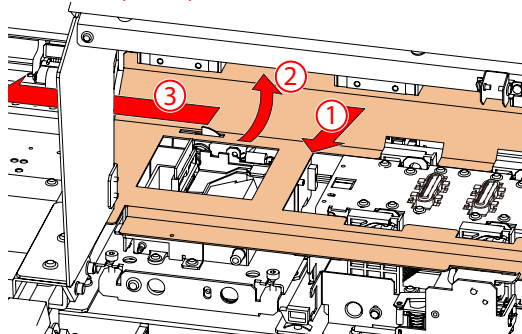


4. Remove the screws that secure the covers shown in orange in the figure.

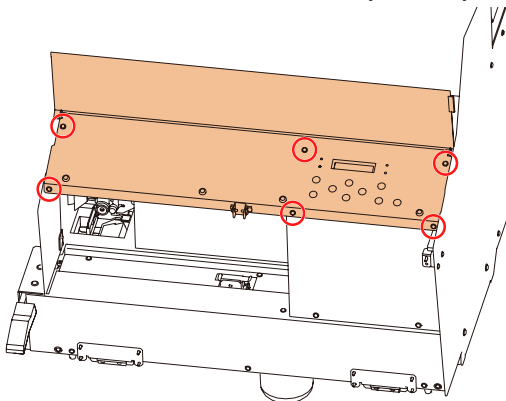


NOTE

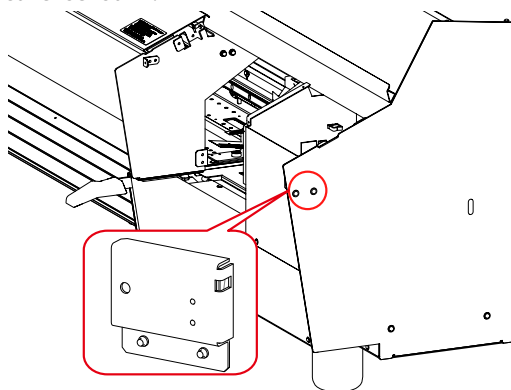
Easiest way to remove the cover shown below is to 1) slide the cover to the front, 2) lift up the rear side of the cover, and 3) remove the cover from the left side.



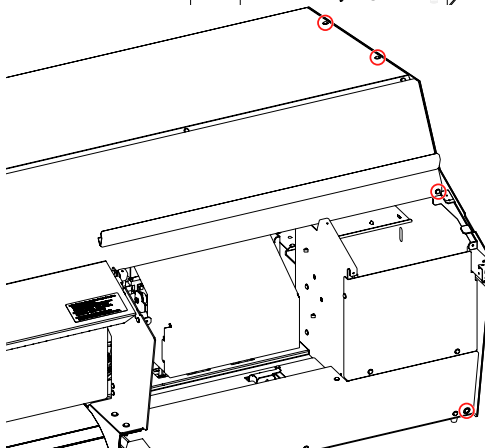
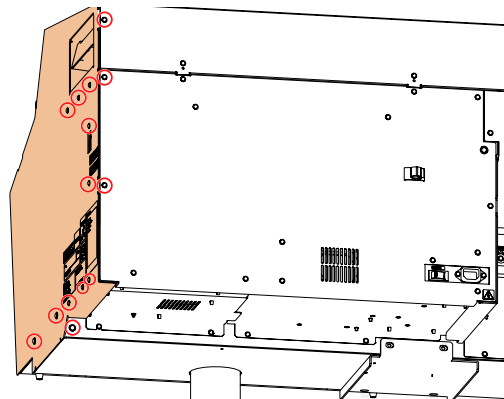
5. Remove six screws that secure the operation panel.



6. Remove two screws that secure the maintenance cover sensor R.



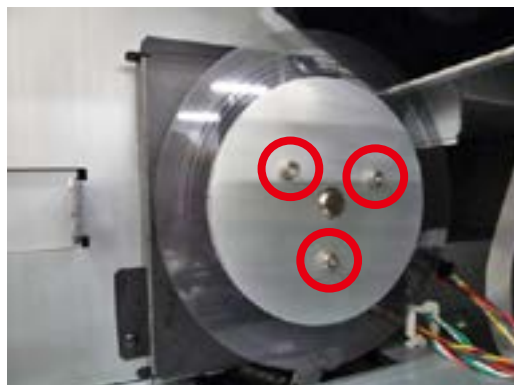
7. Remove 18 screws that secure the cover.



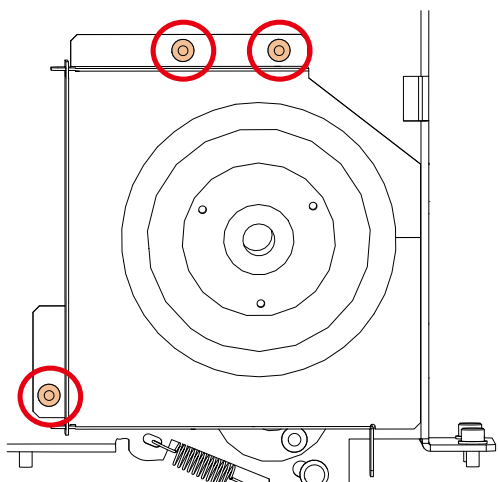
8. Remove the screw that secures the grit encoder board.



9. Remove three screws that secure the grit encoder stopper and the grit encoder.



- 10.** Detach three rivets from the motor cover.



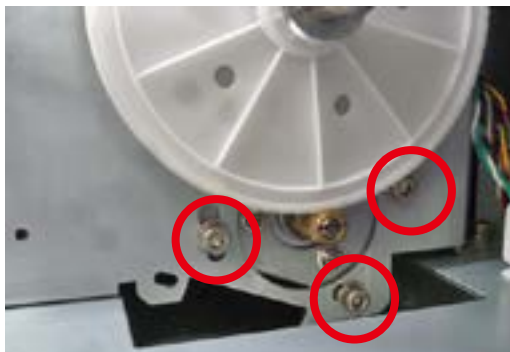
- 11.** Remove two screws that secure the grit encoder stay and the motor cover.



- 12.** Remove the spring.



- 13.** Remove three screws to remove the motor along with its flange.



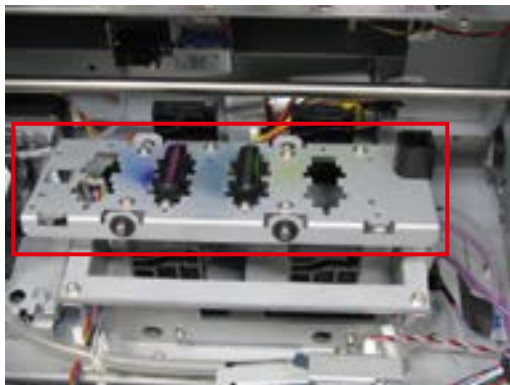
- 14.** Slide the motor as shown in the figure below to remove connector from the motor.



- 15.** Unfasten the clamp to remove the cables of the motor, and then unplug the connector.



- 16.** Slide the cap-base frame to the right, and then lift it up to remove it. Put it in the front side.



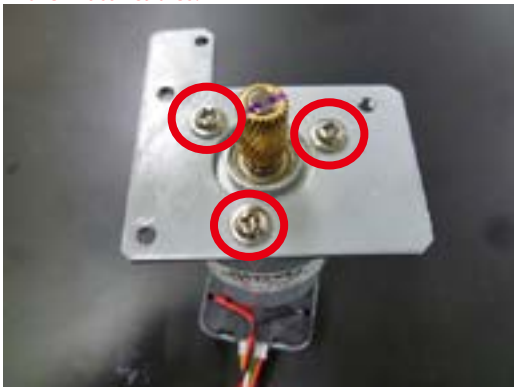
17. Remove the feed motor from the right side of the cap-base frame.



18. Remove three screws that secure the flange to the motor. Then, fasten the new motor to the flange.

CAUTION

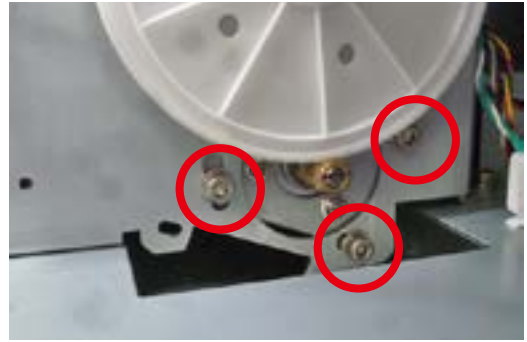
Be careful to correctly orient the flange in relation to the motor cables.



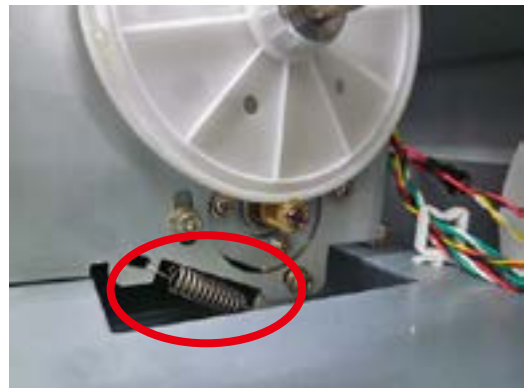
19. Move the motor back to its original position. Then, plug the connector into the motor.



20. Temporarily fasten the flange with three screws.



21. Attach the spring.



22. Turn the drive gear more than three times by hand and check that the gears mesh together.

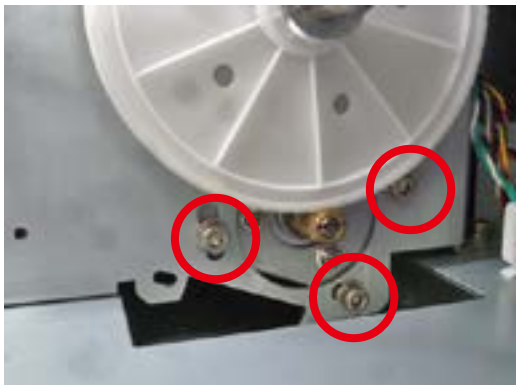


CAUTION

Apply grease to the drive gear and the motor gear.

- Grease: FLOIL G-902 10ML_02
- Volume: as needed

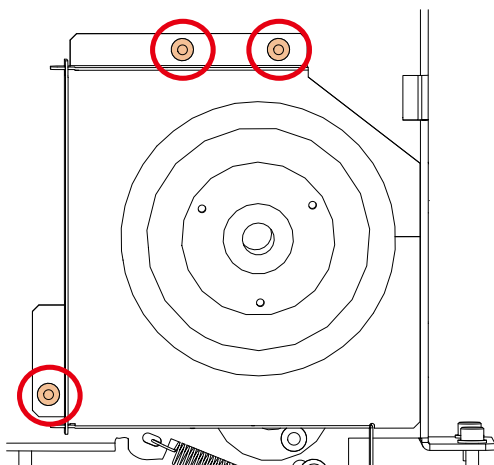
- 23.** Fully tighten three screws to secure the flange. And then, move the cap-base frame back to its original position.



- 24.** Attach the grit encoder stay. Tighten two screws to secure the grit encoder stay.



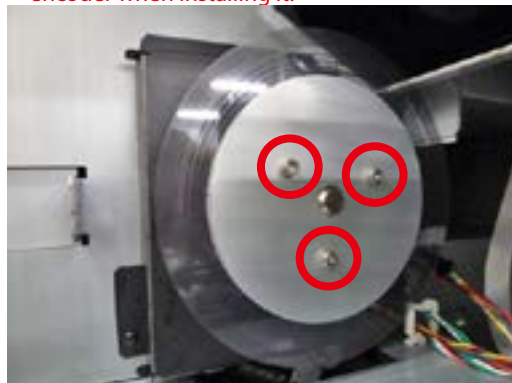
- 25.** Attach three rivets to secure the motor cover.



- 26.** Tighten three screws to secure the grit encoder stopper and the grit encoder.

CAUTION

Be careful not to scratch or get grease on the grit encoder when installing it.



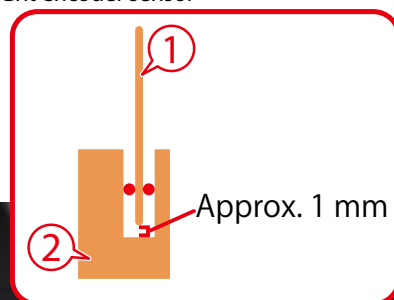
- 27.** Tighten the screw to secure the grit encoder board.



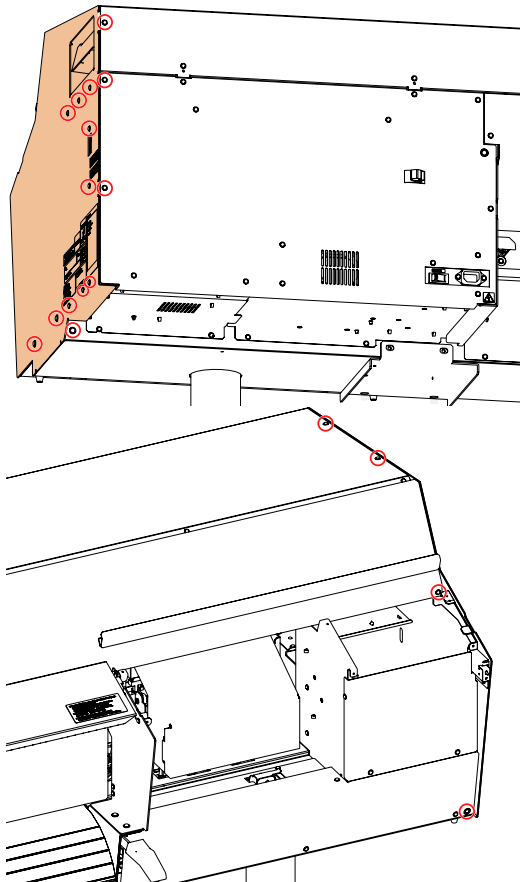
CAUTION

Secure the stay to keep the grit encoder sensor in the center position of the sensor. Make sure to keep the gap is approximately 1 mm to the front and rear to the sensor.

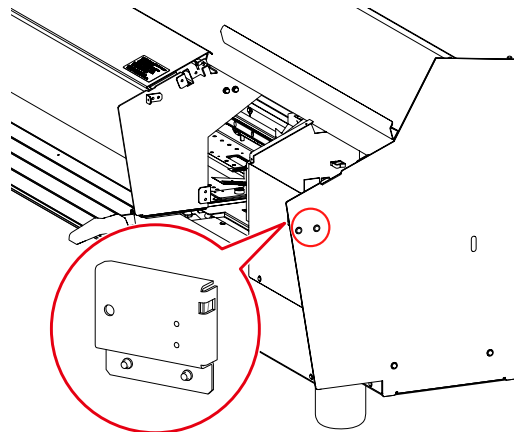
- Grit encoder
- Grit encoder sensor



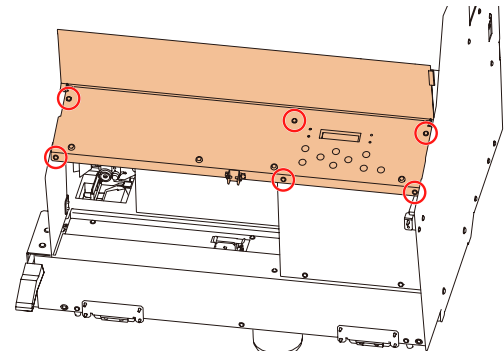
28. Tighten 18 screws to secure the cover.



29. Temporarily fasten the maintenance cover sensor R with two screws.



30. Tighten six screws to secure the operation panel.

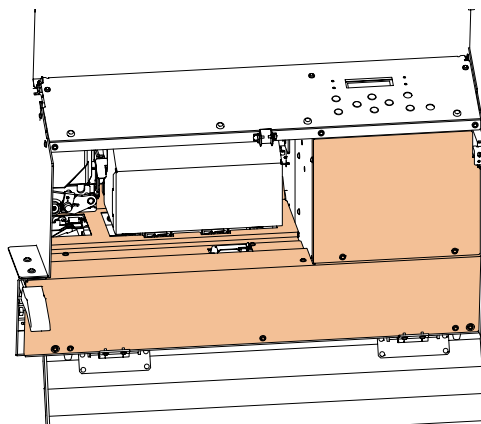


CAUTION

Tighten two screws in the operation panel with holding up to the left, and then make 1.5 mm clearance between the frame and the operation panel.

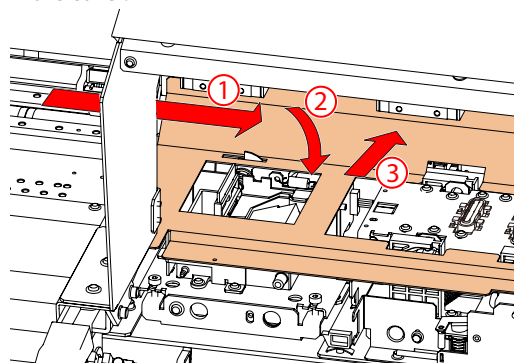


31. Fasten the covers with screws.

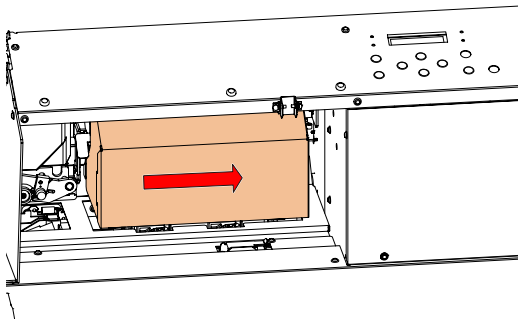


NOTE

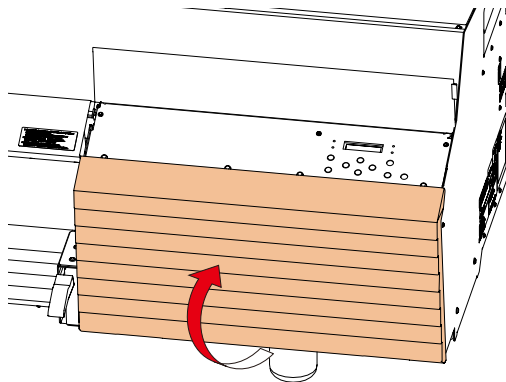
Easiest way to attach the cover shown below is to 1) insert the cover from the left side and 2) fit the rear part of the cover in place as you lift the front part of the cover.



32. Move the head carriage to the lock position.



33. Close the maintenance cover R, and then confirm the cover is fixed.



CAUTION

If the cover is not fixed, then maintenance cover sensor R does not work properly. Widen the clearance between the operation panel and the frame if the maintenance cover is not fixed by shaking the right and left ends of the cover back and forth with your hands.

34. Turn on the main power switch.
35. Turn on the sub power switch while pressing the [◀] [▼] [▶] keys to enter the service menu.
36. Select [SERVICE MENU] > [SENSOR CHECK].

SERVICE MENU	◀▶
SENSOR CHECK	▶

37. Slide the maintenance cover sensor R to the front until "*" under "D" disappears. Then, tighten two screws to secure the sensor.

When the cover is open

FRSHODPULWwaVC	◀▶
*	

When the cover is closed

FRSHODPULWwaVC	◀▶
*	

Servo Lock Check

38. Select [SERVICE MENU] > [MOTOR MENU] > [SERVO LOCK] > [F]. Rotate the grit roller by hand, and then confirm that the value on the LCD changes according to the grit roller rotation.

SERVICE MENU	◀▶
MOTOR MENU	▶

[▶][▼]

MOTOR MENU	◀▶
SERVO LOCK	▶

[▶]

SERVO LOCK	◀▶
F: 140 140	↕

39. Press the [ENTER] key to energize the motor. Confirm that the grit roller cannot be moved easily by hand and that the value on the LCD returns to the original value.

SERVO LOCK	◀▶
F: 80 80	↕

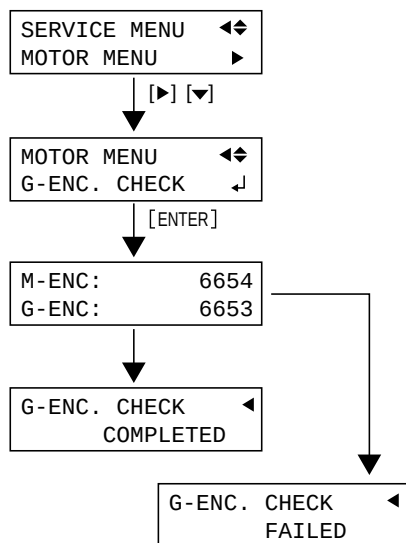
[ENTER]

SERVO LOCK	◀▶
F: * 80 80	

Grit Encoder Check

40. Select [MOTOR MENU] > [G-ENC. CHECK] and press the [ENTER] key. Confirm that [G-ENC. CHECK COMPLETED] is displayed and the grit encoder works properly. When [G-ENC. CHECK FAILED] is displayed, check the followings.

1. The grit encoder is attached properly.
2. The feed motor is attached properly.
3. The grit encoder has no scratch or stain.

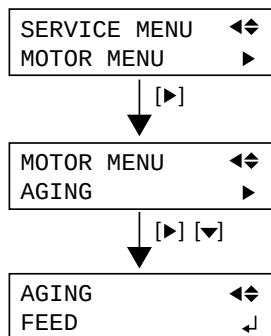


Aging Check

- 41.** Go back to [MOTOR MENU]. Select [AGING] > [FEED], and press the [ENTER] key. Make sure the printer performs aging, and then finish by pressing the [ENTER] key.

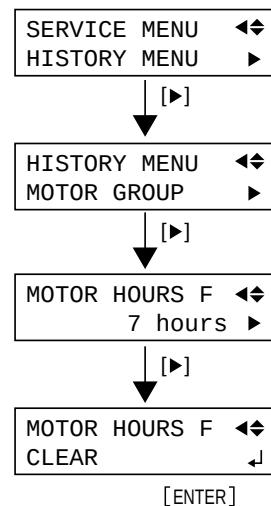
CAUTION

Remove media before performing aging.



Motor Time Clear

- 42.** 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.



- 43.** (End of procedure)

Pressure Pump/Ink Circulation Pump Replacement

Information

Necessary tools

General tools

No.2 Phillips screwdriver

Waste cloth

Special tools

None

Workflow

1. Pressure pump replacement
2. Ink circulation pump replacement

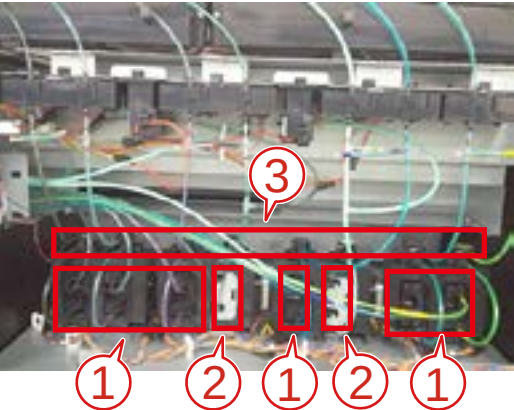
Time

Contents of work	Time
Pressure pump replacement	120 min.
Ink circulation pump replacement	120 min.

Procedure

Pressure pump and ink circulation pump

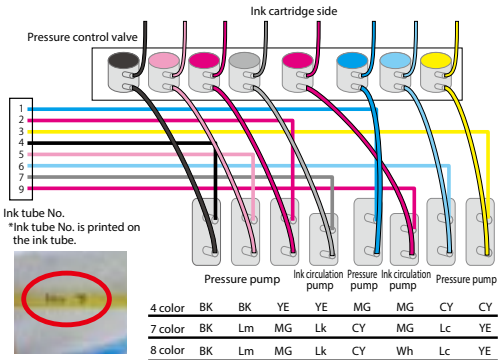
1. Pressure pump
2. Ink circulation pump
3. Pressure control valve



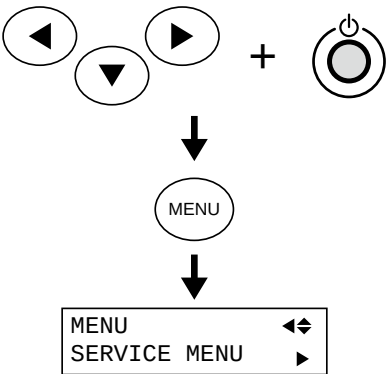
CAUTION

If you are replacing multiple pumps at the same time, be sure to connect the ink tubes to the correct pumps as shown in the figure below.

*This illustration shows the case of 7 colors.



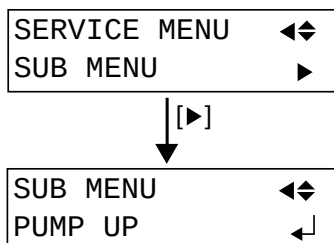
1. Turn on the main power switch. Then, turn on the sub power switch while pressing the [◀] [▼] [▶] keys to enter the service mode.



2. Perform [SERVICE MENU] > [SUB MENU] > [PUMP UP] and discharge ink from the ink lines.

CAUTION

Be sure to discharge ink in accordance with the message on the panel. Failure to do so will cause ink to spill out of the drain bottle.

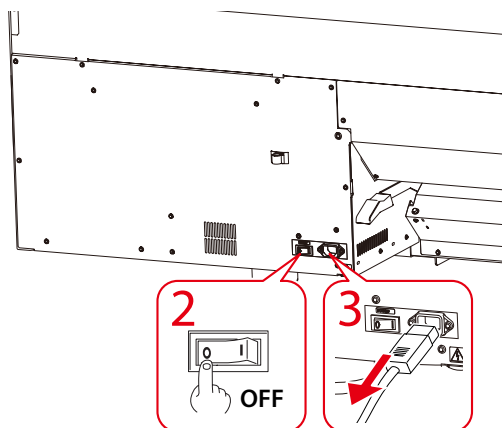
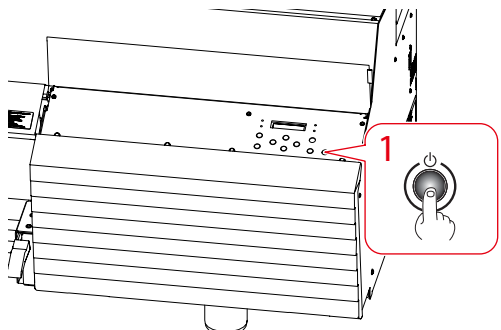


NOTE

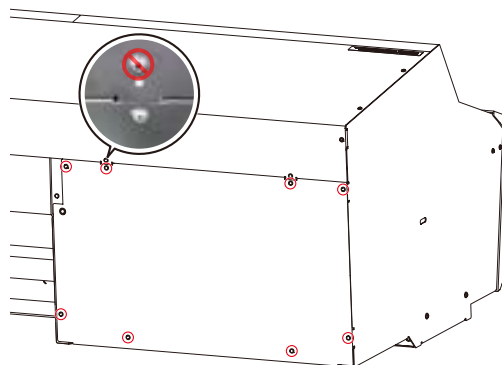
Required time for [PUMP UP]: Approx. 60 min.

3. Turn off the sub power switch, and then turn off the main power switch. Unplug the power cord.

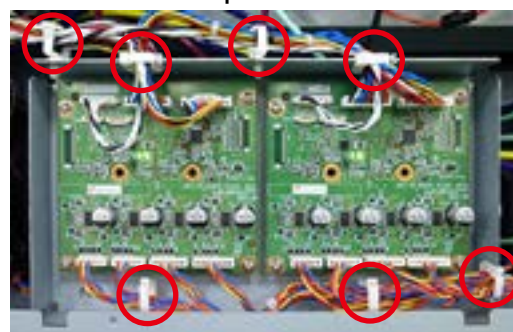
1. Sub power switch
2. Main power switch
3. Power cord



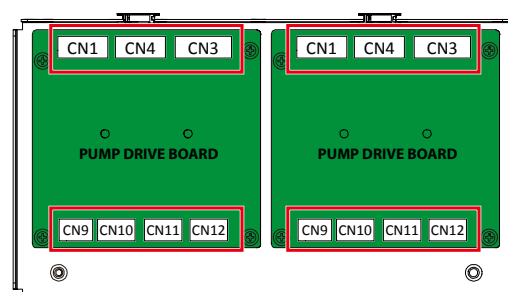
4. Remove eight screws that secure the covers.



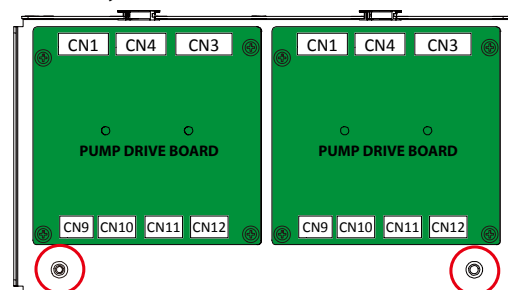
5. Unfasten seven clamps to release all the cables.



6. Unplug all the connectors from the pump drive boards.



7. Remove two screws that secure the pump drive board stay.



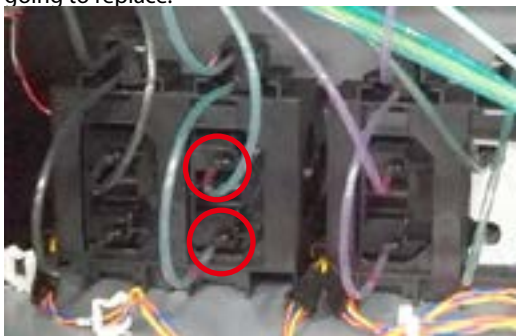
8. Release the ink tubes from the clamp which is on the rear side of the pump drive board stay.



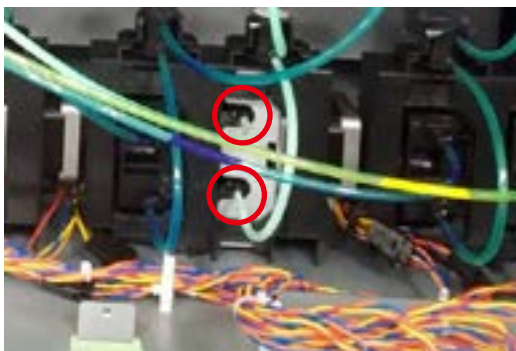
9. Remove the ink tubes from the pump you are going to replace.

Pressure pump

Unplug the connector connected to the pump you are going to replace.



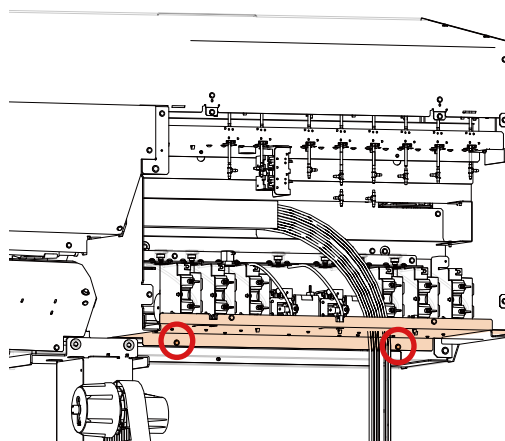
Ink circulation pump



10. Detach the hook below the bottom plate of the machine to remove the pump unit. Push up two hooks in the center, and push the surrounding 3 hooks toward the back.



11. Remove two screws, and then pull out the tray about 70 mm.



CAUTION

Do not pull out the tray more than 70 mm. Doing so may cause the ink tubes to bend. Be careful to avoid bending the ink tubes when pulling out the tray.



12. Unplug the connector connected to the pump you are going to replace.

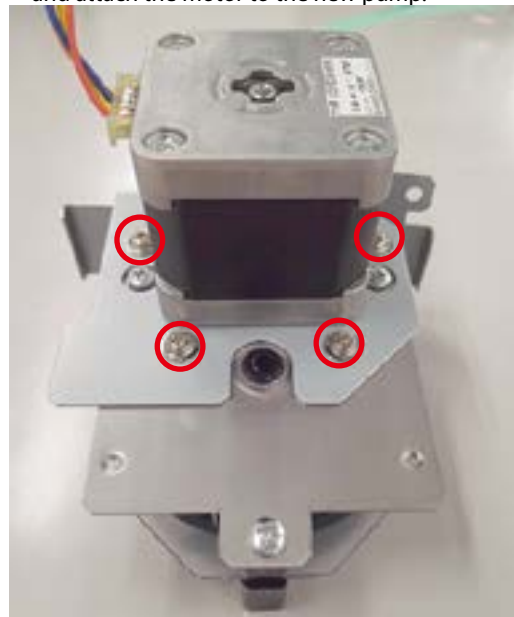


13. Push up the claw under the pump, and raise the back side of the pump to remove it.



NOTE

As for the ink circulation pump, remove four screws and attach the motor to the new pump.



14. Attach the pump to the pump unit.



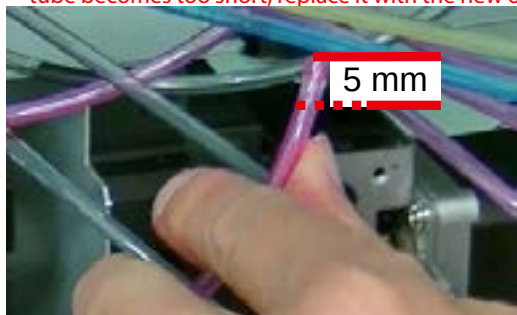
15. Plug the connector into the pump cable.



16. Cut the ink tubes 5 mm from the end before connecting them to the pressure pump.

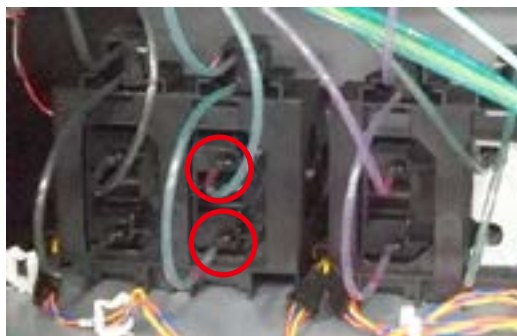
CAUTION

Do not cut the ink tube end more than 5 mm. If you cut it more than 5 mm, the ink tube will become too short to reach the pressure control valve. If the ink tube becomes too short, replace it with the new one.

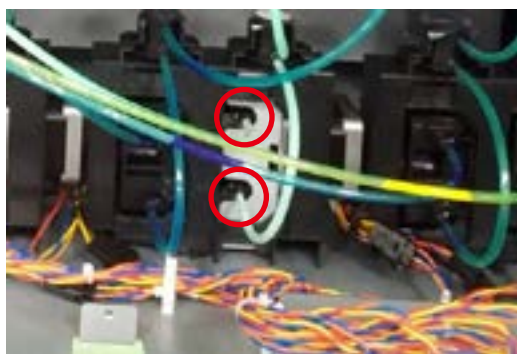


17. Connect the ink tubes to the pump.

Pressure pump



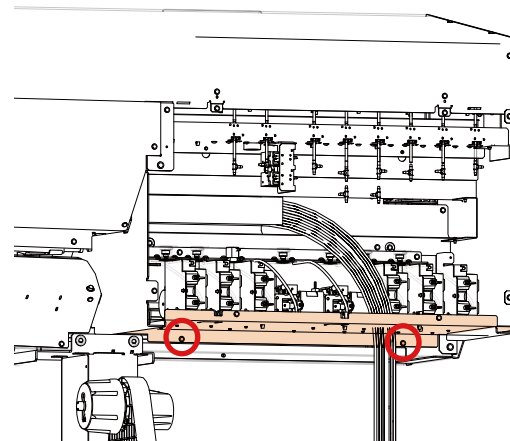
Ink circulation pump



18. Insert the tray back into the machine, and tighten two screws to secure it.

CAUTION

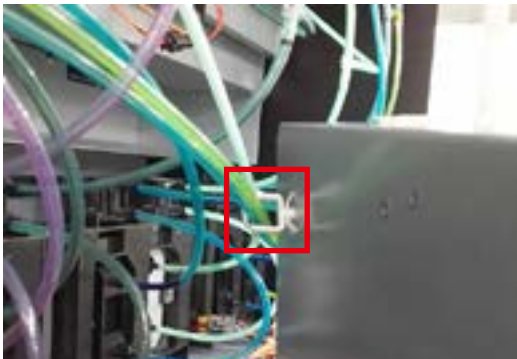
Be careful not to bend the tubes when inserting the tray.



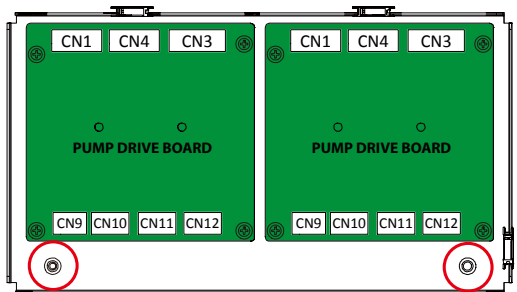
19. Attach the pump unit to the bottom plate of the machine.



20. Bundle the ink tubes with the clamp which is on the rear side of the pump drive board.



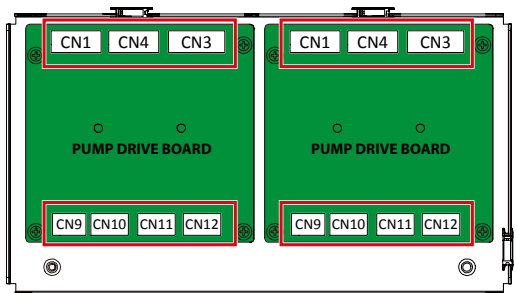
21. Tighten two screws to secure the pump drive board stay.



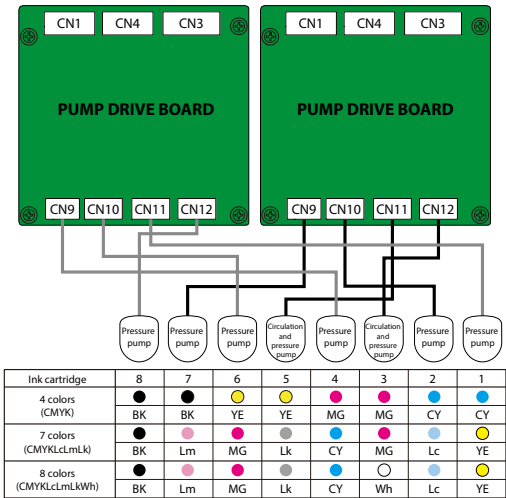
22. Plug all the connectors into the pump drive boards.

CAUTION

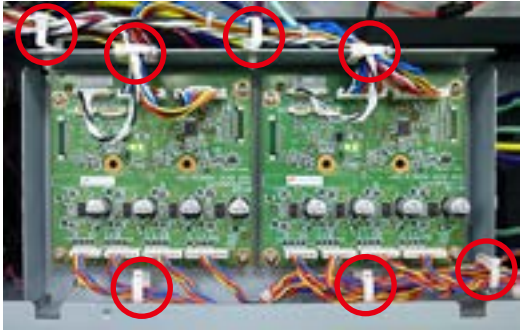
The connectors for the right pump drive board and the connectors for the left pump drive board look exactly alike. Be careful not to mix them up.



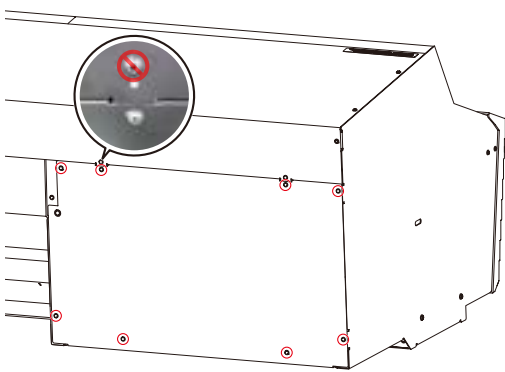
Wiring map of the pump drive boards



23. Bundle the cables with seven clamps.

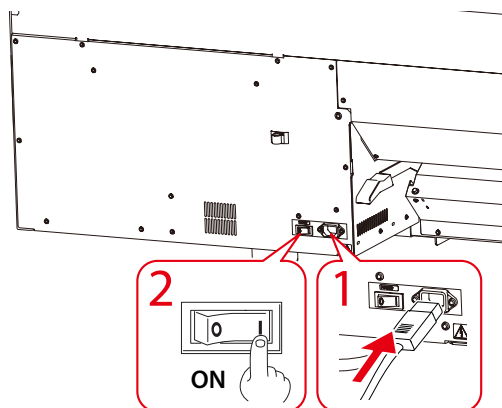


24. Tighten eight screws to secure the cover.

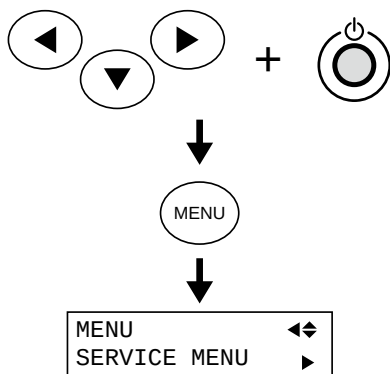


25. Plug in the power cord, and turn on the main power switch.

1. Power cord
2. Main power switch



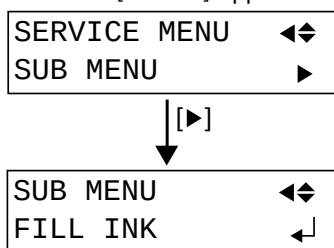
- 26.** Turn on the sub power switch while pressing the [◀] [▼] [▶] keys to enter the service menu.



- 27.** Perform [SERVICE MENU] > [SUB MENU] > [FILL INK] and fill the ink lines with ink.

NOTE

Required time for [FILL INK]: approx. 30 min.



- 28.** (End of procedure)

Pressure Control Valve Replacement

Information

Necessary tools

General tools

No.2 Phillips screwdriver

Waste cloth

Special tools

None

Workflow

1. Pressure control valve replacement

Time

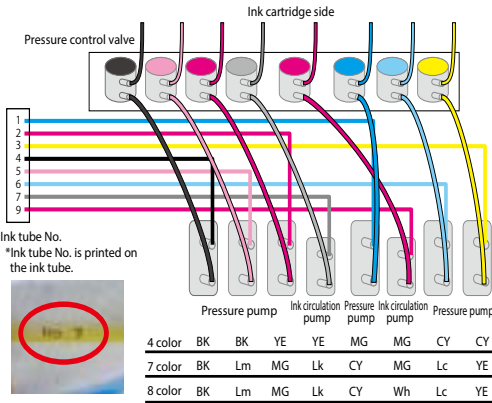
Contents of work	Time
Pressure control valve replacement	120 min.

Procedure

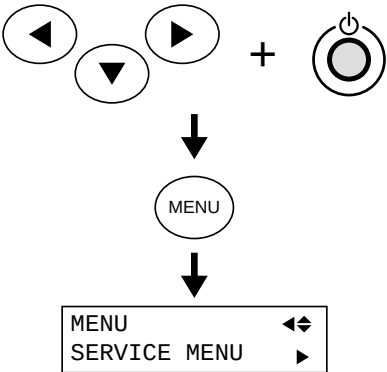
CAUTION

If you are replacing multiple pressure control valves at the same time, be sure to connect the ink tubes to the correct valves as shown in the figure below.

*This illustration shows the case of 7 colors.



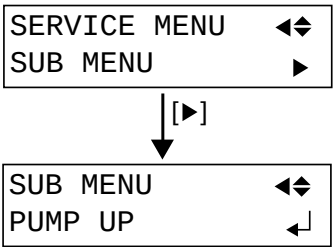
1. Turn on the main power switch. Then, turn on the sub power switch while pressing the [◀] [▼] [▶] keys to enter the service mode.



2. Perform [SERVICE MENU] > [SUB MENU] > [PUMP UP] and discharge ink from the ink lines.

CAUTION

Be sure to discharge ink in accordance with the message on the panel. Failure to do so will cause ink to spill out of the drain bottle.

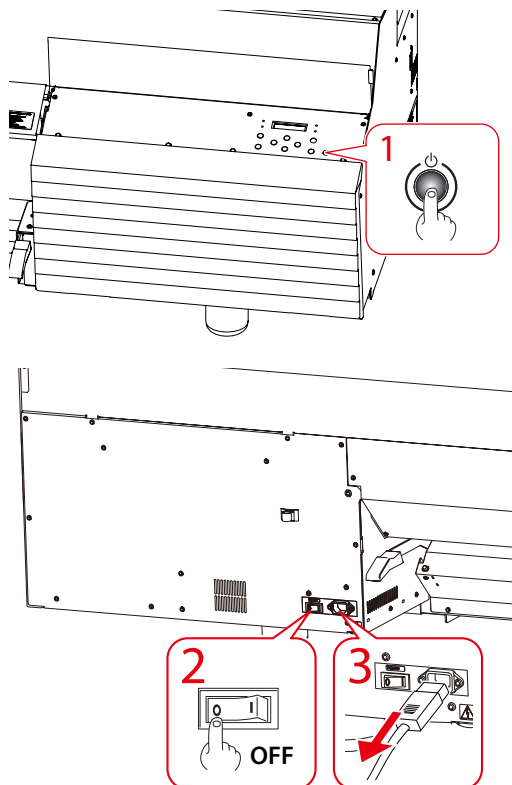


NOTE

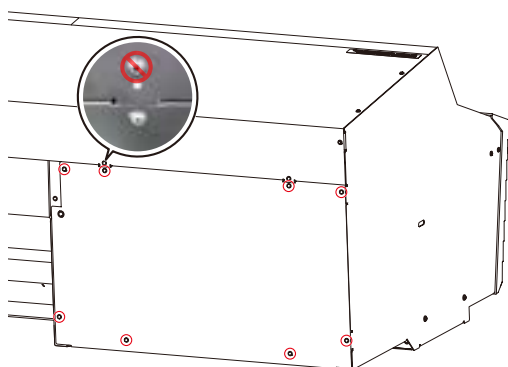
Required time for [PUMP UP]: Approx. 60 min.

3. Turn off the sub power switch, and then turn off the main power switch. Unplug the power cord.

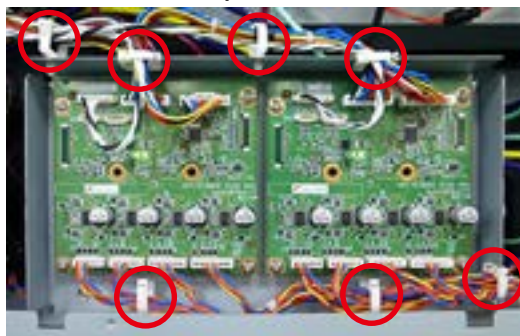
1. Sub power switch
2. Main power switch
3. Power cord



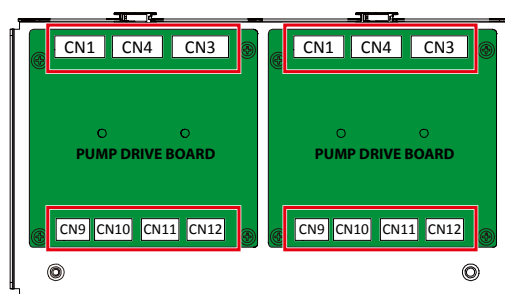
4. Remove eight screws that secure the covers.



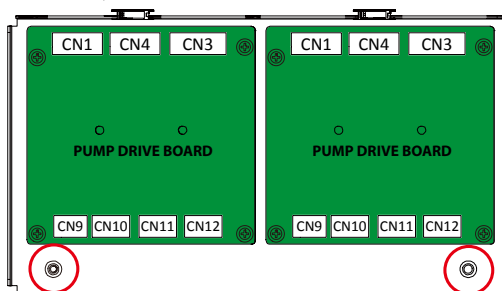
5. Unfasten seven clamps to release all the cables.



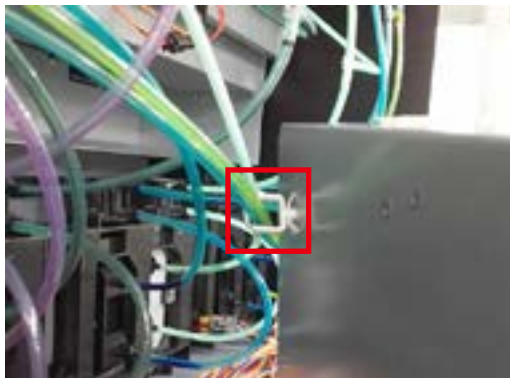
6. Unplug all the connectors from the pump drive boards.



7. Remove two screws that secure the pump drive board stay.



8. Release the ink tubes from the clamp which is on the back side of the pump drive board stay.



9. Remove the ink tubes from the pressure control valve you are going to replace.



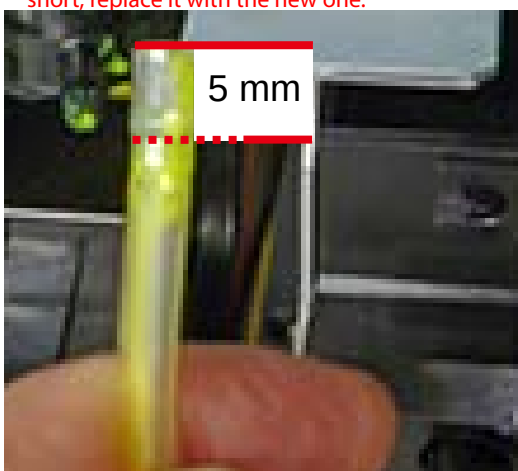
10. Remove the pressure control valve, and replace it with the new one.



11. Cut the ink tubes 5 mm from the end before connecting them to the new pressure control valve.

CAUTION

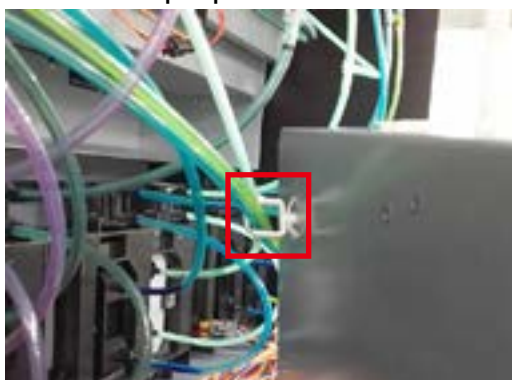
Do not cut the ink tube end more than 5 mm. If you cut it more than 5 mm, the ink tube will become too short to reach the choke valve, pressure pump, and/or ink circulation pump. If the ink tube becomes too short, replace it with the new one.



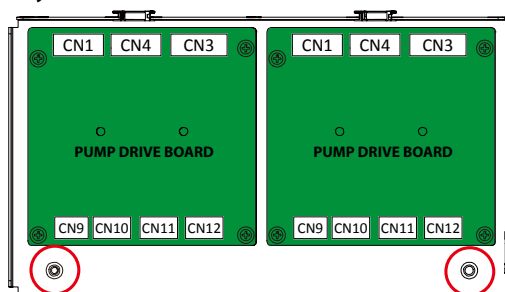
12. Connect the ink tubes to the pressure control valve.



13. Bundle the ink tubes with the clamp which is on the rear side of the pump drive board.



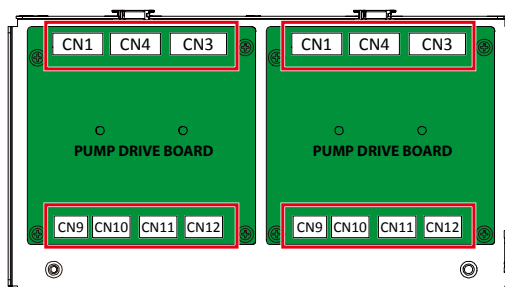
14. Tighten two screws to secure the pump drive board stay.



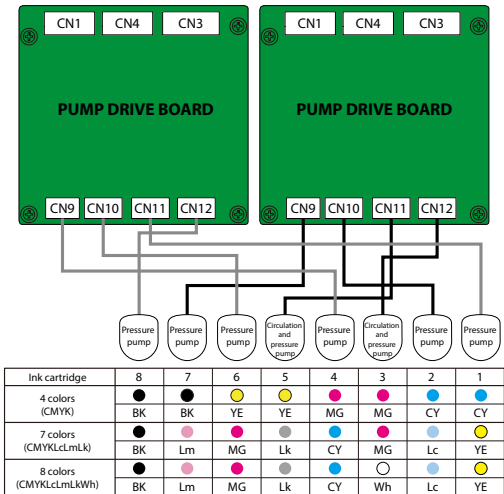
15. Plug all the connectors into the pump drive boards.

CAUTION

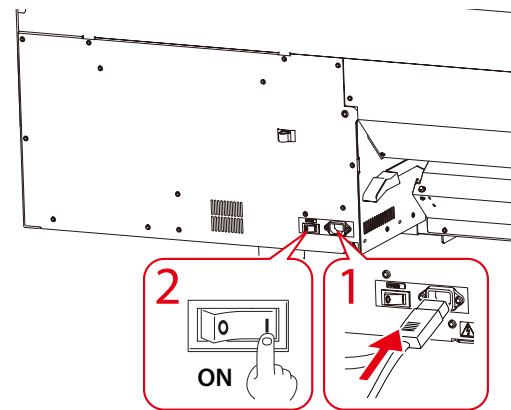
The connectors for the right pump drive board and the connectors for the left pump drive board look exactly alike. Be careful not to mix them up.



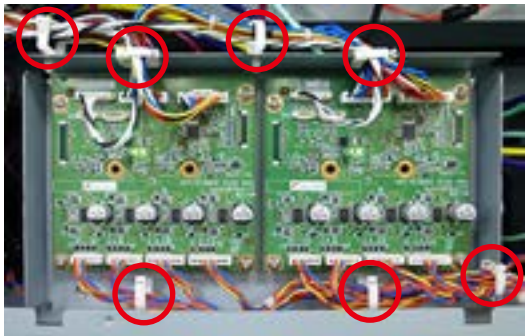
Wiring map of the pump drive boards



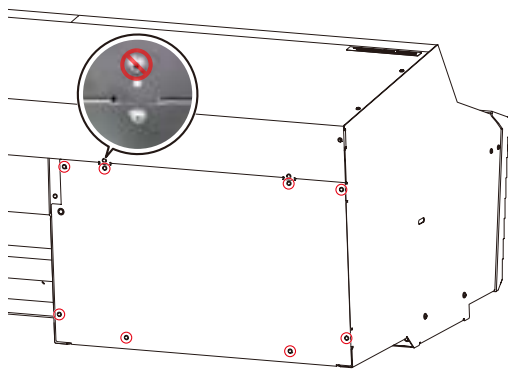
- 1. Power cord
- 2. Main power switch



16. Bundle the cables with seven clamps.

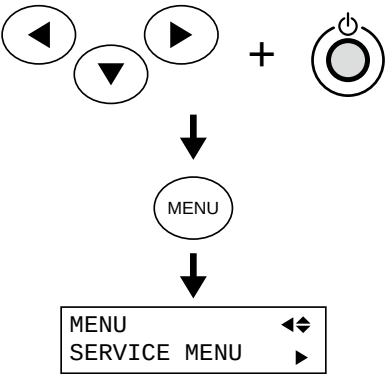


17. Tighten eight screws to secure the cover.



18. Plug in the power cord, and turn on the main power switch.

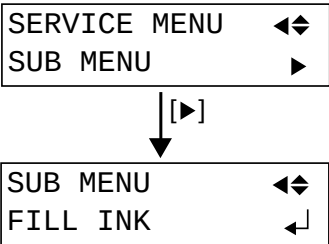
19. Turn on the sub power switch while pressing the [◀] [▼] [▶] keys to enter the service menu.



20. Perform [SERVICE MENU] > [SUB MENU] > [FILL INK] and fill the ink lines with ink.

NOTE

Required time for [FILL INK]: approx. 30 min.



21. (End of procedure)

Main Board Replacement

I

REPLACEMENT

Information

Necessary tools

Software

Peck

General tools

No.2 Phillips screwdriver

Special tools

None

Workflow

1. Main board replacement

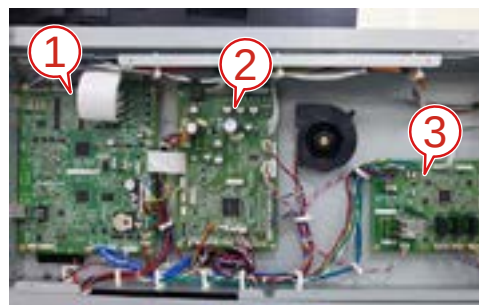
Typical work time

Contents of work	Time
Main board replacement (When parameters cannot be transferred by Peck)	40 min.
Main board replacement (When parameters can be transferred by Peck)	20 min.

Procedure

Board layout (inside the cover)

1. Main board
2. Servo board
3. Signal JC board



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



4. Turn off the main power switch.

5. Remove 14 screws that secure the covers.



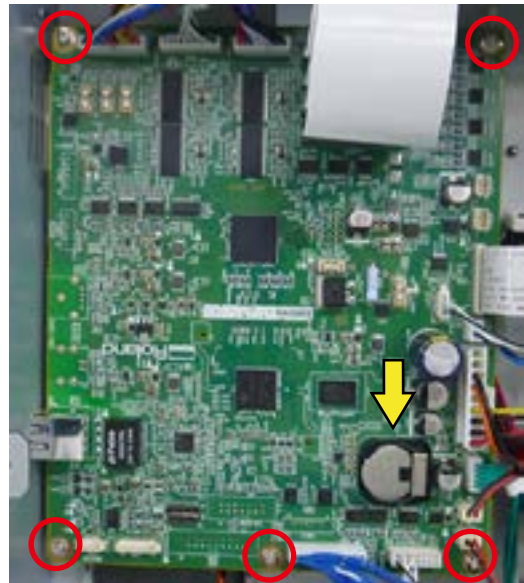
6. Disconnect all the ribbon cables and unplug all the connectors from the main board.

Main board



7. Remove five screws that secure the head board, and fasten the new one. Attach the removed battery to the new main board.

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



CAUTION

Make sure to attach the removed battery to the new main board.

8. Connect all the ribbon cables and plug all the connectors into the main board.

CAUTION

- There are no connectors to plug into CN 6 and CN 2. (the location shown by the yellow arrow)



9. Tighten 14 screws to secure the covers.



10. Perform the following adjustments and checks after replacement.

10-1. Firmware installation

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

10-2. System parameter initialization

- ☞ Refer to Chapter 2 "[Other Factory Modes](#)".

10-3. IP address setting

- * Start the printer in the service mode and set the IP address in the user menu.

10-4. Put parameters

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

10-5. Time and date setting

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

10-6. Sensor check

- * Set from [SERVICE MENU] > [SENSOR CHECK].

11. Perform the following when parameters cannot be transferred by Peck.

11-1. Firmware installation

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

11-2. System parameter initialization

- ☞ Refer to Chapter 2 "[Other Factory Modes](#)".

11-3. Time and date setting

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

11-4. IP address setting

- * Start the printer in the service mode and set the IP address in the user menu.

11-5. Head rank setting

- * Set from [PRINT MENU] > [HEAD RANK].

11-6. Serial number input

- * Set from [SUB MENU] > [SERIAL NO.].

11-7. Ink type setting

- * Set from [SUB MENU] > [CHANGE INKTYPE].

11-8. Sensor check

- * Set from [SERVICE MENU] > [SENSOR CHECK].

11-9. Limit Position & Cut Down Position Initialization

- ☞ Refer to Chapter 2 "[Limit Position & Cut Down Position Initialization](#)".

11-10. Flushing position adjustment

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

11-11. Linear encoder setup

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

11-12. Wiper position adjustment

- ☞ Refer to Chapter 2 "[Wiper Position Adjustment](#)".

11-13. Print head alignment

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

11-14. Feed calibration

- ☞ Refer to Chapter 2 "[Feed Calibration](#)".

11-15. Crop Mark Sensor Adjustment

- ☞ Refer to Chapter 2 "[Crop Mark Sensor Adjustment](#)".

11-16. Crop cut adjustment

- * Adjust the crop cut position by selecting [CUTTING MENU] > [CROP-CUT ADJ.].

11-17. Print/cut position adjustment

- * Adjust the print/cut position by selecting [CUTTING MENU] > [PRINT-CUT ADJ.].

12. (End of procedure)

Servo Board Replacement

Information

Necessary tools

General tools

No.2 Phillips screwdriver

Special tools

None

Workflow

1. Servo board replacement

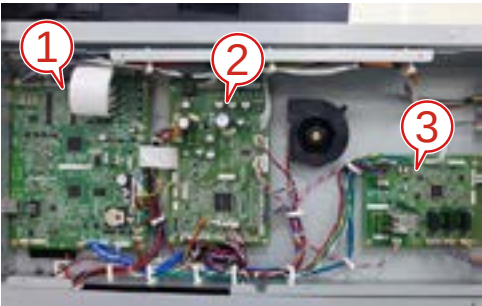
Typical work time

Contents of work	Time
Servo board replacement	20 min.

Procedure

Board layout (inside the cover)

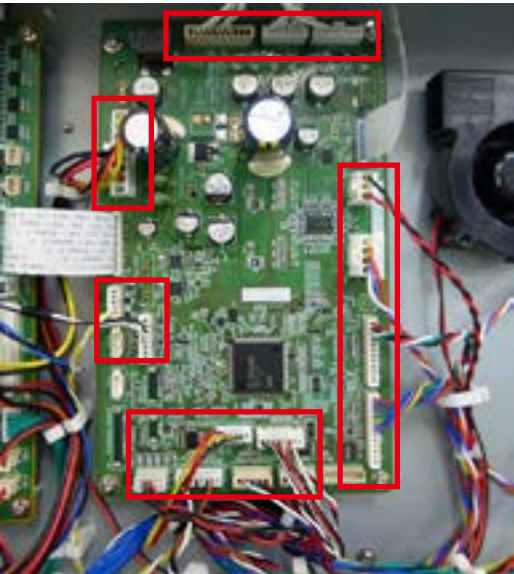
1. Main board
2. Servo board
3. Signal JC board



1. Turn off the main power switch.
2. Remove 14 screws that secure the covers.



3. Disconnect all the ribbon cables and unplug all the connectors from the servo board.



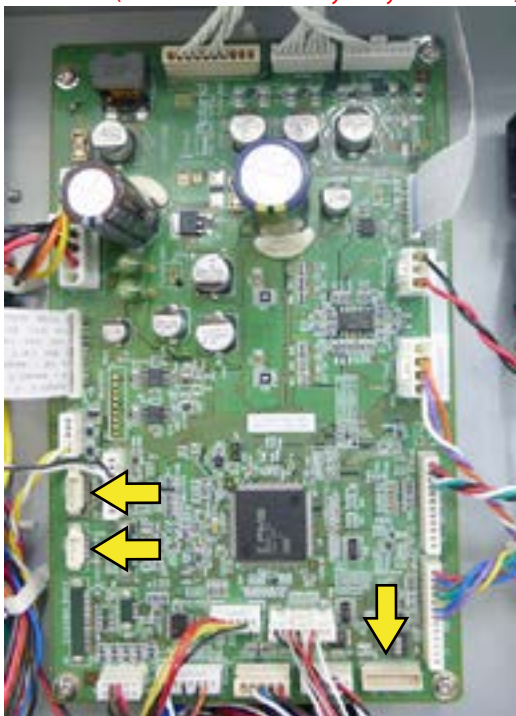
4. Remove four screws that secure the servo board, and replace it to the new servo board.



5. Connect all the ribbon cables and plug in all the connectors.

CAUTION

- There are no connectors to plug into CN 5, CN 11, CN 12 (the location shown by the yellow arrow)



6. Tighten 14 screws to secure the cover.



7. (End of procedure)

Signal JC Board Replacement

Information

Necessary tools

General tools

No.2 Phillips screwdriver

Special tools

None

Workflow

1. Signal JC board replacement

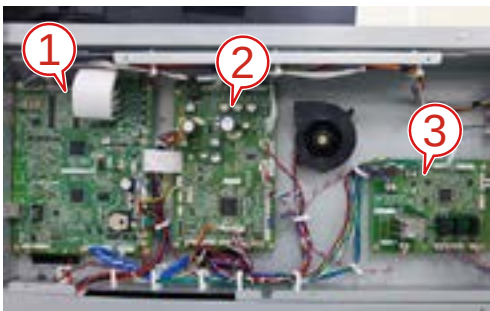
Typical work time

Contents of work	Time
Signal JC board replacement	15 min.

Procedure

Board layout (inside the cover)

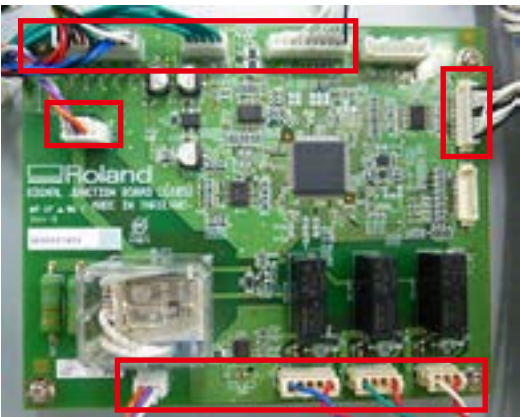
1. Main board
2. Servo board
3. Signal JC board



1. Turn off the main power switch.
2. Remove 14 screws that secure the covers.



3. Unplug all the connectors.



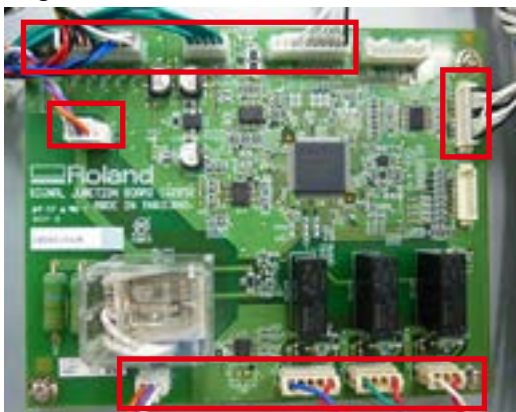
1

REPLACEMENT

1. Remove five screws and replace the signal JC board with a new one.



2. Plug in all the connectors.



3. Tighten 14 screws to secure the covers.



4. (End of procedure)

Switching Power Supply Replacement

Information

Necessary tools

General tools

No.2 Phillips screwdriver

Special tools

None

Workflow

1. SW power supply (5V)
2. SW power supply (37V)

Time

Contents of work	Time
SW power supply (5V)	18 min.
SW power supply (37V)	18 min.

Procedure

Board layout (inside the cover)

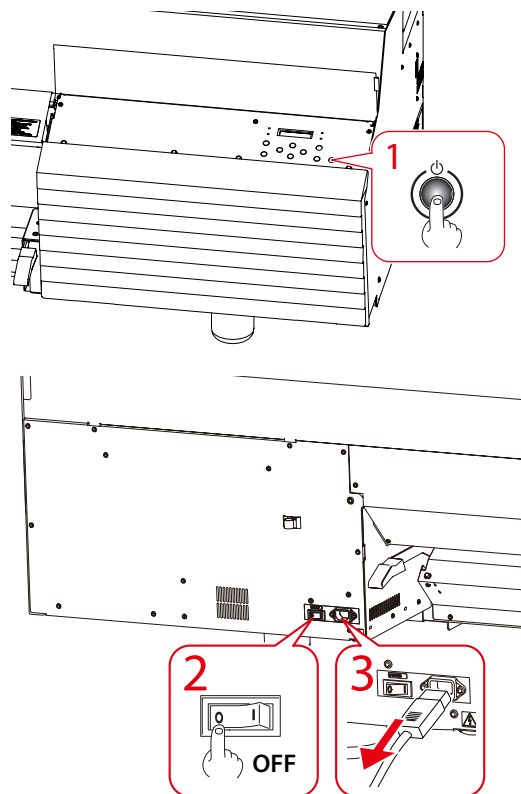
1. SW power supply (37V)
2. SW power supply (5V)
3. Heater Control Board



Removing the Chassis

1. Turn off the sub power switch, and then turn off the main power switch. Unplug the power cord.

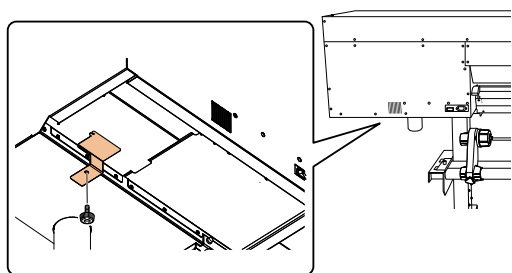
1. Sub power switch
2. Main power switch
3. Power cord



2. Remove 14 screws that secure the covers.



3. Remove the screw that secures the carriage retainer.



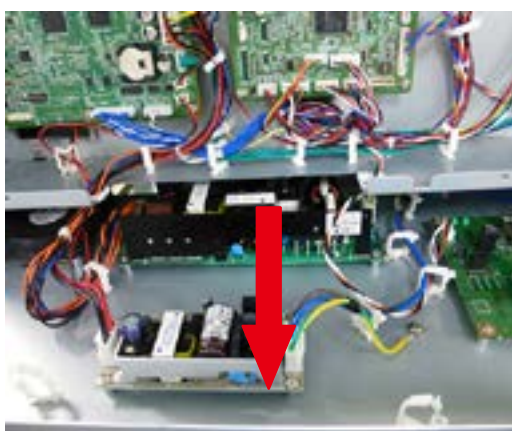
4. Remove five screws that secure the chassis tray.



5. Unfasten the clamps to pull out the chassis tray incompletely.



6. Unfasten the clamps which are on the back part of the chassis tray. Then, pull out the chassis tray further.



SW Power supply (5V) Replacement

SW power supply (5V) connector layout



7. Unplug all the connectors from the SW power supply.



8. Remove four screws, and replace the SW power supply (5V) with the new one.



CAUTION

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



9. Plug in all the connectors.



SW Power supply (37V) Replacement

SW power supply (37V) connector layout



10. Unplug all the connectors from the SW power supply.



11. Remove four screws, and replace the SW power supply (37V) with the new one.



CAUTION

In case you accidentally turn the potentiometer, adjust the output voltage value to +37 +/- 0.1.



12. Plug in all the connectors.



Fastening the Chassis Tray

13. Fasten the clamps to secure the cable. Then, attach the chassis tray to its original position.



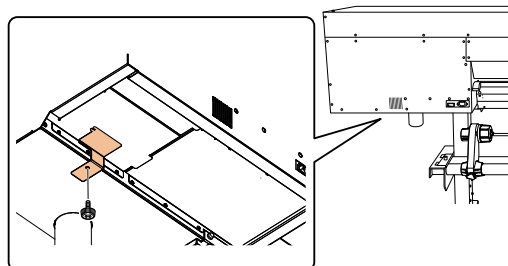
14. Bundle the cables with the clamps.



15. Tighten five screws to secure the chassis tray.



16. Tighten the screw to secure the carriage retainer.



- 17.** Tighten 14 screws to secure the cover.



- 18.** (End of procedure)

Pump Drive Board Replacement

Information

Necessary tools

General tools

No.2 Phillips screwdriver

Special tools

None

Workflow

1. Pump Drive Board Replacement

Time

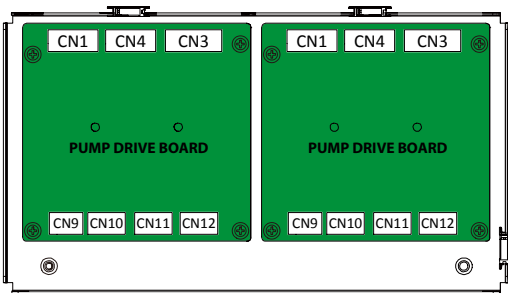
Contents of work	Time
Pump Drive Board Replacement	10 min.

Procedure

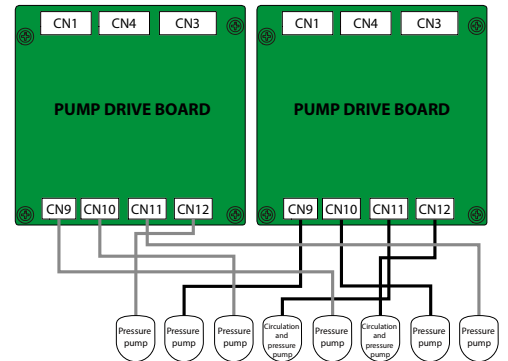
CAUTION

On the printer, there are two pump drive boards with different functionality. After replacement, make sure to put each board back to its original position, and be careful not to mix them up. If you mix them up and attach them to the wrong position, inks cannot be supplied to the print heads.

Connector layout

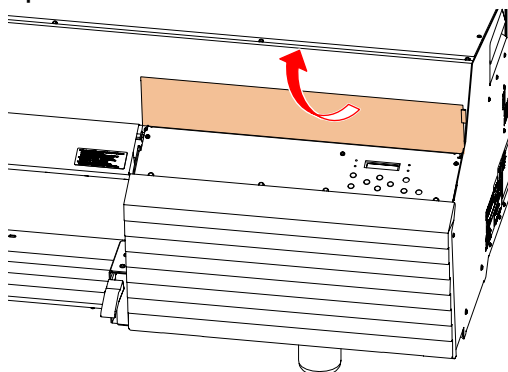


Wiring map of the pump drive boards



Ink cartridge	8	7	6	5	4	3	2	1
4 colors (CMYK)	BK	BK	YE	YE	MG	MG	CY	CY
7 colors (CMYKLCmLk)	BK	Lm	MG	Lk	CY	MG	Lc	YE
8 colors (CMYKLCmLkWh)	BK	Lm	MG	Lk	CY	Wh	Lc	YE

1. Open the cover.

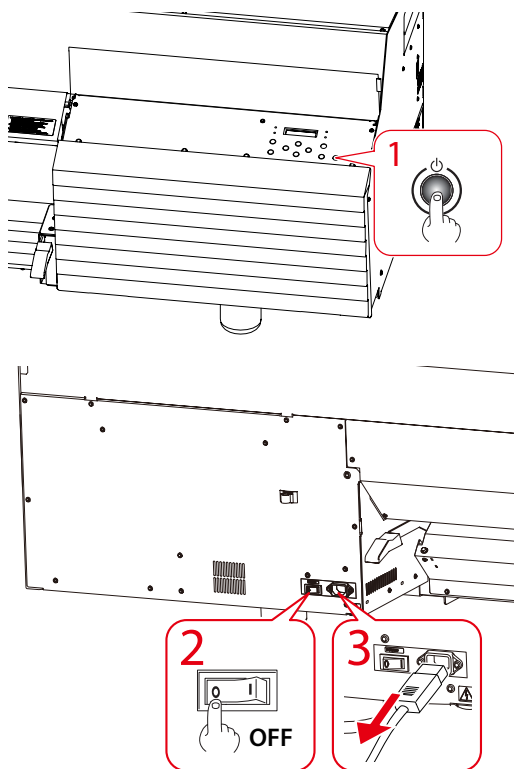


2. Turn off the sub power switch, and then turn off the main power switch. Unplug the power cord.

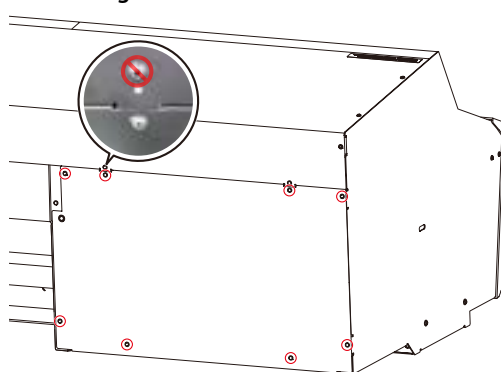
1. Sub power switch

2. Main power switch

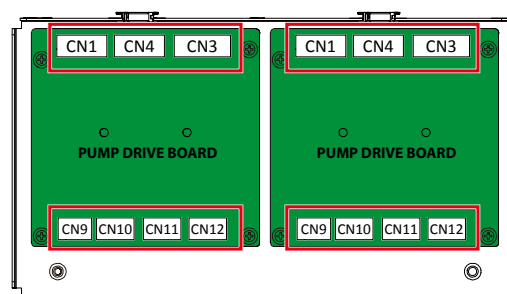
3. Power cord



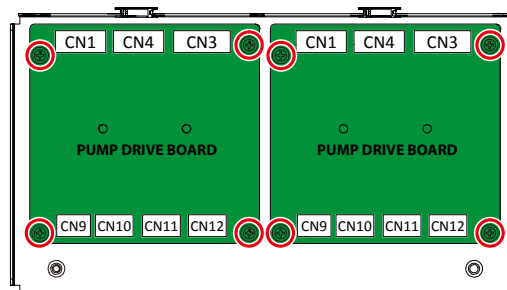
3. Remove eight screws that secure the covers.



4. Unplug all the connectors from the pump drive board.



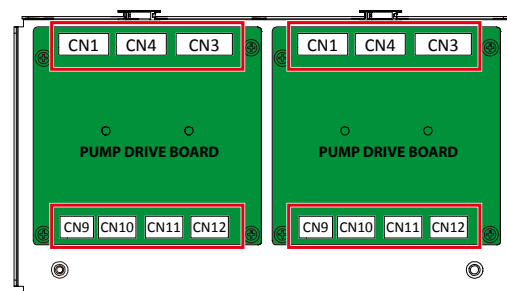
5. Remove four screws that secure the pump drive board. Then, replace it with the new one.



6. Plug all the connectors into the pump drive boards.

CAUTION

The connectors for the right pump drive board and the connectors for the left pump drive board look exactly alike. Be careful not to mix them up.



- 7.** Perform the following.
 - 7-1.** Perform powerful cleaning and check that the filler sensor works properly.
- 8.** (End of procedure)

Ink system RFID Board Replacement

Information

Necessary tools

General tools

No.2 Phillips screwdriver

Special tools

None

Workflow

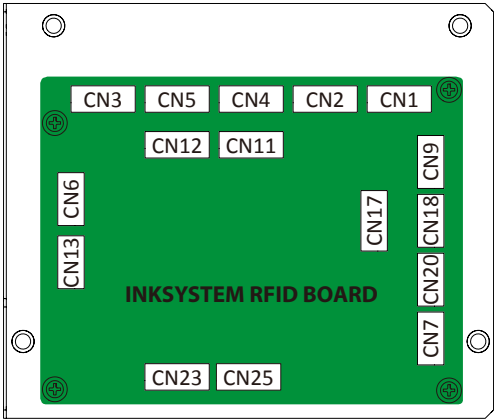
1. Ink system RFID board replacement

Time

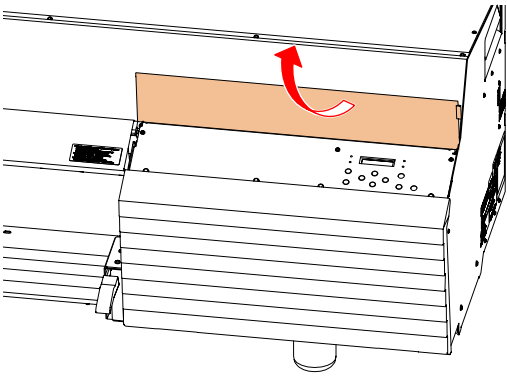
Contents of work	Time
Ink system RFID board replacement	10 min.

Procedure

Connector layout



1. Open the cover.

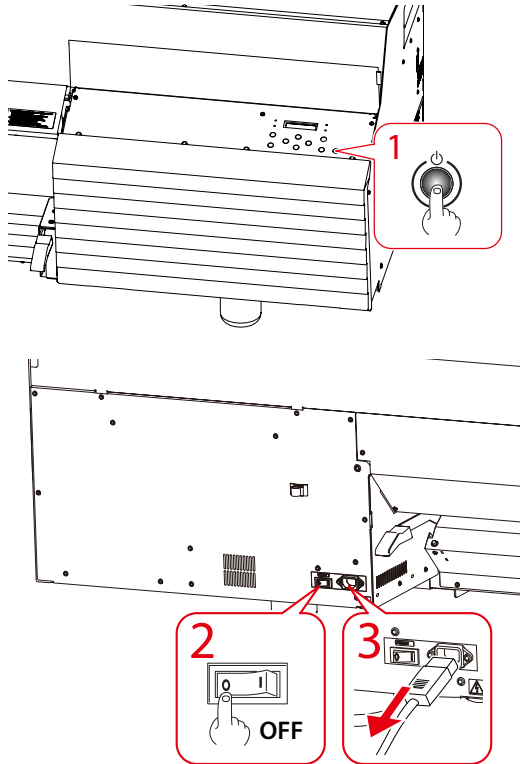


1

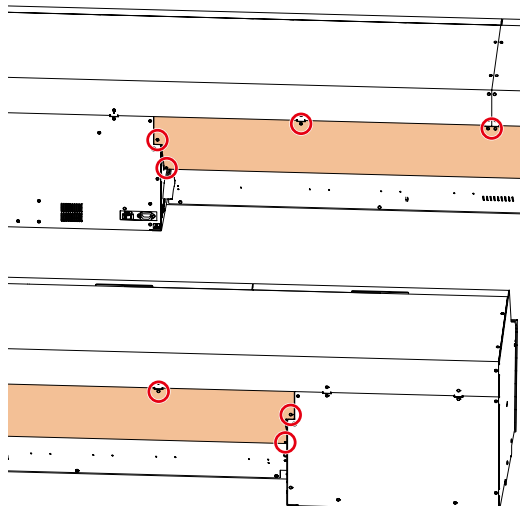
REPLACEMENT

- 2.** Turn off the sub power switch, and then turn off the main power switch. Unplug the power cord.

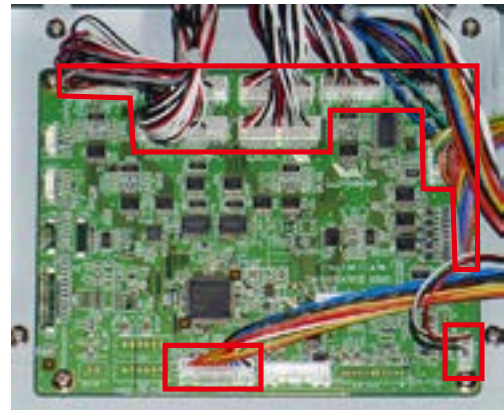
1. Sub power switch
2. Main power switch
3. Power cord



- 3.** Remove eight screws that secure the covers.



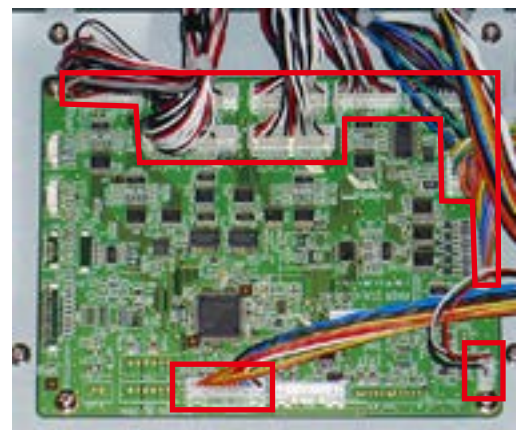
- 4.** Unplug all the connectors from the ink system RFID board.



- 5.** Remove four screws that secure the ink system RFID board. Then, replace it with the new one.

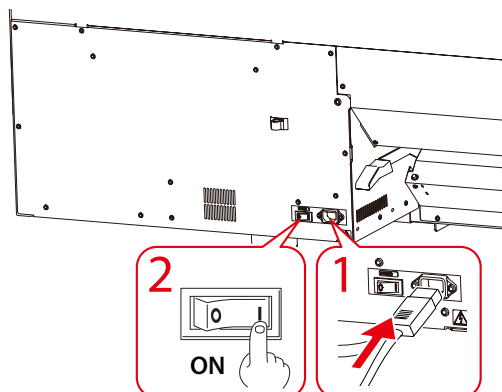


- 6.** Plug all the connectors into the ink system RFID board.

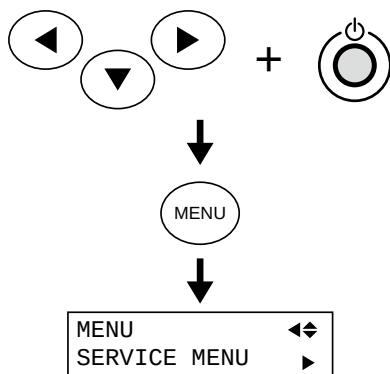


- 7.** Plug in the power cord, and turn on the main power switch.

1. Power cord
2. Main power switch



8. Turn on the sub power switch while pressing the [◀] [▼] [▶] keys to enter the service menu.



9. Perform the following.

- 9-1. Go to [SERVICE MENU] > [I/S MENU] > [CARTRIDGE] > [SLOT1] to [SLOT8], and check that the printer has read the serial numbers of each ink cartridge IC properly.

10. (End of procedure)

RFID R/W Board Replacement

Information

Necessary tools

General tools

No.2 Phillips screwdriver

Special tools

None

Workflow

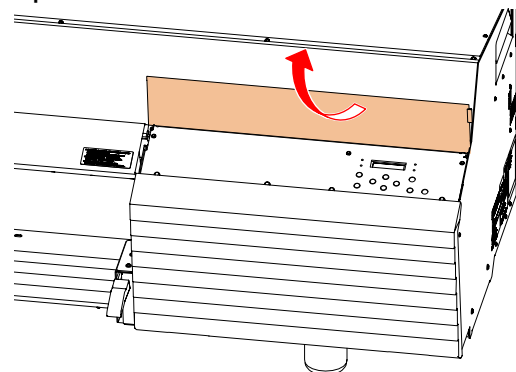
1. RFID R/W board replacement

Time

Contents of work	Time
RFID R/W board replacement	45 min.

Procedure

1. Open the cover.

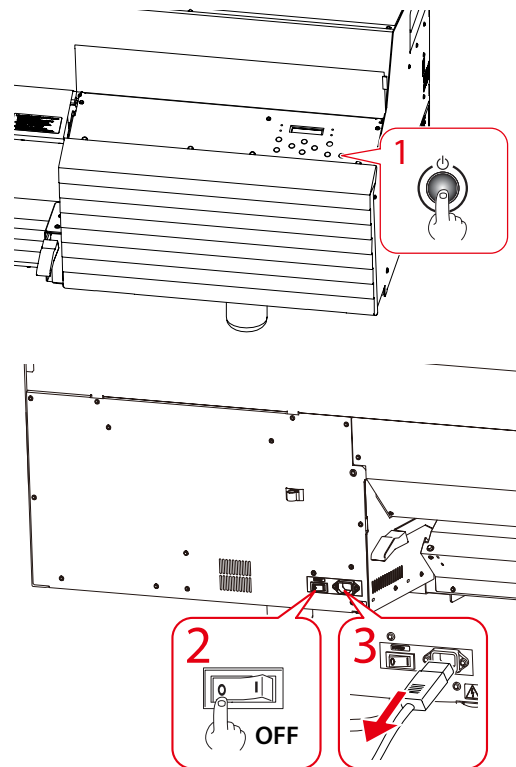


2. Turn off the sub power switch, and then turn off the main power switch. Unplug the power cord.

1. Sub power switch

2. Main power switch

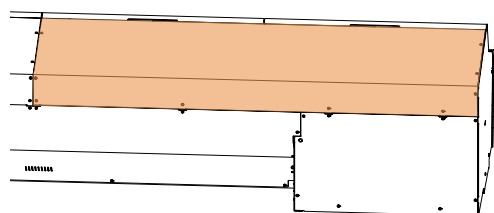
3. Power cord



I

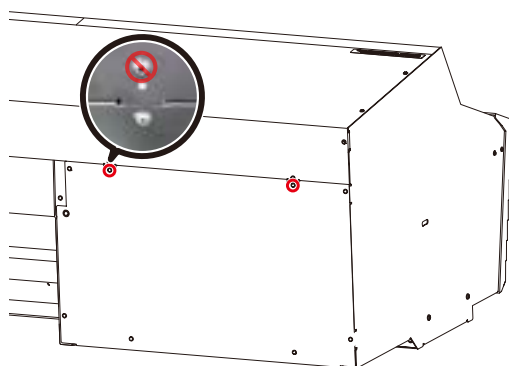
REPLACEMENT

3. Remove the cover shown in orange in the figure.

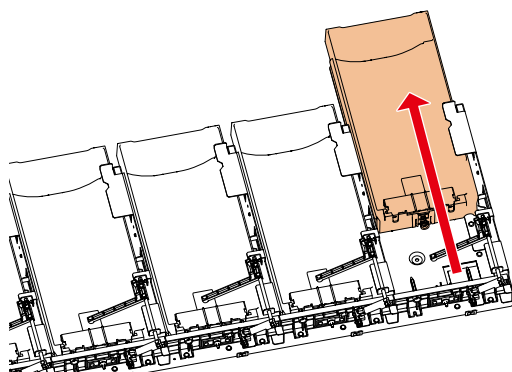


CAUTION

Do not remove the upper screw. Remove only the bottom screw. If you remove both upper and bottom screws, a small plate that the two screws are securing will fall off inside the printer.



4. Slide and remove the ink cartridge.



5. Lift up the ink empty lever, and remove it.



6. Remove the hook that secures the cover.



7. Unplug the connector from the RFID R/W board, and replace the board with a new one.



CAUTION

Be careful with the needle. Take care not to drop the connector.

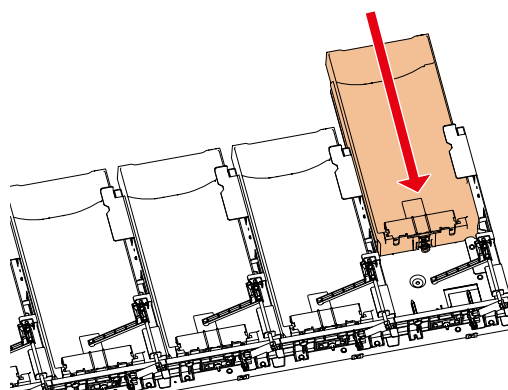
8. Place the RFID R/W board so that two pins can be fitted into the holes of the board, and then close the cover.



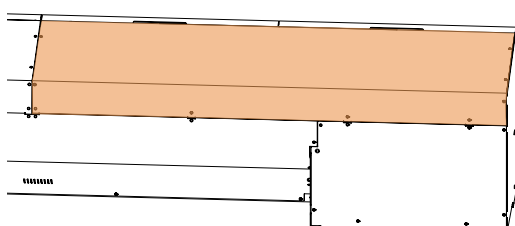
9. Attach the ink empty lever.



10. Slide and set the ink cartridge.



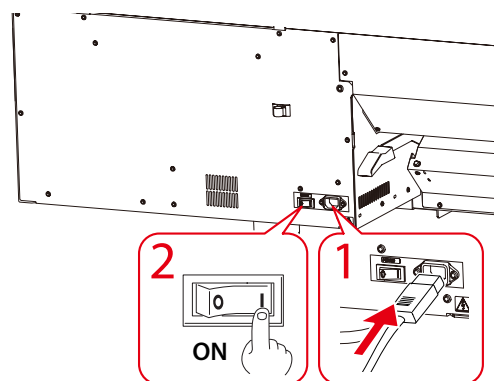
11. Fasten the covers with screws.



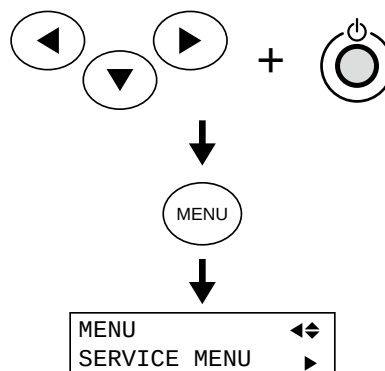
12. Plug in the power cord, and turn on the main power switch.

1. Power cord

2. Main power switch



13. Turn on the sub power switch while pressing the [◀] [▼] [▶] keys to enter the service menu.



14. Perform the following.

- 14-1.** Go to [SERVICE MENU] > [I/S MENU] > [CARTRIDGE]
> [SLOT1] to [SLOT8], and check that the printer
has read the serial numbers of each ink cartridge
IC properly.

15. (End of procedure)

Information

Necessary tools

General tools

No.2 Phillips screwdriver

3.0 mm hexagonal wrench

Tape

Special tools

6000004129 GREASE,FLOIL G-902 10ML_02

Workflow

1. Carriage belt replacement

Time

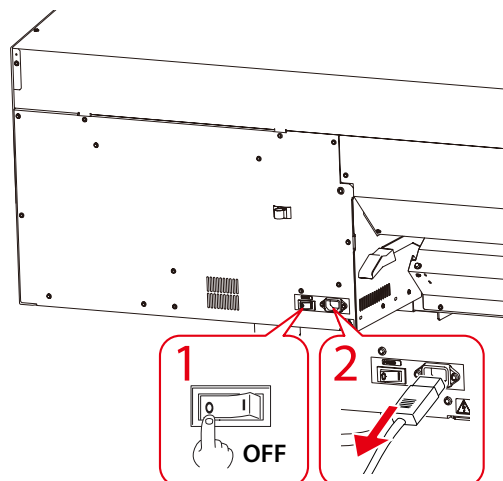
Contents of work	Time
Carriage belt replacement	45 min.

Procedure

1. Turn off the main power switch, and then unplug the power cord.

1. Main power switch

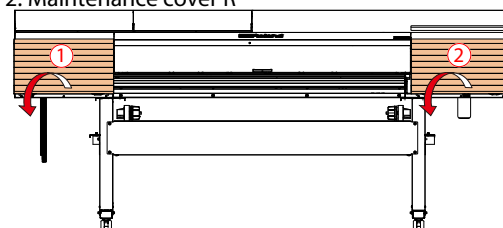
2. Power cord



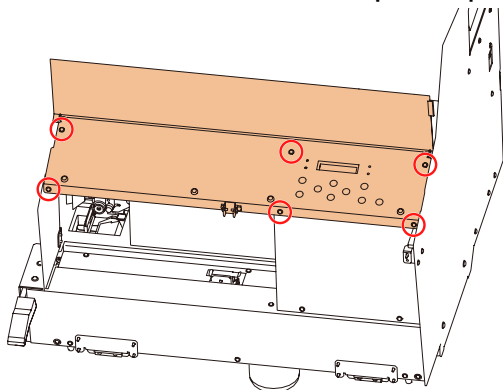
2. Open the maintenance cover L and the maintenance cover R.

1. Maintenance cover L

2. Maintenance cover R



3. Remove six screws that secure the operation panel.

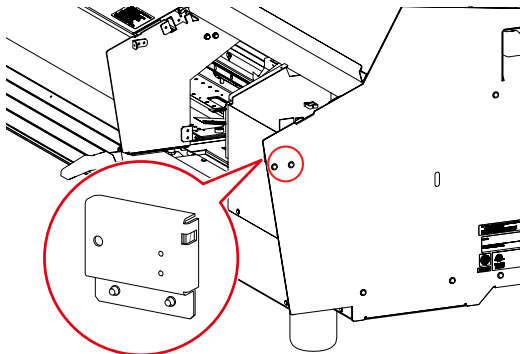


CAUTION

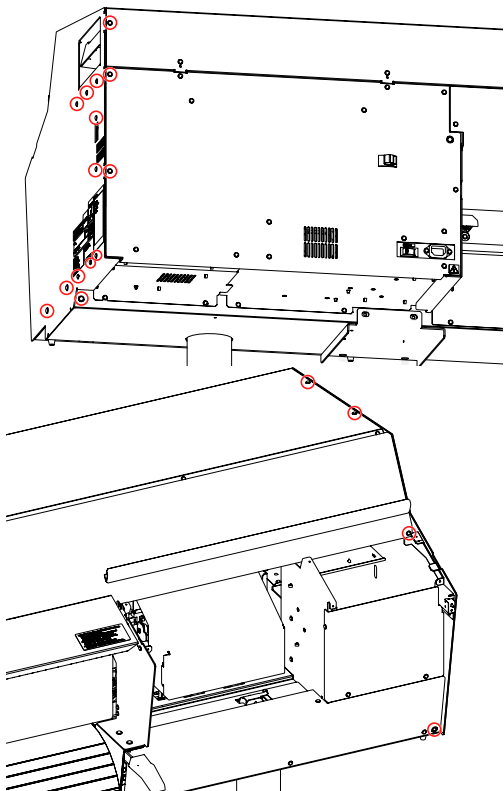
Disconnect the cable from the panel board.



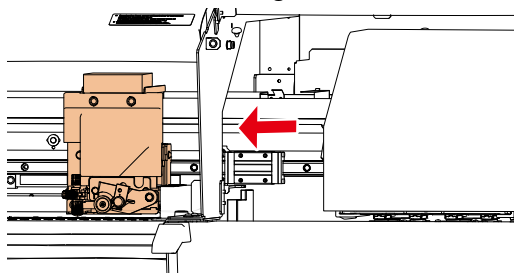
4. Remove two screws that secure the maintenance cover sensor R.



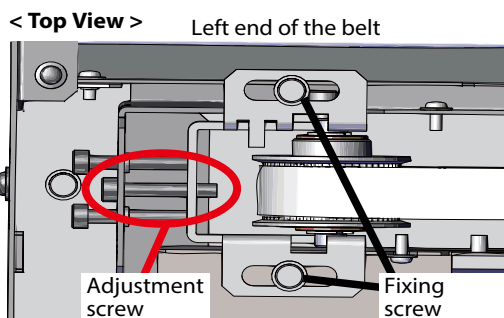
5. Remove 18 screws that secure the covers.



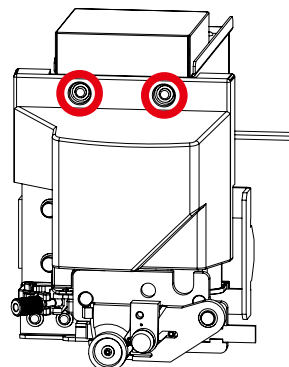
6. Disconnect the tool carriage from the head carriage.



7. Loosen two fixing screws located at the left end of the belt. Then, loosen the adjustment screw.



8. Remove two screws that secure the cover.



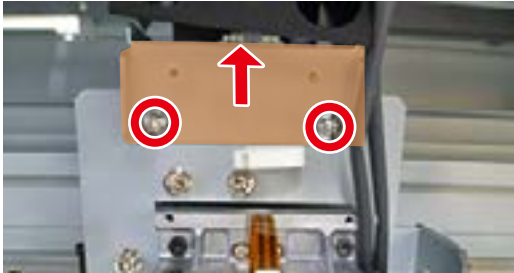
9. Unplug the solenoid cable and two connectors.



10. Unfasten the clamp and release the cable.



11. Loosen two screws. Slide and remove the stay.



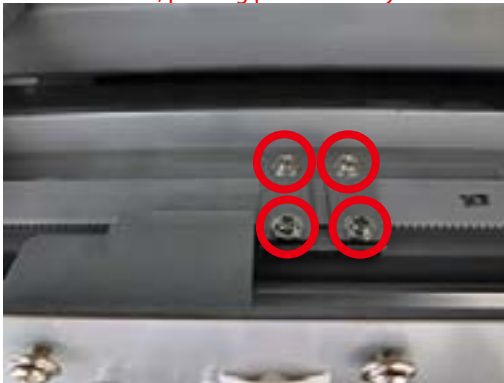
12. Slide the tool carriage away from the stay.



13. Remove four screws and remove the carriage belt.

CAUTION

When removing the carriage belt, make sure the carriage belt does not touch the encoder scale. If the grease applied to the carriage belt gets on the encoder scale, printing problems may occur.

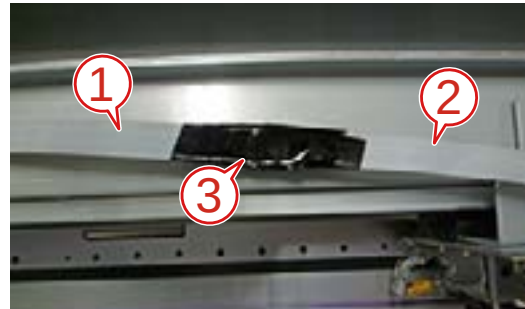


14. Remove the carriage belt from the stay. Then, connect the new carriage belt to the old carriage belt using scotch tape.

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. New carriage belt
3. Scotch tape

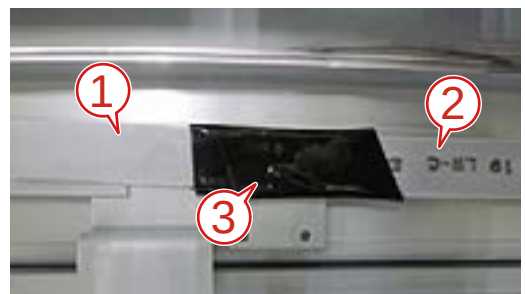


15. Slowly pull the end of the old belt that is not connected to the new belt until the new belt reaches the belt stay.

CAUTION

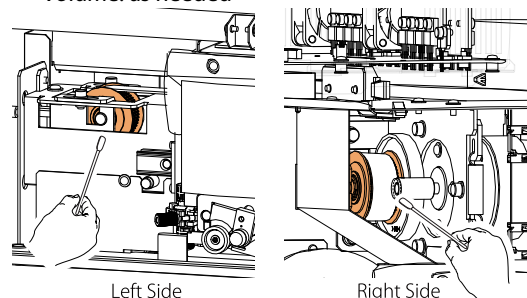
Check that the belt is not twisted.

1. Old carriage belt
2. New carriage belt
3. Scotch tape



16. Apply grease to the pulleys.

- Grease: FLOIL G-902 10ML_02
- Volume: as needed



17. 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.

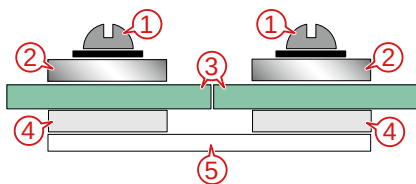
CAUTION

- 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.

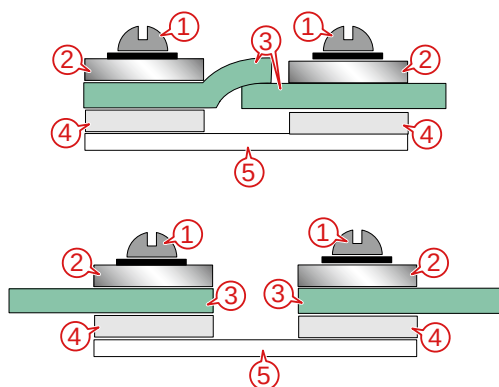
1. Screw
2. Metal plate
3. Carriage belt
4. Plastic plate
5. belt holder

Cross-section diagram

OK



No Good

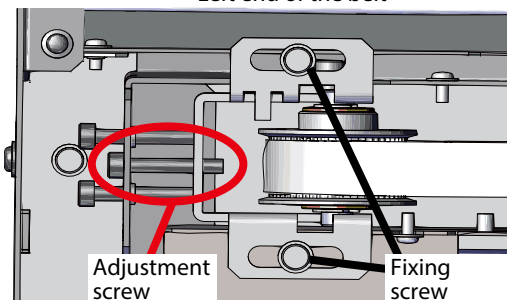


18. Tighten the adjustment screw to remove the slack in the belt. Then, tighten two fixing screws.

CAUTION

Do not overtighten the screws.

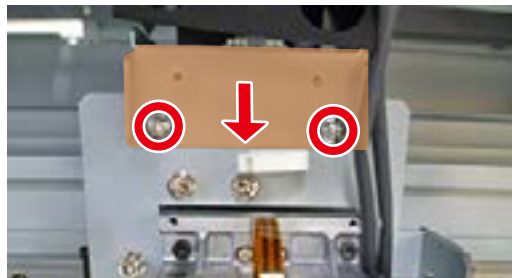
< Top View > Left end of the belt



19. Slide the tool carriage back to the original position, and align the screws on the tool carriage and the screw holes of the stay.



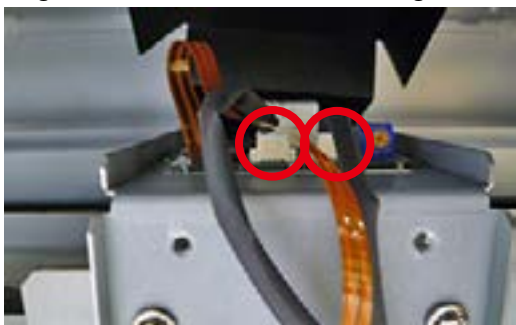
20. Tighten two screws to secure the stay.



21. Plug the solenoid cable into the tool carriage board.

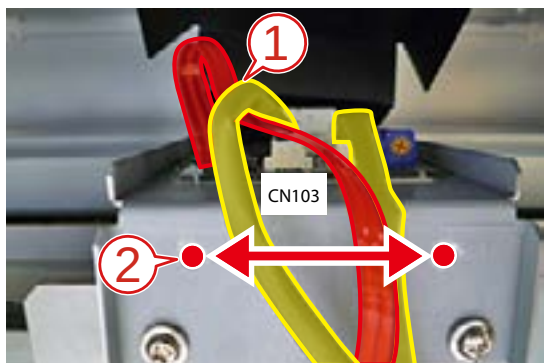


- 22.** Plug two connectors into the tool carriage board.



CAUTION

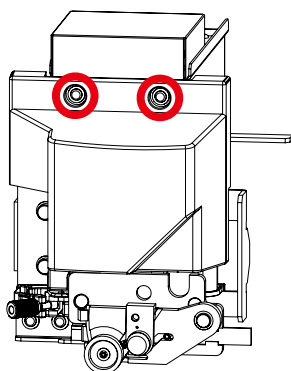
1. Place the two CN103 cables (shown in yellow in the figure) on top of the solenoid cable (shown in orange).
2. Place the three cables in between the two screws as shown in the figure.



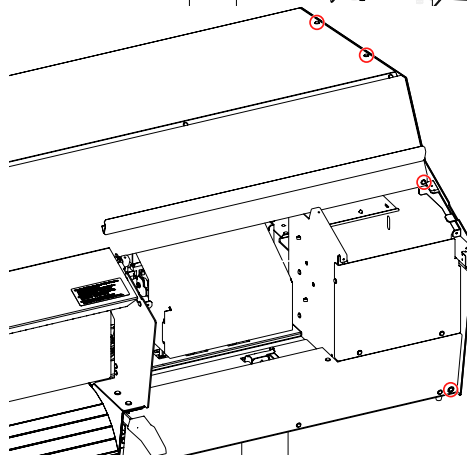
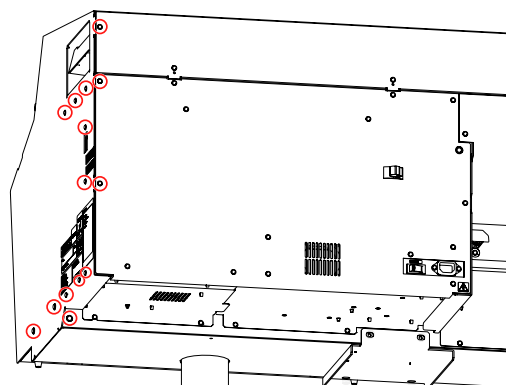
- 23.** Bundle the cables with the clamp.



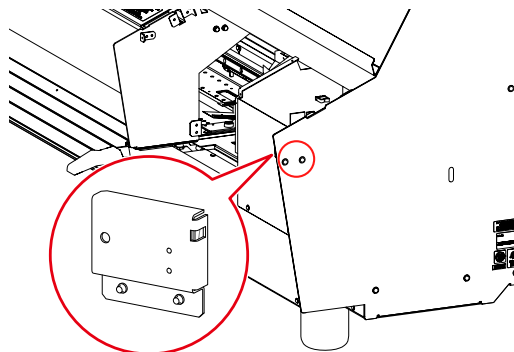
- 24.** Tighten two screws to secure the cover.



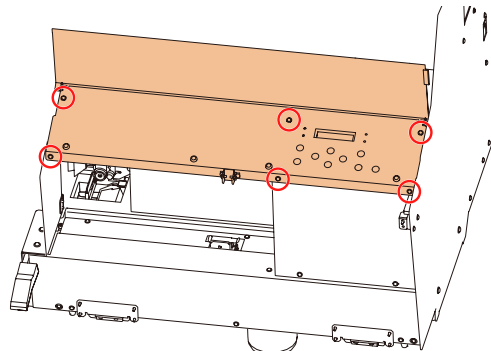
- 25.** Tighten 18 screws to secure the cover.



- 26.** Temporarily fasten the maintenance cover sensor R with two screws.



- 27.** Tighten six screws to secure the operation panel.



CAUTION

- Tighten two screws in the operation panel with holding up to the left, and then make 1.5 mm clearance between the frame and the operation panel.



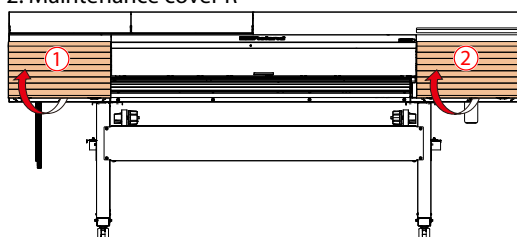
- Connect the ribbon cable to the panel board.



- 28.** Close the maintenance cover R, and then confirm the cover is fixed.

1. Maintenance cover L

2. Maintenance cover R



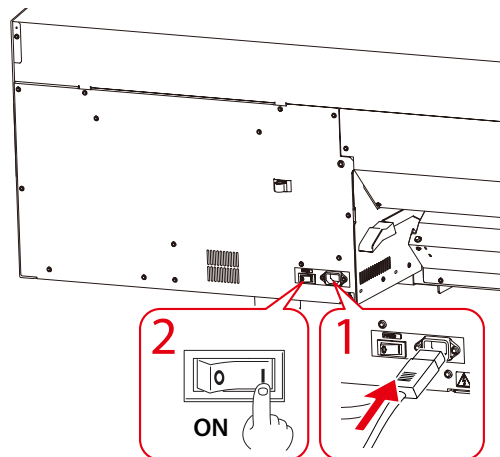
CAUTION

If the cover is not fixed, then maintenance cover sensor R does not work properly. Widen the clearance between the operation panel and the frame if the maintenance cover is not fixed by shaking the right and left ends of the cover back and forth with your hands.

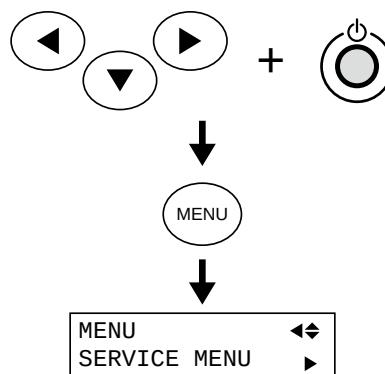
- 29.** Plug in the power cord, and turn on the main power switch.

1. Power cord

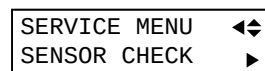
2. Main power switch



- 30.** Turn on the sub power switch while pressing the [◀] [▼] [▶] keys to enter the service menu.

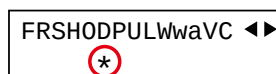


- 31.** Select [SERVICE MENU] > [SENSOR CHECK].

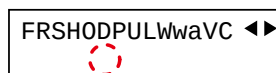


- 32.** Slide the maintenance cover sensor R to the front until "*" under "D" disappears. Then, tighten two screws to secure the sensor.

When the cover is open



When the cover is closed



- 33.** Move the head carriage across the whole width of the guide rail several times to remove the slack in the carriage belt. Then, perform the following adjustments.
 - 33-1.** Chapter 2 "[Belt Tension Adjustment](#)".
 - 33-2.** Chapter 2 "[Belt Position Adjustment](#)".
 - 33-3.** Chapter 2 "[Limit Position & Cut Down Position Initialization](#)".
 - 33-4.** Check cutting quality
- 34.** (End of procedure)

Encoder Scale Replacement

Information

Necessary tools

General tools

No.2 Phillips screwdriver

Special tools

None

Workflow

1. Encoder scale replacement
2. Linear encoder setup

Time

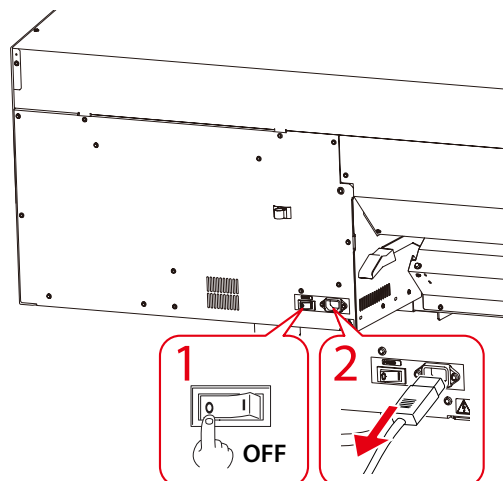
Contents of work	Time
Encoder scale replacement	15 min.
Linear encoder setup	5 min.

Procedure

1. Turn off the main power switch, and then unplug the power cord.

1. Main power switch

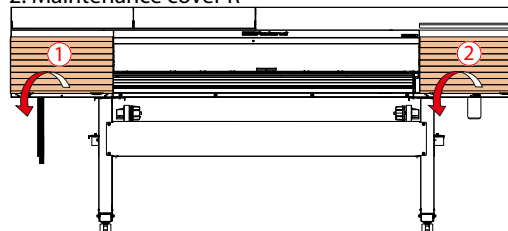
2. Power cord



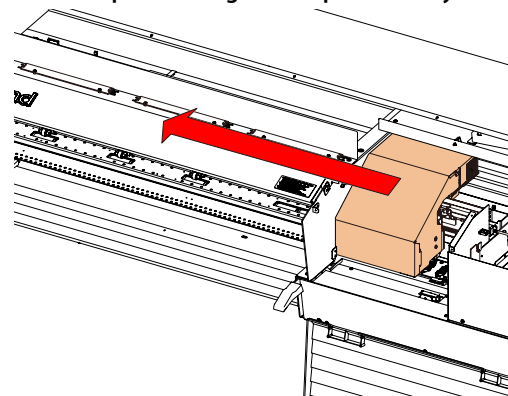
2. Open the maintenance cover L and the maintenance cover R.

1. Maintenance cover L

2. Maintenance cover R

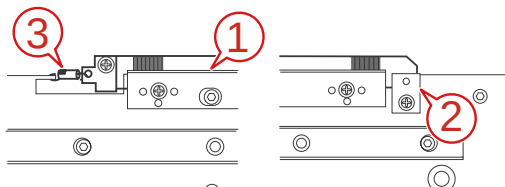


3. Move the print carriage to the print area by hand.



4. Remove the encoder scale by removing the plate holding the encoder scale at its right end and the spring on its left end.

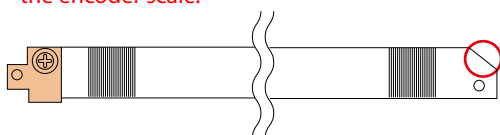
1. Encoder scale
2. Encoder plate
3. E-ring



5. Remove the spring plate from the encoder scale and fasten it to the end of the new encoder scale that does not have a clipped corner.

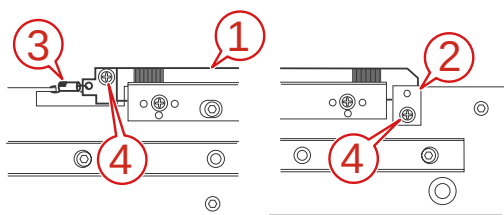
CAUTION

Make sure not to scratch or get grease on the encoder scale when installing it. Do not touch the surface of the encoder scale.

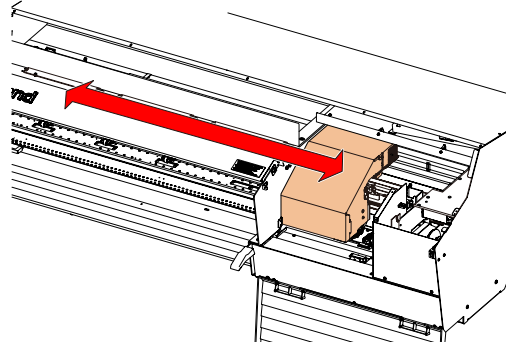


6. Put the encoder scale in between the encoder plate and the guide rail. Then, fasten the right end with the plate, and hook up the spring on the left end. Make sure that the encoder scale is in place.

1. Encoder scale
2. Encoder plate
3. E-ring
4. Screw

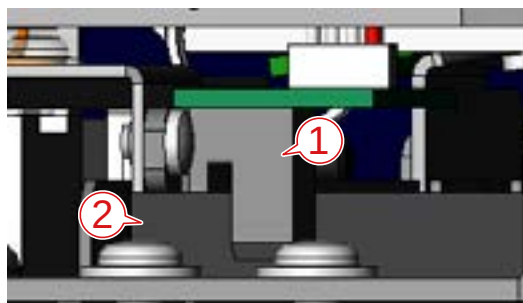


7. Move the head carriage across the whole width of the machine manually and confirm that the encoder scale does not make contact with the encoder sensor. Also, check that the encoder scale is in between the slit of the encoder sensor. Carry out Chapter 2 "[Linear Encoder Setup](#)".



Close-up image of the encoder scale and the encoder sensor

1. Encoder sensor
2. Encoder scale



8. (End of procedure)

Linear Encoder Board Replacement

I

REPLACEMENT

Information

Necessary tools

General tools

No.1 Phillips screwdriver

No.2 Phillips screwdriver

Special tools

None

Workflow

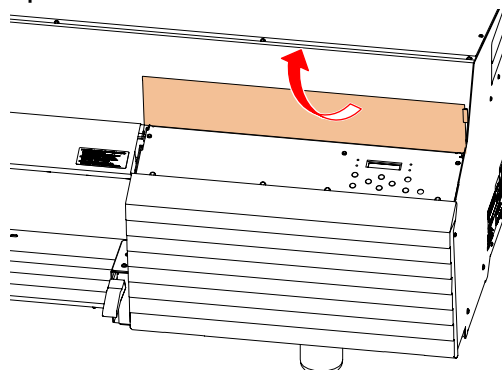
1. Linear encoder board replacement
2. Linear encoder setup

Time

Contents of work	Time
Linear encoder board replacement	25 min.
Linear encoder setup	5 min.

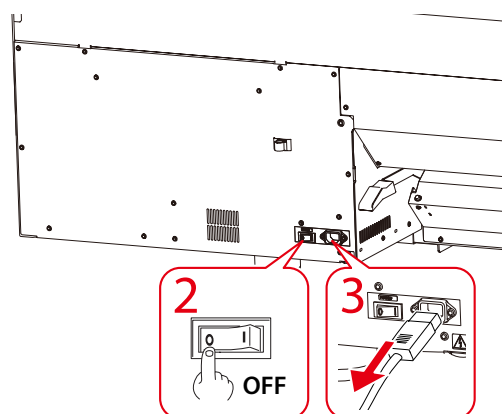
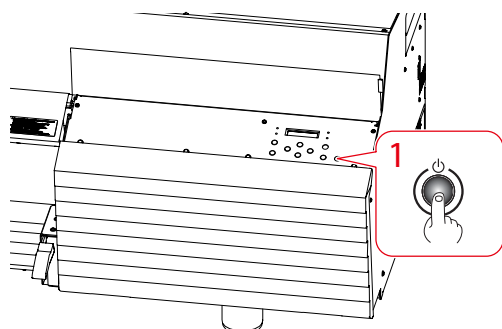
Procedure

1. Open the cover.

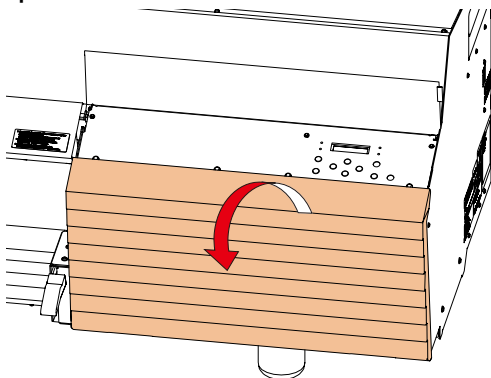


2. Turn off the sub power switch, and then turn off the main power switch. Unplug the power cord.

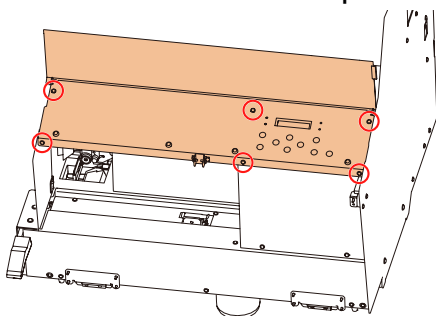
1. Sub power switch
2. Main power switch
3. Power cord



3. Open the maintenance cover R.



4. Remove six screws that secure the operation panel.

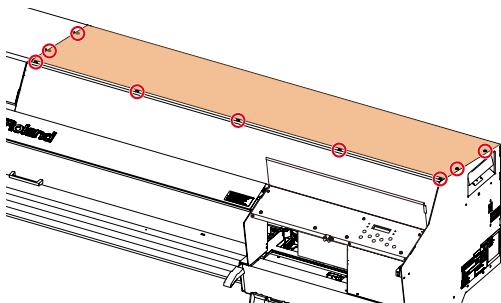


CAUTION

Disconnect the cable from the panel board.



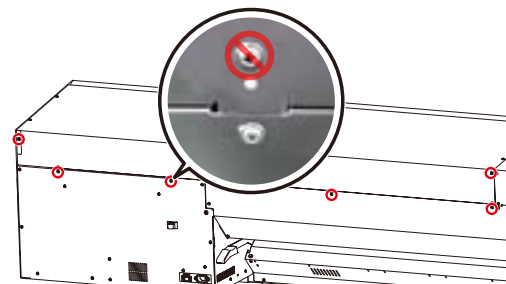
5. Remove 15 screws that secure the cover.



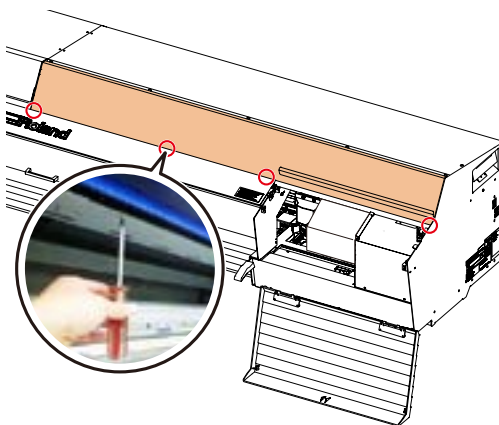
CAUTION

Do not remove the upper screw. Remove only the bottom screw. If you remove both upper and bottom screws, a small plate that the two screws are securing will fall off inside the printer.

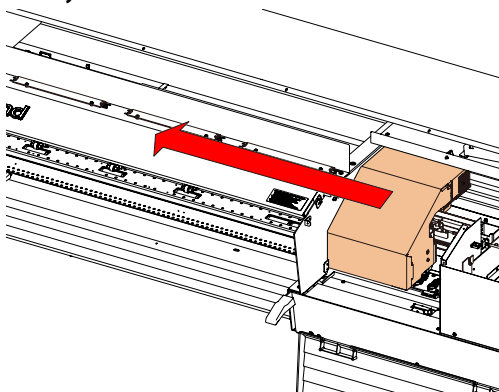
Rear view



6. Remove four screws that secure the cover.



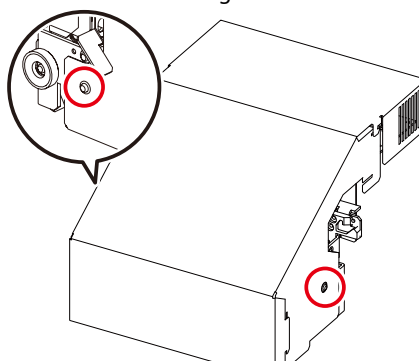
7. Unlock the print carriage, and move it to the print area by hand.



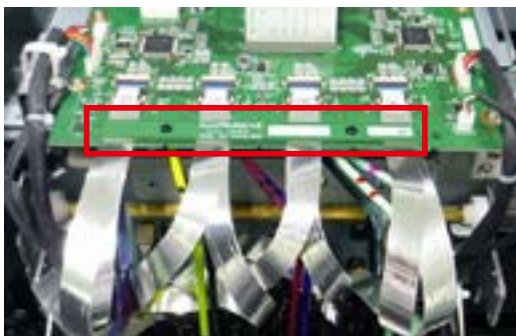
8. Remove two screws that secure the cover.

NOTE

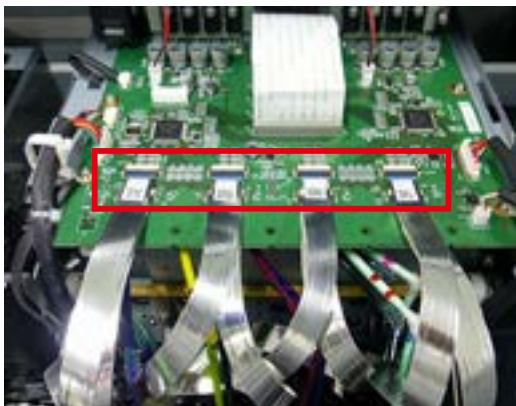
The screws are on the right and left side of the cover.



9. Remove two rivets to remove the cable retainer.

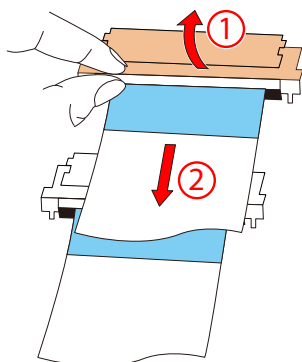


10. Disconnect all the ribbon cables from the print carriage board.

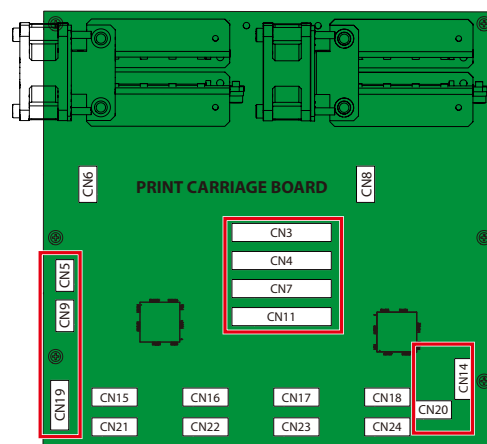


CAUTION

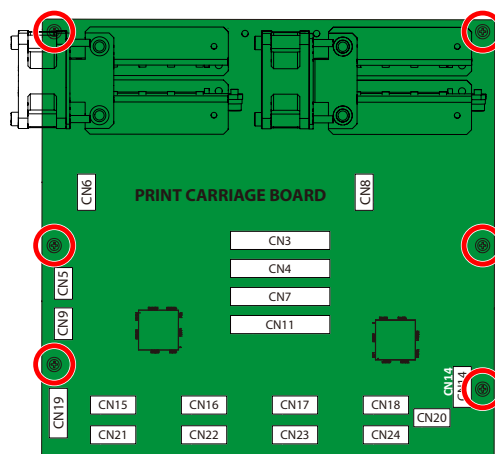
Open the cover in the direction of the arrow marked "1". Then, disconnect the ribbon cable from the print carriage board.



11. Unplug the connector.



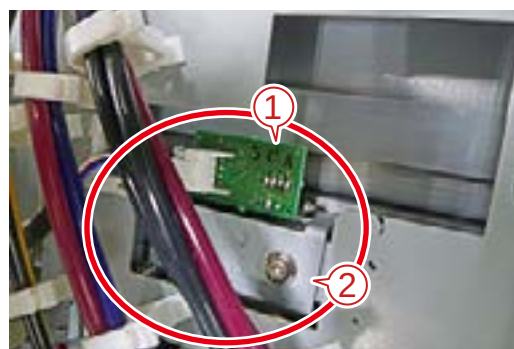
12. Remove the print carriage board.



13. Remove the linear encoder board along with the stay.

1. Linear encoder board

2. Stay



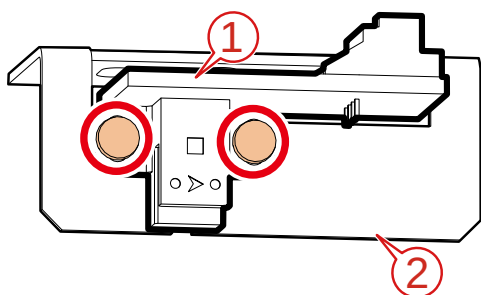
14. Unplug the connector from the linear encoder board. Then, plug the connector into the new linear encoder board.



15. Remove the linear encoder board from the stay. Then, attach the new linear encoder board to the stay.

1. Linear encoder board

2. Stay



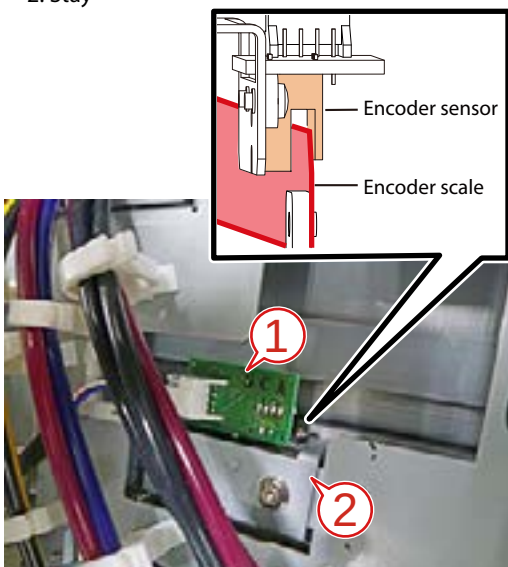
16. Fasten the linear encoder board along with the stay.

CAUTION

Make sure 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.

1. Linear encoder board

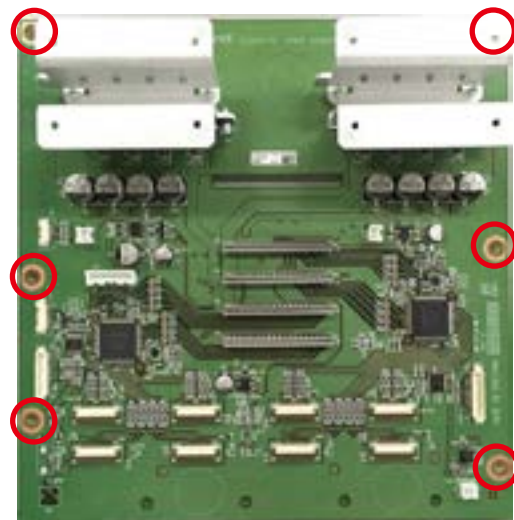
2. Stay



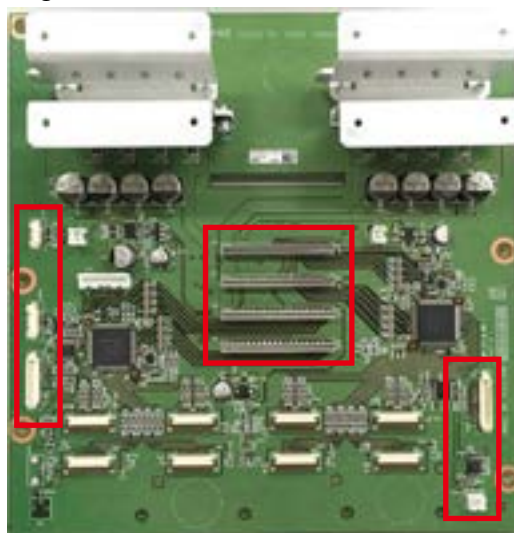
Encoder sensor wiring



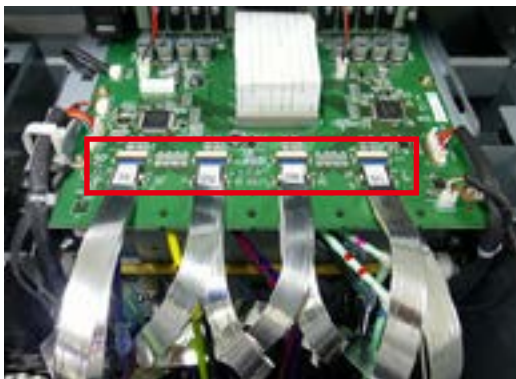
17. Tighten six screws to secure the print carriage board.



18. Plug in the connectors.



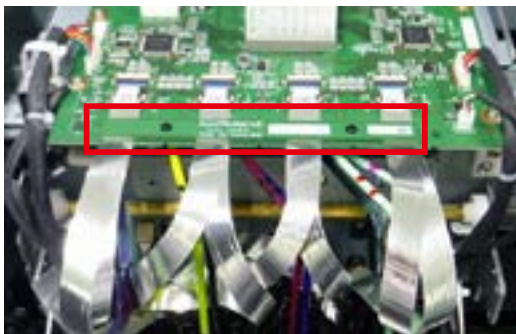
19. Connect all the ribbon cables of the print heads to the print carriage board.



CAUTION

Be sure to connect each ribbon cable to the correct connector.

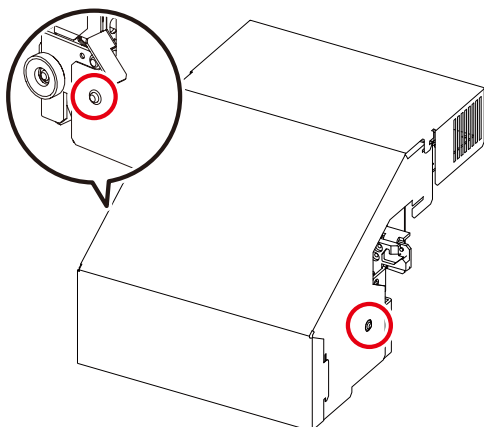
20. Attach two rivets to secure the cable retainer.



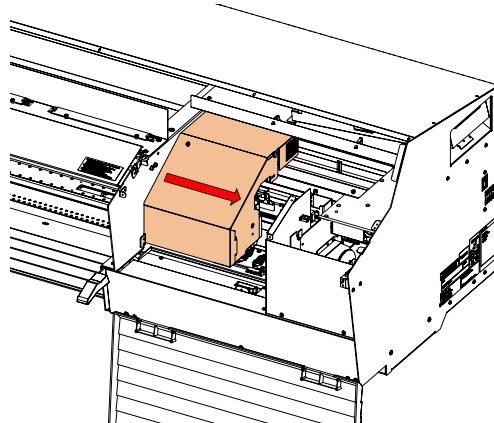
21. Tighten two screws to secure the cover.

NOTE

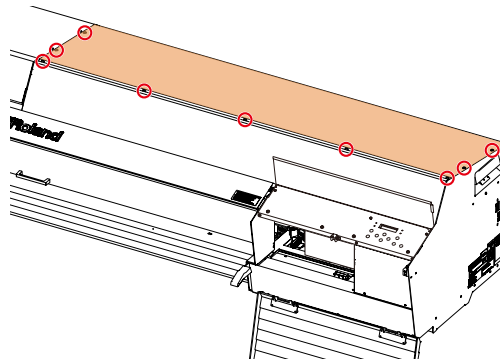
The screws are on the right and left side of the cover.



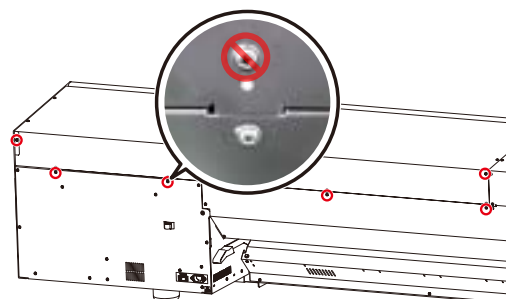
22. Move the head carriage to the lock position.



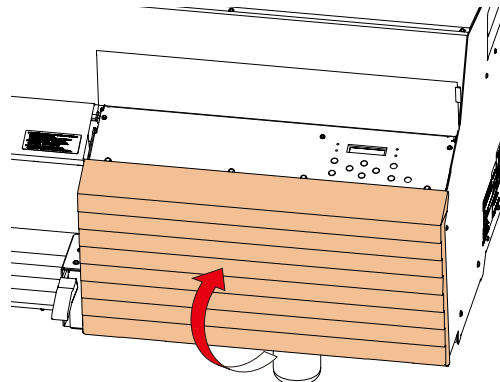
23. Tighten 15 screws to secure the cover.



Rear view



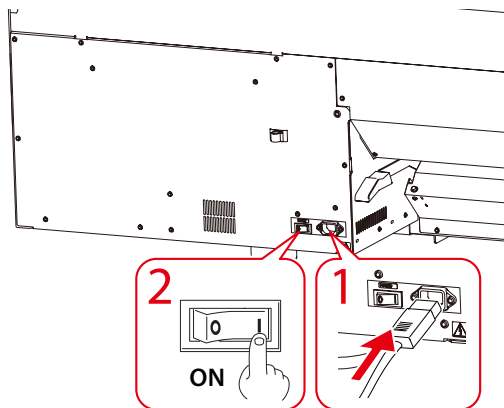
24. Close the maintenance cover R.



25. Plug in the power cord, and turn on the main power switch.

1. Power cord

2. Main power switch



26. (End of procedure)

Battery Replacement

Information

Necessary tools

General tools

No.2 Phillips screwdriver

Workflow

1. Battery replacement
2. Time and date setting

Time

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

Procedure

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.
Lithium battery: CR2032



CAUTION



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



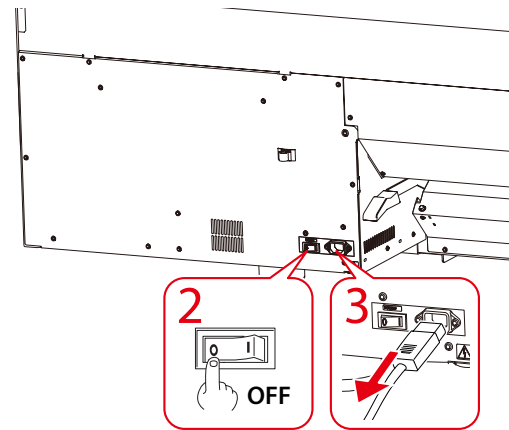
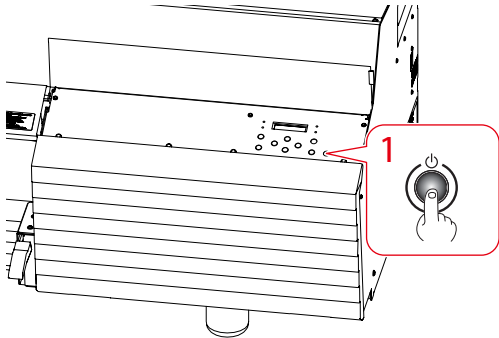
Put tape around the lithium battery for insulation for disposal or preservation.
It may cause heat, explosion and fire.

1. Turn off the sub power switch, and then turn off the main power switch. Unplug the power cord.

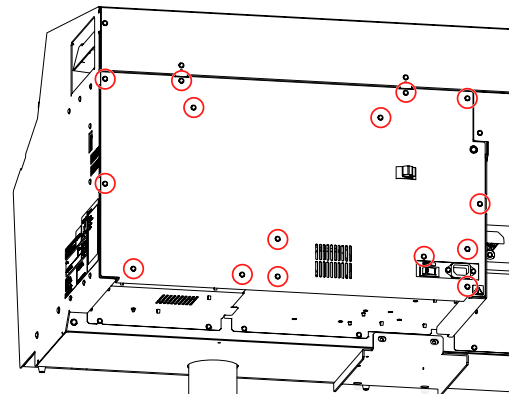
1. Sub power switch

2. Main power switch

3. Power cord



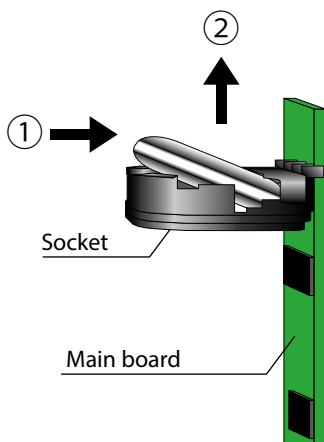
2. Remove 15 screws that secure the cover.



1

REPLACEMENT

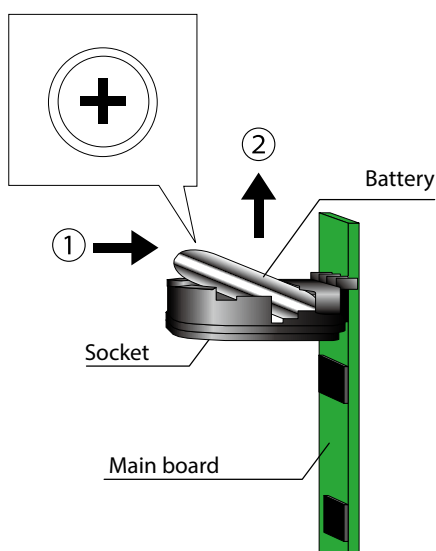
- Remove the battery on the main board by pushing it back and tilting upward.



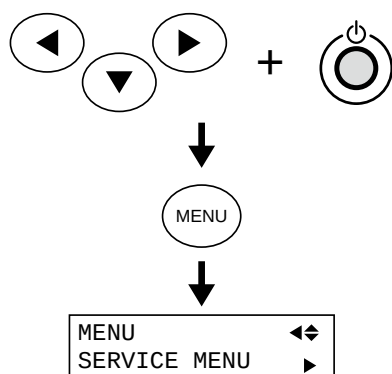
- Replace the battery with a new one.

CAUTION

Be sure to correctly orient the battery.



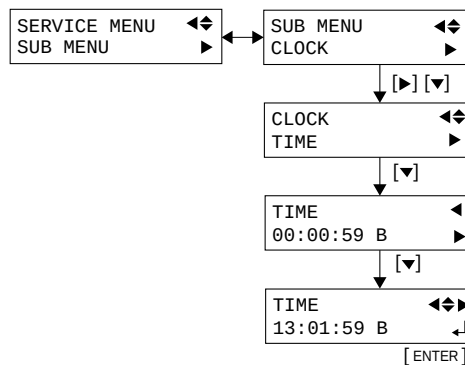
- Turn on the main power switch. Turn on the sub power switch while pressing the [◀] [▼] [▶] keys to enter the service menu.



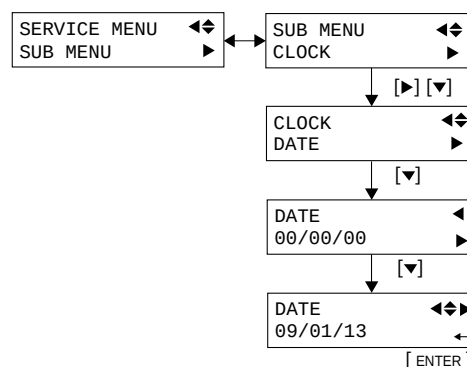
- Select [SUB MENU] > [CLOCK] > [TIME]. Set the time, and press the [ENTER] key.

CAUTION

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

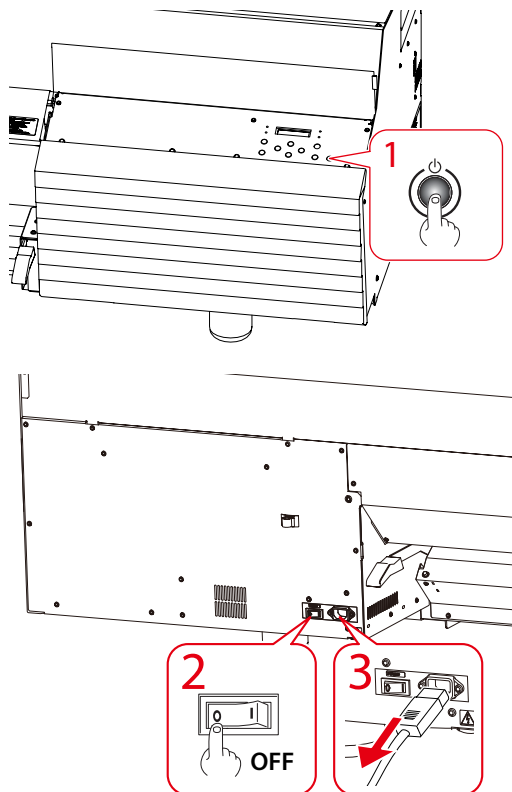


- Select [SUB MENU] > [CLOCK] > [DATE]. Set the date, and press the [ENTER] key.

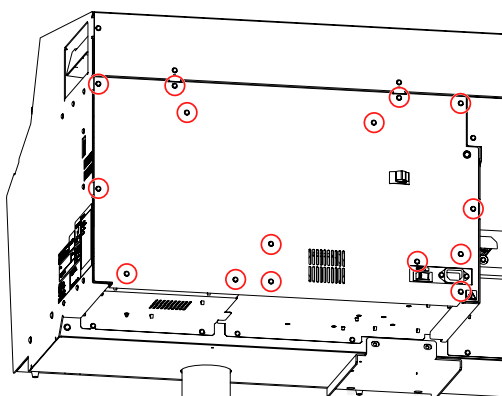


- 8.** Turn off the sub power switch, and then turn off the main power switch. Unplug the power cord.

1. Sub power switch
2. Main power switch
3. Power cord



- 9.** Tighten 15 screws to secure the cover.



- 10.** Dispose of the removed battery.

- 11.** (End of procedure)

Choke Valve Replacement

Information

Necessary tools

General tools

No.2 Phillips screwdriver

No.1 Phillips screwdriver

Waste cloth

Special tools

None

Workflow

1. Choke valve replacement

Time

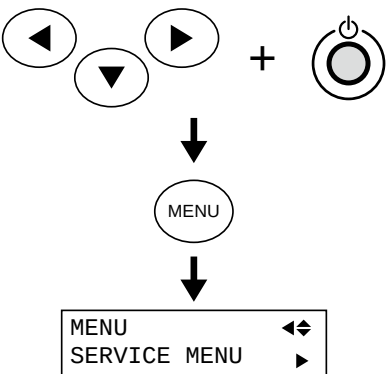
Contents of work	Time
Choke valve replacement	120 min.

Procedure

CAUTION

If you are replacing multiple choke valves at the same time, be sure to reconnect each tube to the correct choke valve (be careful not to connect it to the wrong choke valve).

1. Turn on the main power switch. Turn on the sub power switch while pressing the [◀] [▼] [▶] keys to enter the service menu.



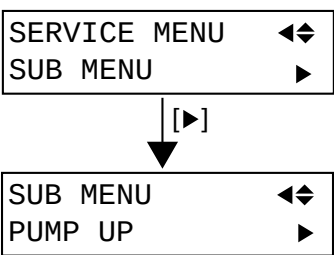
2. Perform [SERVICE MENU] > [SUB MENU] > [PUMP UP] and discharge ink from the ink lines.

CAUTION

Be sure to discharge ink in accordance with the message on the panel. Failure to do so will cause ink to spill out of the drain bottle.

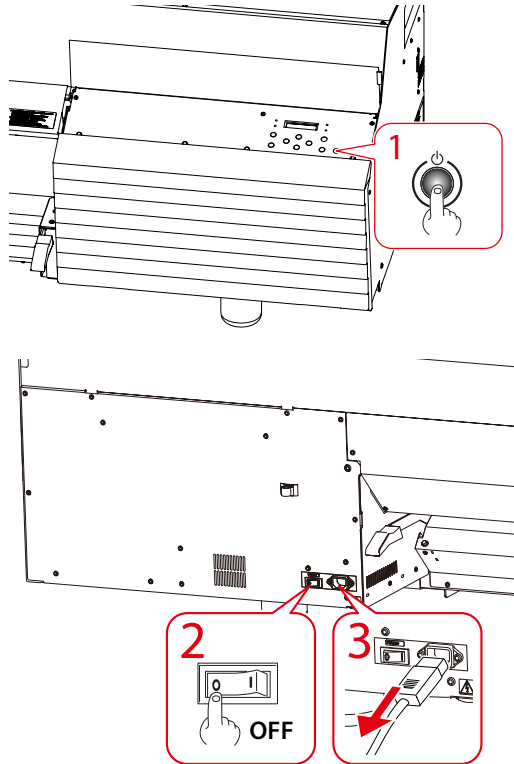
NOTE

Required time for [PUMP UP]: Approx. 60 min.



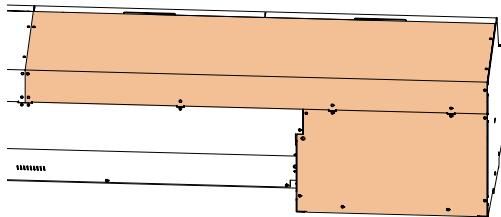
3. Turn off the sub power switch, and then turn off the main power switch. Unplug the power cord.

1. Sub power switch
2. Main power switch
3. Power cord

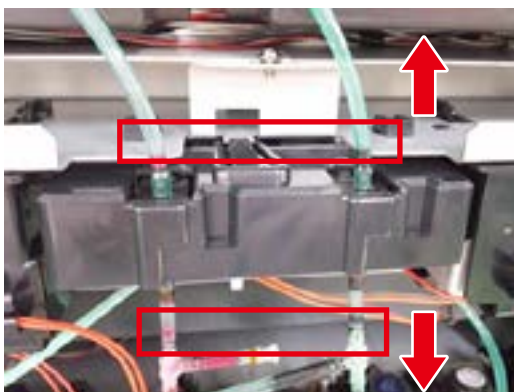


4. Remove the cover shown in orange in the figure.

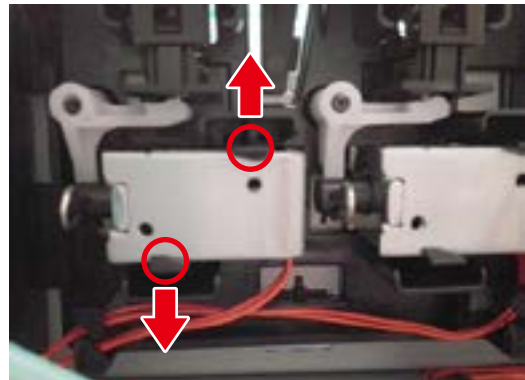
Rear view



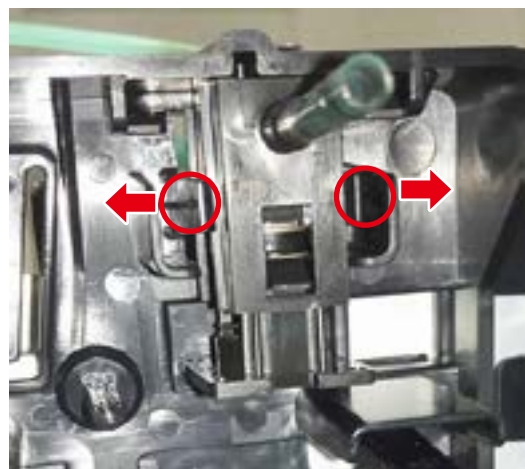
5. Remove the two ink tubes from the choke valve. Proceed to step 11 for choke valve replacement of the ink circulation line.



6. Unhook the solenoid to remove it.



7. Unhook the choke valve to remove it.



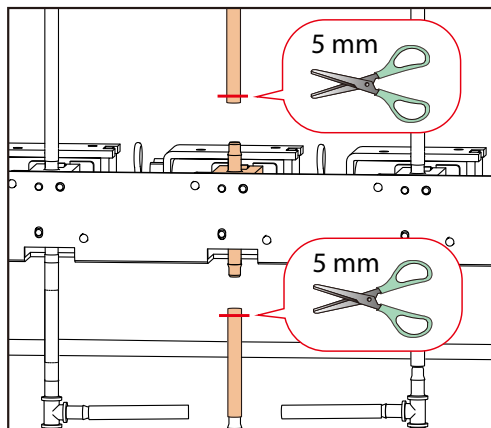
8. Install the new choke valve, and put the solenoid back to its original position.



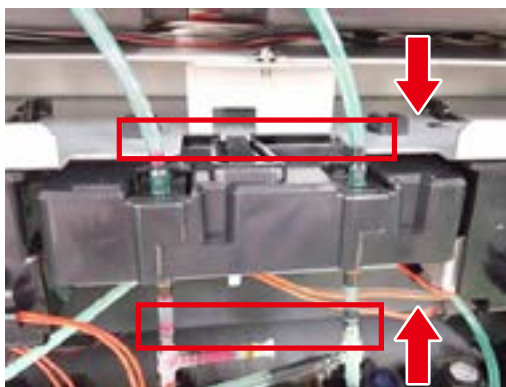
9. Cut the ink tubes 5 mm from the end before connecting them to the choke valve.

CAUTION

Do not cut the ink tube end more than 5 mm. If you cut it more than 5 mm, the ink tube will become too short to reach the choke valve. If the ink tube becomes too short, replace it with the new one.



10. Connect the ink tubes to the choke valve.



NOTE

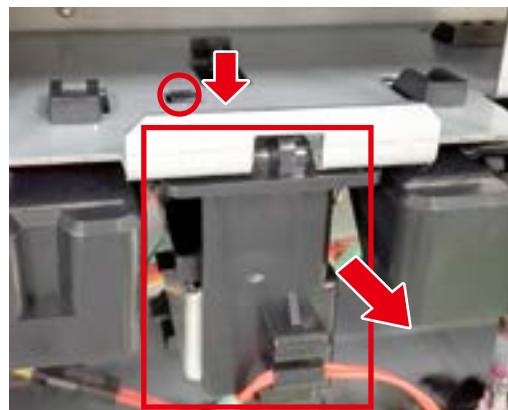
Proceed to step 18.

Choke valve replacement in the ink circulation line.

11. Remove the two ink tubes from the choke valve.



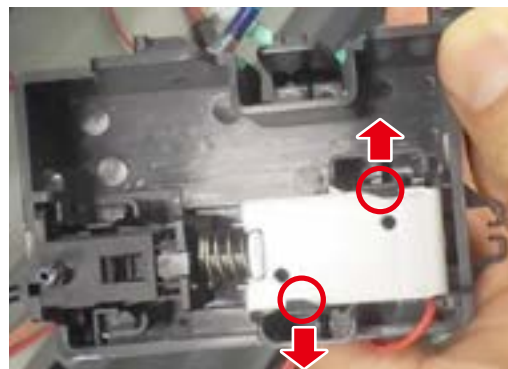
12. Remove the choke valve unit.



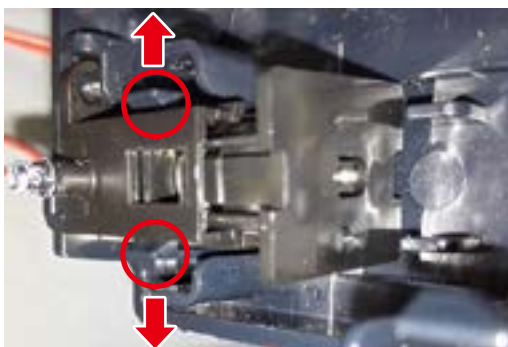
NOTE

Press the small claw down, and pull the choke valve unit toward you.

13. Unhook the solenoid to remove it.



14. Unhook the choke valve to remove it.



15. Install the new choke valve, and put the solenoid back to its original position.



16. Connect the ink tubes to the circulation choke valve.

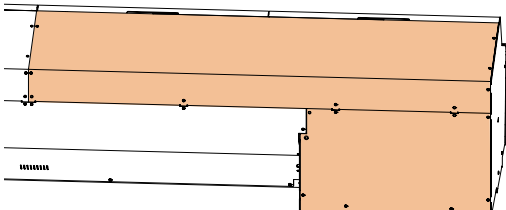


17. Attach the choke valve unit.



18. Fasten the covers with screws.

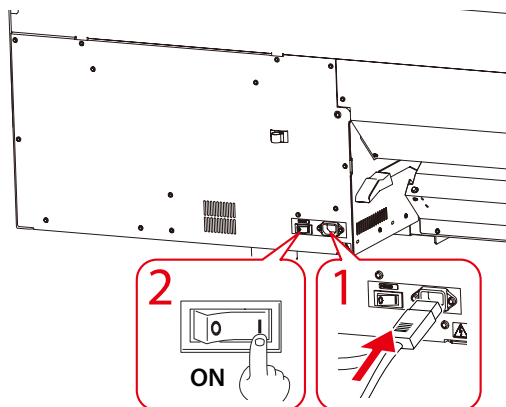
Rear view



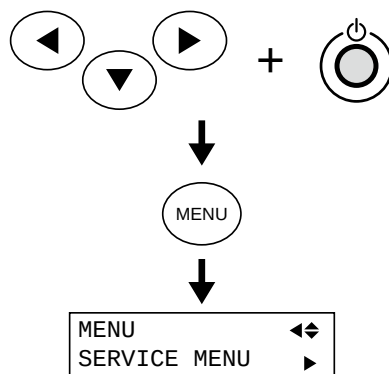
19. Plug in the power cord, and turn on the main power switch.

1. Power cord

2. Main power switch



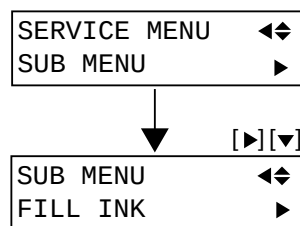
20. Turn on the sub power switch while pressing the [◀] [▼] [▶] keys to enter the service menu.



21. Perform [SERVICE MENU] > [SUB MENU] > [FILL INK] and fill the ink lines with ink.

NOTE

Required time for [FILL INK]: approx. 30 min.



22. (End of procedure)

Ink Tube Replacement

Information

Necessary tools

General tools

No.2 Phillips screwdriver

2.0 mm Hexagonal Wrench

Waste cloth

Gloves (anti-slip)

Tape

Special tools

None

Workflow

1. Ink tube replacement

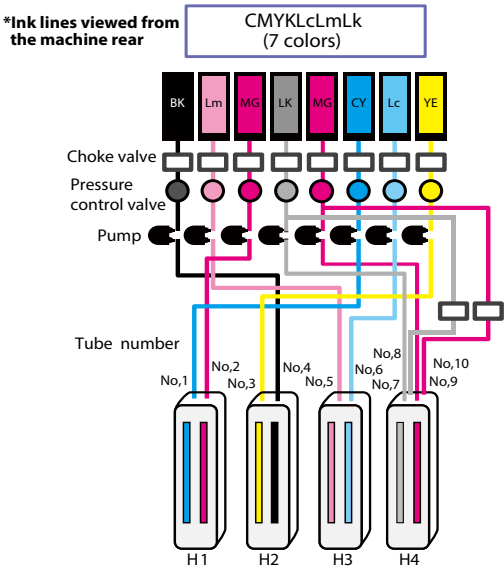
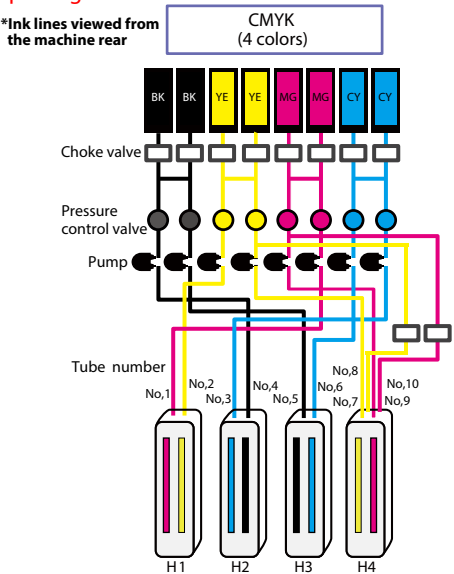
Time

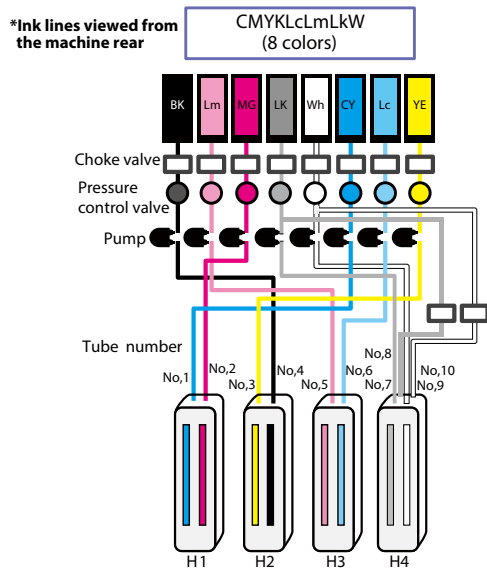
Contents of work	Time
Ink tube replacement	120 min.

Procedure

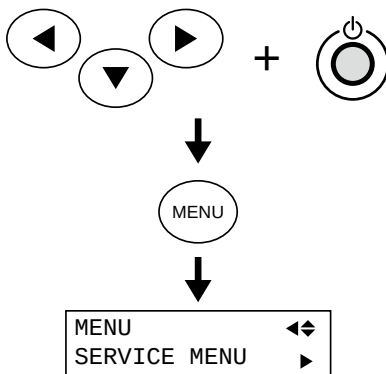
CAUTION

The figures below show which color connects to which tube. Be sure to observe the figures before replacing the ink tubes.





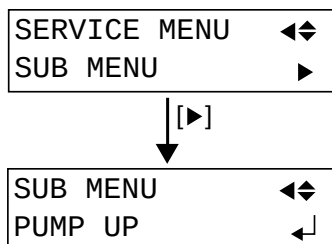
1. Turn on the main power switch. Then, turn on the sub power switch while pressing the [◀] [▼] [▶] keys to enter the service mode.



2. Perform [SERVICE MENU] > [SUB MENU] > [PUMP UP] and discharge ink from the ink lines.

CAUTION

Be sure to discharge ink in accordance with the message on the panel. Failure to do so will cause ink to spill out of the drain bottle.

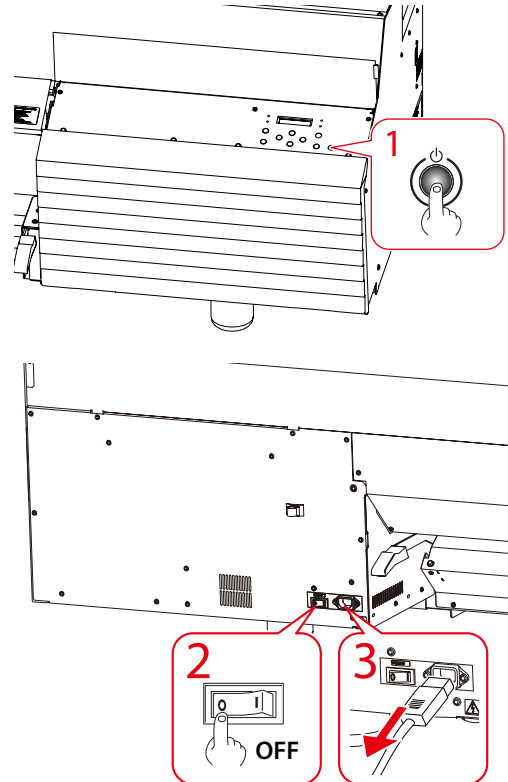


NOTE

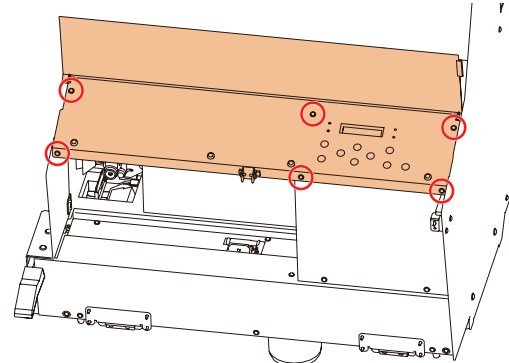
Required time for [PUMP UP]: Approx. 60 min.

3. Turn off the sub power switch, and then turn off the main power switch. Unplug the power cord.

1. Sub power switch
2. Main power switch
3. Power cord

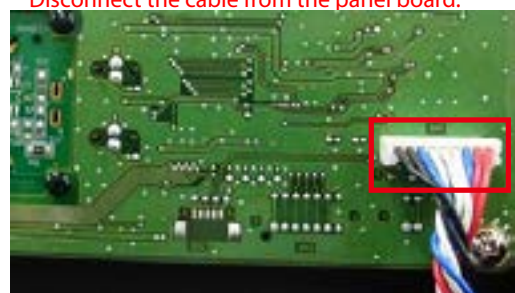


4. Remove six screws that secure the operation panel.



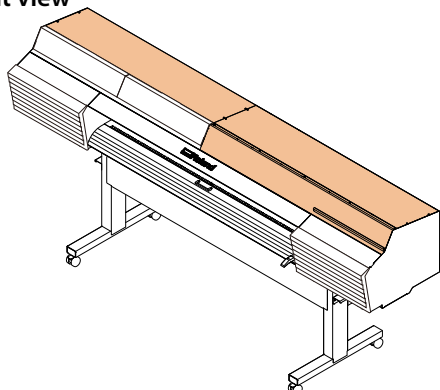
CAUTION

Disconnect the cable from the panel board.

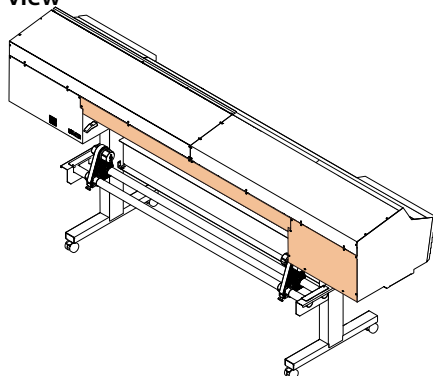


- Remove the five covers shown in orange in the figures below.

Front view

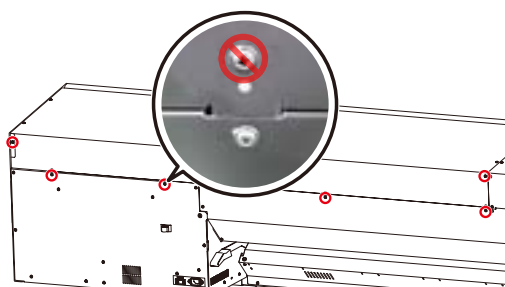


Rear view

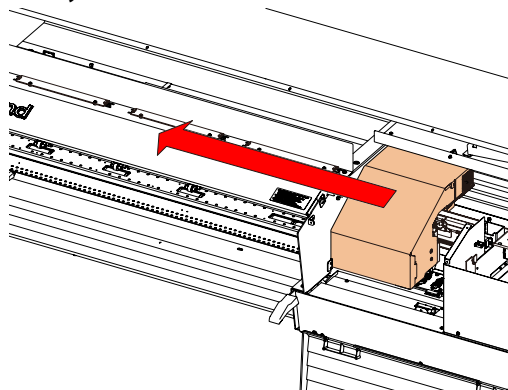


CAUTION

Do not remove the upper screw. Remove only the bottom screw. If you remove both upper and bottom screws, a small plate that the two screws are securing will fall off inside the printer.



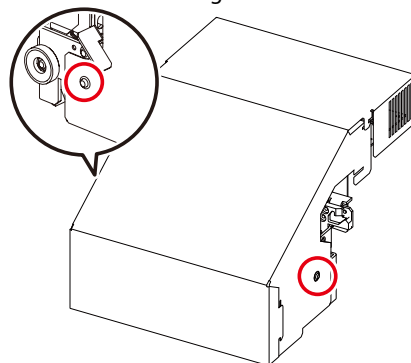
- Unlock the print carriage, and move it to the print area by hand.



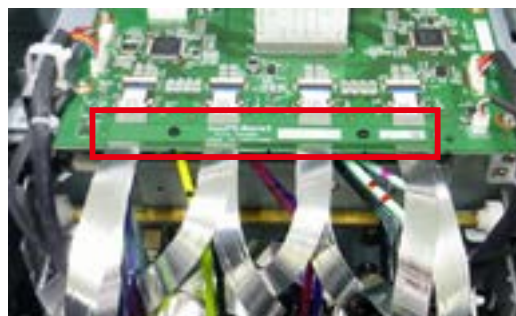
- Remove two screws that secure the cover.

NOTE

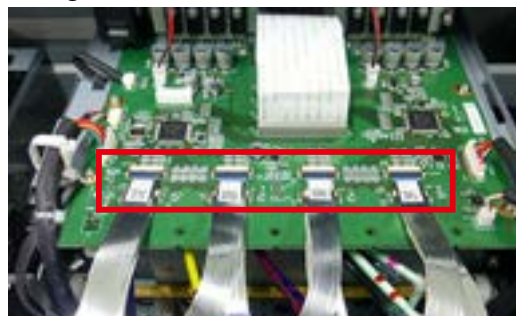
The screws are on the right and left side of the cover.



- Remove two rivets to remove the cable retainer.

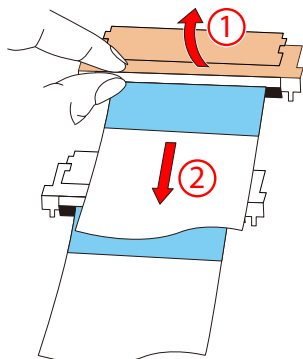


- Disconnect all the ribbon cables from the print carriage board.

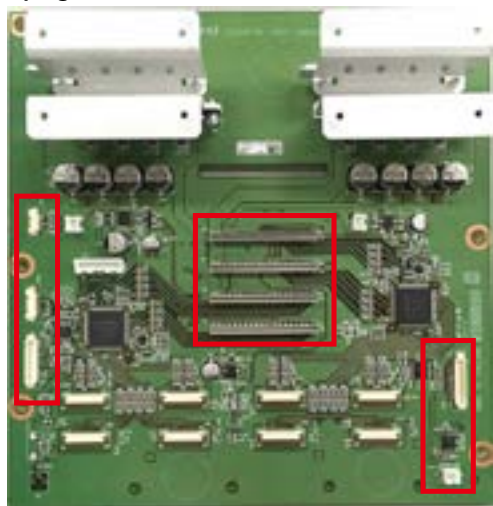


CAUTION

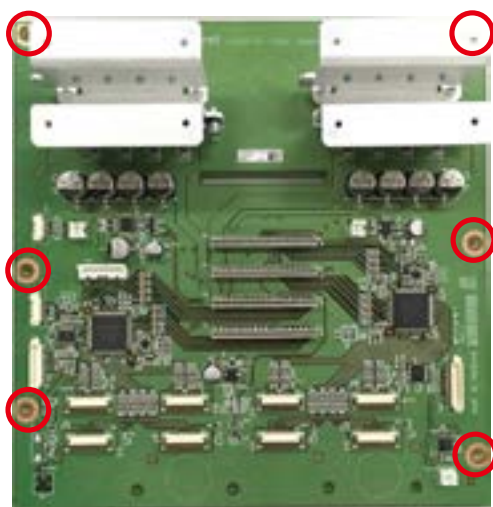
Open the cover in the direction of the arrow marked "1". Then, disconnect the ribbon cable from the print carriage board.



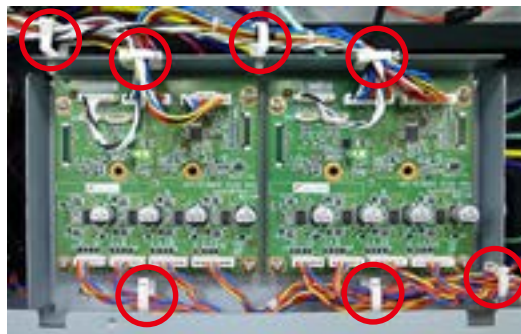
10. Unplug the connector.



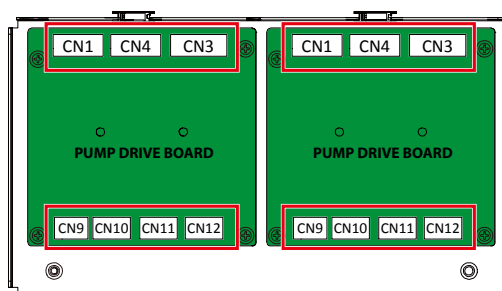
11. Remove the print carriage board.



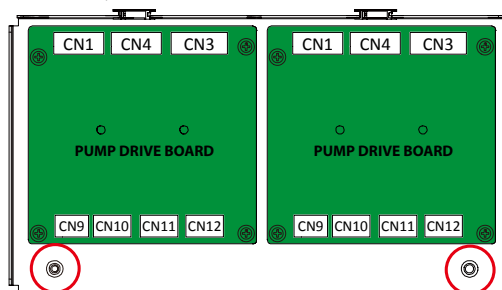
12. Unfasten seven clamps to release the cables which are connected to the pump drive boards.



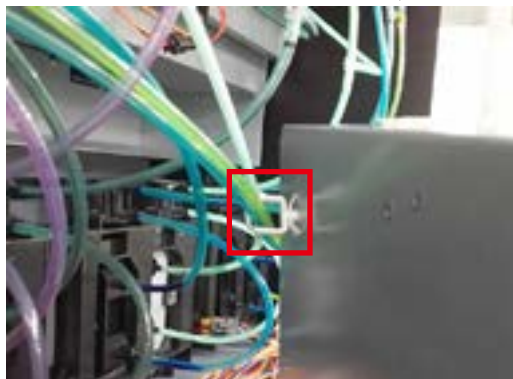
13. Unplug all the connectors from the pump drive boards.



14. Remove two screws that secure the pump drive board stay.



15. Release the ink tubes from the clamp which is on the back side of the pump drive board stay.



16. Unfasten the clamp.



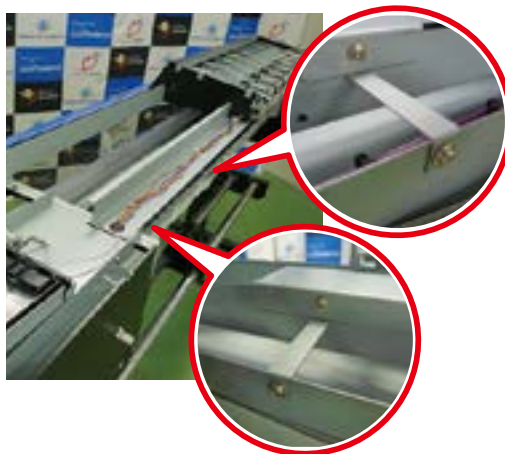
17. Remove two plates. Each plate is secured with one screw.



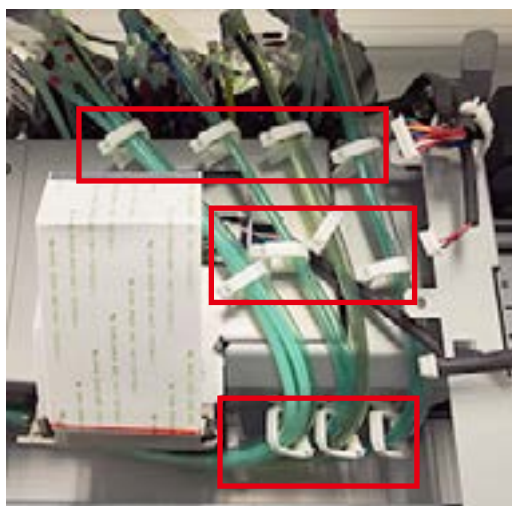
Head carriage rear view



18. Remove two plates. Each plate is secured with two screws.



19. Unfasten all clamps on the print carriage to release the tubes.



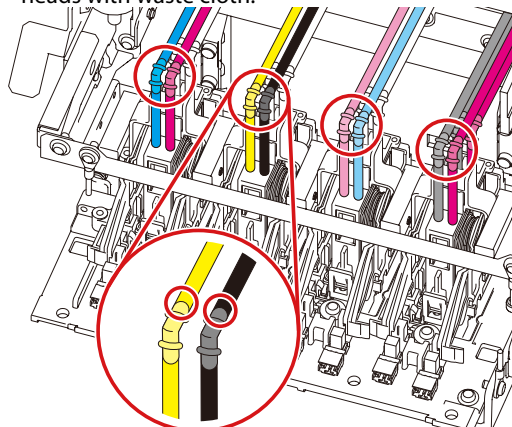
20. Remove the tubes from the L-shaped joints.

CAUTION

Remove the ink tubes slowly so that ink will not drip or spatter. Putting waste cloth under the L-shaped tubes is recommended.

NOTE

Wipe off any ink from the ribbon cables and print heads with waste cloth.



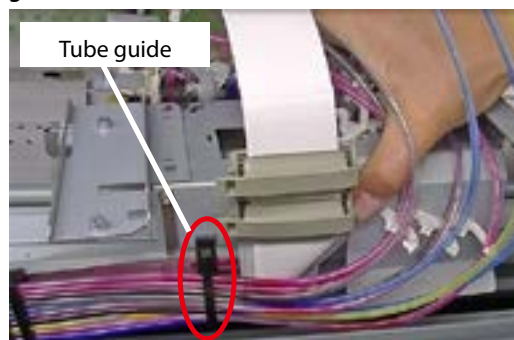
21. Close the tube end with tape so that ink will not come out.



22. Remove four screws.



23. Lift up the head carriage plate and detach one tube guide.

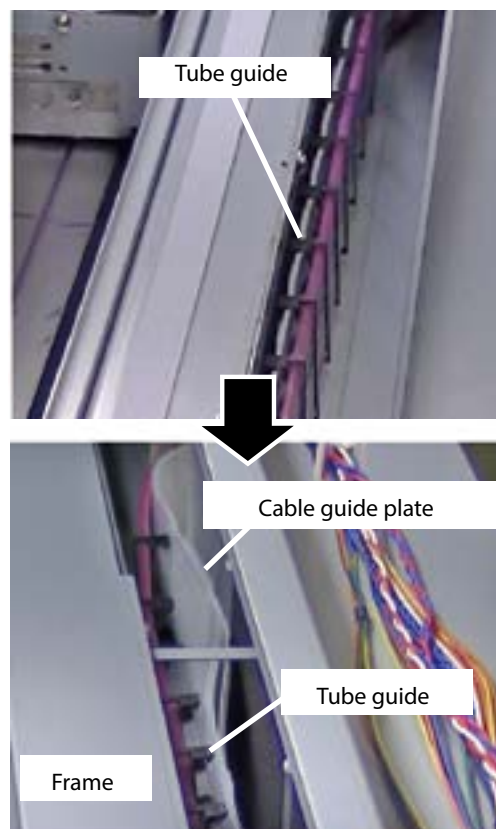


24. Detach the rest of the tube guides from the cable guide plate and frame.

The number of tube guides to remove in this step:

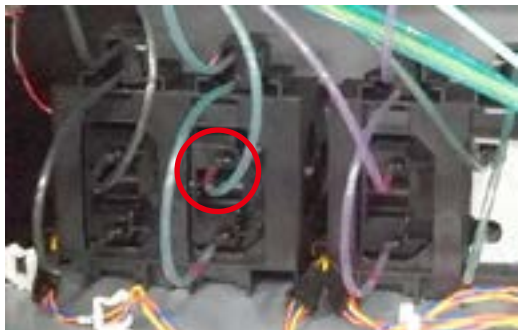
VG-640: 30 tube guides

VG-540: 26 tube guides



- 25.** Remove the upper ink tube from the pressure pump and ink circulation pump.

Pressure pump



Ink circulation pump



- 26.** Close the tube end with tape so that ink will not come out.



- 27.** Remove the ink tube which is connected to the choke valves.



- 28.** Close the tube end with tape so that ink will not come out.



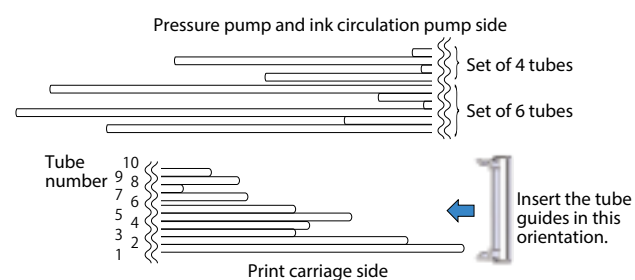
- 29.** Remove the ink tubes along with the tube guides.



- 30.** Insert the new ink tubes through the tube guides.
Total number of tube guides:

VG-640: 31 tube guides

VG-540: 27 tube guides



31. Insert the new ink tubes into the machine.



32. Attach the tube guides to the tube guide plate and the frame.

The number of tube guides to attach in this step:

VG-640: 30 tube guides

VG-540: 26 tube guides



33. Lift up the head carriage plate and attach the tube guide to the print carriage.

CAUTION

If you press the tube guide too hard, the tube guide will break. Be sure to align the tube guide plate with the cutout of the head carriage, and then attach the tube guide.



34. Tighten two screws.



35. Fasten 12 clamps to secure the tubes.



Rear view

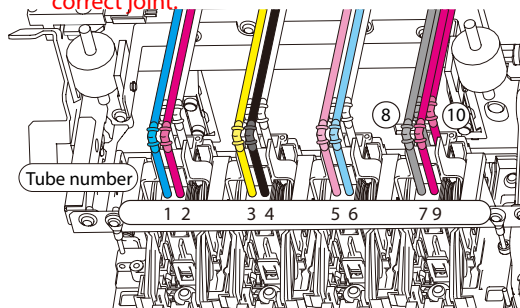


No.1 to No.6

36. Connect the ink tubes to the L-shaped joints.

CAUTION

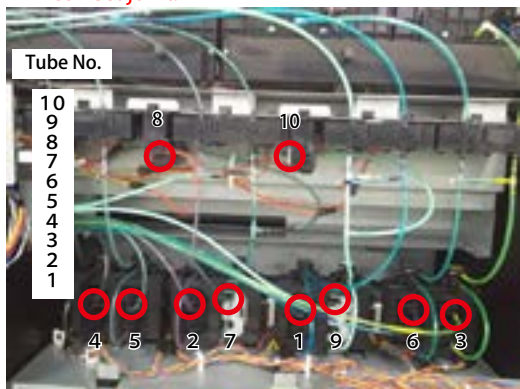
- Be sure to wear gloves (anti-slip).
- Hold the tube about 10 mm from the end and insert it straight so that it does not bend.
- See the figure below and connect each tube to the correct joint.



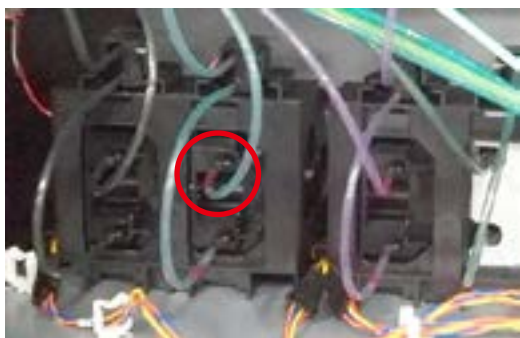
37. Connect the ink tubes to the pressure pumps, ink circulation pumps, and the choke valve.

CAUTION

- Be sure to wear gloves (anti-slip).
- Hold the tube about 10 mm from the end and insert it straight so that it does not bend.
- See the figure below and connect each tube to the correct joint.



Pressure pump



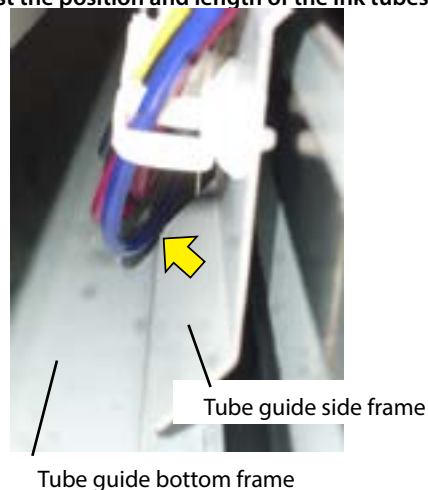
Ink circulation pump



Choke valve



38. Move the 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.
39. Move the head carriage across the whole width of the guide rail several times and check that the ink tubes do not come in contact with the tube guide side frame and/or tube guide bottom frame. If they do, adjust the position and length of the ink tubes. If they do, adjust the position and length of the ink tubes.



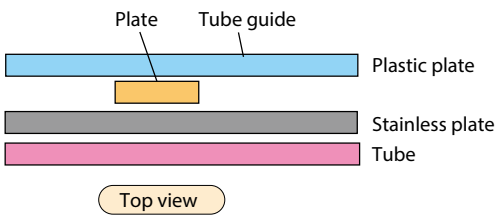
40. Tighten two screws to secure the two plates.



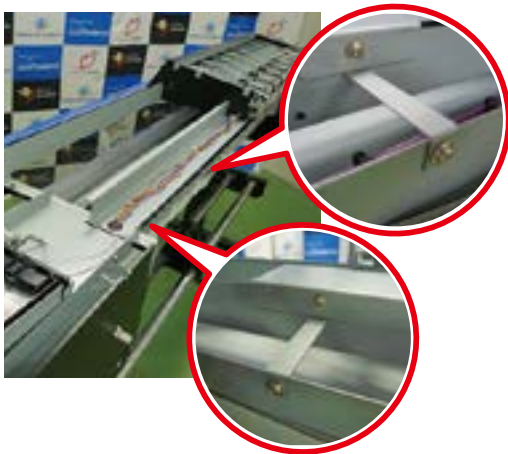
Rear view of the head carriage

NOTE

Insert the plate in between the plastic plate and stainless plate.



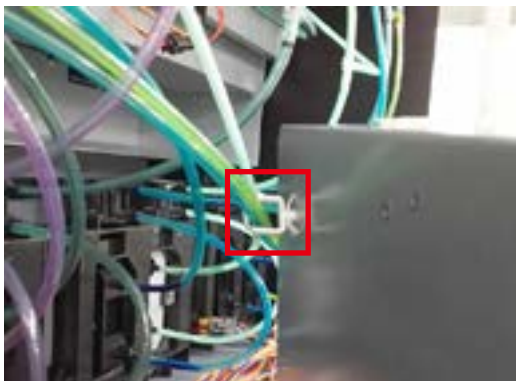
41. Tighten four screws to secure the two plates.



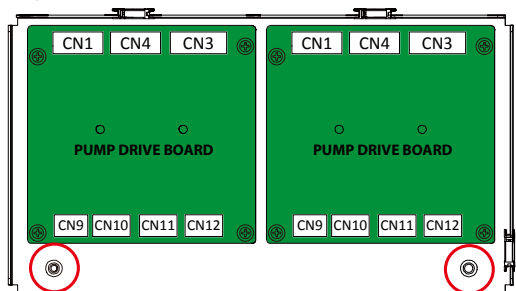
42. Bundle the cables with the clamps.



43. Bundle the ink tubes with the clamp which is on the rear side of the pump drive board.



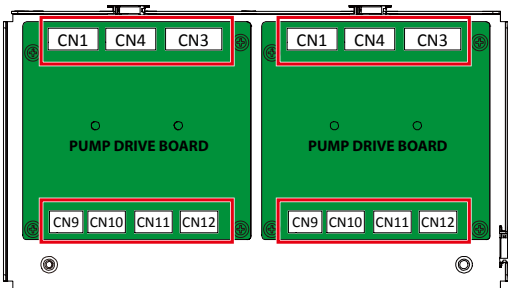
44. Tighten two screws to secure the pump drive board stay.



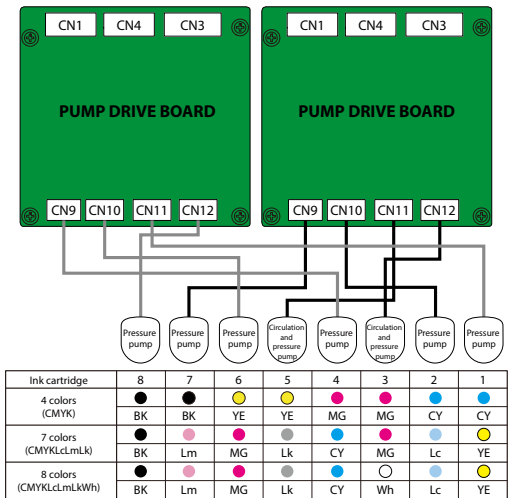
45. Plug all the connectors into the pump drive boards.

CAUTION

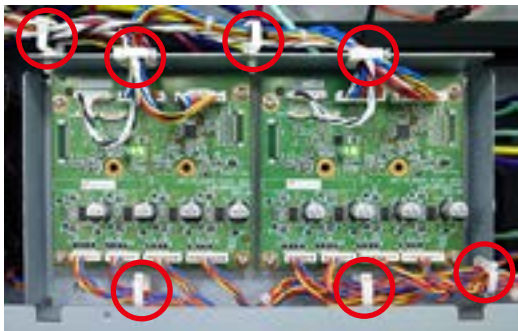
The connectors for the right pump drive board and the connectors for the left pump drive board look exactly alike. Be careful not to mix them up.



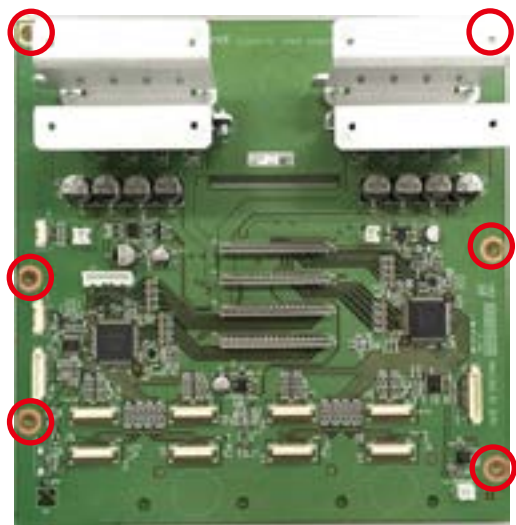
Wiring map of the pump drive boards



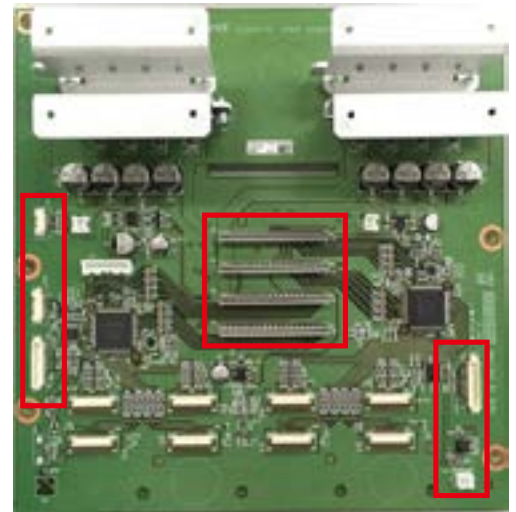
46. Bundle the cables with seven clamps.



47. Tighten six screws to secure the print carriage board.



48. Plug in the connectors.



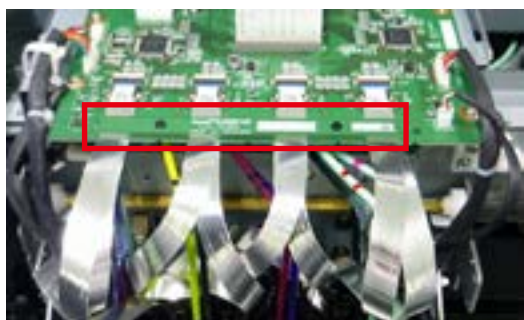
49. Connect all the ribbon cables of the print heads to the print carriage board.



CAUTION

Be sure to connect each ribbon cable to the correct connector.

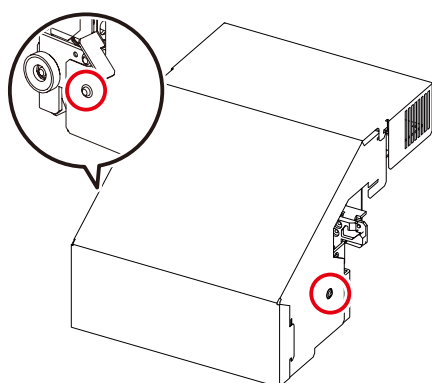
- 50.** Attach two rivets to secure the cable retainer.



- 51.** Tighten two screws to secure the cover.

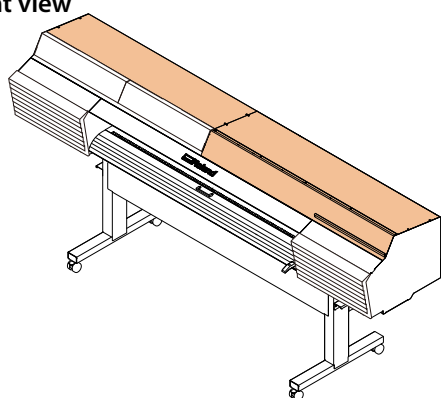
NOTE

The screws are on the right and left side of the cover.

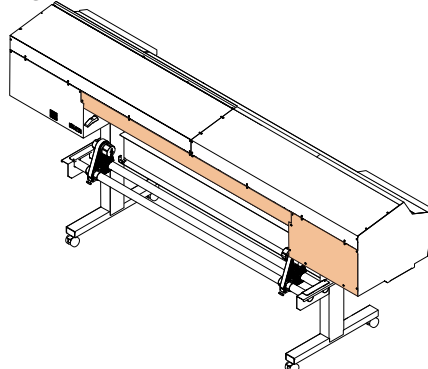


- 52.** Attach the five covers shown in orange in the figures below.

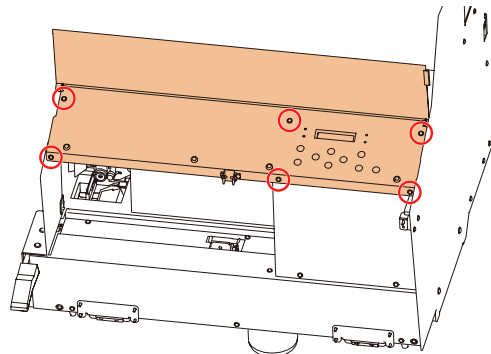
Front view



Rear view

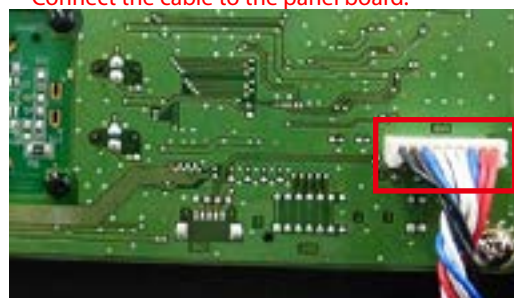


- 53.** Tighten six screws to secure the operation panel.

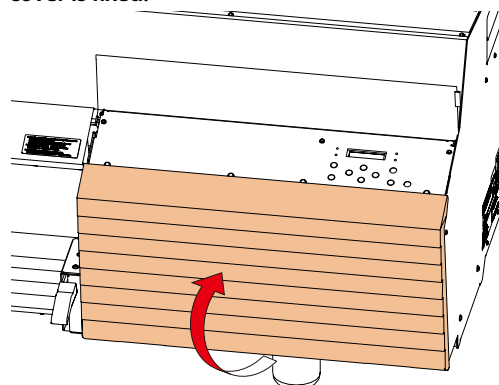


CAUTION

Connect the cable to the panel board.



- 54.** Close the maintenance cover R, and then confirm the cover is fixed.

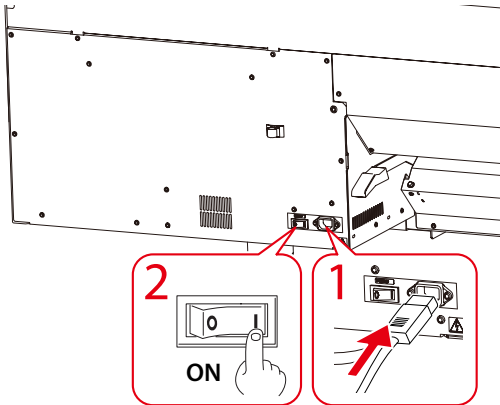


CAUTION

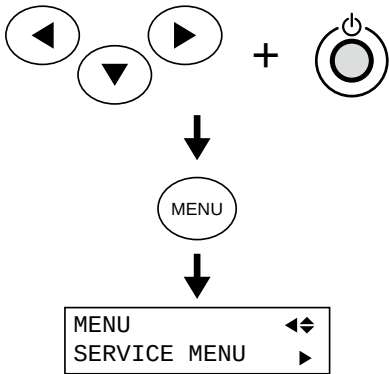
If the cover is not fixed, then maintenance cover sensor R does not work properly. Widen the clearance between the operation panel and the frame if the maintenance cover is not fixed by shaking the right and left ends of the cover back and forth with your hands.

55. Plug in the power cord, and turn on the main power switch.

- 1. Power cord
- 2. Main power switch



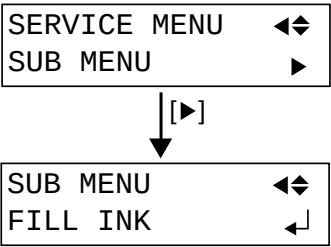
56. Turn on the sub power switch while pressing the [◀] [▼] [▶] keys to enter the service menu.



57. Perform [SERVICE MENU] > [SUB MENU] > [FILL INK] and fill the ink lines with ink.

NOTE

Required time for [FILL INK]: approx. 30 min.



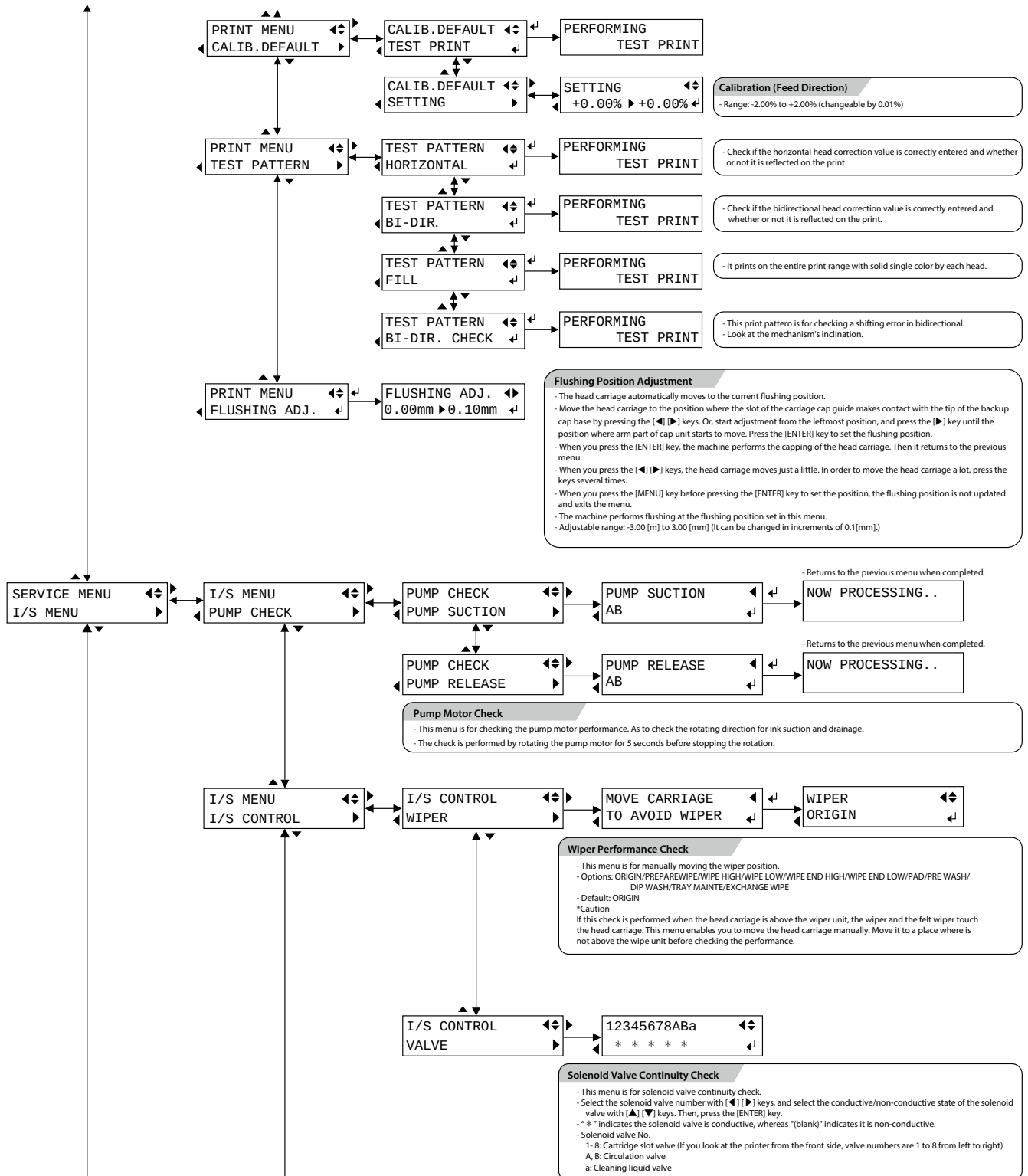
58. (End of procedure)

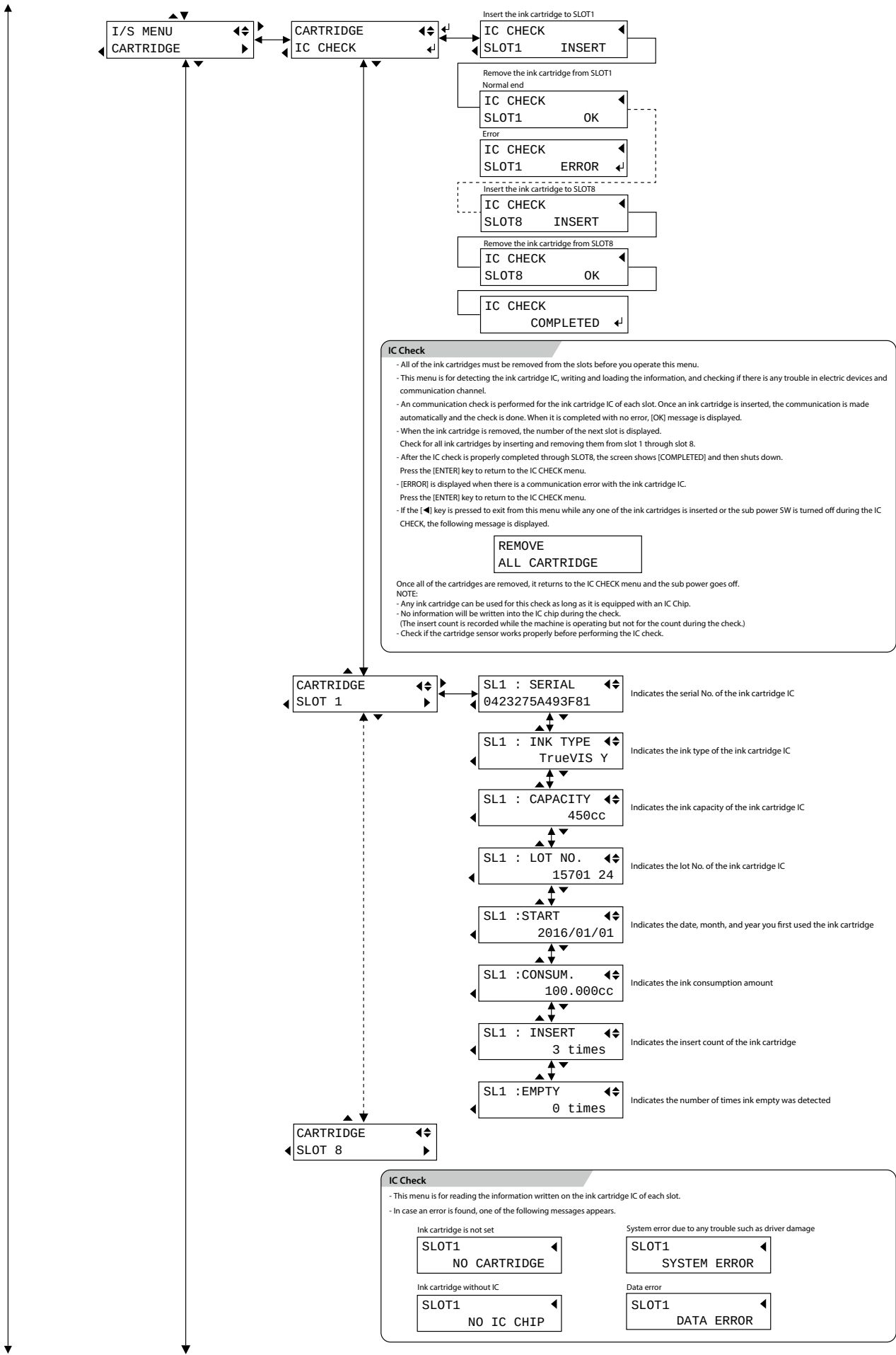
Chapter 2 Adjustment

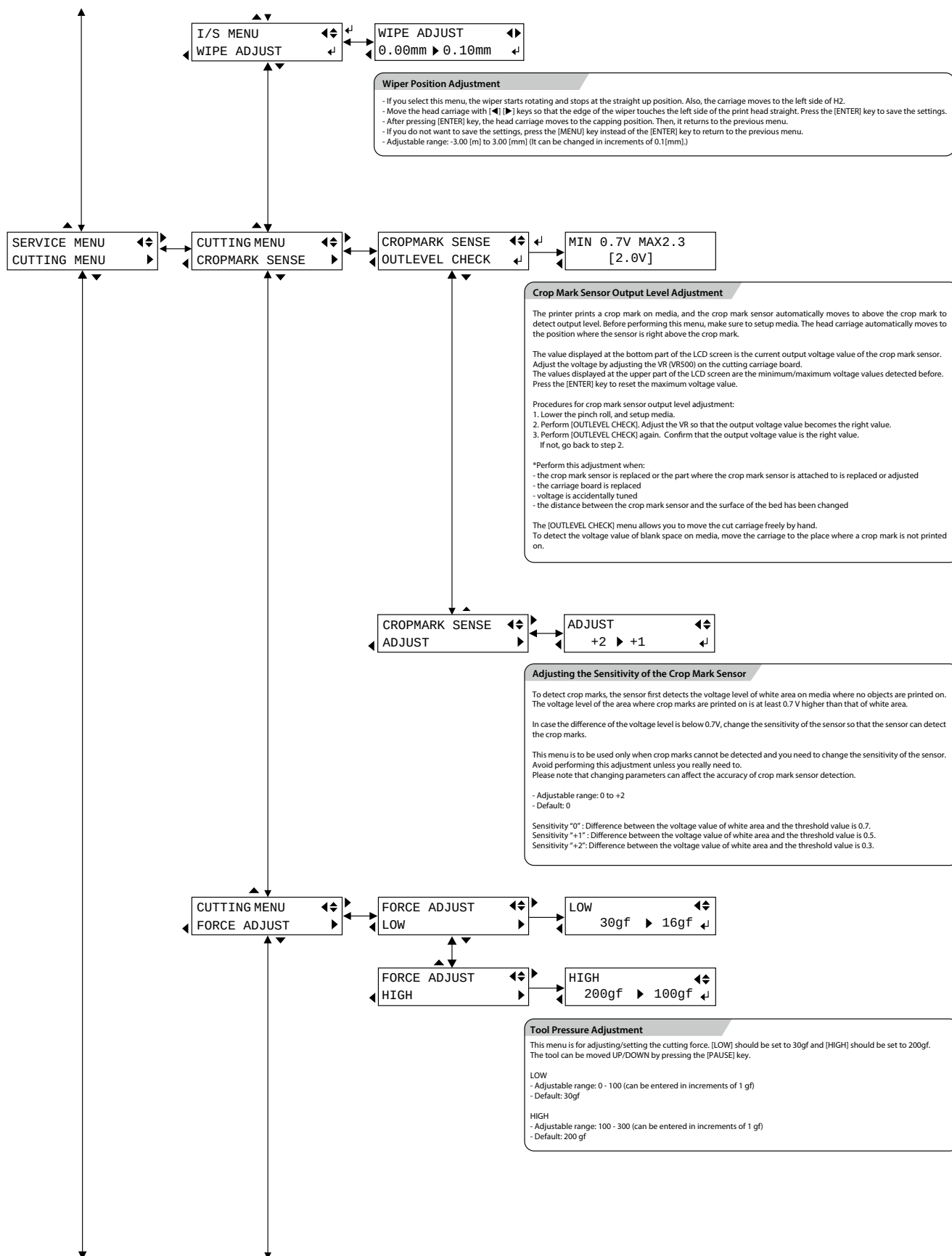
Service Mode	2-2
History Menu	2-12
Other Factory Modes	2-16
Key Combinations	2-17
Firmware Upgrade	2-18
Information	2-18
Procedure.....	2-18
Firmware Installation	2-20
Information	2-20
Procedure.....	2-20
Limit Position & Cut Down Position Initialization	2-23
Information	2-23
Procedure.....	2-23
Linear Encoder Setup	2-25
Information	2-25
Procedure.....	2-25
Flushing Position Adjustment	2-26
Information	2-26
Procedure.....	2-26
Crop Mark Sensor Adjustment	2-29
Information	2-29
Procedure.....	2-29
Print Head Alignment	2-31
Information	2-31
Procedure.....	2-31
Tool Height Adjustment	2-36
Information	2-36
Procedure.....	2-36
Tool Pressure Adjustment	2-38
Information	2-38
Procedure.....	2-38
Belt Tension Adjustment	2-40
Information	2-40
Procedure	2-40
Belt Position Adjustment	2-43
Information	2-43
Procedure	2-43
Wiper Position Adjustment	2-50
Information	2-50
Procedure	2-50
Feed Calibration	2-51
Information	2-51
Procedure	2-51

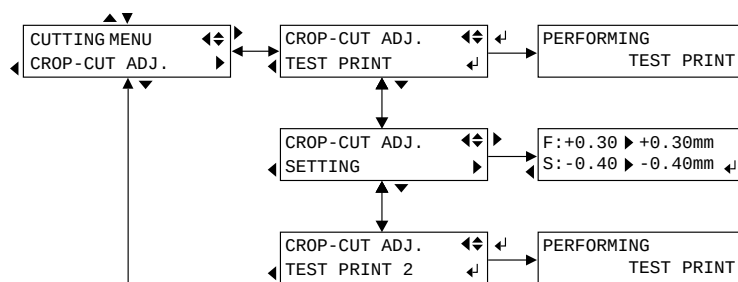
1 2 5 6 7 11 12 16 23 24 29











Adjusting the Position of the Crop Mark Sensor and the Position of the Blade

TEST PRINT

It prints a test pattern to align the position of the crop mark sensor and the position of the blade. The machine prints a square crop mark, detects the crop mark, and then cuts a square along the crop mark. If print & cut are misaligned, it means that the position of the crop mark sensor and the blade are not aligned. After adjusting the position of the crop mark sensor and the blade in the [SETTING] menu, perform [TEST PRINT] to confirm that the adjustment value you entered is reflected.

SETTING

This menu is for setting the correction values. The correction values for F (feed) and S (scan) are displayed. The values on the left side of the LCD screen are the current correction values. And the values on the right are the new correction values.

Press the [DOWN] key to move the cutting position to the near side (the F value increases).
Press the [UP] key to move the cutting position to the far side.

Press the [RIGHT] key to move the cutting position to the right (the S value increases).

Press the [LEFT] key to move the cutting position to the left.

Adjustable range: ± 2.00 mm. (It can be entered in increments of 0.01 mm.)

Press the [MENU] key to go back to the previous menu.

Make sure to perform bidirectional adjustment before performing this adjustment.

*Perform this adjustment if:

- the crop mark sensor is replaced
- the sensitivity of the crop mark sensor is changed
- the position of the blade holder and the position of the crop mark sensor is changed

TEST PRINT 2

It prints a test pattern for crop mark sensor and cutting position adjustment.

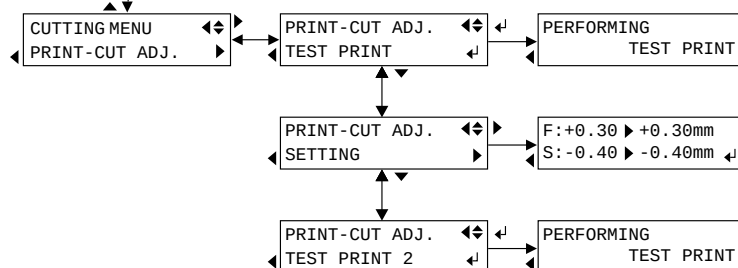
First, the machine prints a square crop mark and then prints 0.1 mm scale marks in the scan and feed direction.

Then, the sensor detects the square crop mark and the blade cuts the media in a cross shape.

The point where the cutting line intersects the correction-value scale is the correction value.

Input the correction values in the [SETTING] menu.

The result of the test pattern is not affected by correction values set in the [SETTING] menu.



Print & Cut Position Adjustment

TEST PRINT

The machine prints a test pattern for print and cut adjustment.

First, the machine prints square crop marks, and then cuts square along the crop marks.

When the print & cut adjustment is finished, perform [TEST PRINT] to confirm that the adjustment value you entered is reflected.

SETTING

This menu is for setting the correction values. The correction value at the upper part of the LCD screen is for "F" (feed), and the correction values at the bottom is for S (scan). The values on the left are the current correction values, and the values on the right are the new correction values.

Press the [DOWN] key to move the cutting position to the near side (the F value increases).

Press the [UP] key to move the cutting position to the far side.

Press the [RIGHT] key to move the cutting position to the right (the S value increases).

Press the [LEFT] key to move the cutting position to the left.

The adjustable range is ± 5.00 mm. (It can be entered in increments of 0.01 mm.)

The default value is 0.00 mm.

Press the [MENU] key to go back to the previous menu.

Make sure to perform bidirectional adjustment before performing this adjustment.

*Perform this adjustment if:

- the print head is replaced
- the distance between the blade and the print head is changed

TEST PRINT 2

The machine prints a test pattern for print and cut adjustment.

First, the machine prints a test pattern and then prints 0.1 mm marks in the scan and feed direction.

Then, the blade cuts the media in a cross shape.

The point where the cutting line intersects the correction-value scale is the correction value.

The result of the test pattern is not affected by correction values set in the [SETTING] menu.

**Sensor Check**

- This menu is for showing the real-time state of each sensor. If there is a response, a * mark is displayed.
- The page 1 and 2 display the status of each of the sensors.

Symbol	Sensor name	Description
F	Front paper sensor	* is displayed when media is set.
R	Rear paper sensor	* is displayed when media is set.
S	Crop mark sensor	* is displayed when crop marks are detected.
H	Head lock sensor	* is displayed when the print head is at the original position.
O	Limit sensor	* is displayed when the cut carriage is connected.
D	Maintenance cover sensor R	* is displayed when the cover is open.
P	Maintenance cover sensor L	* is displayed when the cover is open.
U	Head UP/DOWN sensor	"H" and "L" are displayed when the print head is up and down, respectively.
L	Sheet load sensor	* is displayed when the pinch lever is lowered.
W	Pinch roller sensor	* is displayed when the pinch rollers are detected.
w	Wiper sensor	* is displayed when the wiper is at the starting position.
a	Extension input 1	The real-time status of the TU motor is displayed when TU is connected. (It displays blank while the motor is driving. * is displayed when it is not driving.)
V	Waste valve sensor	* is displayed when the valve is open.
C	Front cover sensor	* is displayed when the cover is open.
Q	Ink slot cover sensor L	* is displayed when the cover is open.
T	Ink slot cover sensor R	* is displayed when the cover is open.

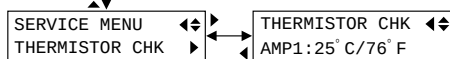
- The status of the filler sensor is displayed on page 3.
The left most one indicates nozzle A of HEAD 1, the second one from the left indicates nozzle B of HEAD 1, and so on.
* is displayed when the filler sensor is touched.

- The status of the cartridge sensor of each slot and the ink empty sensor are shown on page 4.

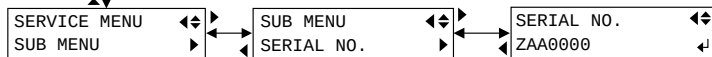
Symbol	Description
blank	No ink cartridge, Ink is filled
C	Ink cartridge is in, Ink is filled
E	No ink cartridge, Ink is empty
*	Ink cartridge is in, Ink is empty

- In short, the message is blank when the both sensors are OFF and * is displayed when the both sensors are ON.
M indicates wiper cleaning cartridge.

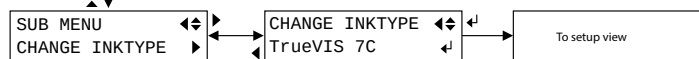
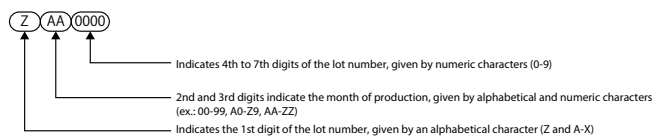
- Setup will be canceled when you are out from the sensor check menu.

**Thermistor check menu**

- Performs the thermistor check.
- If you select this menu, it will display the temperature read from the thermistor attached to each board.
- The temperature on the left is shown in degrees Celsius and the one on the right is in degrees Fahrenheit.
- [AMP1] and [AMP2] are the thermistor attached to the print carriage board. [CARR] is the thermistor near the print head.
- Check whether the temperature is extremely low (around 0 degrees) or extremely high (around 100 degrees).
- When the temperature of CARR thermistor becomes abnormal, the high temperature or the low temperature errors occur.

**Serial Number Input**

- This menu is for inputting 7 digits of the serial number.
- Use [◀] [▶] keys to move to the next digit and [▲] [▼] keys to increment or decrement parameters.

**Changing Ink Type**

- This menu is for changing the ink type manually.
- Unlike the user-menu ink type change, neither head wash nor ink fill is performed. Use this menu to reselect the ink type when unintended ink type is selected.
- Once the ink type is changed, the ink system is internally reinitialized. This menu is then exited and setup is cancelled.
- If you select [UNKNOWN] in this menu and perform [FILL INK], the machine performs initial ink filling.

Ink type

- TrueVIS 4C
- TrueVIS 7C
- TrueVIS LkW
- UNKNOWN (The printer is not filled with ink.)

Fill Ink

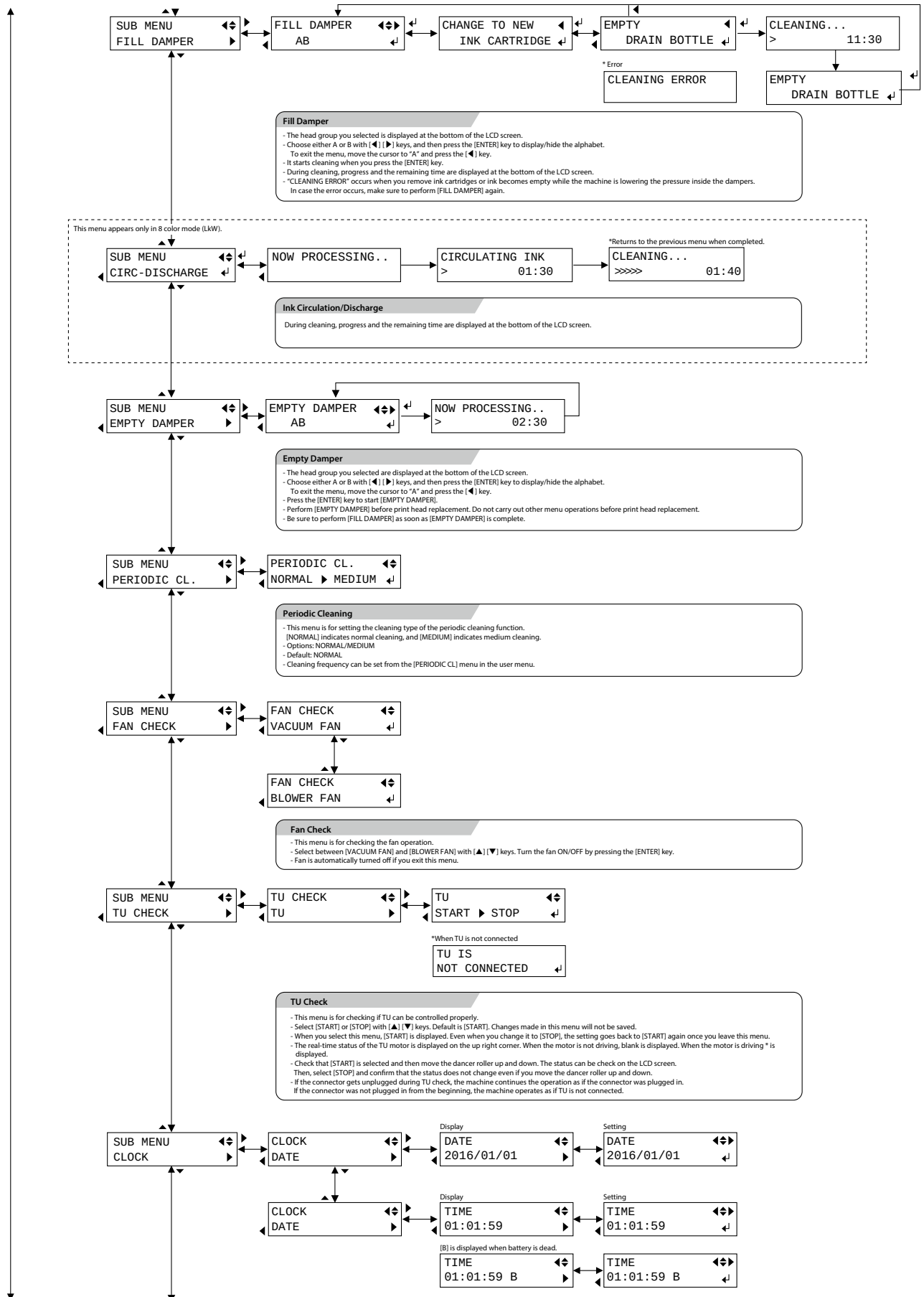
- Initial cleaning is not included in fill ink after [PUMP UP] and [HEAD WASH].
- After setting [UNKNOWN] on [CHANGE INKTYPE], initial cleaning is included same as initial fill ink.
- When the ink type is 7C/LkW and group A or B is selected on [PUMP UP] or [HEAD WASH], fill ink is performed in only selected group.

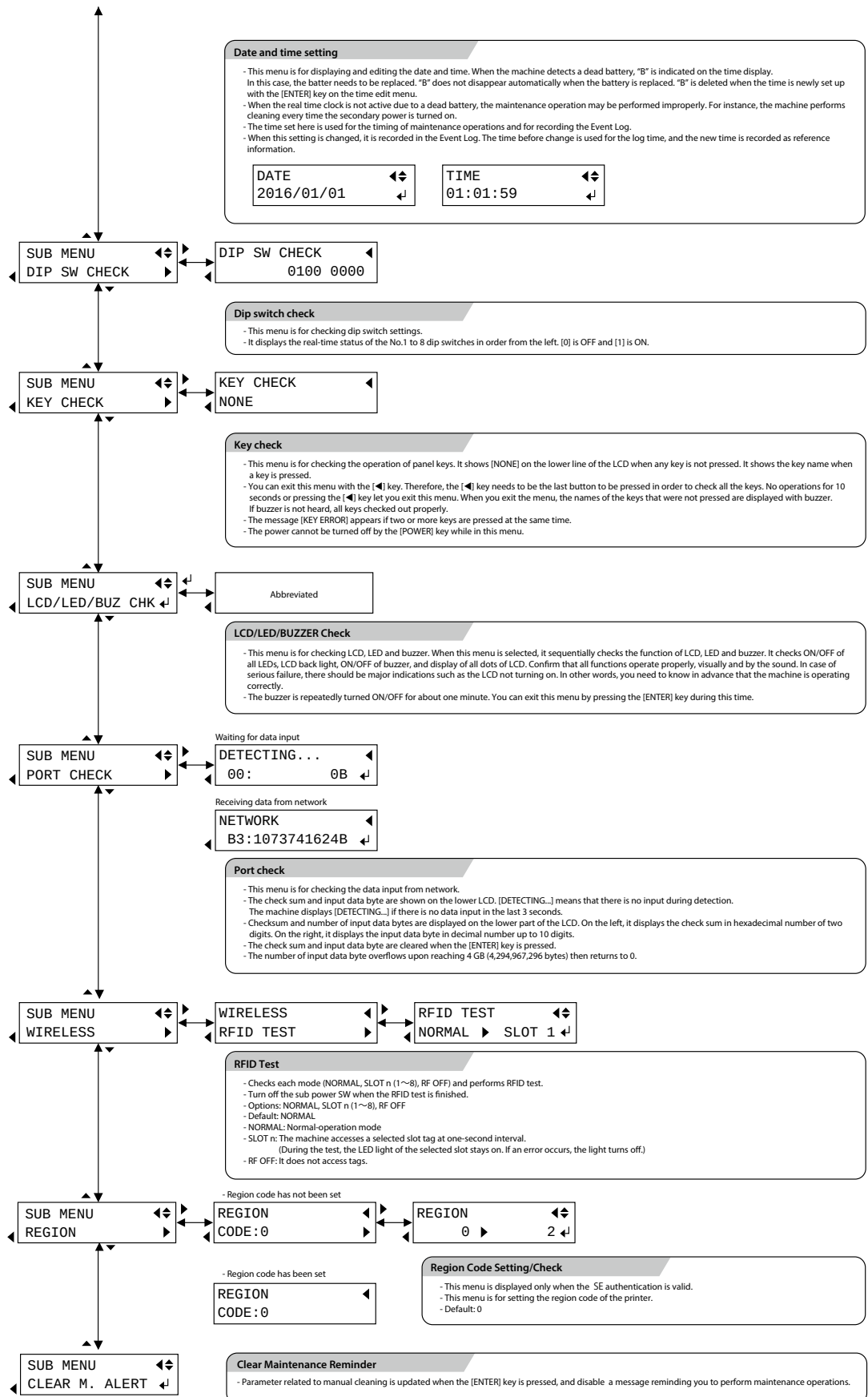
Pump Up

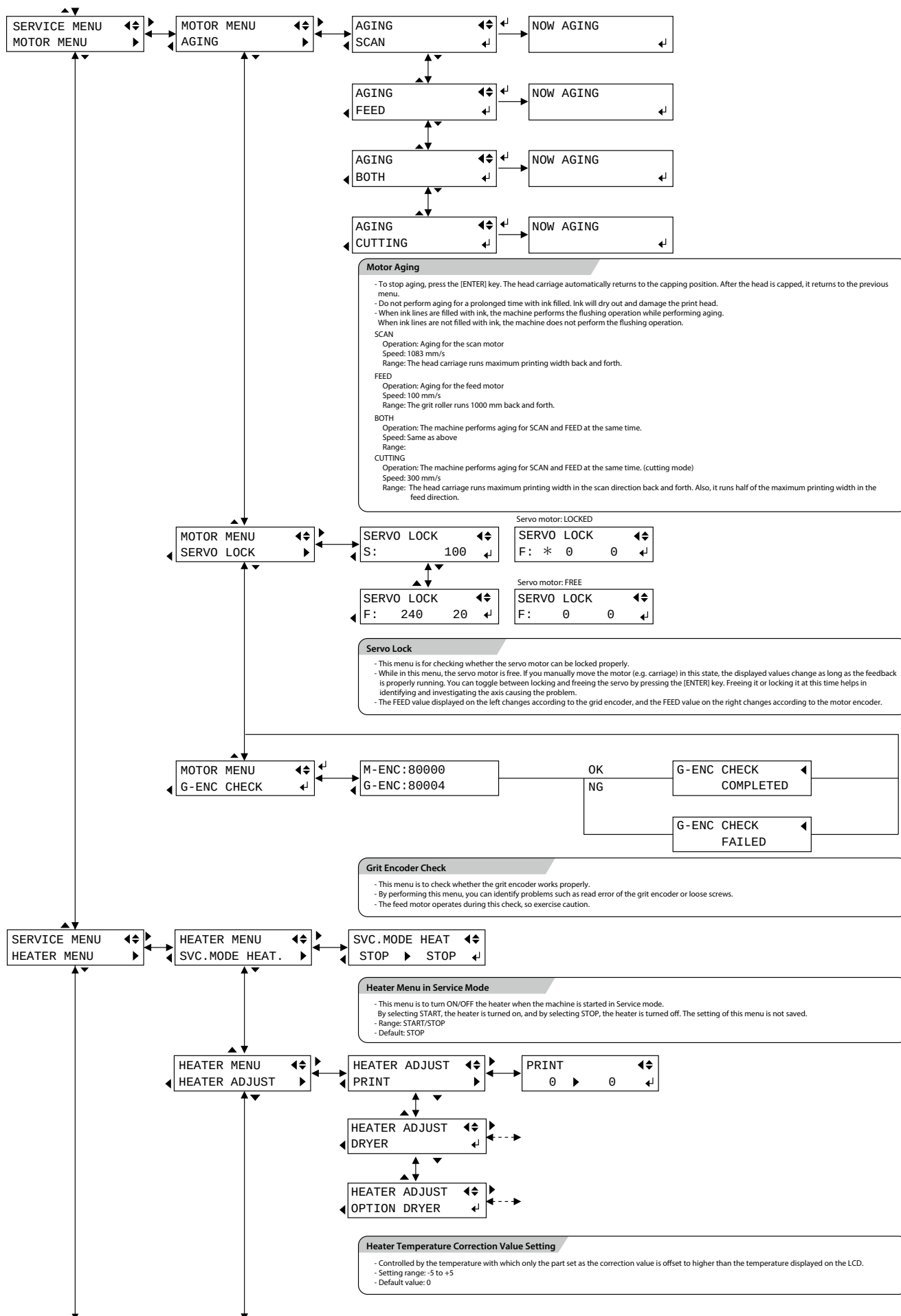
- Drain ink from the ink lines
- Group A and B are selectable when the ink type is 7C/LkW.

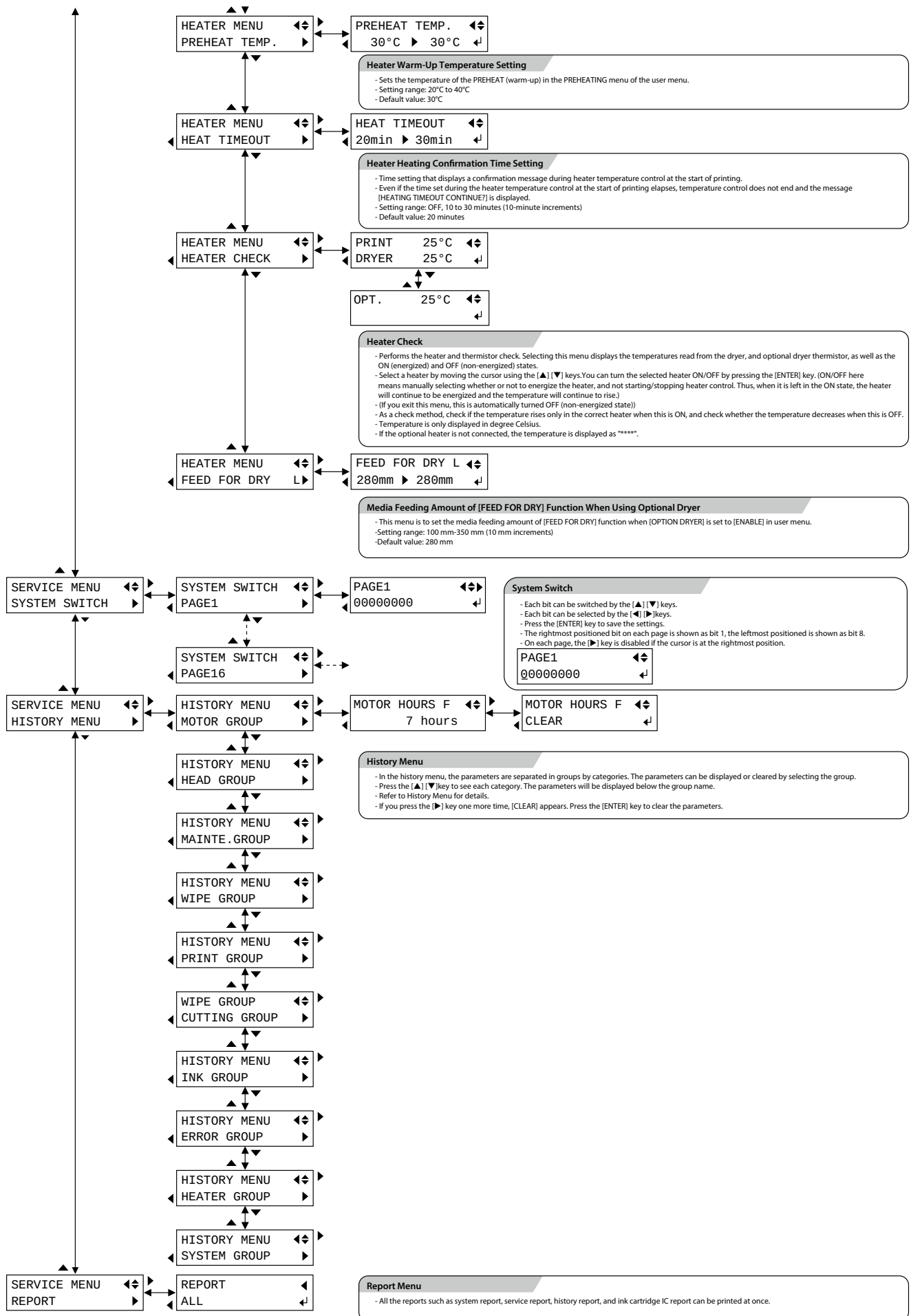
Head Wash

- Clean the ink lines by TR-CL.
- Group A or B are selectable when the ink type is 7C/LkW.
- Depending on the ink type, the following TR-CL are necessary.
7C/LkW: When group A and B are selected - 8 cartridges
When group A or B is selected - 4 cartridges
4C: 2 cartridges









History Menu

MOTOR GROUP

Item	Contents	Unit	Reference
MOTOR HOURS F	Total time the feed motor rotated	hour	Brush life
MOTOR HOURS S	Total time the scan motor rotated	hour	Brush life
S PUMP TIMES A	Number of times the A-cleaning pump rotated	times	Pump life
S PUMP TIMES B	Number of times the B-cleaning pump rotated	times	Pump life
P PUMP TIMES 1	Number of times the pressure pump connected to (H1 A) rotated	times	Pump life (Viewed from rear, the third pump from the right)
P PUMP TIMES 2	Number of times the pressure pump connected to (H1 B) rotated	times	Pump life (Viewed from rear, the sixth pump from the right)
P PUMP TIMES 3	Number of times the pressure pump connected to (H2 A) rotated	times	Pump life (Viewed from rear, the first pump from the right)
P PUMP TIMES 4	Number of times the pressure pump connected to (H2 B) rotated	times	Pump life (Viewed from rear, the eighth pump from the right)
P PUMP TIMES 5	Number of times the pressure pump connected to (H3 A) rotated	times	Pump life (Viewed from rear, the seventh pump from the right)
P PUMP TIMES 6	Number of times the pressure pump connected to (H3 B) rotated	times	Pump life (Viewed from rear, the second pump from the right)
P PUMP TIMES 7	Number of times the pressure pump connected to (H4 A) rotated	times	Pump life (Viewed from rear, the fifth pump from the right)
P PUMP TIMES 8	Number of times the pressure pump connected to (H4 B) rotated	times	Pump life (Viewed from rear, the fourth pump from the right)
CLEAR ALL	Clear all values under MOTOR GROUP		

HEAD GROUP

Item	Contents	Unit	Reference
SHOT COUNT 1	Number of piezo drive times per nozzle (H1 A)	times x 1000	
SHOT COUNT 2	Number of piezo drive times per nozzle (H1 B)	times x 1000	
SHOT COUNT 3	Number of piezo drive times per nozzle (H2 A)	times x 1000	
SHOT COUNT 4	Number of piezo drive times per nozzle (H2 B)	times x 1000	
SHOT COUNT 5	Number of piezo drive times per nozzle (H3 A)	times x 1000	
SHOT COUNT 6	Number of piezo drive times per nozzle (H3 B)	times x 1000	
SHOT COUNT 7	Number of piezo drive times per nozzle (H4 A)	times x 1000	
SHOT COUNT 8	Number of piezo drive times per nozzle (H4 B)	times x 1000	
INKRENEW H1	Number of times ink was renewed (H1)	times	
INKRENEW H2	Number of times ink was renewed (H2)	times	
INKRENEW H3	Number of times ink was renewed (H3)	times	
INKRENEW H4	Number of times ink was renewed (H4)	times	
WIPE H1	Number of times wiping was performed (H1)	times	
WIPE H2	Number of times wiping was performed (H2)	times	
WIPE H3	Number of times wiping was performed (H3)	times	
WIPE H4	Number of times wiping was performed (H4)	times	
AUTO CL.H1	Number of times auto cleaning was performed (H1)	times	
AUTO CL.H2	Number of times auto cleaning was performed (H2)	times	
AUTO CL.H3	Number of times auto cleaning was performed (H3)	times	
AUTO CL.H4	Number of times auto cleaning was performed (H4)	times	
NORMAL CL.H1	Number of times normal cleaning was performed (H1)	times	
NORMAL CL.H2	Number of times normal cleaning was performed (H2)	times	
NORMAL CL.H3	Number of times normal cleaning was performed (H3)	times	
NORMAL CL.H4	Number of times normal cleaning was performed (H4)	times	
MEDIUM CL.H1	Number of times medium cleaning was performed (H1)	times	
MEDIUM CL.H2	Number of times medium cleaning was performed (H2)	times	
MEDIUM CL.H3	Number of times medium cleaning was performed (H3)	times	
MEDIUM CL.H4	Number of times medium cleaning was performed (H4)	times	
POWERFUL CL.H1	Number of times powerful cleaning was performed (H1)	times	
POWERFUL CL.H2	Number of times powerful cleaning was performed (H2)	times	

History Menu

Item	Contents	Unit	Reference
POWERFUL CL.H3	Number of times powerful cleaning was performed (H3)	times	
POWERFUL CL.H4	Number of times powerful cleaning was performed (H4)	times	
SUPER CL H1	Number of times super cleaning was performed (H1)	times	
SUPER CL H2	Number of times super cleaning was performed (H2)	times	
SUPER CL H3	Number of times super cleaning was performed (H3)	times	
SUPER CL H4	Number of times super cleaning was performed (H4)	times	
FILL DAMPER H1	Number of times fill damper was performed (H1)	times	
FILL DAMPER H2	Number of times fill damper was performed (H2)	times	
FILL DAMPER H3	Number of times fill damper was performed (H3)	times	
FILL DAMPER H4	Number of times fill damper was performed (H4)	times	
DAMPER CL H1	Number of times damper cleaning was performed (H1)	times	
DAMPER CL H2	Number of times damper cleaning was performed (H2)	times	
DAMPER CL H3	Number of times damper cleaning was performed (H3)	times	
DAMPER CL H4	Number of times damper cleaning was performed (H4)	times	
CLEAR H1	Clear all values of H1		
CLEAR H2	Clear all values of H2		
CLEAR H3	Clear all values of H3		
CLEAR H4	Clear all values of H4		
CLEAR ALL	Clear all values under HEAD GROUP		

MAINTENANCE GROUP

Item	Contents	Unit	Reference
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.
CLEAR ALL	Clear all values under MAINTEN GROUP		

WIPE GROUP

Item	Contents	Unit	Reference
WIPING COUNT	Number of times wiping was performed	times	This value is cleared automatically after the wiper is replaced.
WIPER REPLACE	Number of times the wiper was replaced	times	
WIPER WASH	Number of times wiper was cleaned (Number of times wiping was performed)	times	
TRAY CLEANING	Number of times tray was cleaned	times	
SKIP TIME	Maximum time which the cleaning liquid had not supplied	hour	
CLEAR ALL	Clear all values under WIPE GROUP		

PRINT GROUP

Item	Contents	Unit	Reference
PRINTING TIME	Total printing time	hour	Test print time is excluded.
PRINT PAGES	Number of pages printed	pages	
PRINT AREA	Total area of printing performed	m2	
CLEAR ALL	Clear all values under PRINT GROUP		

History Menu

CUTTING GROUP

Item	Contents	Unit	Reference
CUTTING TIME	Cutting time	hour	Test print time is excluded.
DISCONNECT	Number of times carriage was detached	times	Number of times the cutting carriage and the print-head carriage were detached
CLEAR ALL	Clear all values under CUTTING GROUP		

INK GROUP

Item	Contents	Unit	Reference
CARTRIDGE 1	Number of times ink cartridge 1 was changed	times	
CARTRIDGE 2	Number of times ink cartridge 2 was changed	times	
CARTRIDGE 3	Number of times ink cartridge 3 was changed	times	
CARTRIDGE 4	Number of times ink cartridge 4 was changed	times	
CARTRIDGE 5	Number of times ink cartridge 5 was changed	times	
CARTRIDGE 6	Number of times ink cartridge 6 was changed	times	
CARTRIDGE 7	Number of times ink cartridge 7 was changed	times	
CARTRIDGE 8	Number of times ink cartridge 8 was changed	times	
EMPTY HIT 1	Number of times ink cartridge 1 was detected to be empty	times	
EMPTY HIT 2	Number of times ink cartridge 2 was detected to be empty	times	
EMPTY HIT 3	Number of times ink cartridge 3 was detected to be empty	times	
EMPTY HIT 4	Number of times ink cartridge 4 was detected to be empty	times	
EMPTY HIT 5	Number of times ink cartridge 5 was detected to be empty	times	
EMPTY HIT 6	Number of times ink cartridge 6 was detected to be empty	times	
EMPTY HIT 7	Number of times ink cartridge 7 was detected to be empty	times	
EMPTY HIT 8	Number of times ink cartridge 8 was detected to be empty	times	
CHANGE INK	Number of times the Ink type was changed	times	
CIRCULATE	Number of times ink circulation has been performed	times	
DISCHARGE	Number of times ink circulation + ink discharge has been performed	times	
CHOKE VALVE 1	Total time choke valve 1 was opened/closed	times	*
CHOKE VALVE 2	Total time choke valve 2 was opened/closed	times	*
CHOKE VALVE 3	Total time choke valve 3 was opened/closed	times	*
CHOKE VALVE 4	Total time choke valve 4 was opened/closed	times	*
CHOKE VALVE 5	Total time choke valve 5 was opened/closed	times	*
CHOKE VALVE 6	Total time choke valve 6 was opened/closed	times	*
CHOKE VALVE 7	Total time choke valve 7 was opened/closed	times	*
CHOKE VALVE 8	Total time choke valve 8 was opened/closed	times	*
CHOKE VALVE 9	Total time choke valve 9 was opened/closed	times	Choke valve connected to the ink cartridge that has ink circulation line (ink cartridge 4).
CHOKE VALVE 10	Total time choke valve 10 was opened/closed	times	Choke valve connected to the ink cartridge that has ink circulation line (ink cartridge 5).
CHOKE VALVE 11	Total time choke valve 11 was opened/closed	times	Choke valve connected to cleaning cartridge
CH. SOLENOID 1	Total time choke solenoid 1 was opened/closed	times	*
CH. SOLENOID 2	Total time choke solenoid 2 was opened/closed	times	*
CH. SOLENOID 3	Total time choke solenoid 3 was opened/closed	times	*
CH. SOLENOID 4	Total time choke solenoid 4 was opened/closed	times	*
CH. SOLENOID 5	Total time choke solenoid 5 was opened/closed	times	*
CH. SOLENOID 6	Total time choke solenoid 6 was opened/closed	times	*
CH. SOLENOID 7	Total time choke solenoid 7 was opened/closed	times	*

History Menu

Item	Contents	Unit	Reference
CH. SOLENOID 8	Total time choke solenoid 8 was opened/closed	times	*
CH. SOLENOID 9	Total time choke solenoid 9 was opened/closed	times	Choke solenoid connected to the ink cartridge that has ink circulation line (ink cartridge 5).
CH. SOLENOID 10	Total time choke solenoid 10 was opened/closed	times	Choke solenoid connected to the ink cartridge that has ink circulation line (ink cartridge 4).
CH. SOLENOID 11	Total time choke solenoid 11 was opened/closed	times	Choke solenoid connected to cleaning cartridge.
CLEAR ALL	Clear all values under INK GROUP		

*The choke valve and the choke solenoid simultaneously count up when opened. Data items can be cleared individually.

ERROR GROUP

Item	Contents	Unit	Reference
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 numbers are retained.
MOTOR ERROR F	Number of times the feed motor error occurred	times	Number of times the servo error occurred
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 forced capping occurred to prevent head drying when cap is left open for 10 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		

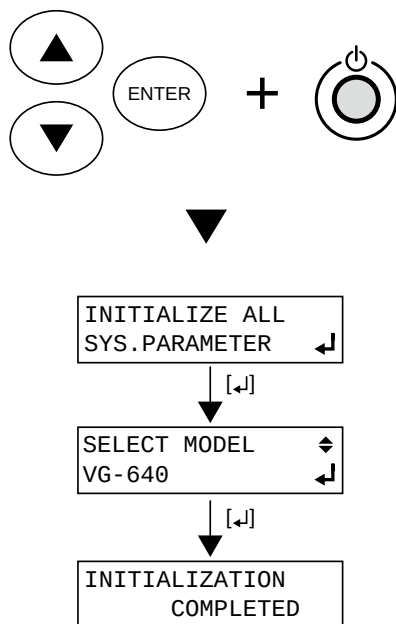
HEATER GROUP

Item	Contents	Unit	Reference
PRINT USE TIME	Total time the print heater was used	hour	Total time the print heater was used
DRY USE TIME	Total time the dryer was used	hour	Total time the dryer was used
OPT. USE TIME	Total time the option dryer was used	hour	Total time the optional dryer was used
CLEAR ALL	Clear all values under HEATER GROUP		

SYSTEM GROUP

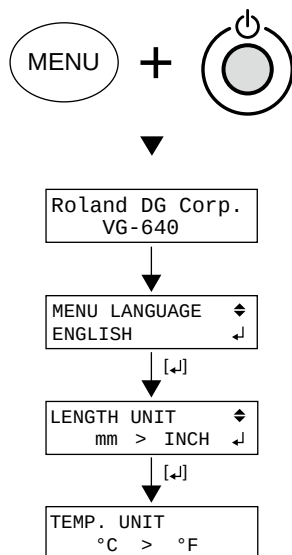
Item	Contents	Unit	Reference
POWER ON COUNT	Number of times the sub power SW was turned on	times	
POWER ON TIME	Total time the sub power was on	hour	
SLEEP TIME	Total time the printer was in the sleep mode	hour	
SHEETCUT COUNT	Number of times the sheet cut was performed	times	It counts auto sheet cut performed by both printer and RIP.
SETUP COUNT	Number of times of setup	times	
CLEAR ALL	Clear all values under SYSTEM GROUP		

System Parameter Initialization

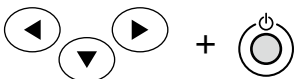
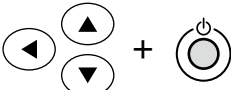
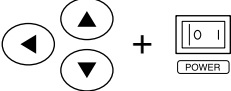
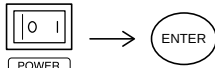
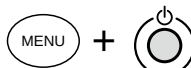


[All parameters will be initialized. Turn on the sub power SW while pressing the [▲] [▼] [ENTER] keys to start the printer in system parameter initialization mode.
Select the model by pressing the [▲] [▼] keys.
Press the [ENTER] key to initialize system parameters or press the sub power SW for more than 1 second to cancel it.
The printer turns off automatically when the initialization is completed. All the parameters are reset to the default.
It is necessary to initialize the limit position after this initialization.
[SERVICE CALL 0101] occurs if the limit position is not initialized.

Language and Unit



Key Combinations

For service engineers	Combination key selection	Comments
Service mode		Press the [MENU] [▶] keys to enter the service menu.
Firmware upgrade mode		"UPDATE FIRMWARE?" is displayed. Press the [ENTER] key to upgrade firmware.
Firmware installation (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 main power SW is turned on. Press the [ENTER] key so that the printer will become ready to load firmware.
System parameter initialization		All parameters will be initialized. Press the [ENTER] key to start initialization.
Limit position/cut down position initialization		Press the [ENTER] key to initialize limit position. Then set up cut down position.
For users	Combination key selection	Comments
Language/unit selection		Press the [▲] [▼] keys to select language/ unit.

Information

Necessary tools

Software

Peck

Latest firmware

Typical work time

Contents of work	Time
Firmware upgrade	5 min.

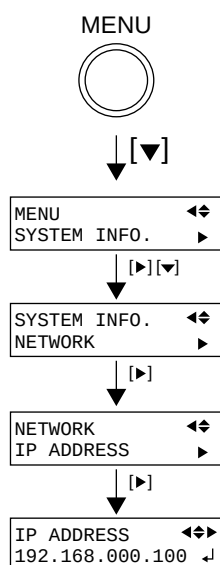
Procedure

CAUTION

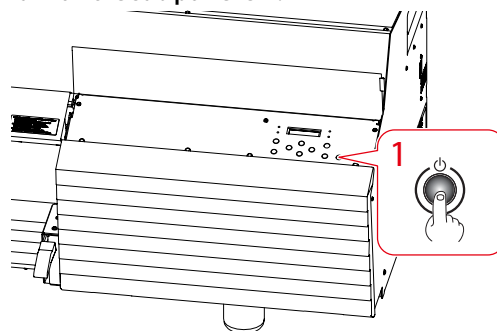
It is necessary to prepare the following to upgrade/install the firmware.

- A firmware file
- WindowsPC (Network port is required.)
- Peck.exe
- Network cable (A cross cable is required when you connect the printer to a PC directly.)

1. Check the IP address of the printer. Turn on the main power SW, turn on the sub power SW, and then press the [MENU] key. Select [SYSTEM INFO.] > [NETWORK] > [IP ADDRESS].



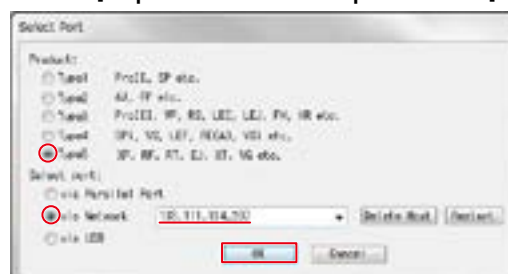
2. Turn off the sub power SW.



3. Start Peck. When the [Peck] screen appears, click [Select Port].



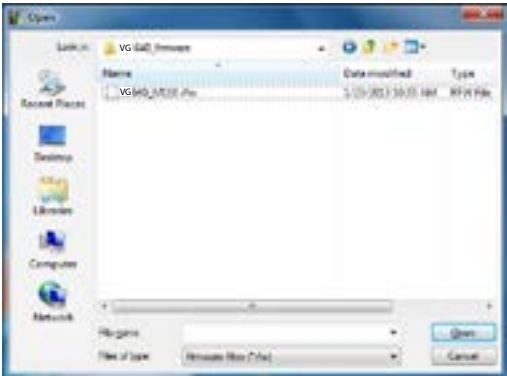
4. Select [Product] > [Type5]. Also, select [Select] > [via Network]. Input IP address of the printer. Click [OK].



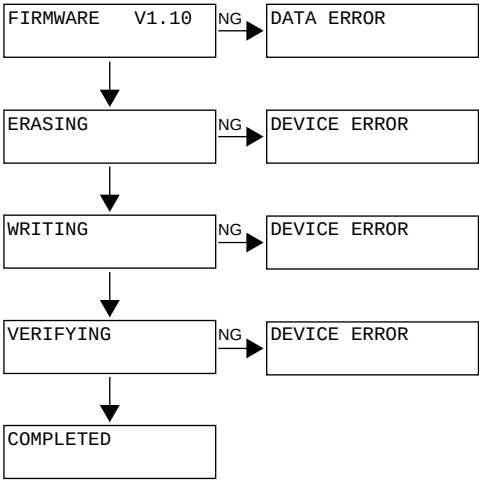
5. When the [Peck] screen appears, click [Firmware Upgrade].



6. The [OPEN] screen is displayed. Select the firmware file and click [Open]. The firmware will be sent to the printer.



7. The printer goes into the firmware upgrade mode automatically. When the upgrade is completed, the sub power SW turns off automatically.



8. (End of procedure)

Information

Necessary tools

Software

Peck

Latest firmware

Typical work time

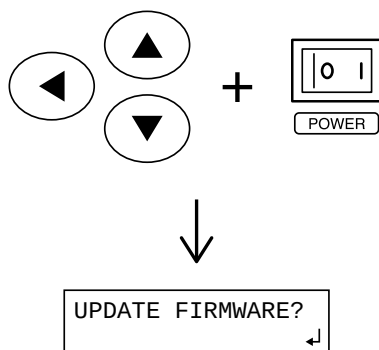
Contents of work	Time
Firmware installation	10 min.

Procedure

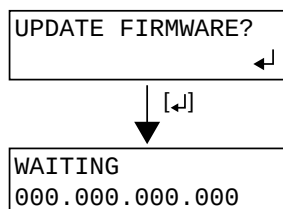
CAUTION

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

1. Turn on the main power SW while pressing the [◀] [▲] [▼] keys.



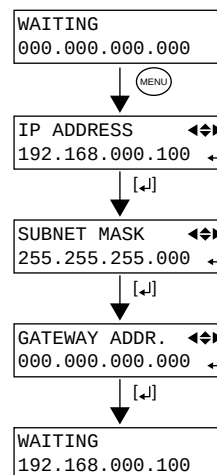
2. Press the [ENTER] key to prepare the printer for receiving the firmware.



3. 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, return to the waiting mode for receiving the firmware by pressing the [ENTER] key.

CAUTION

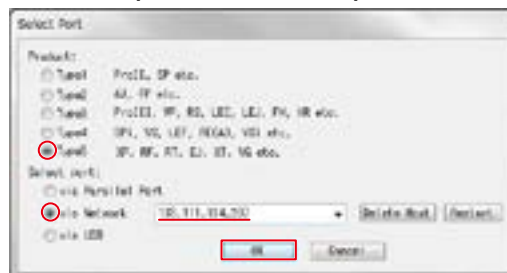
The setting made here is only temporary for the firmware installation and it is not saved. Start Peck on a PC.



4. When the [Peck] screen appears, click [Select Port].



5. Select [Product] > [Type5]. Also, select [Select] > [via Network]. Input IP address of the printer. Click [OK].



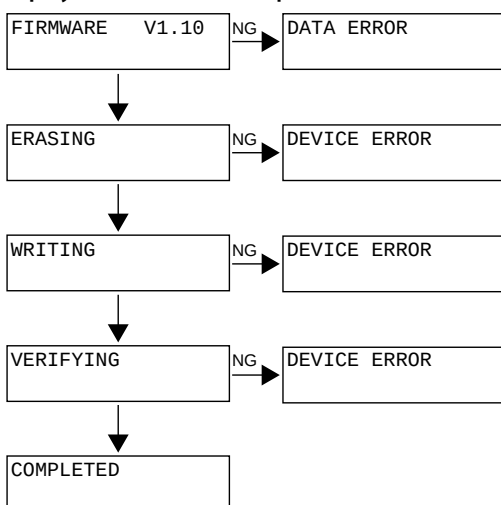
6. When the [Peck] screen appears, click [Firmware Upgrade].



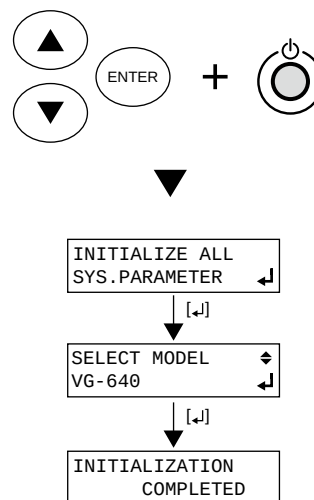
7. The [Open] screen is displayed. Select the firmware file and click [Open]. The firmware will be sent to the printer.



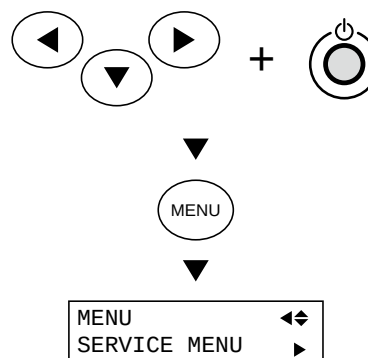
8. Firmware loading begins. The firmware installation is completed when the [COMPLETED] message is displayed. Turn off the sub power SW.



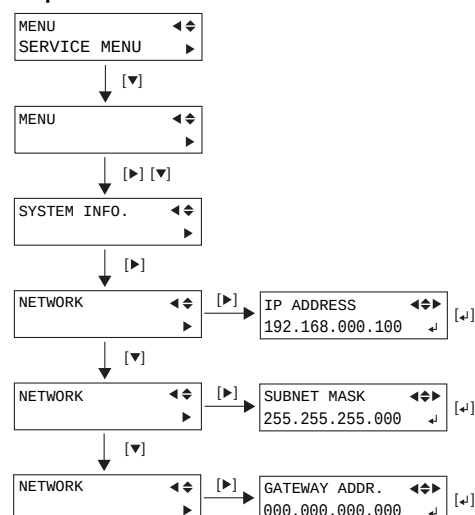
9. Turn on the sub power SW while pressing the [▲] [▼] [ENTER] keys to enter the [INITIALIZE ALL SYS. PARAMETER] menu. Select the model by pressing the [▲] [▼] keys, and press the [ENTER] key to start initialization. The sub power SW turns off automatically when it is completed.



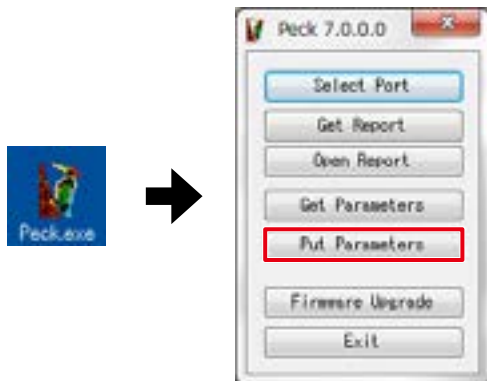
10. Turn on the sub power SW while pressing the [◀] [▼] [▶] keys to enter the service mode.



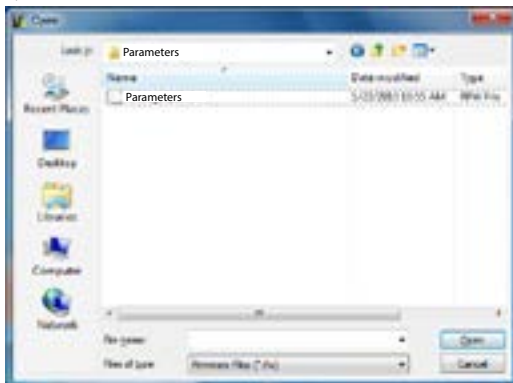
11. Turn off the sub power when the network setting is completed.



12. Start Peck on a PC. When the [Peck] screen appears, click [Put Parameters].



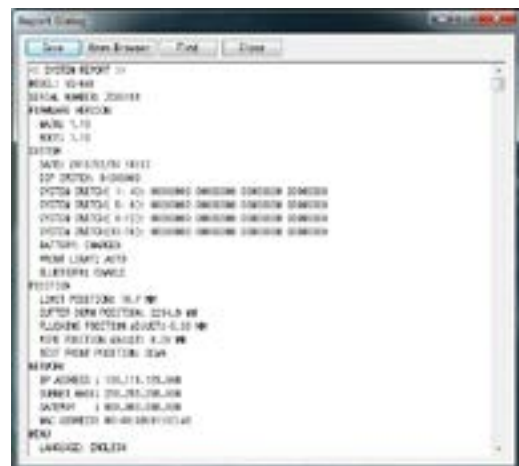
13. [OPEN] screen is displayed. Select the system parameters saved before the main board replacement. Click [Open]. Peck starts to send the system parameters to the printer.



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

NOTE

The network settings set at step 11 are replaced with the system parameters when [Put Parameters] is executed. Please do the network settings again if necessary.



- 15.** (End of procedure)

Information

Necessary tools

General tools

None

Special tools

None

Workflow

1. Limit position & cut down position initialization

Typical work time

Contents of work	Time
Limit position & cut down position initialization	3 min.

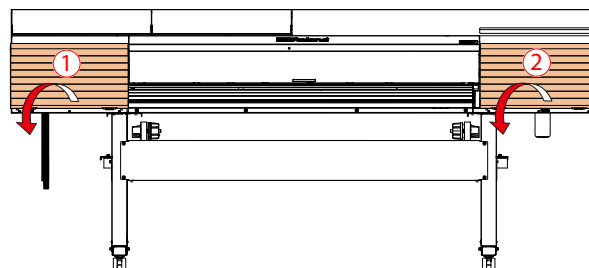
Procedure

CAUTION

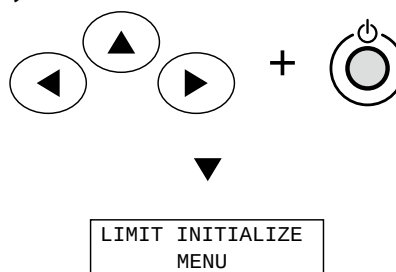
- A motor error occurs when moving the cut carriage while the front cover or the maintenance cover are open. To operate the printer, press and hold the cover sensor switch.
- This adjustment is for adjusting the relative distance between the limit sensor and the capping position, and also detecting the distance from the cut down position to the limit sensor after completing the adjustment.
- When the limit position is not correctly set, it may cause some problems such as a head capping error and a head carriage lock error. Also, when the cutter-down position is not correct, there will be some problems such as a cutter down error when separating the sheet.

1. Open the maintenance cover L and the maintenance cover R.

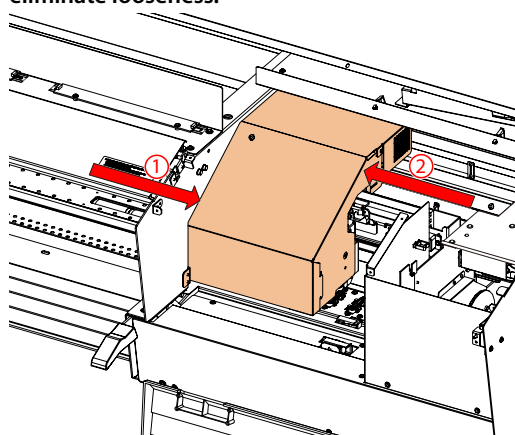
1. Maintenance cover L
2. Maintenance cover R



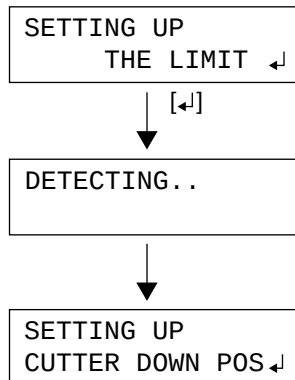
2. Turn on the sub power SW while pressing the [◀] [▲] [▶] keys to enter the limit initialization mode.



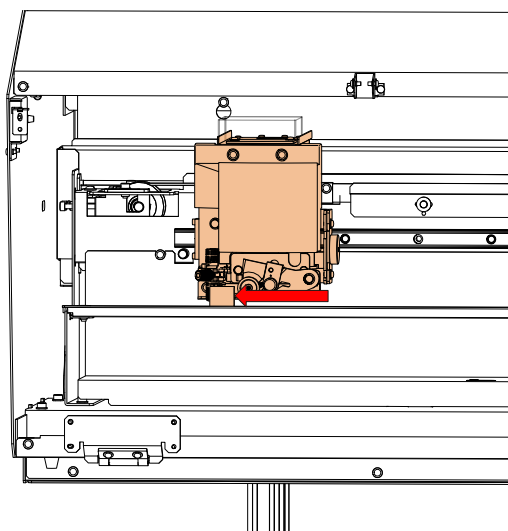
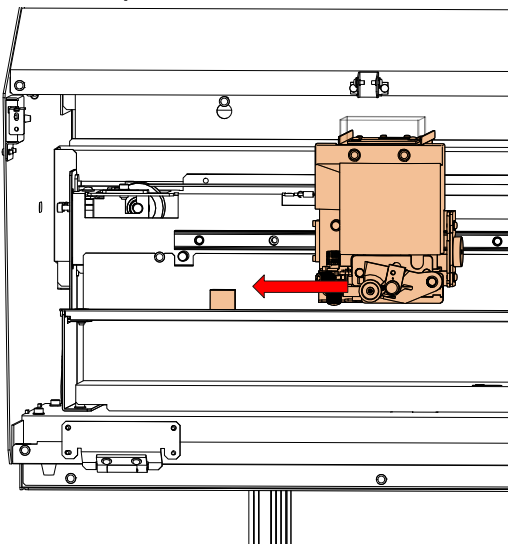
3. Lock the head carriage. Confirm that the head carriage is locked by pushing it lightly to the left to eliminate looseness.



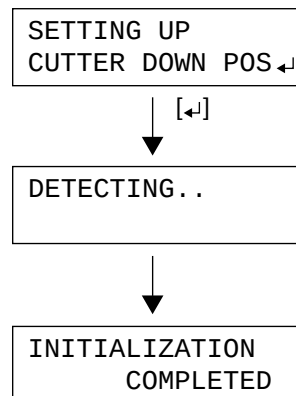
4. Confirm that the print head is capped properly, and press the [ENTER] key. The tool carriage will be separated from the head carriage and limit position initialization will start. After initialization is completed, the message is displayed.



5. Move the cut carriage with your hand until it makes full contact with the auto cutter frame with the cutter in the down position.



6. Press the [ENTER] key to perform cut down position initialization. After initialization is completed, the message is displayed. Refer to Chapter 2 "[Flushing Position Adjustment](#)" and perform flushing position adjustment.



7. (End of procedure)

Information

Necessary tools

General tools

No.2 Phillips screwdriver

Special tools

None

Workflow

1. Linear encoder setup

Typical work time

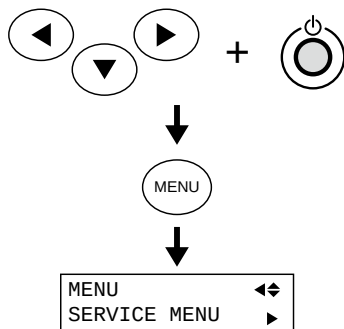
Contents of work	Time
Linear encoder setup	5 min.

Procedure

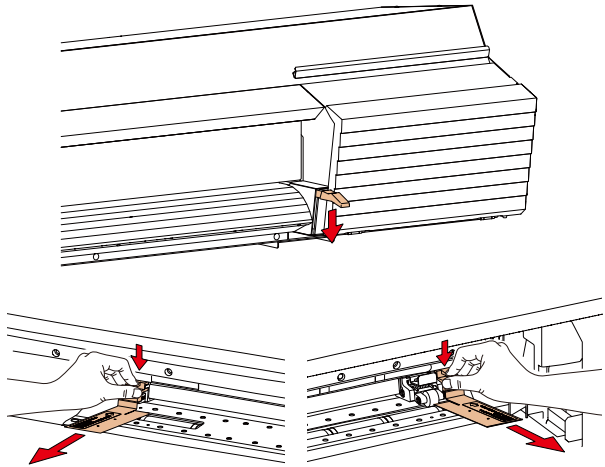
CAUTION

- An interlock mechanism ordinarily prevents carriage movement when the printer's cover is opened. To operate the printer with the cover open, press and hold the cover sensor switch.
- This adjustment is for checking reading by the linear encoder and for calibrating encoder expansion/contraction caused by the operation environment. This operation is required when the limit sensor, encoder scale or encoder sensor is replaced or the position is adjusted.

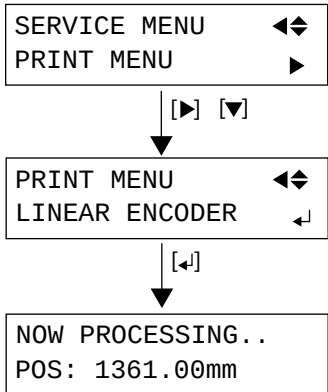
2. Turn on the main power SW. Then, turn on the sub power SW while pressing the [◀] [▼] [▶] keys to enter the service mode.



3. Make sure to unload the media. Lower the pinch rollers. Also, be sure to remove the media clamps.



4. Select [PRINT MENU] > [LINEAR ENCODER], and press the [ENTER] key.



5. One of the messages appears at the completion of setup. In case of set-up error, check the following.

- Dirt/scratches on the encoder scale.
- Dirt/scratches on the encoder sensor.
- Limit position & cut down position initialization error.
- Backlash of the scan motor gear and the drive gear.
- Fastening of the carriage and the carriage belt.
- Bad cable contact.

LINEAR ENCODER
SETUP COMPLETED

LINEAR ENCODER
SETUP FAILED

6. (End of procedure)

Information

Necessary tools

General tools

None

Special tools

None

Workflow

1. Flushing position adjustment

Typical work time

Contents of work	Time
Flushing position adjustment	3 min.

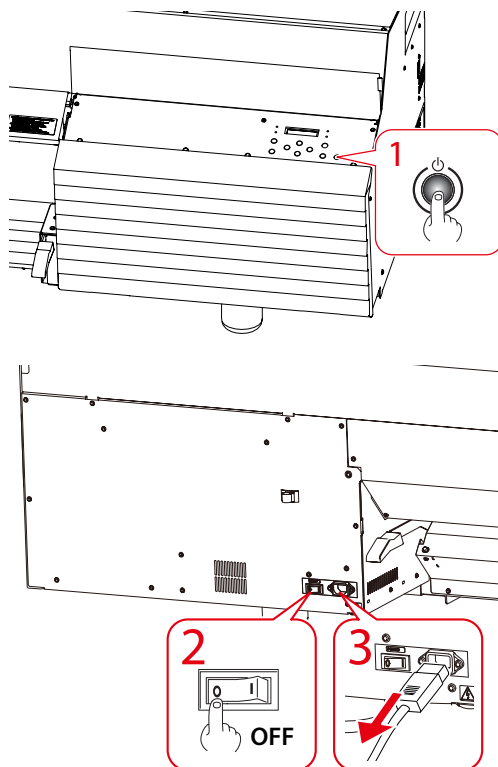
Procedure

CAUTION

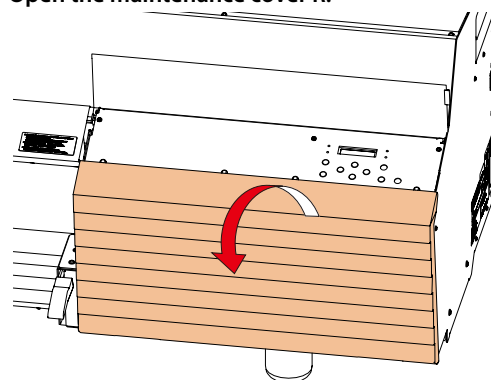
- An interlock mechanism ordinarily prevents carriage movement when the printer's cover is opened. To operate the printer with the cover open, press and hold the cover sensor switch.
- This adjustment is for adjusting the flushing position. Without this adjustment, the flushing may not be performed properly and that can cause nozzle firing problem.

1. Turn off the sub power SW, and then turn off the main power SW. Unplug the power cord.

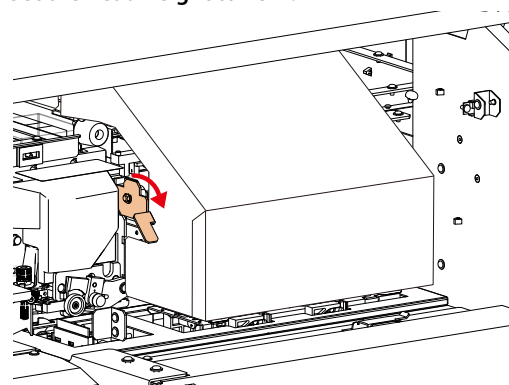
1. Sub power SW
2. Main power SW
3. Power cord



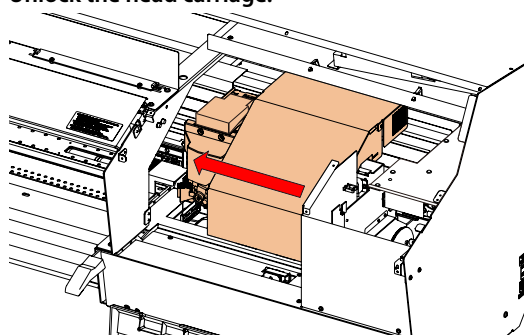
2. Open the maintenance cover R.



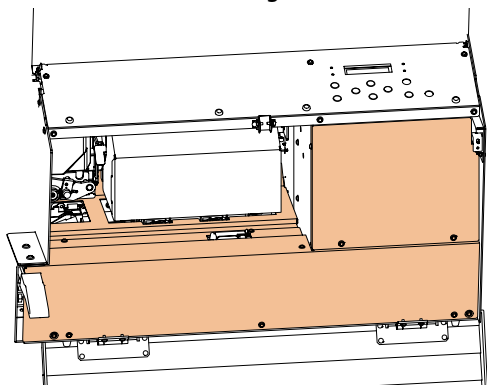
3. Set the head height to LOW.



4. Unlock the head carriage.

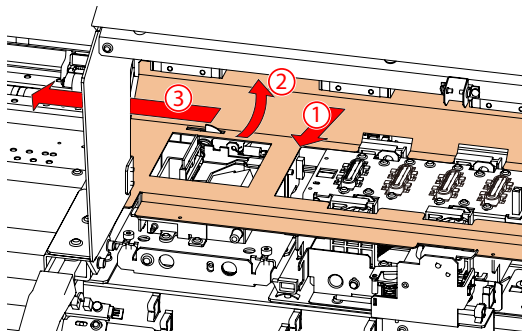


5. Remove the covers shown in orange in the figure. Then, lock the head carriage.



NOTE

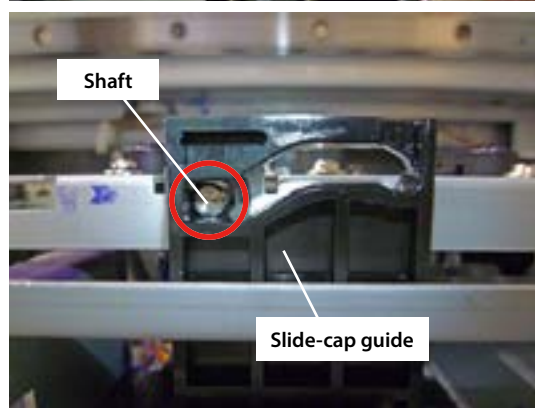
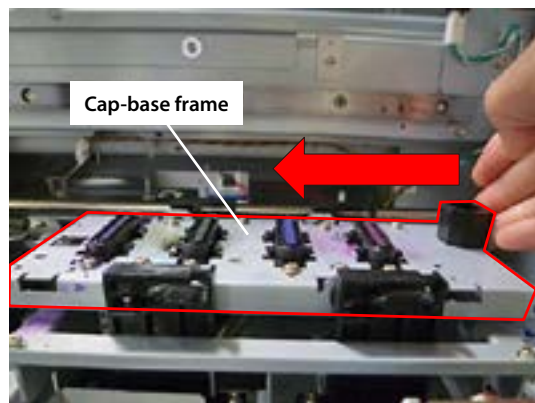
Easiest way to remove the cover shown below is to 1) slide the cover to the front, 2) lift up the rear side of the cover, and 3) remove the cover from the left side.



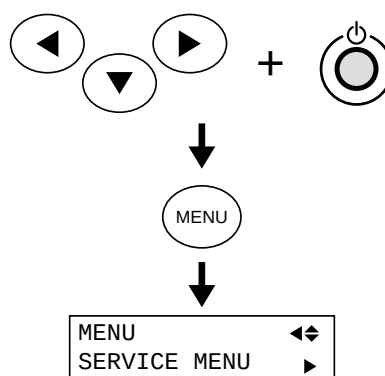
6. Slide the cap-base frame to the left by hand until it does not go any further.

CAUTION

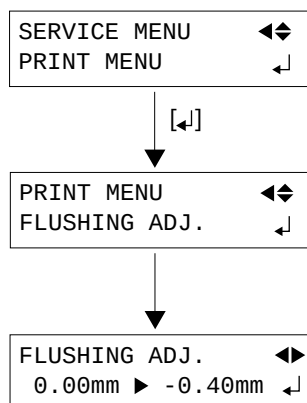
Make sure that the shaft is touching the slide-cap guide on the left side.



7. Turn on the main power SW, and then turn on the sub power SW while pressing the [◀] [▼] [▶] keys to enter the service mode.

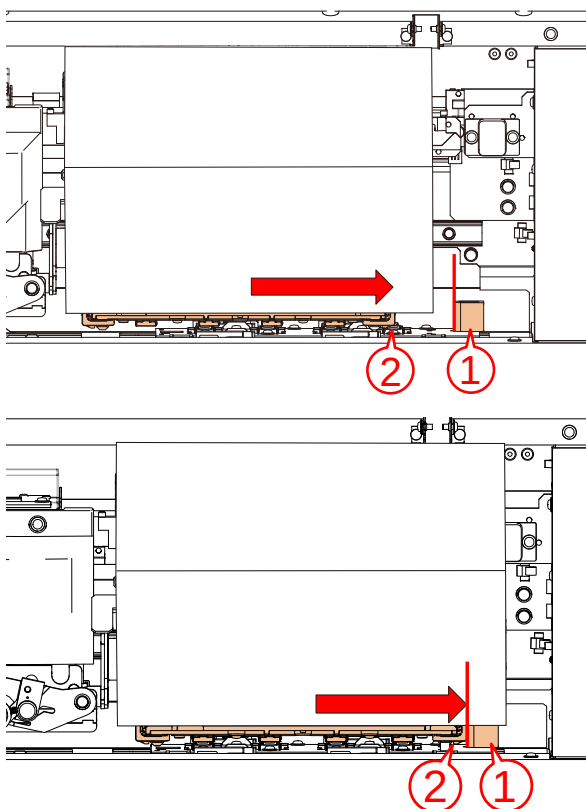


8. Select [PRINT MENU] > [FLUSHING ADJ.] and press the [ENTER] key. The head carriage automatically moves to the current flushing position.



9. Move the head carriage to the position where the head base makes contact with the tip of the cap base by pressing [◀] and [▶] keys.

1. Backup cap base
2. Head base



10. Press the [◀] key once to move the head carriage 0.1 mm to the left from the flushing position.
11. Press the [ENTER] key to set the flushing position. If you press the [MENU] key, the flushing position will not be updated, and display returns to the menu.

CAUTION

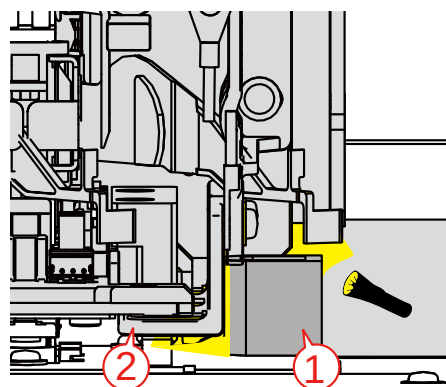
If flushing position adjustment is not performed properly, inks may become mixed.

12. Confirm that there is a 0.1 mm gap between the head base and the backup cap base. If you do not see any gap, go back to step 8 and adjust again.

NOTE

Check that there is a 0.1 mm gap by shining a flashlight from behind the head carriage.

1. Backup cap base
2. Head base



13. (End of procedure)

Information

Necessary tools

General tools

White sticker media

No.2 Phillips screwdriver

Special tools

None

Workflow

1. Crop mark sensor adjustment

Typical work time

Contents of work	Time
Crop mark sensor adjustment	10 min.

Procedure

CAUTION

- This adjustment is for adjusting the sensitivity of the crop mark sensor. If it is not adjusted properly, crop marks cannot be read correctly, leading to problems such as print and cut misalignment.

Cases you need to perform this adjustment:

- After replacing or adjusting the crop mark sensor or tool carriage board
- In case you accidentally turn the voltage adjustment VR
- When the distance between the crop mark sensor and the bed surface is changed

The pre-heater, print heater and dryer must be turned off during this adjustment.

- We recommend the following medias for checking the adjusted values.

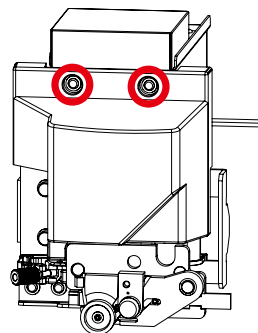
-5829R

-LSPEX

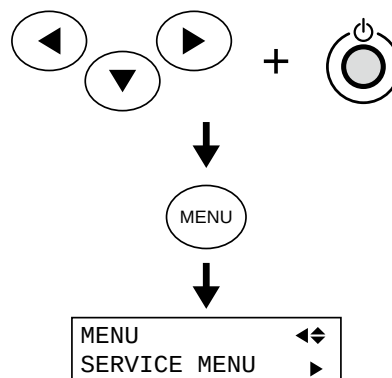
-LSPETG1270 (PET for solvent)

Use the media that users use, if you need to perform optimum adjustment for those medias. However, since the adjustment is for optimizing the sensitivity of the crop mark sensor for a specific media, crop marks printed on other types of media may not be detected correctly.

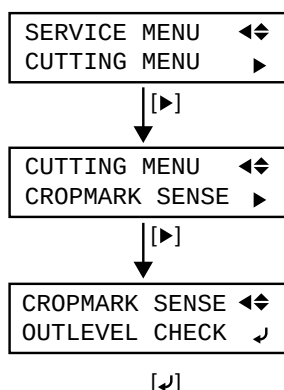
1. Remove two screws that secure the cover.



2. Turn on the sub power SW while pressing the [◀] [▼] [▶] keys to enter the service mode.



3. Load media and perform setup of media.
4. Select [CROPMARK SENS] > [OUTLEVEL CHECK], and press the [ENTER] key. A crop mark is printed.



VG-640: Serial No. ZCK0100 or later
VG-540: Serial No. K*** / Z***

5. After printing the crop mark, the tool carriage moves above the crop mark automatically. If the maximum voltage is 2.7 +/- 0.2V, you do not have to carry out this adjustment.

Min2.5V Max2.7V ◀
[2.5V]

6. If the maximum voltage is not within the acceptable range, adjust the VR on the tool carriage board so that the value in square brackets shown on the bottom of the LCD screen becomes 2.5 +/- 0.2V.

NOTE

Let the ink dry completely, and then carry out this adjustment.



Min2.5V Max2.7V ◀
[2.5V]

7. Perform [OUTLEVEL CHECK] again and confirm that the maximum voltage is 2.7 +/- 0.2V. If not, carry out the adjustment again.

Min2.5V Max2.7V ◀
[2.5V]

8. (End of procedure)

VG-640: Serial No. ADC0100 or later
VG-540: Serial No. LDA0100 or later

5. After printing the crop mark, the tool carriage moves above the crop mark automatically. If the maximum voltage is 2.2 +/- 0.1V, you do not have to carry out this adjustment.

Min2.1V Max2.2V ◀
[2.1V]

6. If the maximum voltage is not within the acceptable range, adjust the VR on the tool carriage board so that the value in square brackets shown on the bottom of the LCD screen becomes 2.2 +/- 0.1V.

NOTE

Let the ink dry completely, and then carry out this adjustment.



Min2.1V Max2.2V ◀
[2.1V]

7. Perform [OUTLEVEL CHECK] again and confirm that the maximum voltage is 2.2 +/- 0.1V. If not, carry out the adjustment again.

Min2.1V Max2.2V ◀
[2.1V]

8. (End of procedure)

Information

Necessary tools

General tools	
Media	
No.2 Phillips screwdriver	
1.5 mm hexagonal wrench	
Special tools	
ST-056	TORQUE DRIVER N6
1000015724 1000015274	BIT,PHILIPS NO.2 L200MM

Workflow

1. Print head alignment

Typical work time

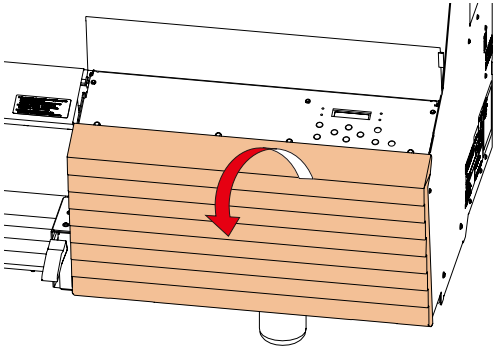
Contents of work	Time
Print head alignment	20 min.

Procedure

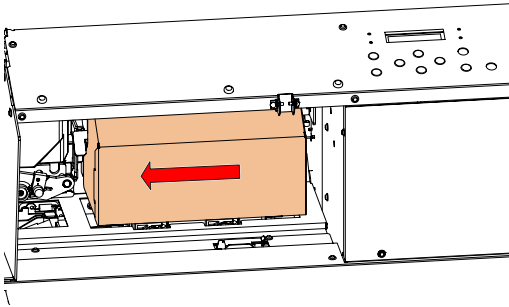
CAUTION

- The interlock mechanism ordinarily prevents head carriage movement when the printer's cover is opened. To operate the printer with the cover open, press and hold the cover sensor switch.
- 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 gap between bands may occur.
- PET-G is recommended for this alignment.
- DO NOT use the take-up unit for this alignment.

1. Open the maintenance cover R.



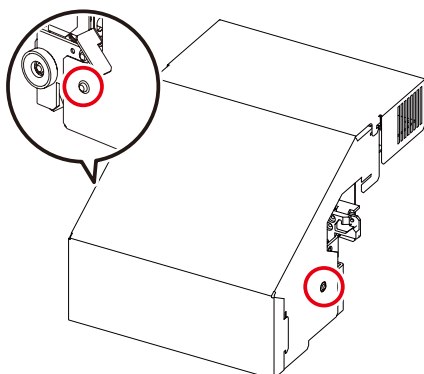
2. Unlock the head carriage.



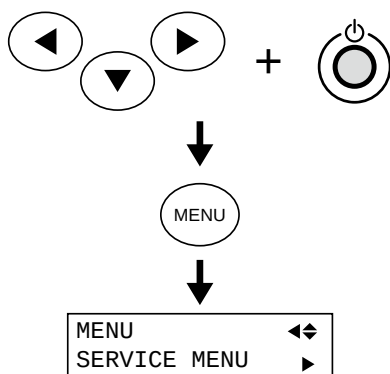
- Remove two screws that secure the cover.

NOTE

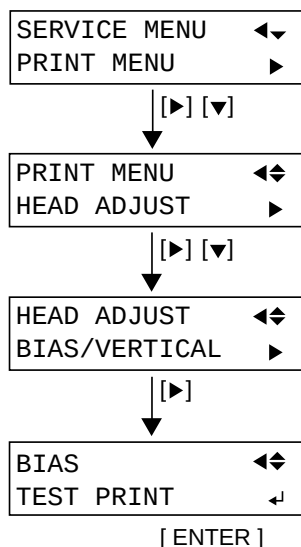
The screws are on the right and left side of the cover.



- Turn on the sub power SW while pressing the [◀] [▼] [▶] keys to enter the service mode. Set up PET-G on the printer.



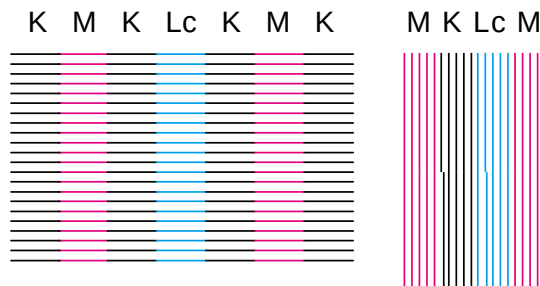
- Select [PRINT MENU] > [HEAD ADJUST] > [BIAS/VERTICAL] > [TEST PRINT], and press the [ENTER] key.



- A test pattern is printed.

NOTE

Press the [▲] key to feed the media forward so that you can see the test pattern well. Press the [▼] key to move it back to the original position.



BIAS Adjustment

- Loosen four screws that secure the print head base.

CAUTION

Turn the screws about half a turn. If you loosen them too much, print head alignment cannot be performed properly.



VG-640: Serial No. ZCU0987 or earlier
VG-540: Serial No. KCV0354 or earlier

If the head guards are fixed on the machine, loosen the two nuts.



- Turn the adjustment screw using a 1.5 mm hexagonal wrench and adjust the print head base position so that the lines of the BIAS test pattern will be aligned.



When M lines are shifted upward and not aligned with K lines:

Turn the adjustment screw CW.



When M lines are shifted downward and not aligned with K lines:

Turn the adjustment screw CCW.



NOTE

Confirm that all color lines are aligned. If lines of one color are shifted and other color lines are all aligned, check if the print heads are fitted on the head base properly.

- Tighten the fixing screws to secure the print head base using a torque driver (torque value 0.6N•m / 60cN•m).

CAUTION

Do not overtighten the screws.



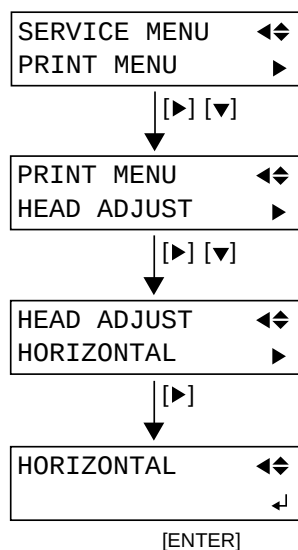
VG-640: Serial No. ZCU0987 or earlier
VG-540: Serial No. KCV0354 or earlier

If you loosen two nuts on step 7, tighten them.

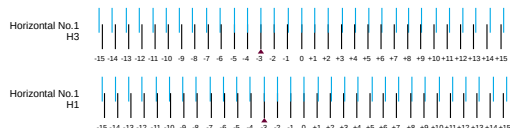


Horizontal Adjustment

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



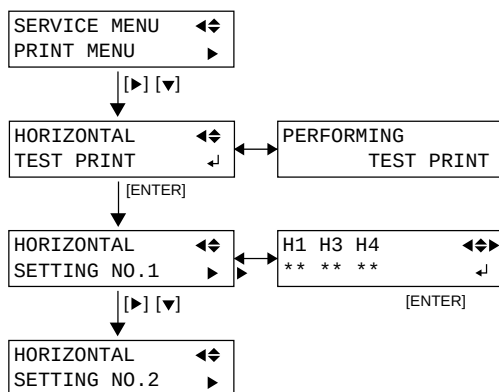
11. A test pattern is printed. Find the position where the two lines are overlapping and check the number of each color. In case of problems selecting one of two numbers, half values are also available for inputting. The number with [▲] is the current setting.



12. Select [No.1] to [No.2] from the [HORIZONTAL] menu and enter the parameters checked at step 11 with [▲] [▼] keys. Press the [ENTER] key to save the settings.

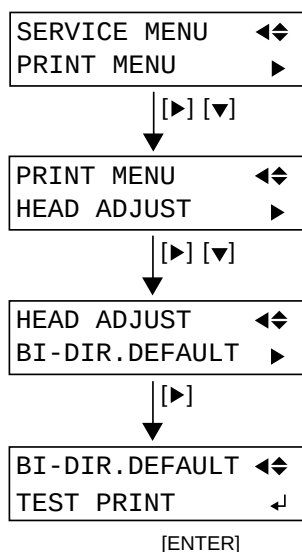
NOTE

Parameters can be entered in increments of 0.5.
No. of test pattern that is printed differs depending on the print head height.



Bidirectional Adjustment

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



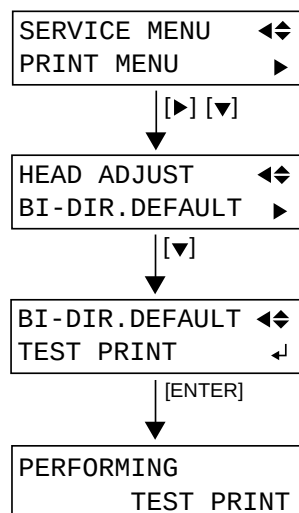
14. A test pattern is printed. Find the position where the two lines are overlapping and check the number of each color. In case of problems selecting one of two numbers, half values are also available for inputting. The number with [▲] is the current setting.



15. Select [No.1] to [No.4] from the [HEAD ADJUST] > [BI-DIR. DEFAULT] > [SETTING] menu and enter the parameters checked at step 14 with the [▲] [▼] keys. Press the [ENTER] key to save the settings.

NOTE

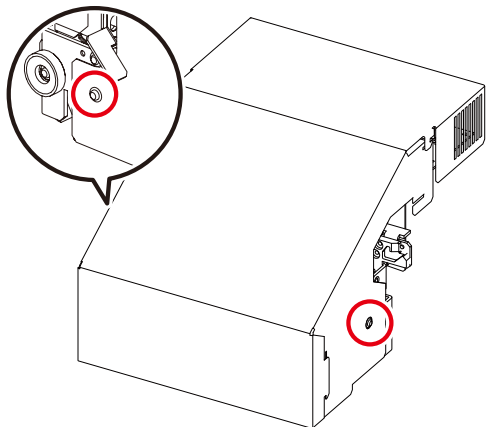
Parameters can be entered in increments of 0.5.
No. of test pattern that is printed differs depending on the print head height.



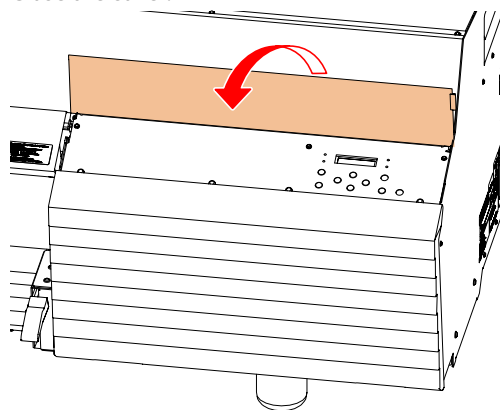
16. Attach the cover.

NOTE

Install the screws on the right and left side of the cover.

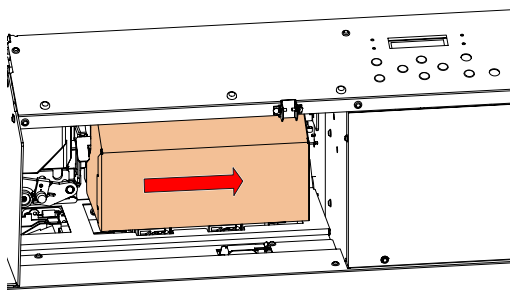


19. Close the cover.

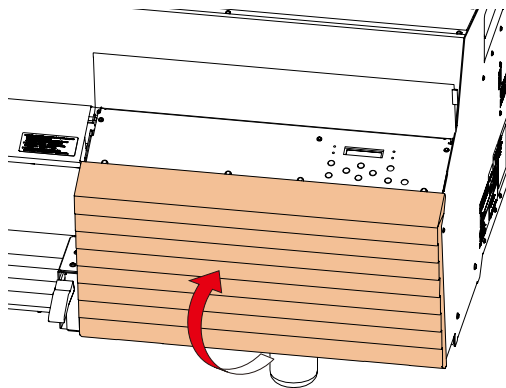


20. (End of procedure)

17. Move the head carriage to the lock position.



18. Close the maintenance cover R.



Tool Height Adjustment

Information

Necessary tools

General tools

No.2 Phillips screwdriver

Thickness gauge

1.5 mm hexagonal wrench

Special tools

ST-006

WHITE DUMMY PEN

Typical work time

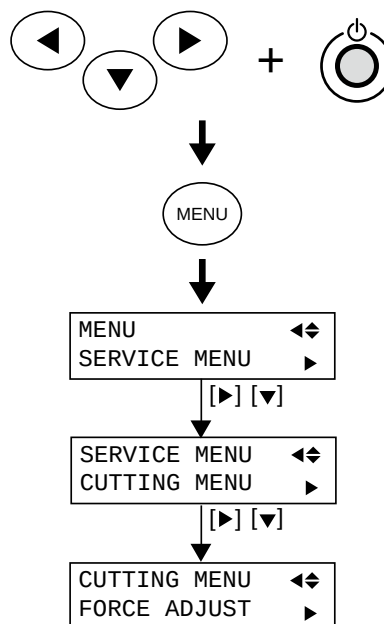
Contents of work	Time
Tool height adjustment	10 min.

Procedure

CAUTION

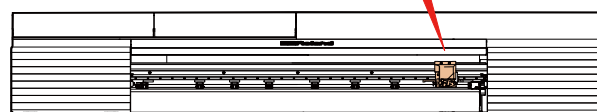
An interlock mechanism ordinarily prevents carriage movement when the printer's cover is opened. To operate the printer with the cover open, press and hold the cover sensor switch.

1. Turn on the sub power SW while pressing the [◀] [▼] [▶] keys to enter the service mode. Select [CUTTING MENU] > [FORCE ADJUST].

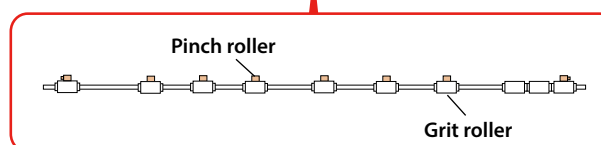
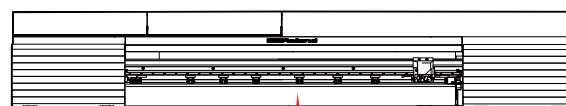


NOTE

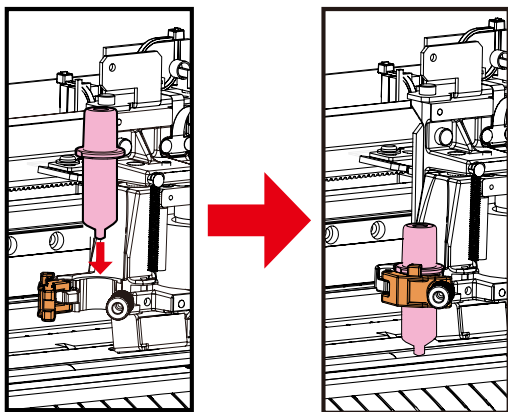
When you enter the [FORCE ADJUST] menu, the tool carriage automatically moves to the position shown below.



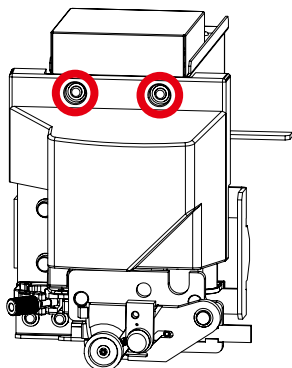
2. Place the pinch rollers above the grit rollers as shown in the figure below. Then, lower the pinch rollers.



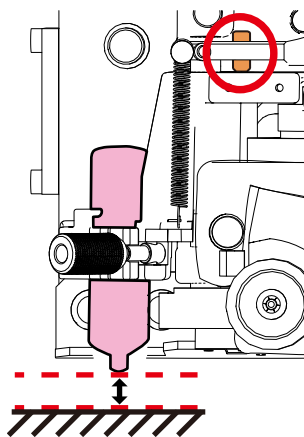
3. Fasten the white dummy pen to the tool carriage.



4. Remove two screws that secure the cover.



5. Using the 1.5 mm hexagonal wrench, turn the adjustment screw so that the space between the pen tip and the bed becomes 2.5 mm to 2.6 mm.



6. Refer to Chapter 2 "[Tool Pressure Adjustment](#)".

7. (End of procedure)

Information

Necessary tools

General tools

No.2 Phillips screwdriver

Special tools

ST-002	TENSION GAUGE 300g (3N)
ST-006	WHITE DUMMY PEN
ST-012	DIAL TENSION METER DTB-50

Workflow

1. Tool pressure adjustment

Typical work time

Contents of work	Time
Tool pressure adjustment	15 min.

Procedure

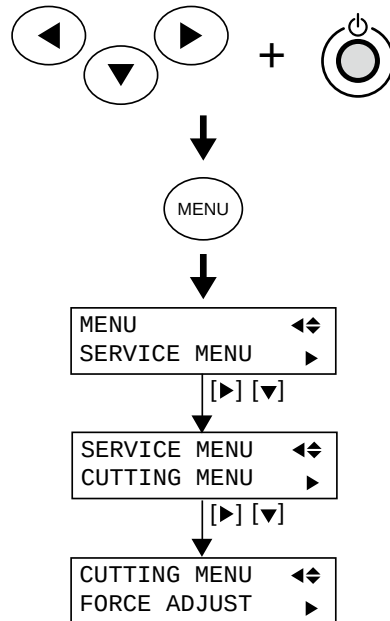
CAUTION

- An interlock mechanism ordinarily prevents carriage movement when the printer's cover is opened. To operate the printer with the cover open, press and hold the cover sensor switch.
- This adjustment must be performed after tool carriage replacement.
- Make sure to perform Chapter 2 "[Tool Height Adjustment](#)" before performing this adjustment.

NOTE

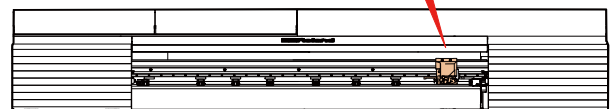
This adjustment is for adjusting the current supplied to the solenoid of the tool carriage to ensure that correct pressure would be added to the blade when cutting.

1. Turn on the sub power SW while pressing the [◀] [▼] [▶] keys to enter the service mode. Select [CUTTING MENU] > [FORCE ADJUST].

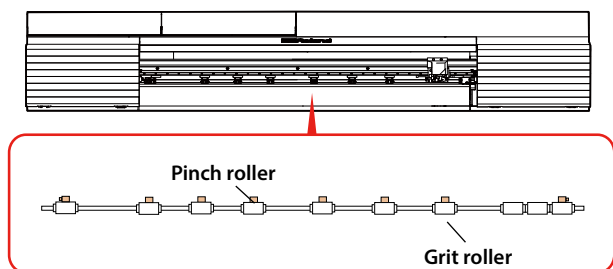


NOTE

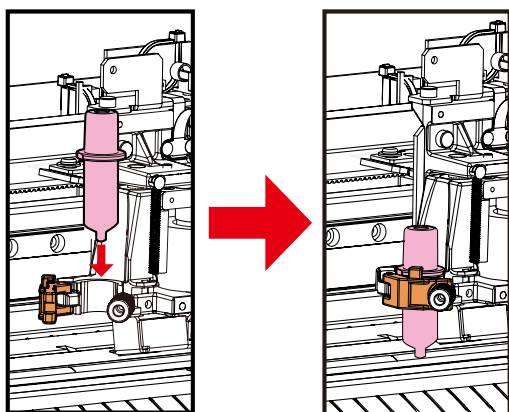
When you enter the [FORCE ADJUST] menu, the tool carriage automatically moves to the position shown below.



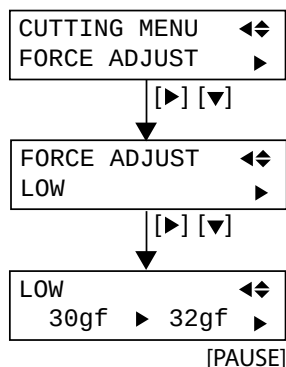
- Place the pinch rollers above the grit rollers as shown in the figure below. Then, lower the pinch rollers.



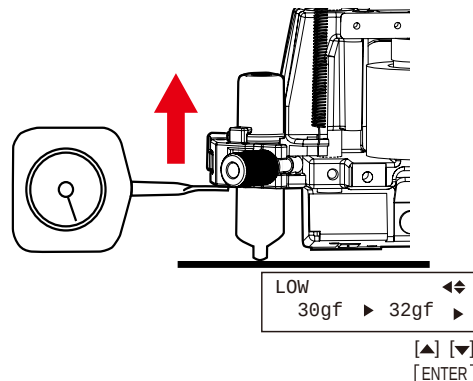
- Fasten the white dummy pen to the tool carriage.



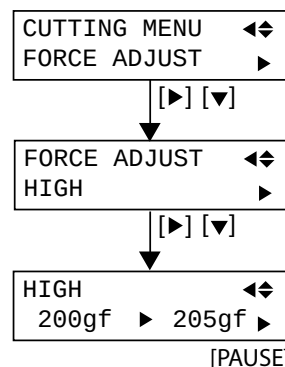
- Select [FORCE ADJUST] > [LOW]. Then, press the [PAUSE] key to lower the tool carriage.



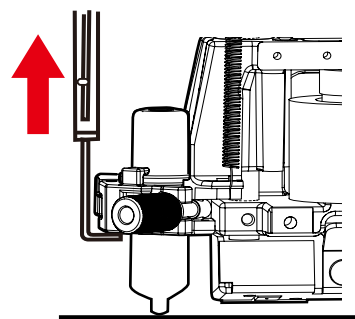
- Lift the tool holder with the dial tension meter and measure the pressure when the pen tip leaves the bed. Then, input the value indicated by the dial tension meter with the [▲] [▼] keys, and press the [ENTER] key to save the setting.



- Select [FORCE ADJUST] > [HIGH]. Then, press the [PAUSE] key to lower the tool carriage.



- Lift the tool holder with the tension gauge and measure the pressure when the pen tip leaves the bed. Then, input the value indicated by the tension gauge with the [▲] [▼] keys, and press the [ENTER] key to save the setting.



- (End of procedure)

Belt Tension Adjustment

Information

Necessary tools

General tools

No.2 Phillips screwdriver

3.0 mm hexagonal wrench

Special tools

None

Workflow

1. Belt tension adjustment

Typical work time

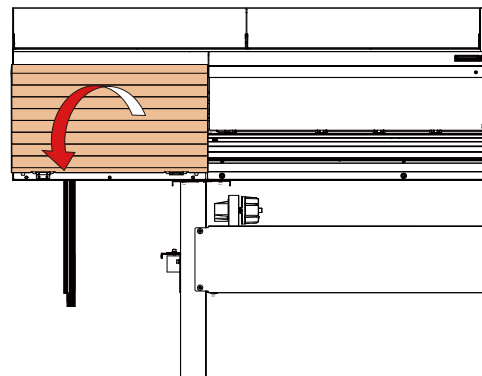
Contents of work	Time
Belt tension adjustment	40 min.

Procedure

CAUTION

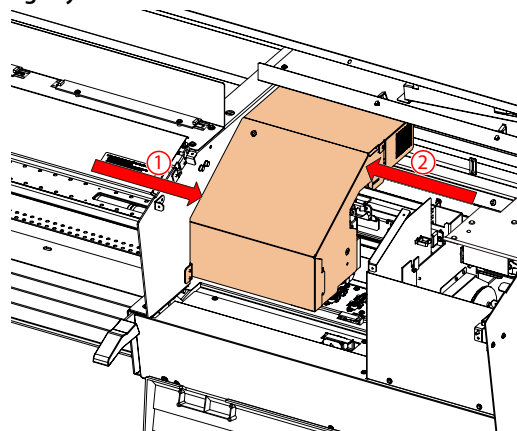
An interlock mechanism ordinarily prevents carriage movement when the printer's cover is opened. To operate the printer with the cover open, press and hold the cover sensor switch.

1. Open the maintenance cover L.



2. Move the head carriage to the lock position.

3. Confirm that the head carriage is locked by pushing it lightly to the left to eliminate looseness.



4. Measure the tension of the belt at the position above the center of the 5th grit roller from the left using the tension gauge (Figure 1). Pull the belt up to the height of the cut-ribbon-cable guide as viewed from the machine front (Figure 2). The tension is correct if the measured value is between 0.80 kgf and 1.0 kgf. If the tension is not correct, move on to the next step and adjust the belt tension.

Figure 1

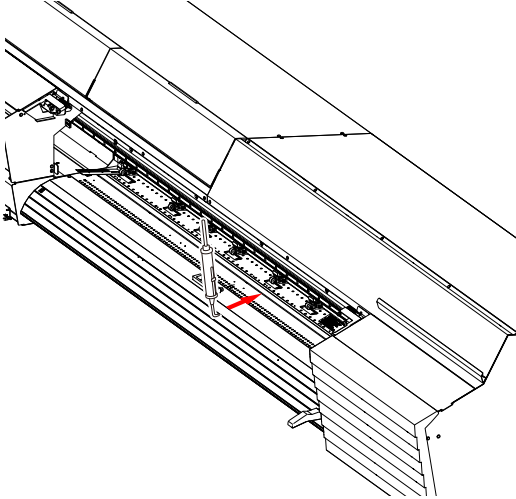
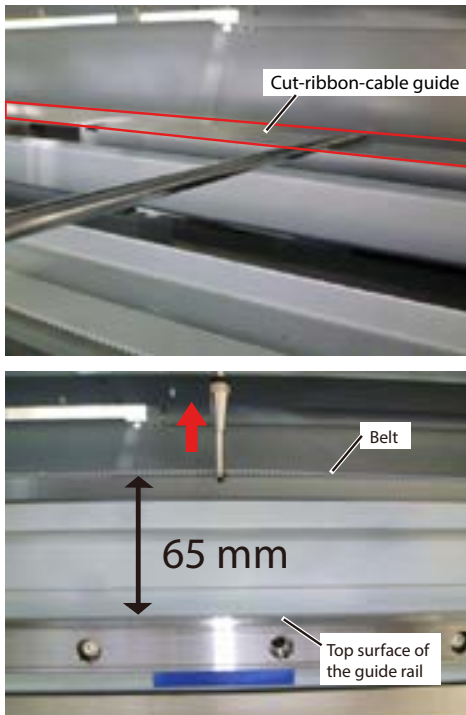


Figure 2



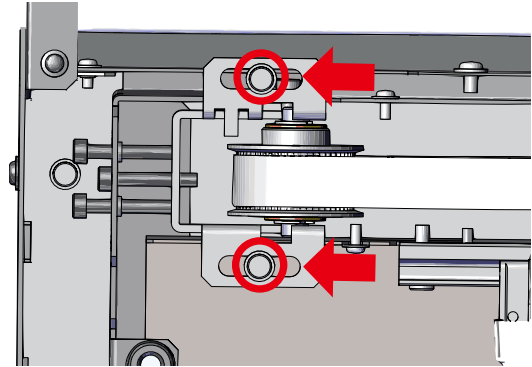
NOTE

If the tension is not correct, move on to step 5.

5. Loosen two fixing screws which are located on the left end of the belt halfway round.

CAUTION

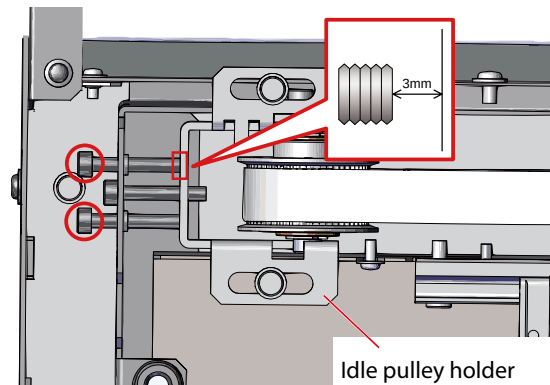
Be careful with the sharp edges around the belt when loosening the screws. It may cause injury.



6. Insert a wrench through the holes on the side frame and loosen two screws to make gap of three millimeters between the tip of the screw and idle pulley holder. (The belt tension cannot be adjusted higher when the screw contacts with idle pulley holder.)

NOTE

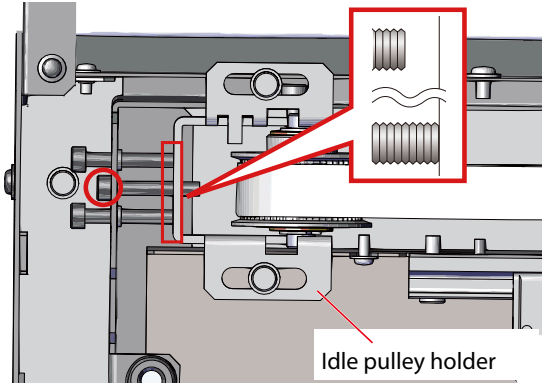
The gap between the screws and idle pulley can be seen from both front side and rear side of the machine.



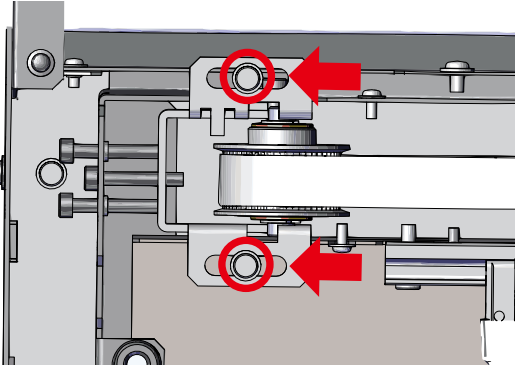
7. Turn the adjustment screw to adjust the value of the tension gauge within acceptable range.

* Turn the screw CW: Tension is increased

* Turn the screw CCW: Tension is decreased



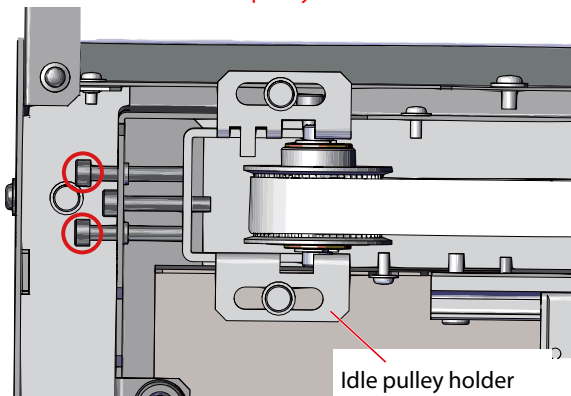
8. Tighten two fixing screws, and again confirm that the tension is within the proper range.



9. Tighten two screws until they slightly touch the idle pulley holder. Refer to Chapter 2 "[Belt Position Adjustment](#)" and adjust the belt position.

CAUTION

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



10. (End of procedure)

Information

Necessary tools

General tools

No.2 Phillips screwdriver

3.0 mm hexagonal wrench

Special tools

None

Workflow

1. Belt position adjustment

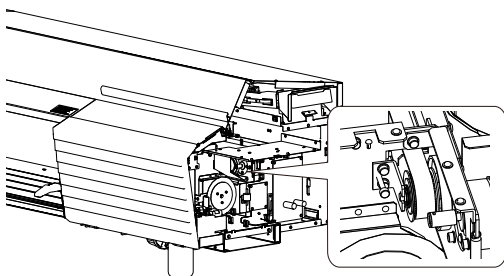
Typical work time

Contents of work	Time
Belt position adjustment	40 min.

Procedure

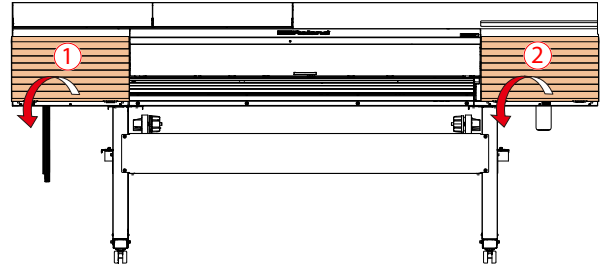
CAUTION

- An interlock mechanism ordinarily prevents carriage movement when the printer's cover is opened. To operate the printer with the cover open, press and hold the cover sensor switch.
- 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.

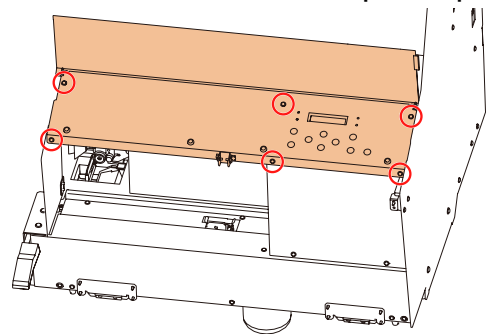


1. Open the maintenance cover L and the maintenance cover R.

1. Maintenance cover L
2. Maintenance cover R

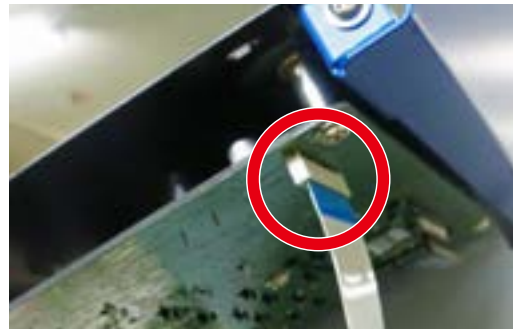


2. Remove six screws that secure the operation panel.



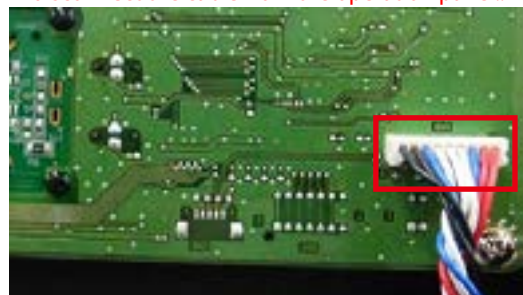
CAUTION

Before removing the operational panel, make sure to disconnect the ribbon cable from the operation panel.

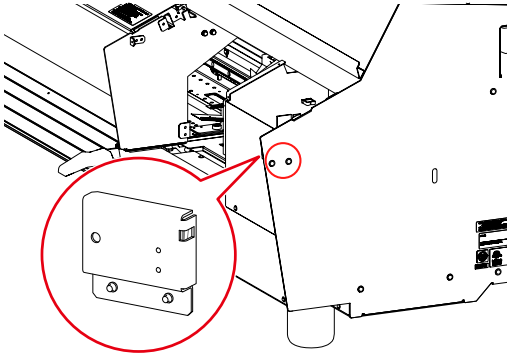


VG-640: Serial No. ADC0100 or later
VG-540: Serial No. LDA0100 or later

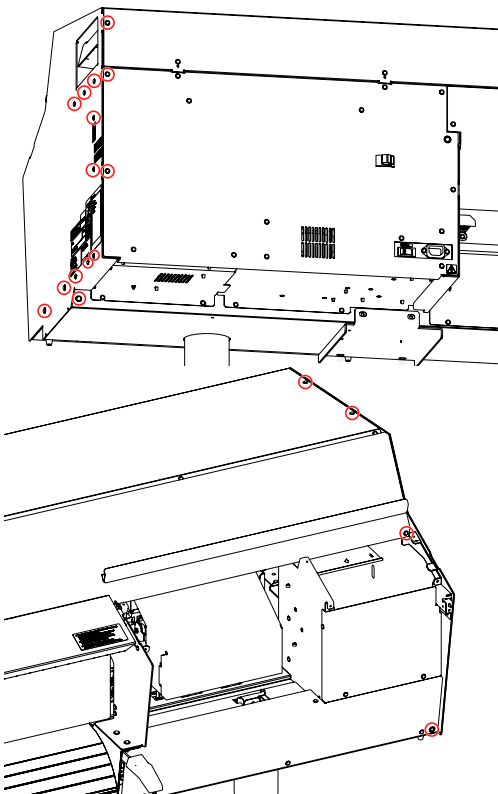
Before removing the operational panel, make sure to disconnect the cable from the operation panel..



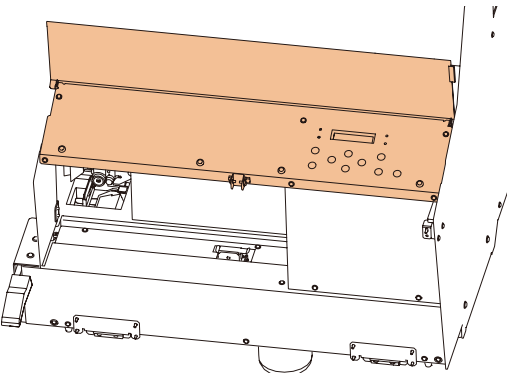
- Remove two screws that secure the maintenance cover sensor R.



- Remove 18 screws that secure the cover.



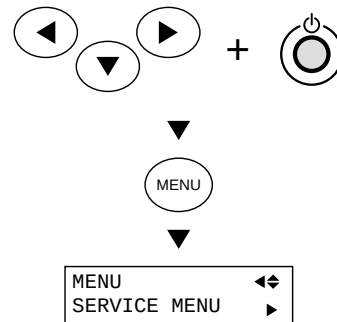
- Tighten one or a couple of screws to temporarily fasten the operation panel.



CAUTION

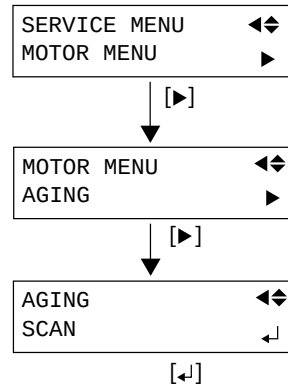
Connect the ribbon cable to the operation panel.

- Turn on the main power SW, and then turn on the sub power SW while pressing [◀] [▼] [▶] keys to enter the service mode.



Adjustment on the Drive Pulley Side

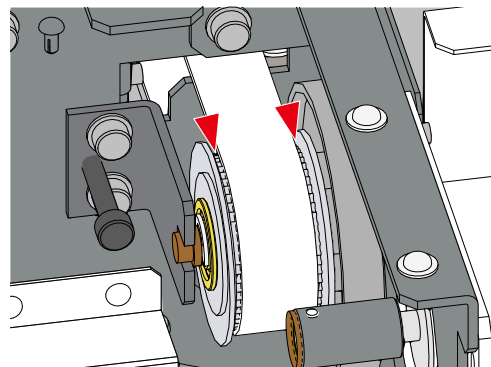
- Perform the aging test for the belt. Select [MOTOR MENU] > [AGING] > [SCAN] and press the [ENTER] key.



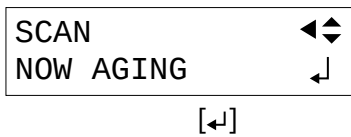
- Check the belt position. Positioning is correct when the belt is not touching the flanges of the drive pulley excessively. When positioning is correct, skip this adjustment and go to Chapter 2 "Adjustment on the Idle Pulley Side" without stopping the aging. When positioning is not correct, perform the following adjustment.

NOTE

Belt partly touching the flange is acceptable.



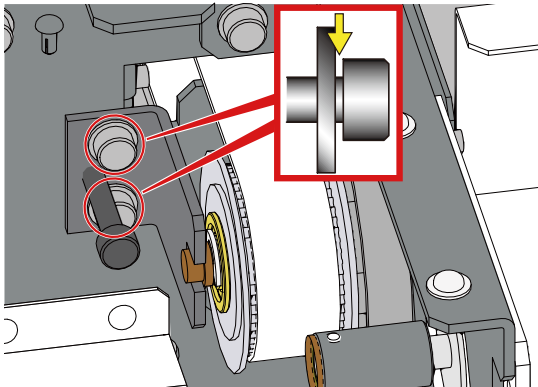
9. Press the [ENTER] key to interrupt aging.



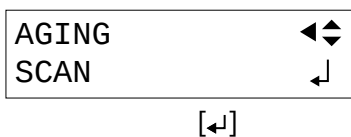
10. Loosen two fixing screws located on the right end of the belt.

CAUTION

Loosen the screws a few turns to make a small gap between the bottom of the screw head and stay.



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



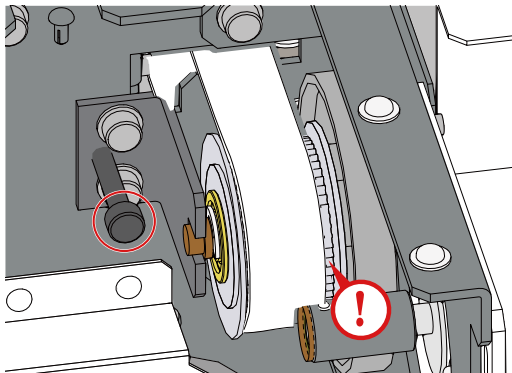
12. Adjust the belt position by turning the adjustment screw as follows.

CAUTION

The work space is narrow. Be careful not to touch the spinning drive pulley and belt.

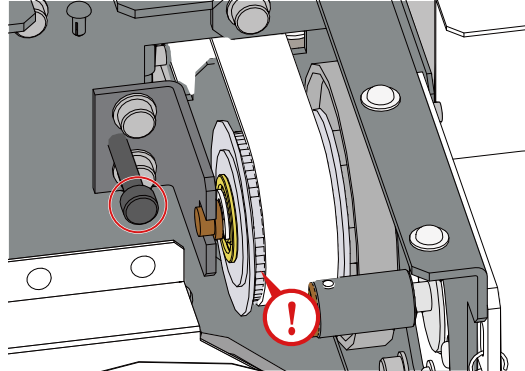
When the belt is shifted toward the front side of the machine:

☞ Turn the screw carefully CW (tightening).



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

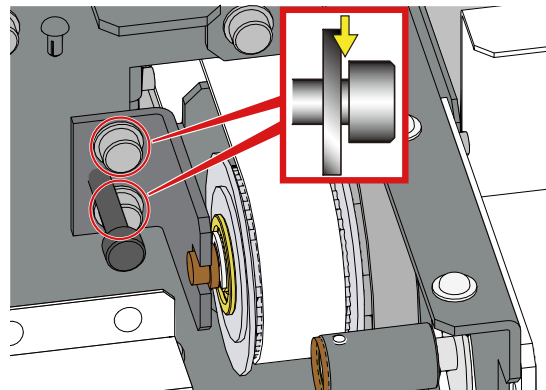
☞ Turn the screw carefully CCW (loosening).



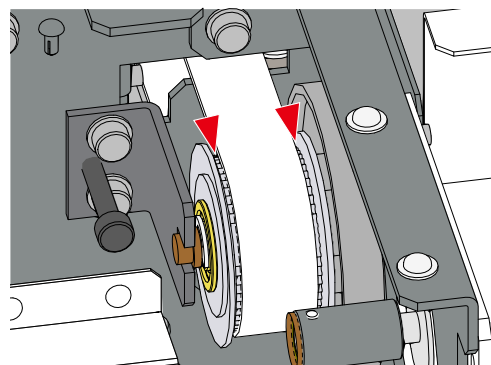
13. Tighten two screws until the bottom of the screw heads slightly touch the stay.

CAUTION

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



14. Confirm that the belt is not touching the pulley flanges excessively. When the belt is improperly positioned, adjust it again. When the belt is properly positioned, leave the belt aging on, and proceed to "Adjustment on the Idle Pulley Side".

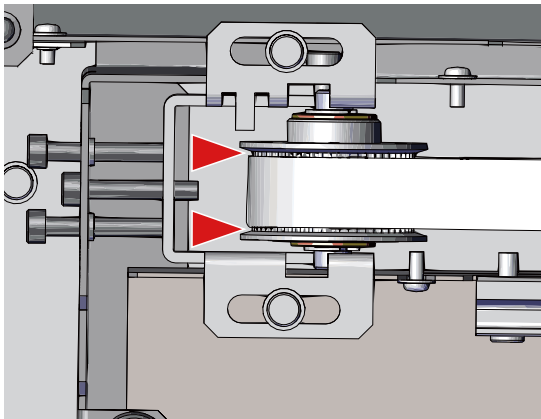


Adjustment on the Idle Pulley Side

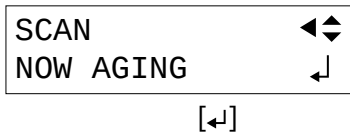
- 15.** Check the position of the belt. Position is correct when the belt is not touching the flanges excessively. When positioning is correct, the adjustment on the idle pulley side is not necessary. So, you may end this belt position adjustment at this point. When positioning is not correct, perform the following adjustment.

NOTE

Belt partly touching the flange is acceptable.



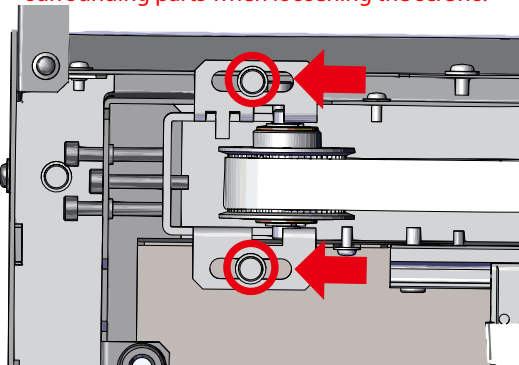
- 16.** Press the [ENTER] key to interrupt aging.



- 17.** Loosen two fixing screws located at the left end of the belt by a quarter turn.

CAUTION

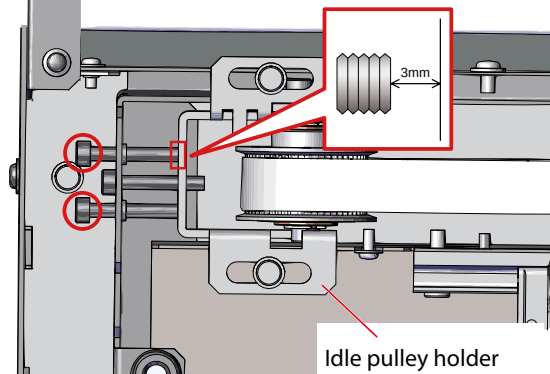
If you loosen the screws too much, it will make it difficult to adjust the belt position. Also, be careful not to scratch your hand with sharp edges of the surrounding parts when loosening the screws.



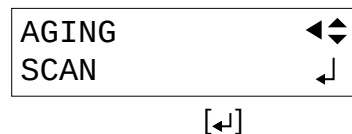
- 18.** Insert a wrench through the holes on the side frame and loosen two screws to make a gap of three millimeters between the tip of the screw and idle pulley holder.

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.



- 19.** Press the [ENTER] key to restart aging.

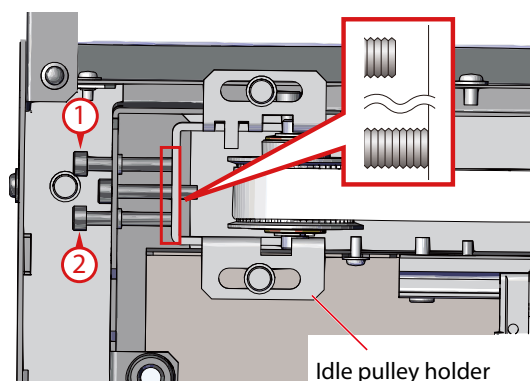


- 20.** Insert a wrench through the holes on the side frame and adjust the belt position by turning screw 1 and 2 as follows.

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

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

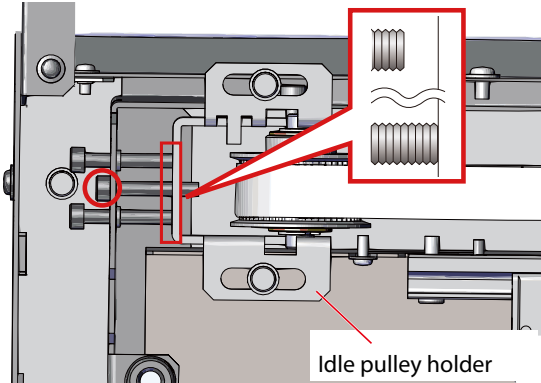
* Make sure that there is a gap of three millimeters between screw 2 and the idle pulley holder when turning screw 1.



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

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

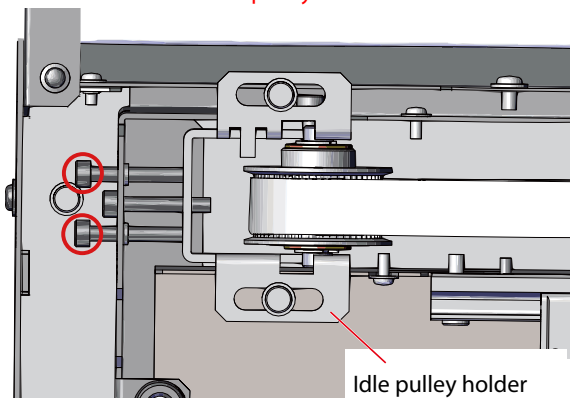
* Make sure that there is a gap of three millimeters between screw 1 and the idle pulley holder when turning screw 2.



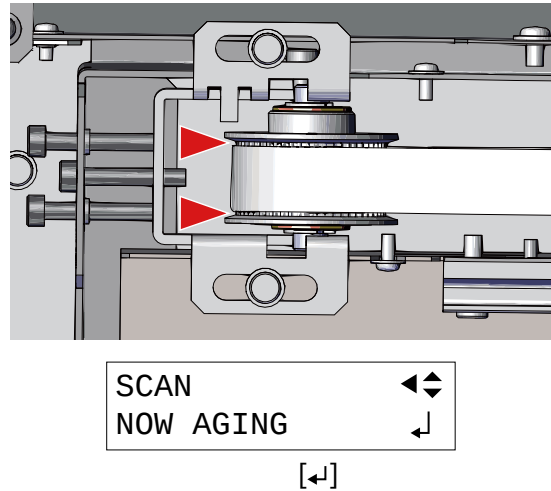
- 21.** Tighten one of the screws that have no contact with the idle pulley holder until the screw slightly touches the idle pulley holder.

CAUTION

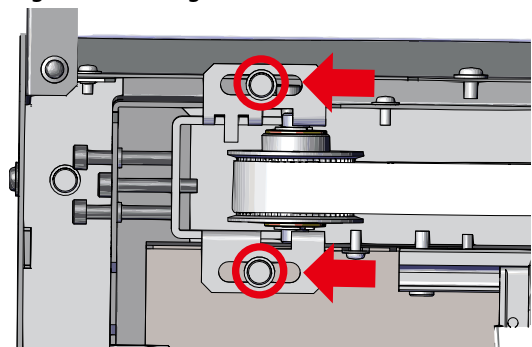
Do not overtighten the screws. Overtightening could move the fixed idle pulley holder.



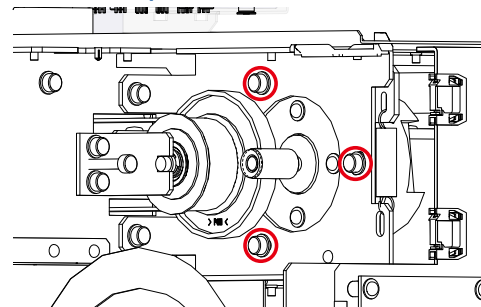
- 22.** Confirm that the belt is not touching the pulley flanges excessively. When the belt is improperly positioned, adjust it again. When positioning is correct, press the [ENTER] key to interrupt aging.



- 23.** Tighten two fixing screws.



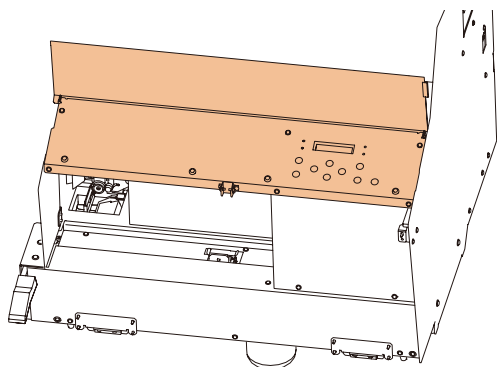
- 24.** When the drive pulley side adjustment has been done, loosen the fixing screw of carriage motor once, and tighten them again while referring to Chapter 1 "[Scan Motor Replacement](#)".



25. Press the [ENTER] key to restart aging. Positioning is correct when the belt is not touching the flanges excessively. When positioning is correct, end this belt position adjustment. When it is not correct, go back to step 17 and re-adjust the belt position.



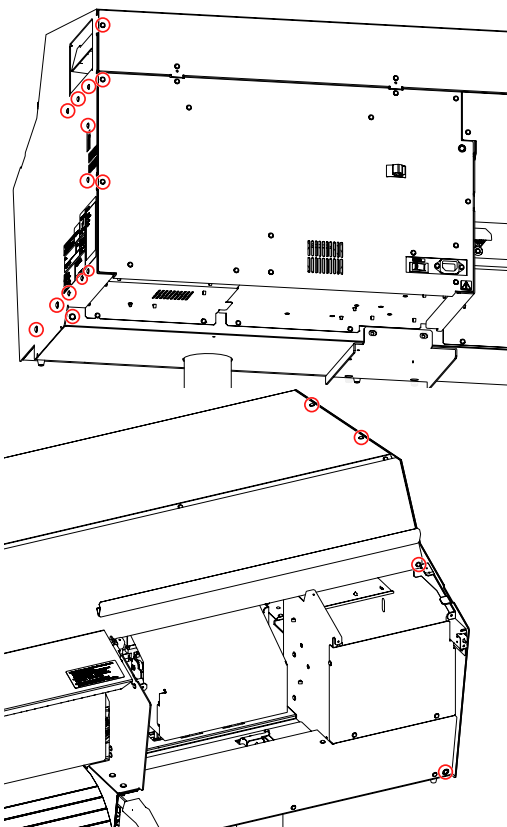
26. Remove the screw(s) that secures the operation panel.



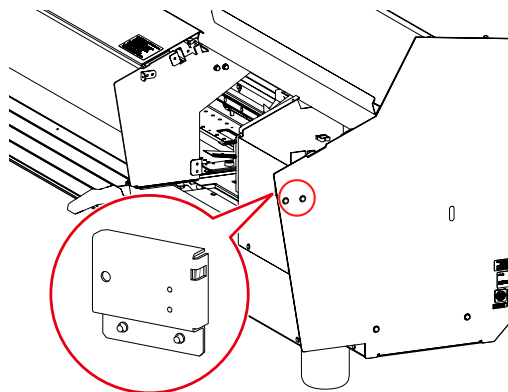
CAUTION

Before removing the operational panel, make sure to disconnect the ribbon cable from the operational panel.

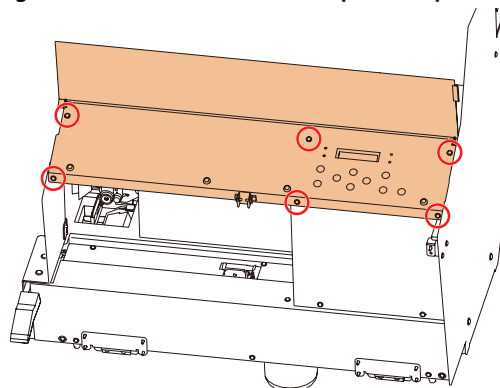
27. Tighten 18 screws to secure the cover.



28. Temporarily fasten the maintenance cover sensor R with two screws.



29. Tighten six screws to secure the operation panel.



CAUTION

- Tighten two screws in the operation panel with holding up to the left, then make 1.5 mm clearance between the frame and the operation panel.

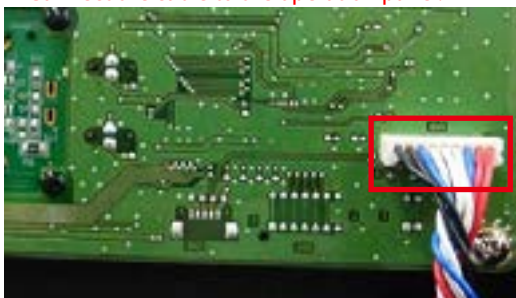


- Connect the ribbon cable to the operation panel.

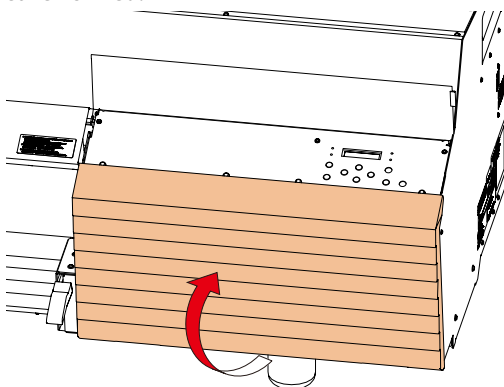


VG-640: Serial No. ADC0100 or later
VG-540: Serial No. LDA0100 or later

Connect the cable to the operation panel.



30. Close the maintenance cover R and confirm that the cover is fixed.

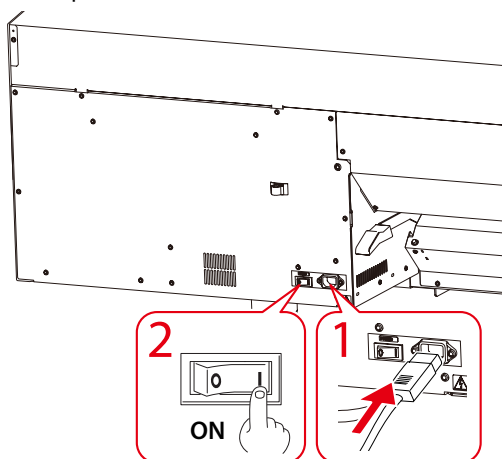


CAUTION

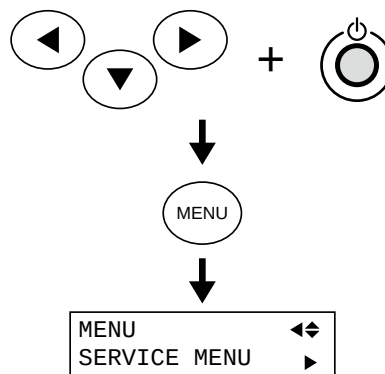
If the cover is not fixed, then maintenance sensor R does not work properly. Widen the clearance between the operation panel and the frame if the cover is not fixed by shaking the right and left ends of the cover back and forth with your hands.

31. Plug in the power cord, and turn on the main power SW.

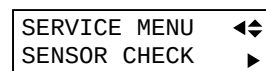
1. Power cord
2. Main power SW



32. Turn on the sub power SW while pressing the [◀] [▼] [▶] keys to enter the service mode.

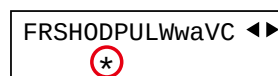


33. Select [SERVICE MENU] > [SENSOR CHECK].

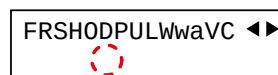


34. Slide the maintenance cover sensor R to the front until " * " under "D" disappears. Then, tighten two screws to secure the sensor.

When the cover is open



When the cover is closed



35. (End of procedure)

Wiper Position Adjustment

Information

Necessary tools

General tools

None

Special tools

None

Workflow

1. Wiper position adjustment

Typical work time

Contents of work	Time
Wiper position adjustment	3 min

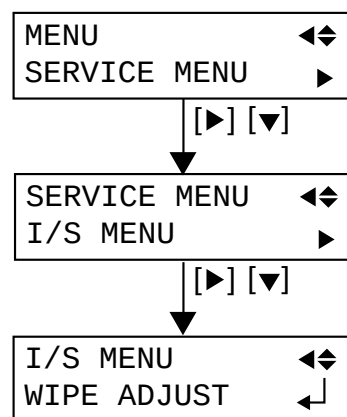
Procedure

Set the reference position for wiping.

CAUTION

- An interlock mechanism ordinarily prevents carriage movement when the printer's cover is opened. To operate the printer with the front cover open, press and hold the sensor switch.

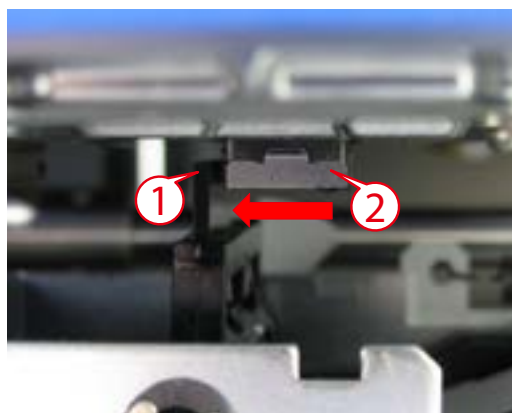
1. Turn on the sub power SW while pressing the [◀] [▼] [▶] keys to enter the service menu. Select [I/S MENU] > [WIPE ADJUST].



2. Move the print carriage with [◀] [▶] keys so that the edge of the wiper touches the left side of the print head straight. Press the [ENTER] key to set the reference position for the wiper.

1. Wiper

2. Print head



3. (End of procedure)

Information

Necessary tools

General tool

SP-M (Matte-PET artificial paper)

Special tools

None

Workflow

1. Feed calibration

Typical work time

Contents of work	Time
Feed calibration	15 min

Procedure

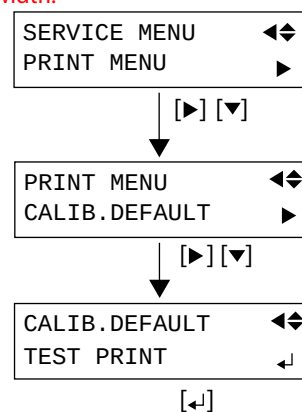
CAUTION

- This adjustment is for calibrating the feed amount of media. It allows the media to be fed in proper amount by calibrating the variation in grit roller diameter. Calibration is made based on the value in feeding media [SP-M]. Without proper calibration, it may cause misalignment in the feed amount of media, and it results in the problems such as white banding, banding of overlap or the dimension error of print result compared to the original data.
- When you don't have SP-M, use PET film for solvents.
- Take-up unit must not be used during this adjustment.

1. Turn on the sub power SW while pressing the [◀] [▼] [▶] keys to enter the service menu. Set up SP-M on the printer.
2. Select [PRINT MENU] > [CALIB.DEFAULT] > [TEST PRINT], and press the [ENTER] key.

CAUTION

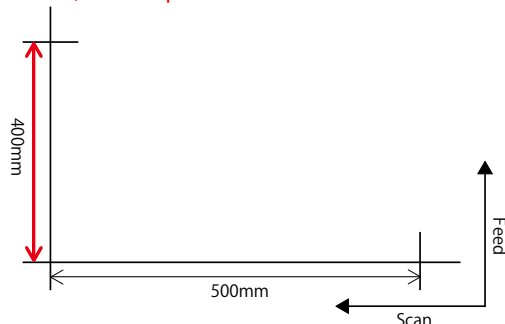
Test print requires 510 mm or more of the media setup width.



3. Measure the length of the feed direction and use the value to calculate the correction value with the formula shown at step 4.

CAUTION

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.



4. Calculate the correction value with the formula.

$$\text{Correction value} = \frac{400 - \text{Measured value}}{\text{Measured value}} \times 100$$

Example)

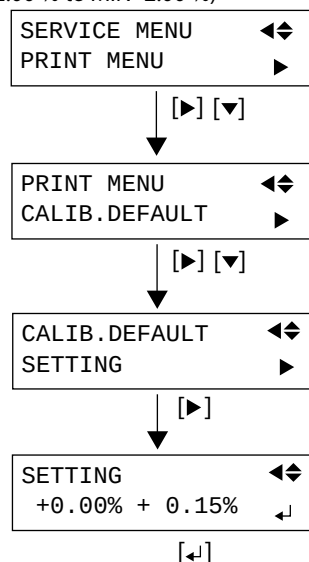
$$1.27 = \frac{400 - 395}{395} \times 100$$

5. Select [PRINT MENU] > [CALIB.DEFAULT] > [SETTING], and enter the correction value with the [▲] [▼] keys. 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 %)



Chapter 3 Electrical Parts

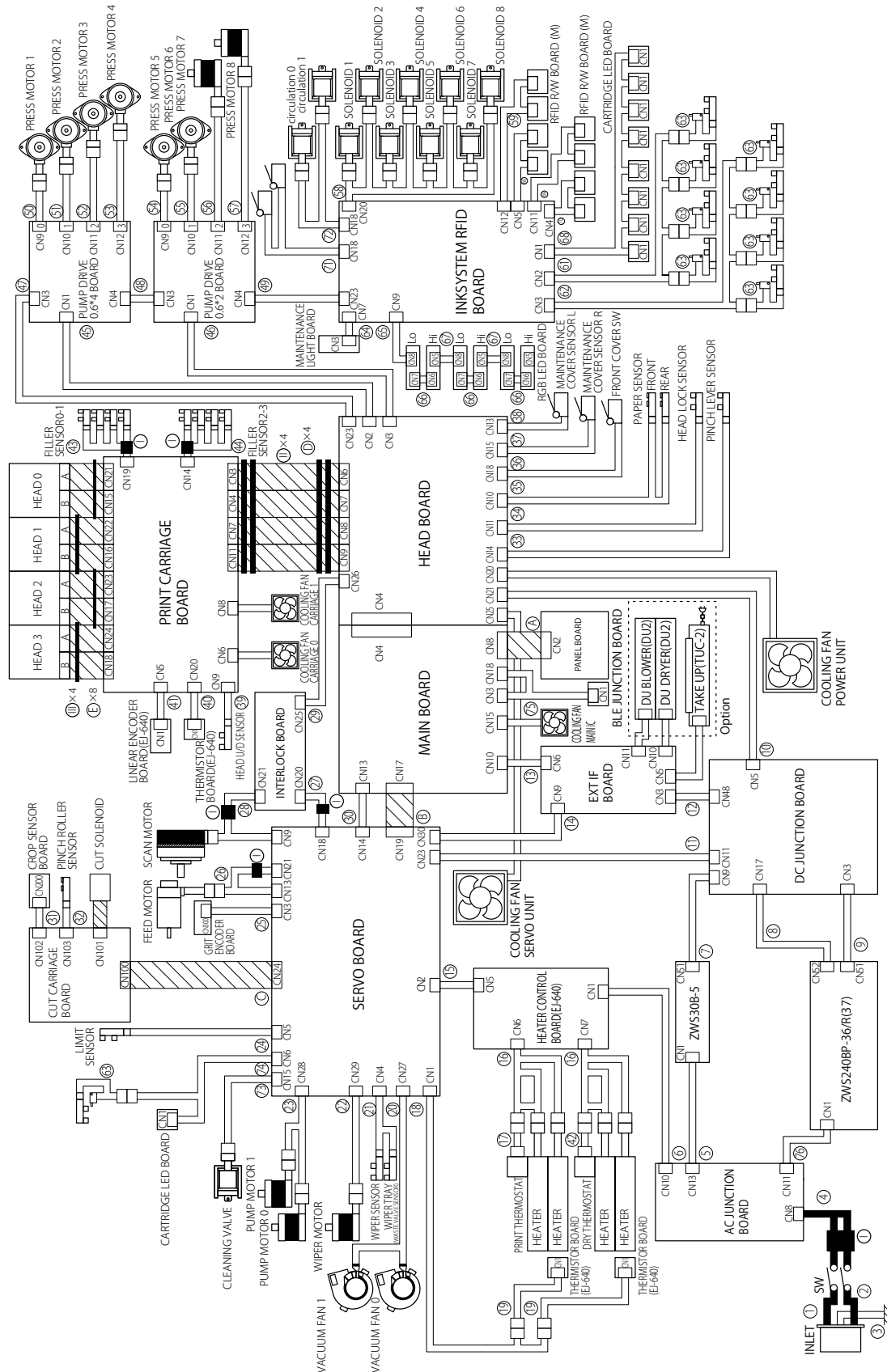
VG-640: Serial No. ZCK0100 or later/
 VG-540: Serial No. K***/Z***

VG-640 Wiring Map	3-2
VG-540 Wiring Map	3-3
Main Board	3-4
Arrangement Diagram (Component Side) ...	3-4
Servo Board	3-5
Arrangement Diagram (Component Side) ...	3-5
Print Carriage Board	3-6
Arrangement Diagram (Component Side) ...	3-6

Service parts

For detailed information on the cables shown below, refer to Parts Finder Web.

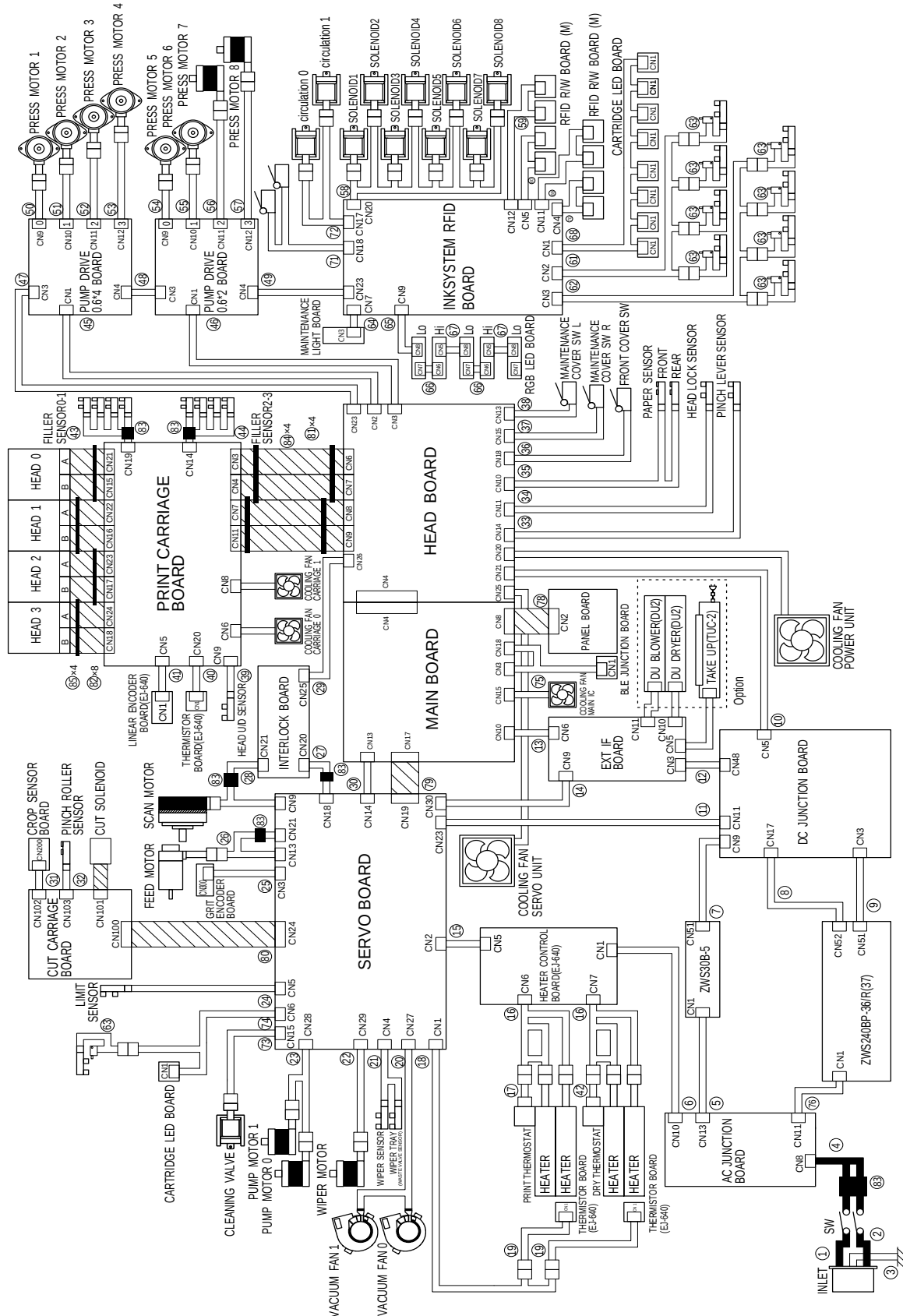
<https://365rolanddg.sharepoint.com/sites/extranet/Work-SitePages/GSV-PartsFinder.aspx>



Service parts

For detailed information on the cables shown below, refer to Parts Finder Web.

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

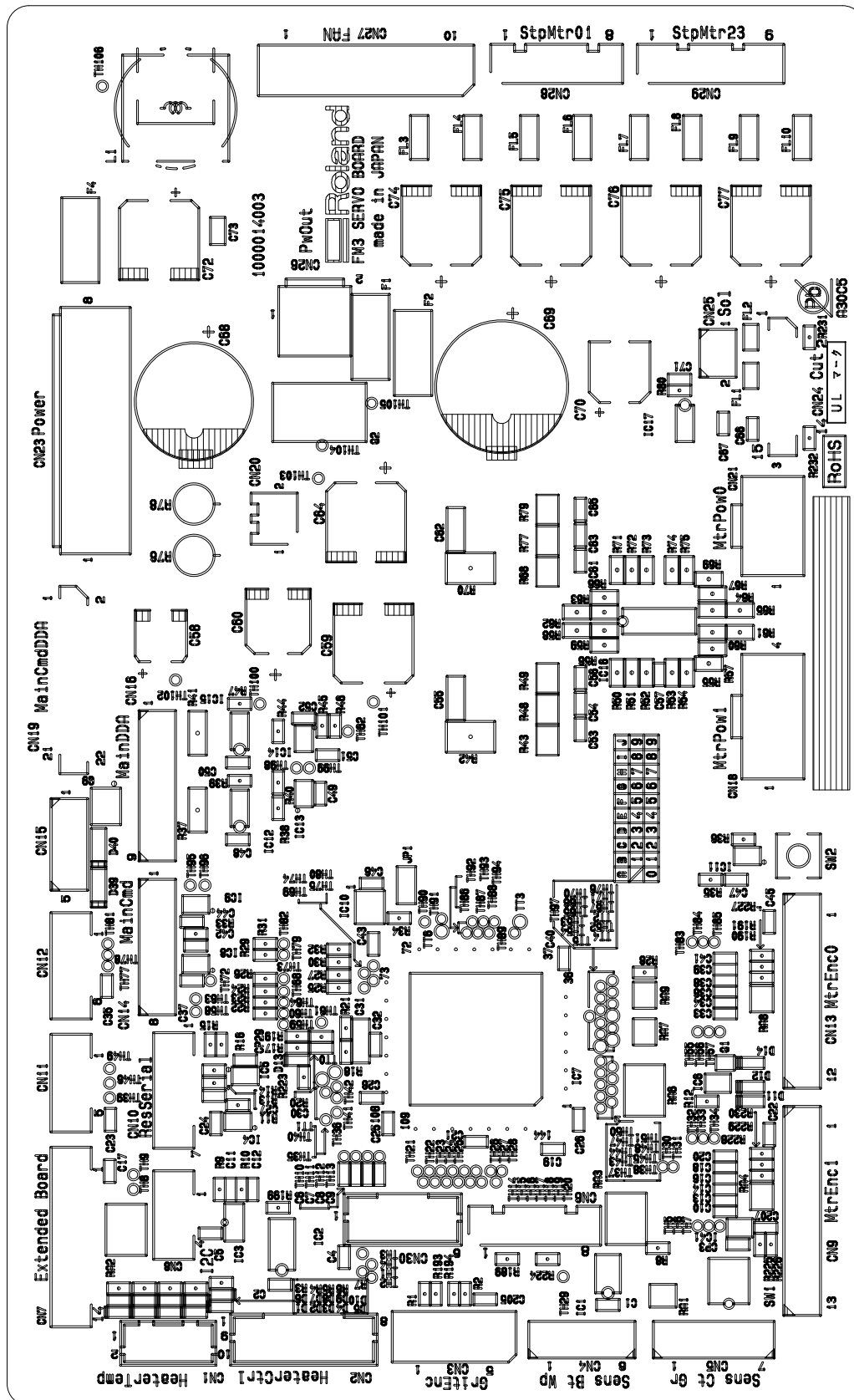


Arrangement Diagram (Component Side)

It indicates the version of the board.

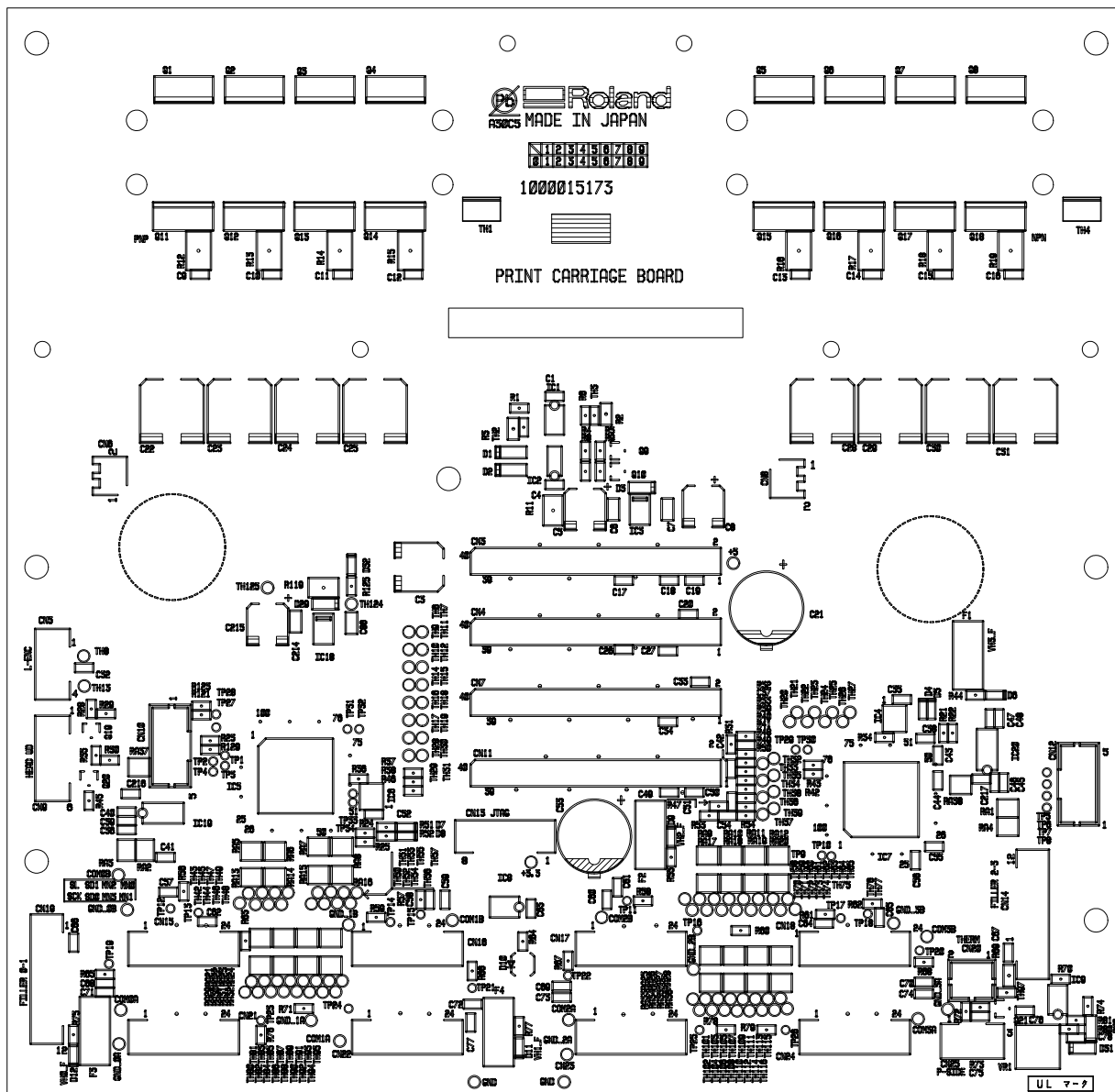


Arrangement Diagram (Component Side)



Print Carriage Board

Arrangement Diagram (Component Side)





Chapter 3 Electrical Parts

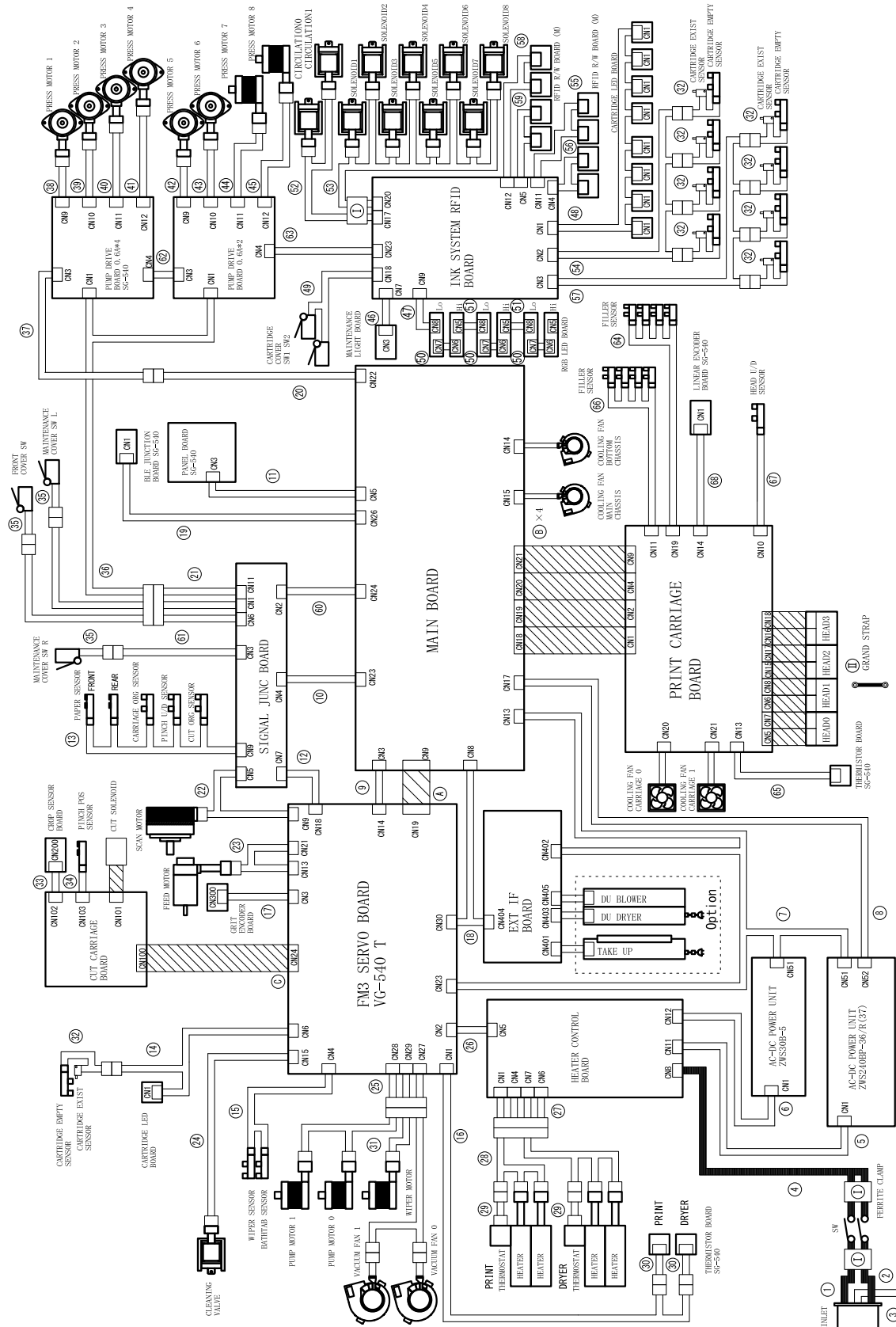
VG-640: ADC0100 or later/VG-540: LDA0100 or later

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Service parts

For detailed information on the cables shown below, refer to Parts Finder Web.

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

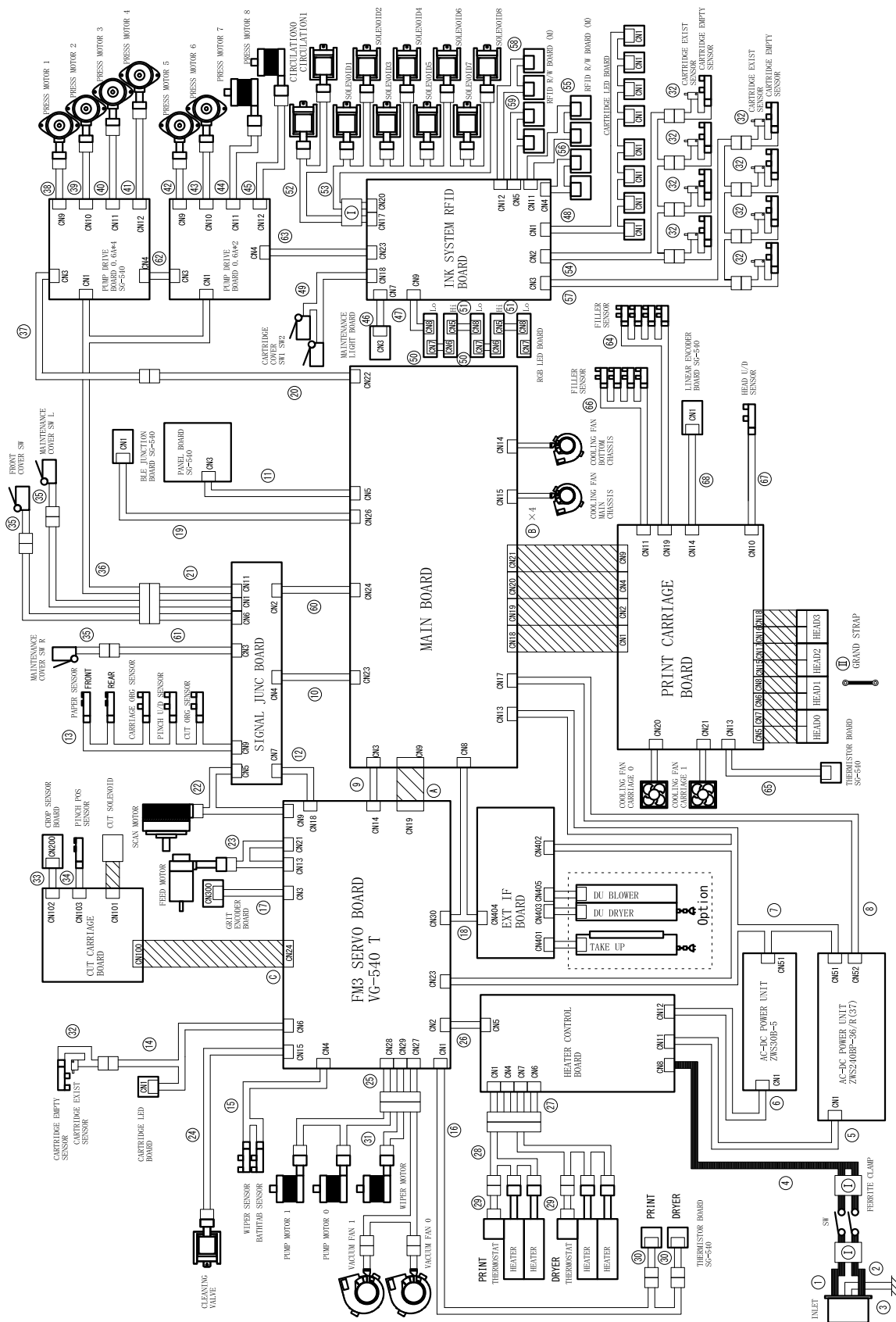


VG-540 Wiring Map

Service parts

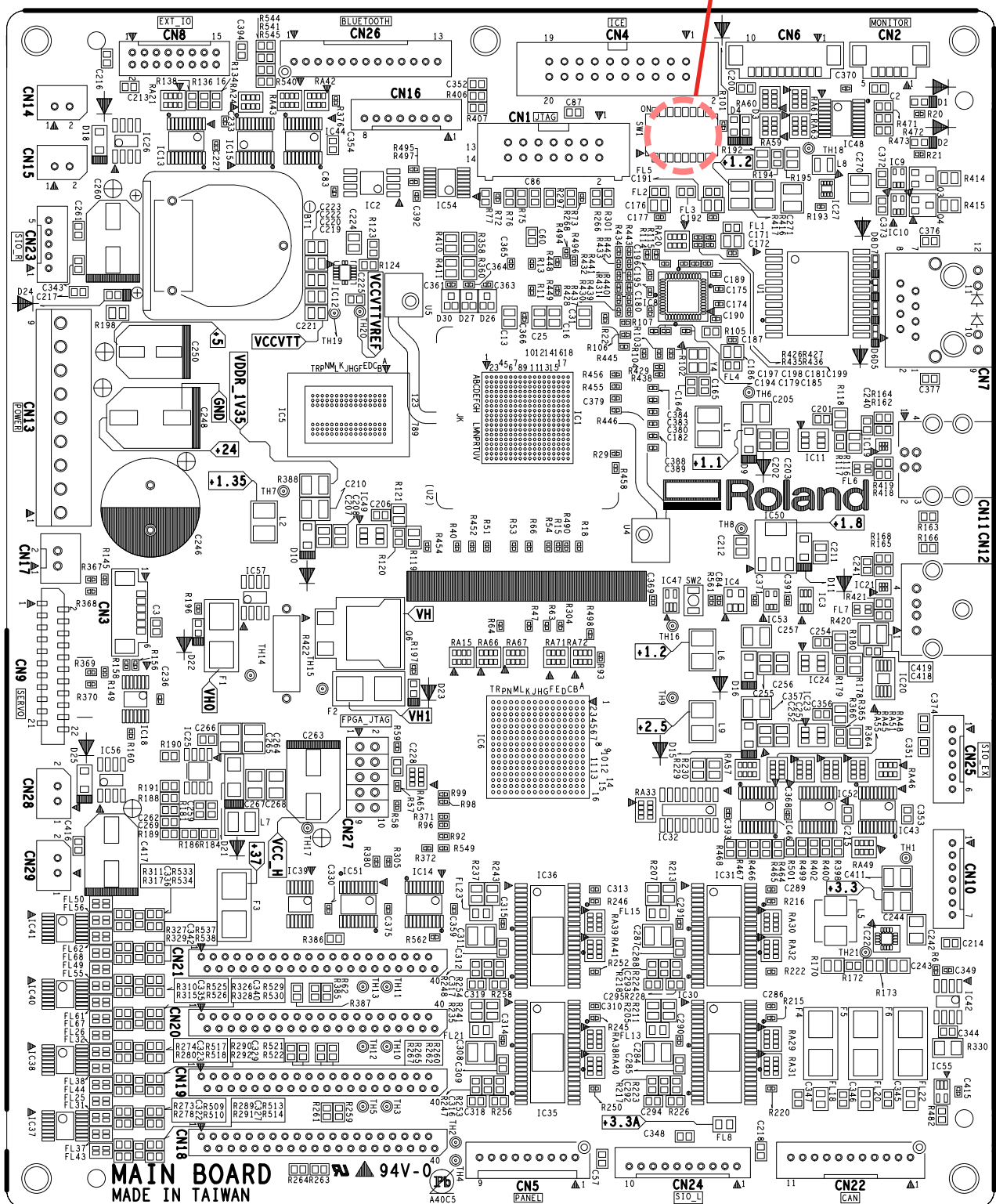
For detailed information on the cables shown below, refer to Parts Finder Web.

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



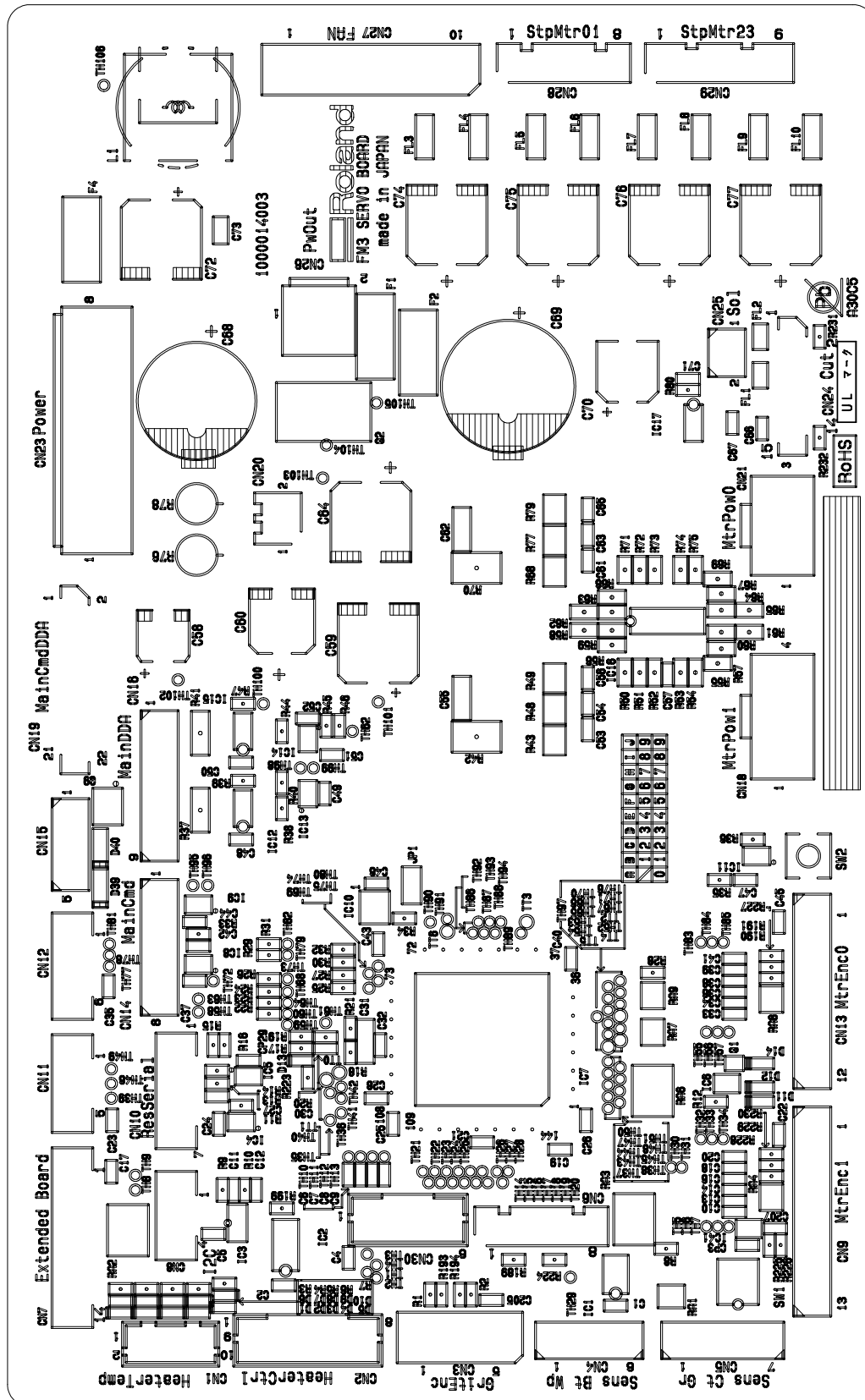
Arrangement Diagram (Component Side)

DIP SW	Bit 1	Bit 2	Bit 3	Bit 4	Bit 5	Bit 6	Bit 7	Bit 8
	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF



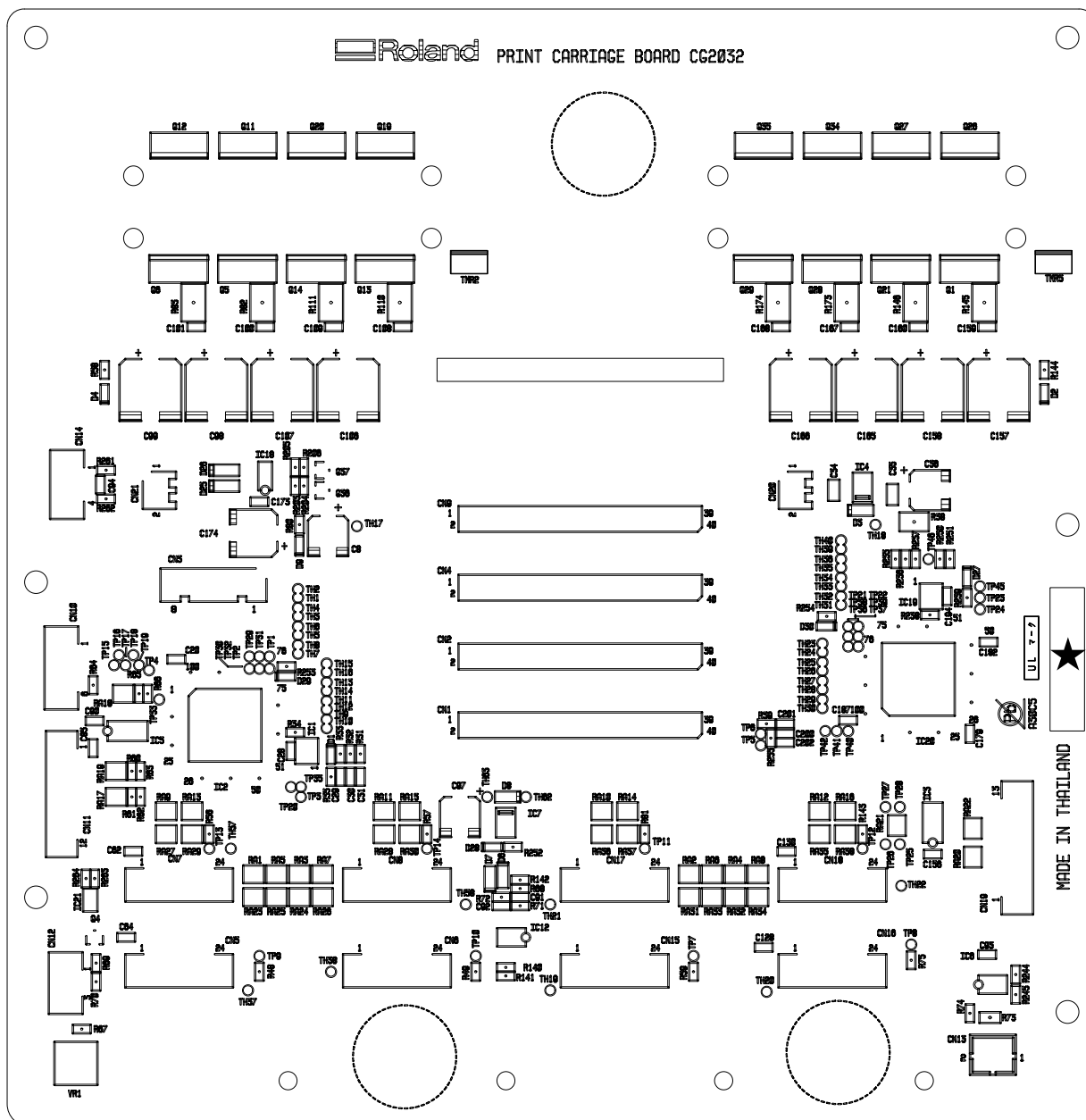
Servo Board

Arrangement Diagram (Component Side)



Print Carriage Board

Arrangement Diagram (Component Side)



Chapter 4 Supplemental Information

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Error Description

SCAN MOTOR ERROR
CODE : 0000 0000

*Current error Initial error

* If different errors occur in order, their codes are added up.
ex) 0022 is displayed, if 0002 (FEED motor error) and 0020 (SCAN motor error) occur in order.

Code	Meaning	Cause
0001	Feed motor deviation error (The directive from the CPU does not match the feedback of the feed motor.)	1. Remove causes of media jams.
0002	Feed motor overcurrent error 1 (Extremely large instantaneous load is placed on motor movement.)	2. Use appropriate media. *When the machine is feeding hard-to-unroll or heavy media with a basis weight greater than 30 kg, excess load is applied, resulting in the motor error.
0004	Feed motor overcurrent error 1 (Large load is placed on motor movement for a short time.)	3. Clean the scan motor and the drive gear. *The motor error occurs when dirt is on the part where the scan motor and the drive gear mesh together.
0008	Feed motor overcurrent error 2 (Small load is placed on motor movement for a long time.)	4. Replace the motor. *When the motor is broken or worn out, the motor cannot follow the directives from CPU, resulting in the motor error.
0010	Scan motor deviation error (The directive from the CPU does not match the feedback of the scan motor.)	5. Replace the servo board. *When the motor driver is broken, the power supply voltage for the motor is not supplied, and the motor cannot move. This will lead to the motor error.
0020	Scan motor overcurrent error 1 (Extremely large instantaneous load is placed on motor movement.)	6. Replace the SW power supply. *When the power supply voltage for a motor is not supplied, the motor cannot move and it results in a motor error.
0040	Scan motor overcurrent error 1 (Large load is placed on motor movement for a short time.)	
0080	Scan motor overcurrent error 2 (Small load is placed on motor movement for a long time.)	
0100	Feed motor position error	
1000	Scan motor position error	This error occurs when you move the head carriage by hand with the front cover open.

VG-640: Serial No. ZCK0100 or later/VG-540: K*** /Z***

Code	Error name	Contents	Possible causes	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	- Disorder of communication with the sub CPU - This occurs when the Sub CPU is not detected after turning on the machine.	- The servo board does not work correctly. - Sub CPU does not work correctly. - There is a bad connection between the main board and servo board. - Noise in signal	- Check the cable connection between main board and servo board. - Check other cable connections of servo board. - Replace the servo board. - Replace the main board. - Replace the ribbon cable.
0003	DIP switch setting error	The DIP switch setting is inappropriate.	- DIP switch setting error - Defective DIP switch - Main board defective	- Check the DIP switch setting on the main board. - Replace the main board.
0008	Communication error	There is a problem with synchronizing serial communication to the sub CPU.	- The servo board does not work correctly. - Sub CPU does not work correctly. - There is a bad connection between the main board and servo board. - Noise in signal	- Check the cable connection between main board and servo board. - Check other cable connections of servo board. - Replace the servo board. - Replace the main board. - Replace the ribbon cable.
0011	Memory error	Memory error	Breakdown of memory	Replace the main board.
0012	Power voltage error	The power voltage does not achieve 41V at the time of turning the secondary power on.	- Defect of switching power supply - Defect of the cable connection between switching power supply and main board	- Switching power supply replacement - Check the cable connection between switching power supply and main board.
0013	Initialization error	Initialization has not been performed.	Initialization has not been performed.	Initialize all the parameters.
0101	Limit position initialize error	Limit position initialize in the service mode has not been done.	Limit position initialize has not been done or ended before it is completed.	Complete limit position initialize correctly.
0102	Head lock sensor error	Head lock sensor does not work correctly.	Head lock sensor is not working properly or broken.	- Replace the limit sensor. - Check the backlash and looseness.
0103	Limit sensor error	Limit sensor does not work properly.	Limit sensor is not working properly or is defective.	Initialize all the parameters.
0105	Carriage attaching error	The cut carriage and the head carriage are not attached properly.	- The joint parts of the carriages are defective. - Carriages are distorted. - Limit position adjustment was not performed properly. - Defective sensor	- Check if the carriages are distorted or loose. - Replace the joint part. - Adjust the limit position.
0106	Carriage detaching error	The cut carriage and the head carriage did not detach properly.	- The joint parts of the carriages are defective. - Carriages are distorted. - Limit position adjustment was not performed properly. - Defective sensor	- Check if the carriages are distorted or loose. - Replace the joint part. - Adjust the limit position.
0109	Wiper unit error	The wiper unit does not work correctly.	- The wiper unit hits the head carriage. - Wiper motor error - Defect of the wiper unit - Defect of the wiper sensor - Cut-line or short-circuit of cables and the ribbon cable	- Move the head carriage and confirm that the wiper unit does not hit the head carriage. Replace the wiper motor. - Replace the wiper unit. - Replace the wiper sensor. - Replace cables and the flexible cable.

Code	Error name	Contents	Possible causes	Action (You do not have to perform everything listed below. Sometimes performing just one or some of the following can solve the problem.)
0110	Linear encoder error	- Input value from the linear encoder is not changed by the linear encoder origin setup. - When the motor stops during printing, expected movement is not completed on the print head.	- Read error of the linear encoder. - Read error of the encoder on the scan motor side. - The belt is not attached to the head carriage firmly.	- Confirm whether the encoder scale is in the slit of the encoder sensor in a whole width of the machine. - Check the cable connection between the carriage board and linear encoder board. - Check the connection between the belt and head carriage. - Replace the linear encoder. - Replace the scan motor. - Replace the main board.
 0111	The position of the tool crop sensor is not properly adjusted.	You performed crop-cut adjustment before performing [CROP-CUT ADJ.] > [SETTING].	You have not performed [CROP-CUT ADJ.] > [SETTING].	Perform [SERVICE MENU] > [CROP-CUT ADJ.].
0112	RFID communication error	Communication error with the RFID R/W board	- RFID R/W board is broken. - RFID R/W board and ink system board cables have short circuited or cut-line.	- Check the cable connection between RFID R/W board and ink system board. - Replace the ink system board. - Replace the RFID R/W board.
0130	Thermistor error (Print heater)	There is a problem with the thermistor for print heater	- Thermistor has a problem. - Thermistor cable has short circuited or cutline.	- Check cable connection around thermistor. - Replace the thermistor.
0135	Heater error (Print heater)	Heater temperature has reached 60 °C and above.	- The heater cable connection has a problem. - The thermostat has a problem. - The thermistor has a problem.	- Check the heater. - Check the thermostat. - Check the thermistor.
0140	Thermistor error (Dryer)	There is a problem with the thermistor for dryer.	- Thermistor has a problem. - Thermistor cable has short circuited or cutline.	- Check the cable connection . - Replace the thermistor.
0145	Heater error (Dryer)	Heater temperature has reached 65 °C and above.	- The heater cable connection has a problem. - The thermostat has a problem. - The thermistor has a problem.	- Check the heater. - Check the thermostat. - Check the thermistor.
0146	Heater error (Option dryer)	Option heater temperature has reached 70 °C and above.	- Option dryer cable connection has a problem. - Thermostat has a problem. - Thermistor has a problem.	- Check option dryer. - Check thermostat. - Check thermistor
0250	Head device error	Head device has detected a problem.	Blowout of the fuse in the head board	Replace the fuse in the head board.
0300	Head board error	There is a bad connection with sub CPU on head board.	- Sub CPU does not work correctly. - There is a bad connection between the main board and the servo board. - Noise in signal	- Replace the head board. - Check the followings cable connection. - Between the main board and the head board - Between the head board and the pump drive board - Between the pump drive board and the maintenance board - Between the maintenance board and the ink system board
0305	Print carriage board error	AMP thermistor on the print carriage board detected high temperature.	- The connectors of the print carriage fan are unplugged. - AMP thermistor is defective.	- Check that the connectors of the print carriage board are plugged in completely. - Replace the print carriage board.
0315	Pump drive board error	There is a bad connection with the sub CPU on pump drive board.	- Sub CPU does not work correctly. - There is a bad connection between the main board and pump drive board. - Noise in signal	- Replace the pump board. - Check the followings cable connection. - Between the main board and the head board - Between the head board and the pump drive board - Between the pump drive board and the ink system board

Code	Error name	Contents	Possible causes	Action (You do not have to perform everything listed below. Sometimes performing just one or some of the following can solve the problem.)
0320	Ink system board error	There is a bad connection with sub CPU on ink system board.	- Sub CPU does not work correctly. - There is a bad connection between the ink system and the servo board. - Noise in signal	- Replace the ink system board. - Check the followings cable connection. - Between the main board and the head board - Between the head board and the pump drive board - Between the pump drive board and the ink system board
0360	Servo motor A/D read error	The amount of load placed on the servo motor cannot be read correctly.	- The connector of the servo motor is plugged in incompletely. - Servo board defective	- Replace the servo board. - Check the cable connection of the servo motor and the servo board.
0361	Servo motor hall sensor error	Hall sensor of the scan motor is defective.	- A signal from the hall sensor cannot be read properly. - Scan motor defective	- Replace the servo board. - Check the cable connection of the servo motor and the servo board. - Replace the scan motor.
0370	Cut solenoid A/D read error	The amount of load placed on the cut solenoid cannot be read correctly.	- The connector of the cut solenoid is plugged in incompletely. - Servo board defective	- Replace the servo board. - Check the cable connection of the cut solenoid and the servo board.
0371	Cut solenoid load error	Large load is placed on solenoid.	- The connector of the cut solenoid is plugged incompletely. - Servo board defective	- Replace the servo board. - Check the cable connection of the cut solenoid and the servo board.
0372	Cut solenoid driver IC error	Cut solenoid driver IC is defective.	Driver IC of the cut solenoid is defective.	Replace the servo board.
 0380	Pressure pump time out	- Even though the damper is now filled with ink, the filler sensor is still detecting the filler. - The filler sensor cannot detect how much ink is being supplied from the pressure pump to the damper. - Although the pressure pump has rotated certain times, ink is not supplied to the damper. Or, the damper is filled with ink, but the filler sensor cannot detect it because the filler does not open. - Nozzle line code is displayed on LCD (nozzle line code indicates which nozzle the error occurred to).	- Filler sensor is defective. - Connector of the filler sensor is defective. - Pressure motor and pump are defective. - Connector of the pressure motor is defective. - Some cables are making contact with the filler, preventing it from operating properly. - The spring on the rear side of the filler has popped out. - Two tubes are swapped and inserted incorrectly to the print head.	- Replace the filler sensor or check the cable connection of the sensor. - Check the cable connection of the pressure pump motor. - Replace the pressure pump. - Check the tube layout from the ink cartridge to the print head. - Ink lines with problems are shown in the event log.
 0400[****]	Pump suction error	- Even though the damper is empty, the filler does not hit the filler sensor. - Ink in the damper cannot be discharged properly during cleaning or flushing operations. - Signals from the filler sensor cannot be received correctly during pump up (e.g. cleaning). - Nozzle line code is displayed on LCD (nozzle line code indicates which nozzle the error occurred to).	- Cap is not installed properly. - Cap is broken. - Print head is broken. - Some cables are making contact with the filler, preventing it from operating properly. - The spring on the rear side of the filler has popped out.	- Readjust the cap position or replace the cap. - Replace the print head.
0400 (no information on ink line)	Pump suction error during ink circulation	- Even though the damper is empty, the filler does not hit the filler sensor. - Ink in the damper cannot be discharged properly during cleaning or flushing operations. - Signals from the filler sensor cannot be received correctly during pump up (e.g. cleaning).	- Cap is not installed properly. - Cap is broken. - Print head is broken. - Some cables are making contact with the filler, preventing it from operating properly. - The spring on the rear side of the filler has popped out. (Ink line including ink circulation line)	- Readjust the cap position or replace the cap. - Replace the print head. (Ink line including ink circulation line)

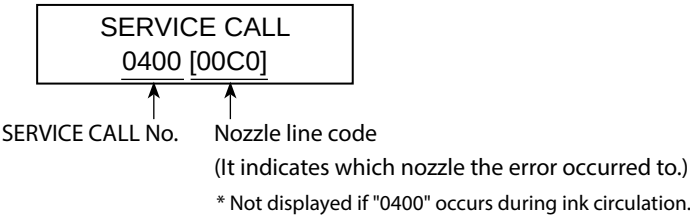
VG-640: Serial No. ADC0100 or later/VG-540: Serial No. LDA0100 or later

Code	Error name	Contents	Possible causes	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	- Disorder of communication with the sub CPU - This occurs when the Sub CPU is not detected after turning on the machine.	- The servo board does not work correctly. - Sub CPU does not work correctly. - There is a bad connection between the main board and servo board. - Noise in signal	- Check the cable connection between main board and servo board. - Check other cable connections of servo board. - Replace the servo board. - Replace the main board. - Replace the ribbon cable.
0003	DIP switch setting error	The DIP switch setting is inappropriate.	- DIP switch setting error - Defective DIP switch - Main board defective	- Check the DIP switch setting on the main board. - Replace the main board.
0008	Communication error	There is a problem with synchronizing serial communication to the sub CPU.	- The servo board does not work correctly. - Sub CPU does not work correctly. - There is a bad connection between the main board and servo board. - Noise in signal	- Check the cable connection between main board and servo board. - Check other cable connections of servo board. - Replace the servo board. - Replace the main board. - Replace the ribbon cable.
0011	Memory error	Memory error	Breakdown of memory	Replace the main board.
0012	Power voltage error	The power voltage does not achieve 41V at the time of turning the secondary power on.	- Defect of switching power supply - Defect of the cable connection between switching power supply and main board	- Switching power supply replacement - Check the cable connection between switching power supply and main board.
0013	Initialization error	Initialization has not been performed.	Initialization has not been performed.	Initialize all the parameters.
0101	Limit position initialize error	Limit position initialize in the service mode has not been done.	Limit position initialize has not been done or ended before it is completed.	Complete limit position initialize correctly.
0102	Head lock sensor error	Head lock sensor does not work correctly.	Head lock sensor is not working properly or broken.	- Replace the limit sensor. - Check the backlash and looseness.
0103	Limit sensor error	Limit sensor does not work properly.	Limit sensor is not working properly or is defective.	Initialize all the parameters.
0105	Carriage attaching error	The cut carriage and the head carriage are not attached properly.	- The joint parts of the carriages are defective. - Carriages are distorted. - Limit position adjustment was not performed properly. - Defective sensor	- Check if the carriages are distorted or loose. - Replace the joint part. - Adjust the limit position.
0106	Carriage detaching error	The cut carriage and the head carriage did not detach properly.	- The joint parts of the carriages are defective. - Carriages are distorted. - Limit position adjustment was not performed properly. - Defective sensor	- Check if the carriages are distorted or loose. - Replace the joint part. - Adjust the limit position.

Code	Error name	Contents	Possible causes	Action (You do not have to perform everything listed below. Sometimes performing just one or some of the following can solve the problem.)
0109	Wiper unit error	The wiper unit does not work correctly.	- The wiper unit hits the head carriage. - Wiper motor error - Defect of the wiper unit - Defect of the wiper sensor - Cut-line or short-circuit of cables and the ribbon cable	- Move the head carriage and confirm that the wiper unit does not hit the head carriage. Replace the wiper motor. - Replace the wiper unit. - Replace the wiper sensor. - Replace cables and the flexible cable.
0110	Linear encoder error	- Input value from the linear encoder is not changed by the linear encoder origin setup. - When the motor stops during printing, expected movement is not completed on the print head.	- Read error of the linear encoder. - Read error of the encoder on the scan motor side. - The belt is not attached to the head carriage firmly.	- Confirm whether the encoder scale is in the slit of the encoder sensor in a whole width of the machine. - Check the cable connection between the carriage board and linear encoder board. - Check the connection between the belt and head carriage. - Replace the linear encoder. - Replace the scan motor. - Replace the main board.
0111	The position of the tool crop sensor is not properly adjusted.	You performed crop-cut adjustment before performing [CROP-CUT ADJ.] > [SETTING].	You have not performed [CROP-CUT ADJ.] > [SETTING].	Perform [SERVICE MENU] > [CROP-CUT ADJ.].
0112	RFID communication error	Communication error with the RFID R/W board	- RFID R/W board is broken. - RFID R/W board and ink system board cables have short circuited or cut-line.	- Check the cable connection between RFID R/W board and ink system board. - Replace the ink system board. - Replace the RFID R/W board.
0130	Thermistor error (Print heater)	There is a problem with the thermistor for print heater	- Thermistor has a problem. - Thermistor cable has short circuited or cutline.	- Check cable connection around thermistor. - Replace the thermistor.
0135	Heater error (Print heater)	Heater temperature has reached 60 °C and above.	- The heater cable connection has a problem. - The thermostat has a problem. - The thermistor has a problem.	- Check the heater. - Check the thermostat. - Check the thermistor.
0140	Thermistor error (Dryer)	There is a problem with the thermistor for dryer.	- Thermistor has a problem. - Thermistor cable has short circuited or cutline.	- Check the cable connection . - Replace the thermistor.
0145	Heater error (Dryer)	Heater temperature has reached 65 °C and above.	- The heater cable connection has a problem. - The thermostat has a problem. - The thermistor has a problem.	- Check the heater. - Check the thermostat. - Check the thermistor.
0146	Heater error (Option dryer)	Option heater temperature has reached 70 °C and above.	- Option dryer cable connection has a problem. - Thermostat has a problem. - Thermistor has a problem.	- Check option dryer. - Check thermostat. - Check thermistor
0250	Head device error	Head device has detected a problem.	Blowout of the fuse in the main board	Replace the fuse in the main board.
0305	Print carriage board error	AMP thermistor on the print carriage board detected high temperature.	- The connectors of the print carriage fan are unplugged. - AMP thermistor is defective.	- Check that the connectors of the print carriage board are plugged in completely. - Replace the print carriage board.
0315	Pump drive board error	There is a bad connection with the sub CPU on pump drive board.	- Sub CPU does not work correctly. - There is a bad connection between the main board and pump drive board. - Noise in signal	- Replace the pump board. - Check the followings cable connection. - Between the main board and the pump drive board - Between the pump drive board and the ink system board

Code	Error name	Contents	Possible causes	Action (You do not have to perform everything listed below. Sometimes performing just one or some of the following can solve the problem.)
0320	Ink system board error	There is a bad connection with sub CPU on ink system board.	- Sub CPU does not work correctly. - There is a bad connection between the ink system and the servo board. - Noise in signal	- Replace the ink system board. - Check the followings cable connection. - Between the main board and the pump drive board - Between the pump drive board and the ink system board
0360	Servo motor A/D read error	The amount of load placed on the servo motor cannot be read correctly.	- The connector of the servo motor is plugged in incompletely. - Servo board defective	- Replace the servo board. - Check the cable connection of the servo motor and the servo board.
0361	Servo motor hall sensor error	Hall sensor of the scan motor is defective.	- A signal from the hall sensor cannot be read properly. - Scan motor defective	- Replace the servo board. - Check the cable connection of the servo motor and the servo board. - Replace the scan motor.
0370	Cut solenoid A/D read error	The amount of load placed on the cut solenoid cannot be read correctly.	- The connector of the cut solenoid is plugged in incompletely. - Servo board defective	- Replace the servo board. - Check the cable connection of the cut solenoid and the servo board.
0371	Cut solenoid load error	Large load is placed on solenoid.	- The connector of the cut solenoid is plugged incompletely. - Servo board defective	- Replace the servo board. - Check the cable connection of the cut solenoid and the servo board.
0372	Cut solenoid driver IC error	Cut solenoid driver IC is defective.	Driver IC of the cut solenoid is defective.	Replace the servo board.
0380	Pressure pump time out	- Even though the damper is now filled with ink, the filler sensor is still detecting the filler. - The filler sensor cannot detect how much ink is being supplied from the pressure pump to the damper. - Although the pressure pump has rotated certain times, ink is not supplied to the damper. Or, the damper is filled with ink, but the filler sensor cannot detect it because the filler does not open. - Nozzle line code is displayed on LCD (nozzle line code indicates which nozzle the error occurred to).	- Filler sensor is defective. - Connector of the filler sensor is defective. - Pressure motor and pump are defective. - Connector of the pressure motor is defective. - Some cables are making contact with the filler, preventing it from operating properly. - The spring on the rear side of the filler has popped out. - Two tubes are swapped and inserted incorrectly to the print head.	- Replace the filler sensor or check the cable connection of the sensor. - Check the cable connection of the pressure pump motor. - Replace the pressure pump. - Check the tube layout from the ink cartridge to the print head. - Ink lines with problems are shown in the event log.
0400[****]	Pump suction error	- Even though the damper is empty, the filler does not hit the filler sensor. - Ink in the damper cannot be discharged properly during cleaning or flushing operations. - Signals from the filler sensor cannot be received correctly during pump up (e.g. cleaning). - Nozzle line code is displayed on LCD (nozzle line code indicates which nozzle the error occurred to).	- Cap is not installed properly. - Cap is broken. - Print head is broken. - Some cables are making contact with the filler, preventing it from operating properly. - The spring on the rear side of the filler has popped out.	- Readjust the cap position or replace the cap. - Replace the print head.
0400 (no information on ink line)	Pump suction error during ink circulation	- Even though the damper is empty, the filler does not hit the filler sensor. - Ink in the damper cannot be discharged properly during cleaning or flushing operations. - Signals from the filler sensor cannot be received correctly during pump up (e.g. cleaning).	- Cap is not installed properly. - Cap is broken. - Print head is broken. - Some cables are making contact with the filler, preventing it from operating properly. - The spring on the rear side of the filler has popped out. (Ink line including ink circulation line)	- Readjust the cap position or replace the cap. - Replace the print head. (Ink line including ink circulation line)

When the error "0400" occurs, the message below appears on the operation panel screen.



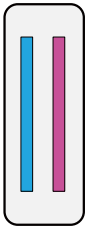
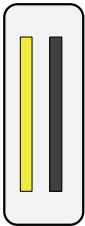
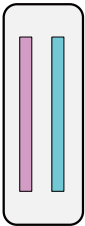
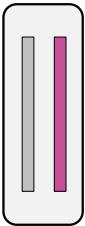
How to read the nozzle line code

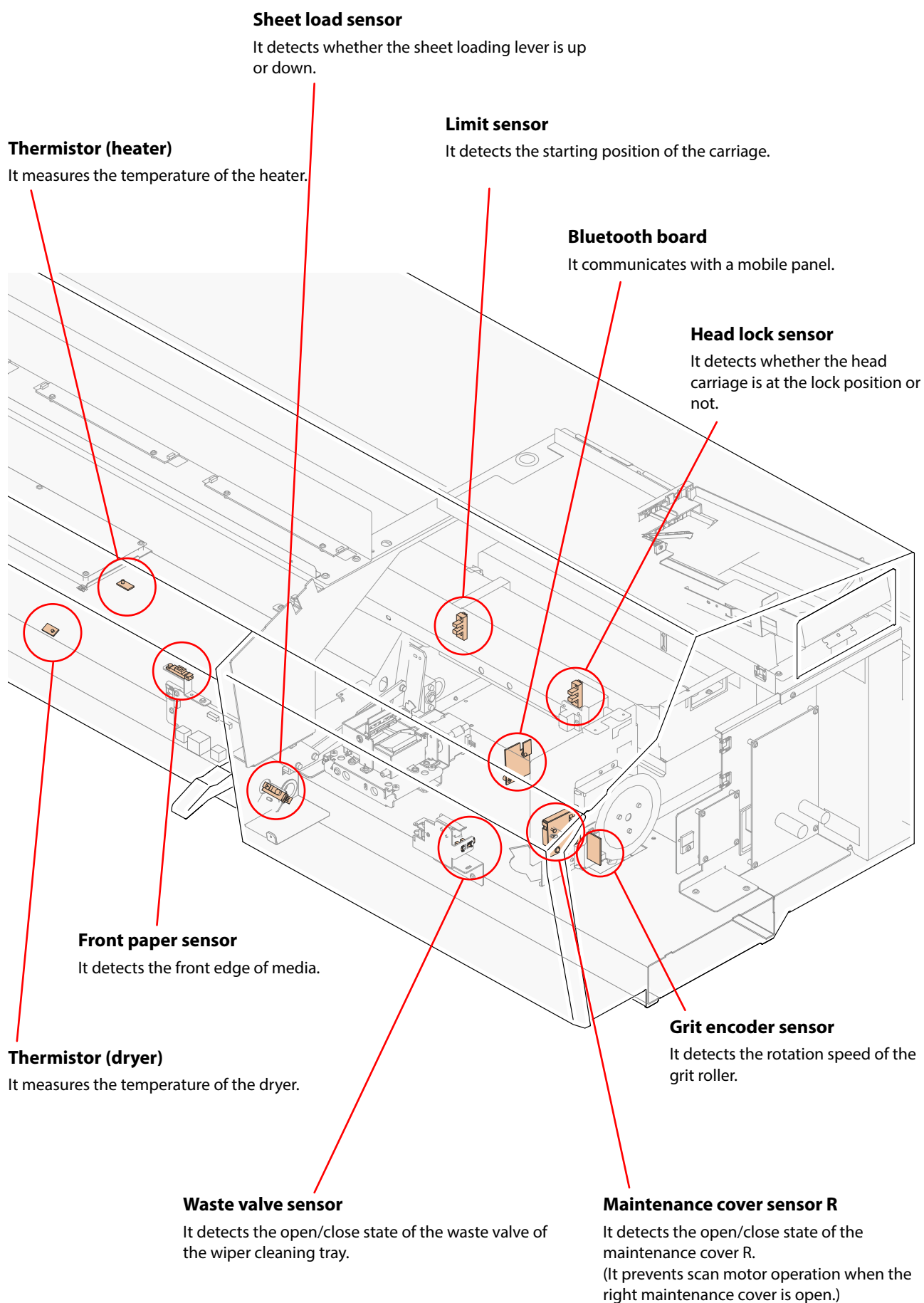
In case the error "0400" occurs to multiple nozzles, nozzle line code will be displayed in hex notation.

Example: When the error "0400" occurs to both nozzles (nozzle line code "0400" and "0800") of H4

$0040 + 0080 = 00C0$

Therefore, "00C0" will be displayed on the operation panel screen.

	H1	H2	H3	H4
				
7 color	CY MG	YE BK	Lm Lc	LK MG
4 color	MG YE	CY BK	BK CY	YE MG
8 color	CY MG	YE BK	Lm Lc	LK Wh
Nozzle line code	0001 0002	0004 0008	0010 0020	0040 0080



Ink slot cover sensor L

It detects whether the ink slot cover L is open or closed.

Ink slot cover sensor R

It detects whether the ink slot cover R is open or closed.

Thermostat (heater)

Power supply to the heater will be cut off when the temperature exceeds allowable temperature limit.

Front cover sensor

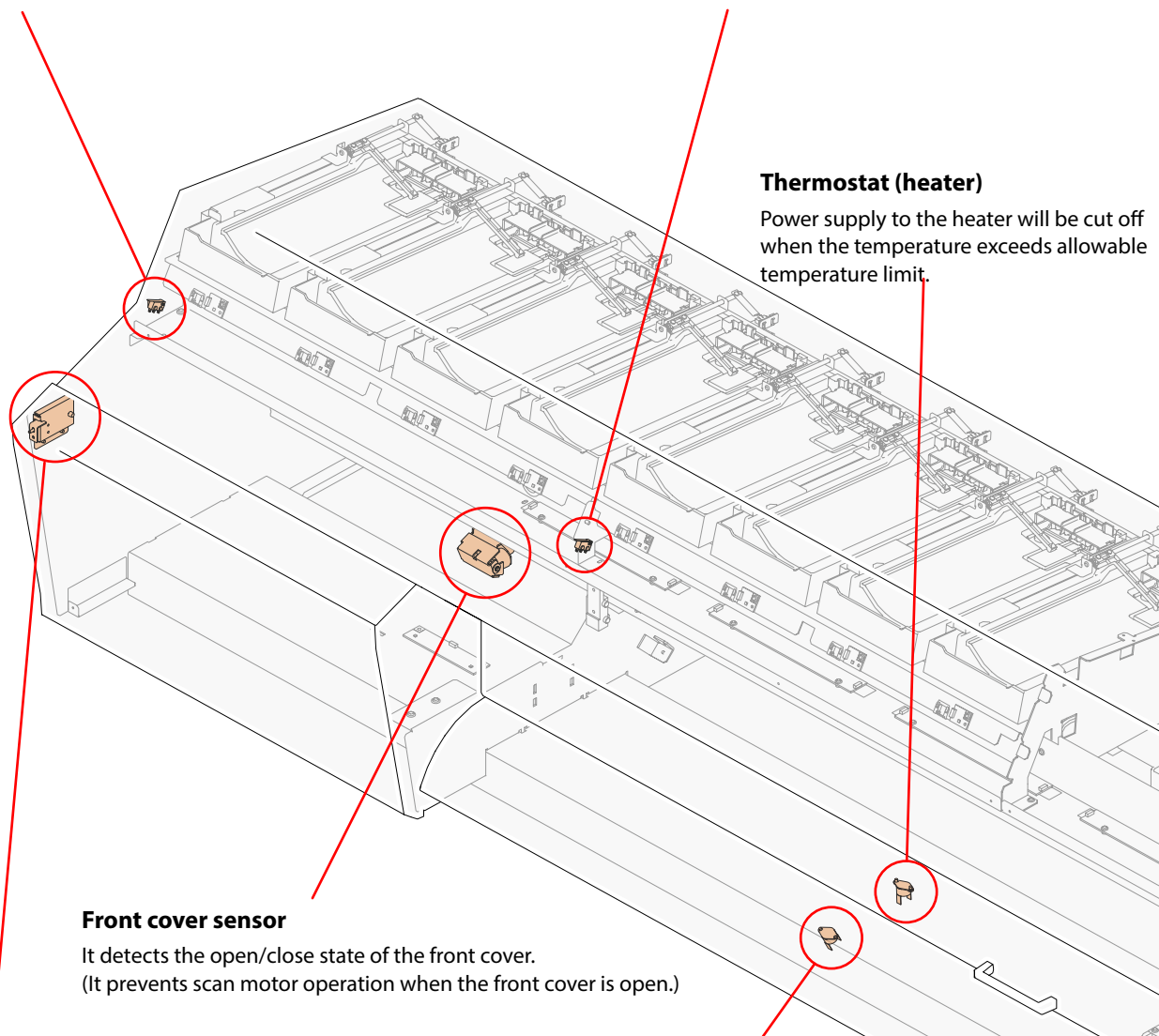
It detects the open/close state of the front cover.
(It prevents scan motor operation when the front cover is open.)

Thermostat (dryer)

Power supply to the dryer will be cut off when the temperature exceeds allowable temperature limit.

Maintenance cover sensor L

It detects the open/close state of the maintenance cover L.
(It prevents scan motor operation when the left maintenance cover is open.)

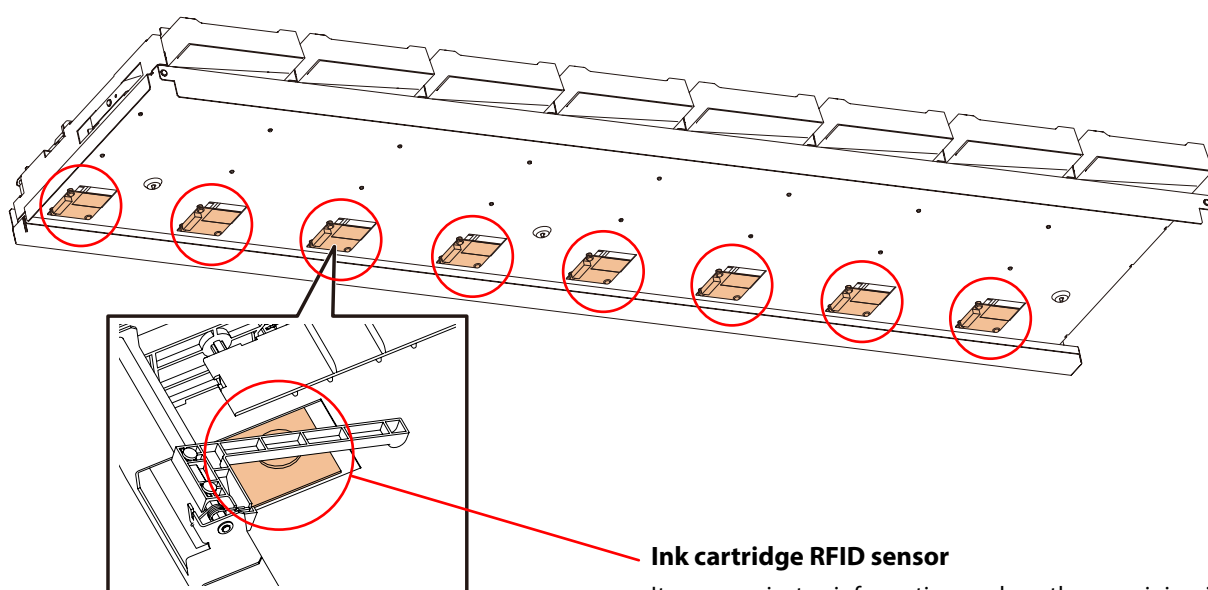
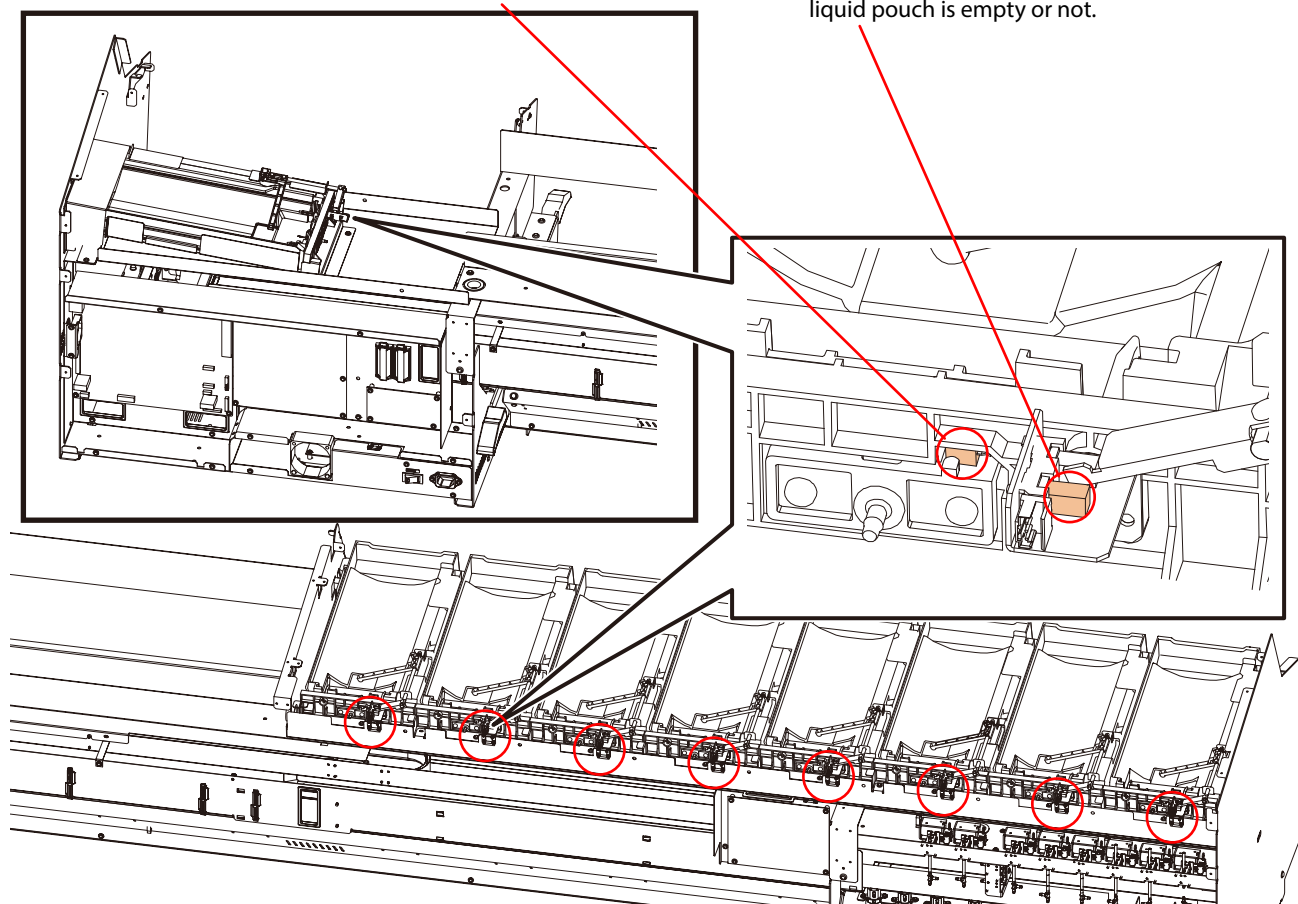


Ink cartridge sensor

It detects whether the ink cartridge is installed or not.

Ink empty sensor

It detects whether the ink pouch and/or cleaning liquid pouch is empty or not.



Ink cartridge RFID sensor

It communicates information such as the remaining ink amount.

Linear encoder sensor

It detects the coordinates of the carriage and sends print signals.

Thermistor (print carriage board)

It measures the temperature around the print carriage board.

Head up/down sensor

It detects the position of the print head.

Thermistor (print head)

It measures the temperature around the print head.

Filler sensor

It detects the pressurization of print head dampers.

Pinch roller sensor

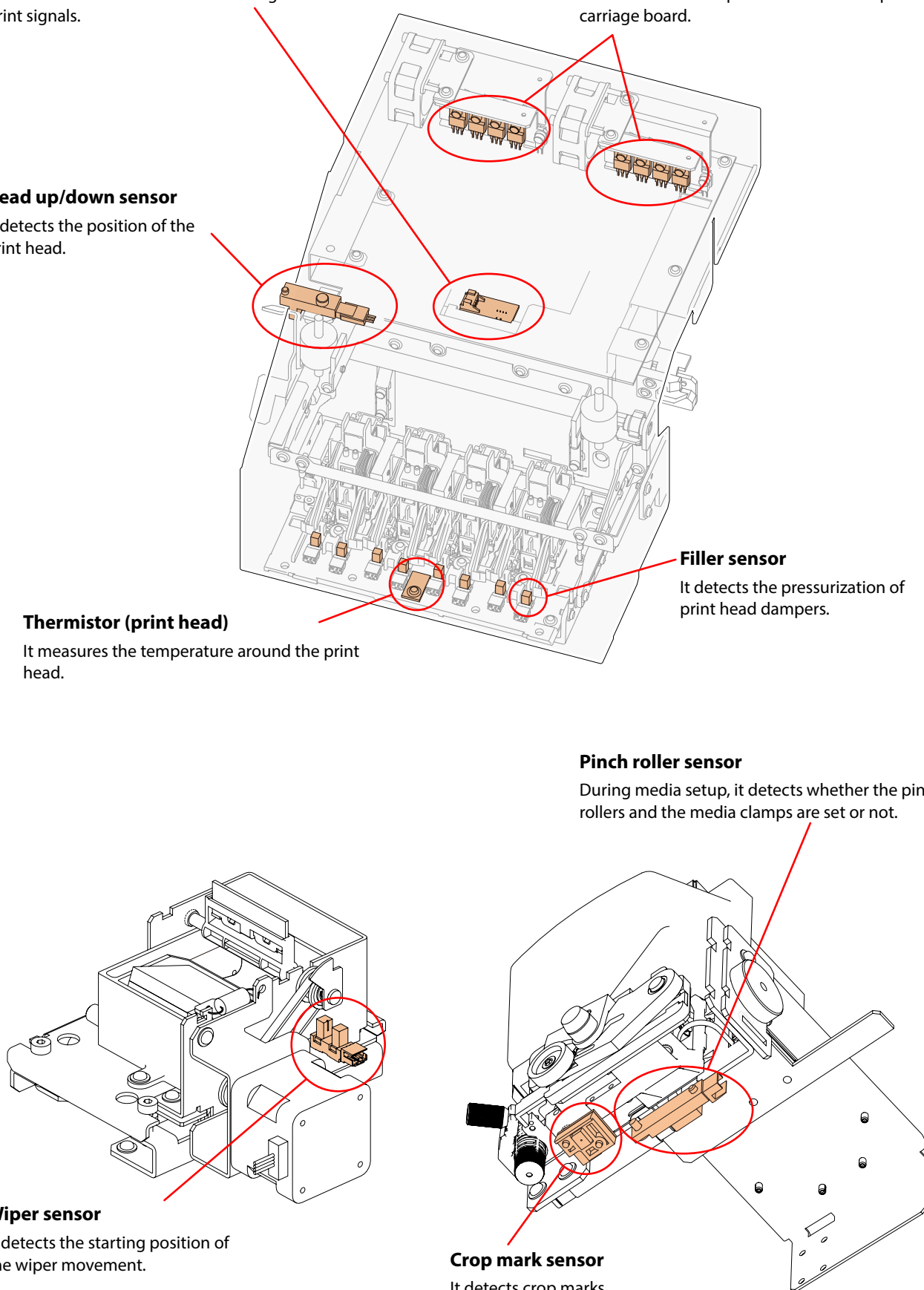
During media setup, it detects whether the pinch rollers and the media clamps are set or not.

Wiper sensor

It detects the starting position of the wiper movement.

Crop mark sensor

It detects crop marks.



Chapter 5 Service Activities

Installation Checklist.....	5-2
Maintenance Checklist.....	5-22
When Moving the Unit	5-23
How to Transport the Machine	5-23
Main Specifications	5-28

Installation Checklist

VG-640 / VG-540 Installation Checklist

Date: _____

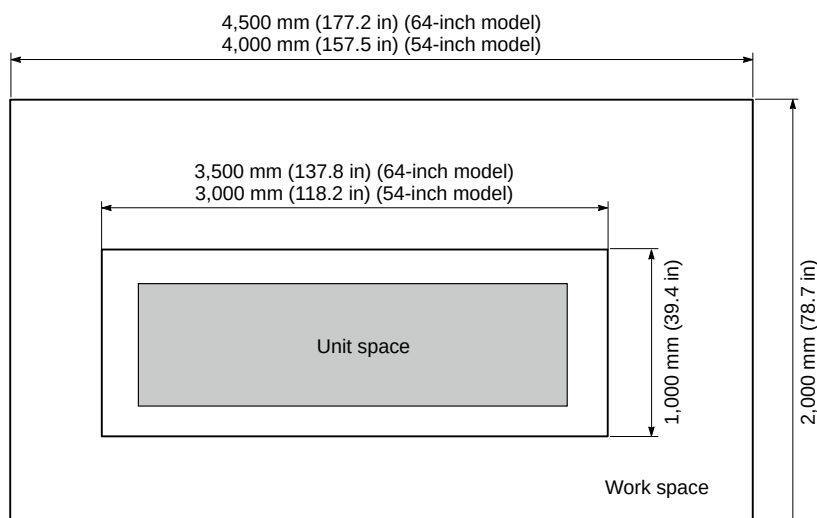
User name: _____

Serial number: _____

Check the Place of Installation



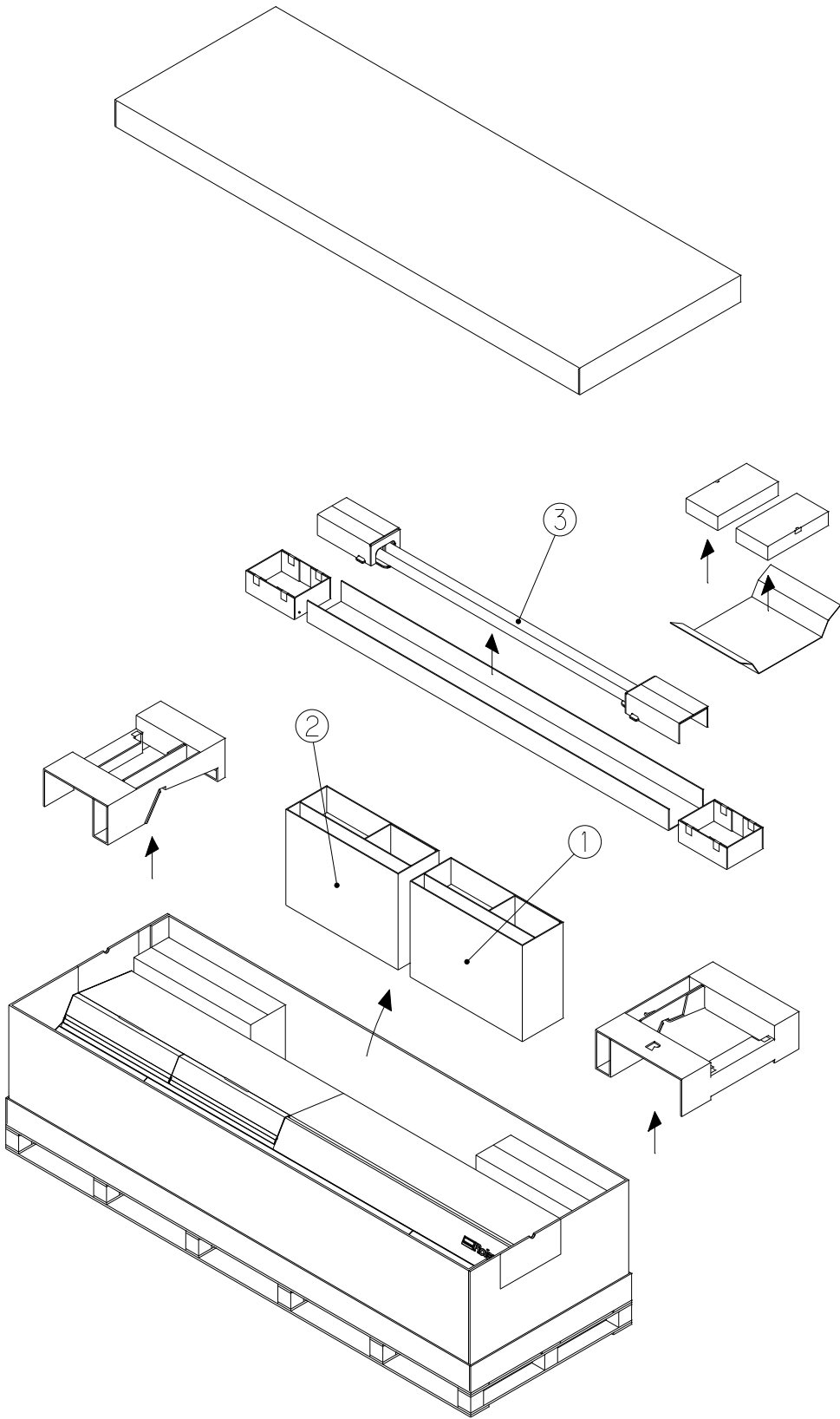
The space shown in the figure is required in order to use this machine.



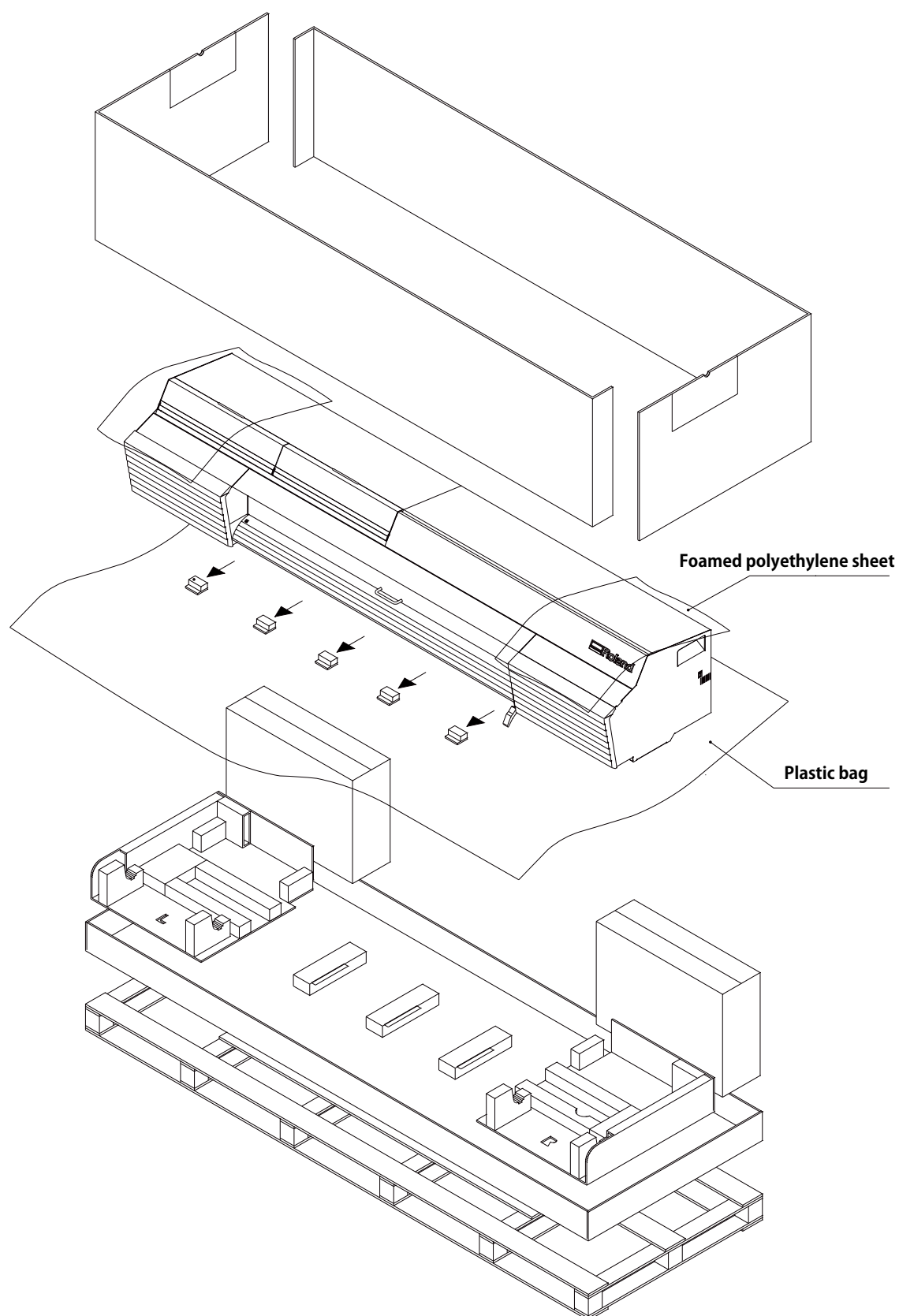
- ☐ Install the machine in a location that is level, stable, and able to bear the weight of the machine.
The total weight of the machine may reach over 290 kg (639.3 lb.). Installation in an unsuitable location may cause a major accident, including tip over, fall, or collapse.
- ☐ Never install this machine outside or in any location where exposure to water or high humidity may occur.
Current leakage may cause electrical shock, electrocution, or combustion and fire.
- ☐ Never install the machine close to any flammable object or in a gas-filled location.
Combustion or explosion may occur.
- ☐ Install the machine in a clean, brightly lit location.
Working in a location that is dark or cluttered may lead to an accident, such as becoming caught in the machine as the result of an inadvertent stumble.
- ☐ Ensure adequate ventilation for the work area.
Failing to perform ventilation may result in a health hazard or danger of combustion due to ink fumes.
- ☐ Connect to an electrical outlet that complies with this machine's ratings (for voltage, frequency, and current).
Incorrect voltage or insufficient current may cause fire or electrical shock.
- ☐ Position the machine so that the power plug is within immediate reach at all times.
This is to enable quick disconnection of the power plug in the event of an emergency. Install the machine next to an electrical outlet. Also, provide enough empty space to allow immediate access to the electrical outlet.

Unpacking

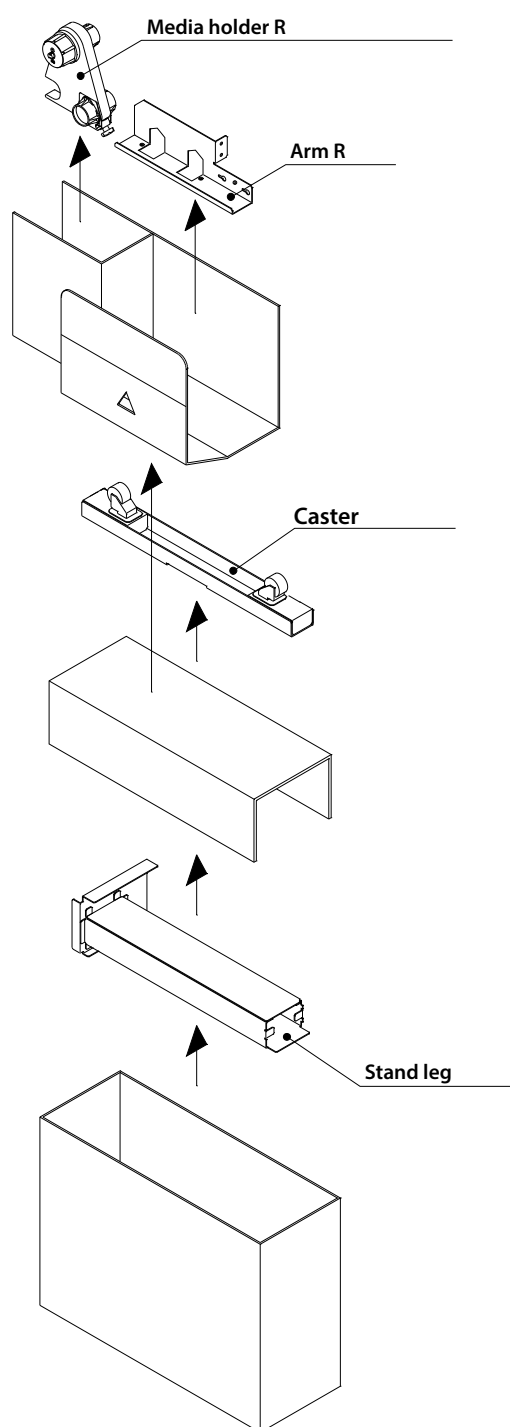
Unpack each part in the order shown below.



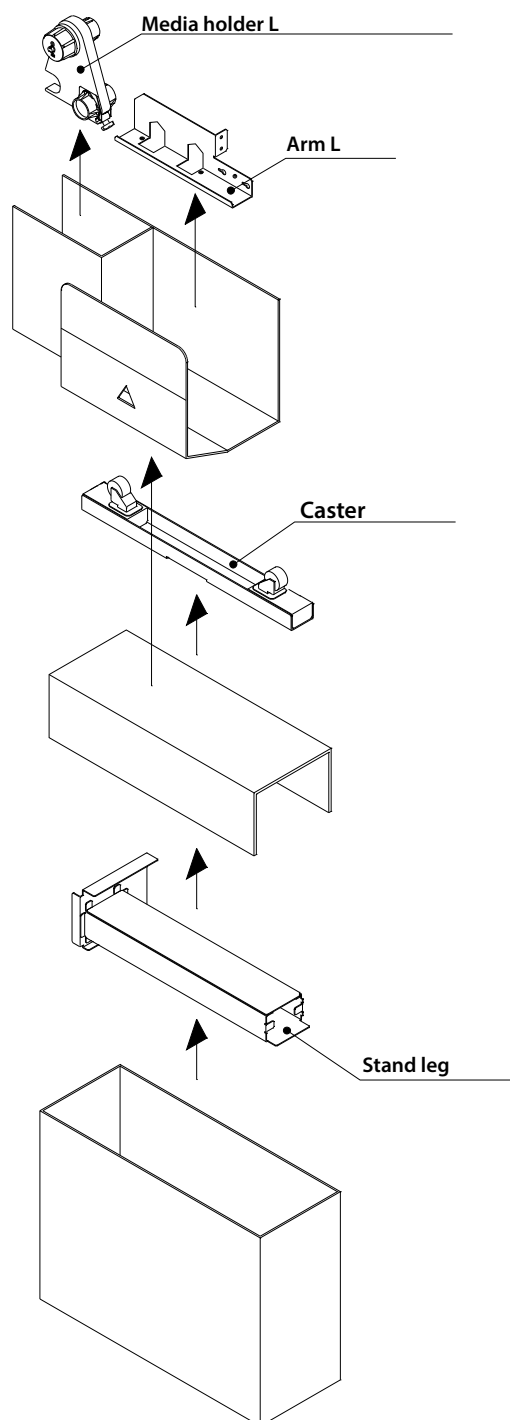
Unpack the machine.



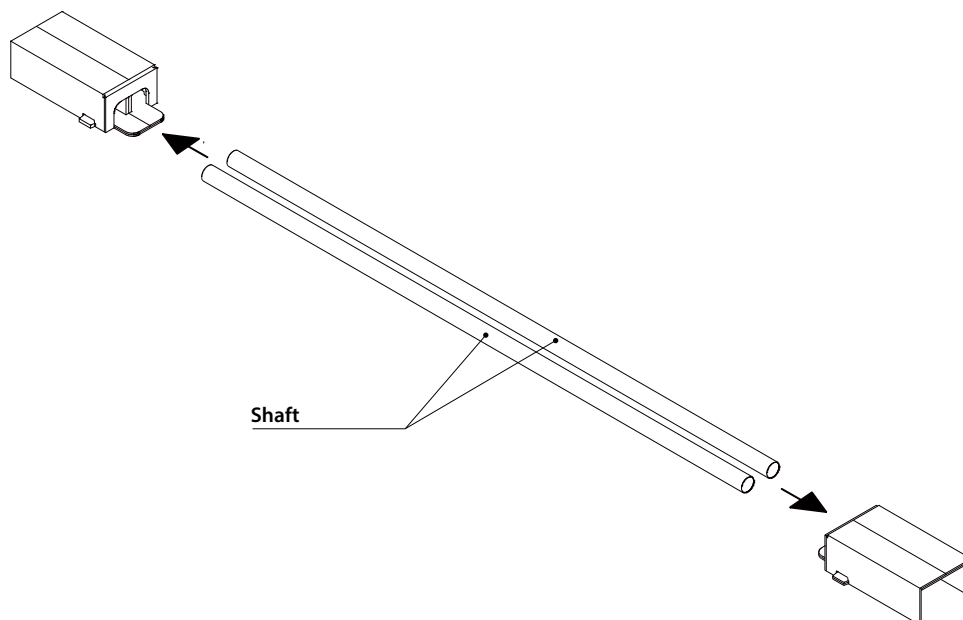
(1) Unpack the stand leg, caster, arm R etc.



(2) Unpack the stand leg, caster, arm R etc.



(3) Remove the shafts and paper tubes.

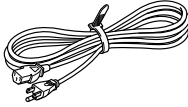
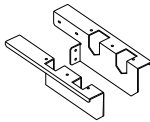
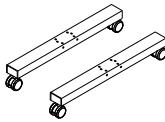
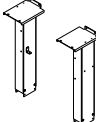
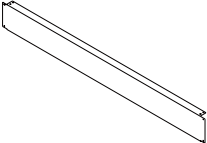
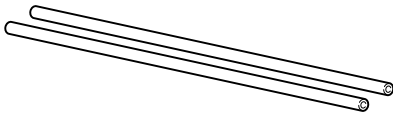
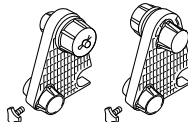
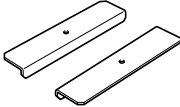
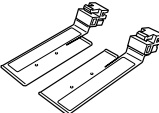
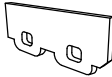
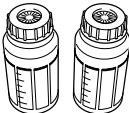
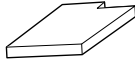
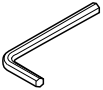
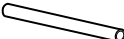
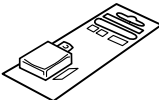
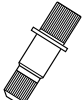
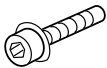
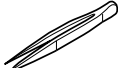
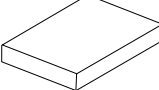
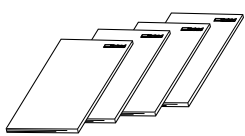


Included Items



The following items are included with the machine. Make sure they are all present before proceeding.

Printer Unit

 Power cord (1)	 Arms (1 each for right and left)	 Casters (2)	 Stand legs (1 each for right and left)		
 Stand stay (1)		 Shafts (2)			
 Media holders/retaining screws (1 each for right and left)	 Shaft clamps (2)	 Middle pinch rollers * ** (The quantity varies depending on the model.)	 Media clamps* (1 each for right and left)		
 Replacement wiper (1)	 Drain bottles (2)	 Tray pad (3)	 Hexagonal wrench (1)	 Pipe (1)	
 Replacement blades for separating knife (1)	 Blade holder (1)	 Blade (1)	 Pin (1)	 Bolts (40)	 Washers (22)
 Cable clamp (1)	 Tweezers (1)	 Cleaning liquid (1)	 Cleaning sticks	 Cartridge-slot label (for white) (1)***	 Cartridge-slot label (for 4 colors) (2) ***
 Software RIP (1)	 Setup Guide (this document) (1) Read this first (1) User's Manual (1) Inkjet printer maintenance guide (1)				

* The media clamps and the middle pinch rollers are installed on the machine.

** (6) for the 64-inch model and (5) for the 54-inch model.

*** With the factory default settings, these labels are affixed to the platen at the location where the front cover opens.

Assembling and Installation

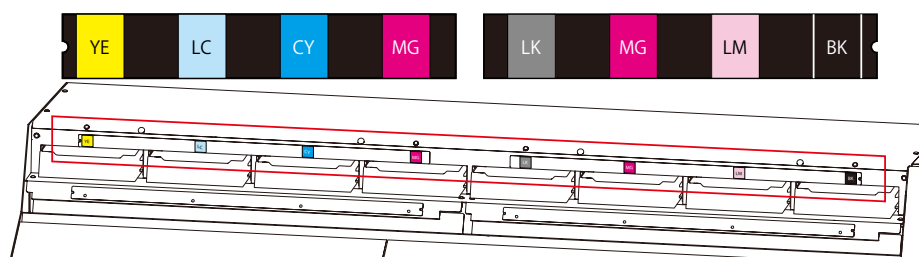


Refer to "3. Assembling and Ink Filling" to "6. Connecting the Cables" of the Setup Guide and perform the following work.

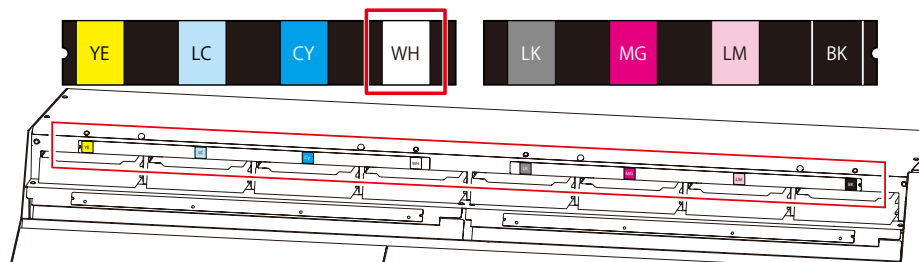
- ☐ Assembling the stand – mounting the machine
- ☐ Installing the media holders
- ☐ Installing the drain bottle
- ☐ Removing the retainers/packing materials
- ☐ Connecting the cables
- ☐ Switching to eight-color mode

- When using this machine in eight-color mode, it is necessary to change the slot label.
(When using this machine in seven-color mode, you do not have to change it.)
- Place the label for WH ink over the seven-color-mode label.

7 colors



8 colors



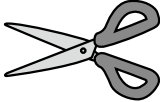
- ☐ Switching to four-color mode

- When using this machine in four-color mode, it is necessary to change tubes and put the four-color-mode label over the seven-color-mode label. See the following pages for the procedure on how to switch to four-color mode.
(When using this machine in seven-color mode, you do not have to change tubes or label.)

Switching to Four-Color Mode

Prepare the following items:

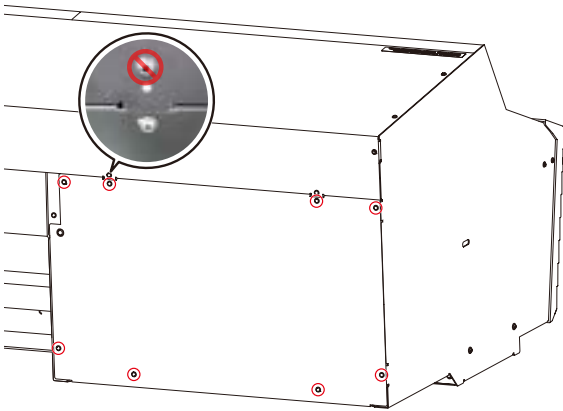
Tools that service engineers should bring

Part No.	Part Name	
	Scissors	
	Gloves (anti-slip)	
	Ruler	

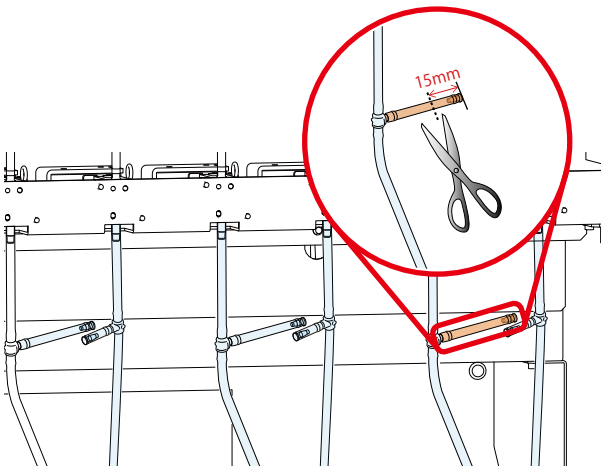
1. Remove eight screws that secure the cover.

CAUTION

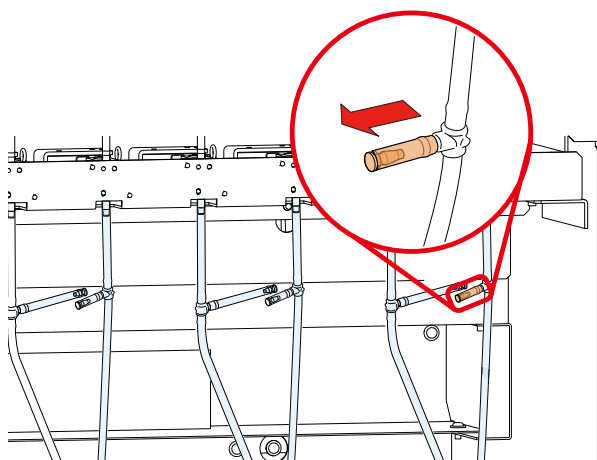
Do not remove the upper screw. Remove only the bottom screw. If you remove both upper and bottom screws, a small plate that the two screws are securing will fall off inside the machine.



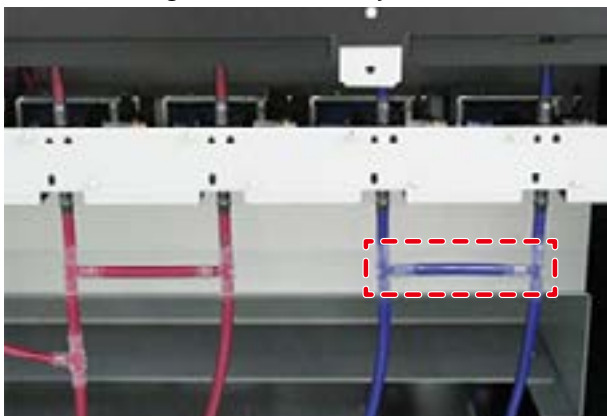
2. Cut the longer tube shown below 15 mm from the end.



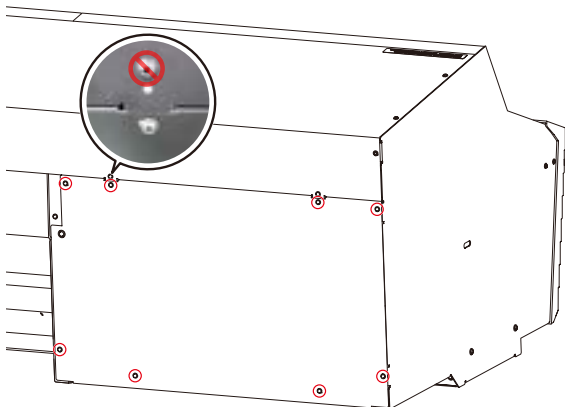
- 3.** Remove the shorter tube.



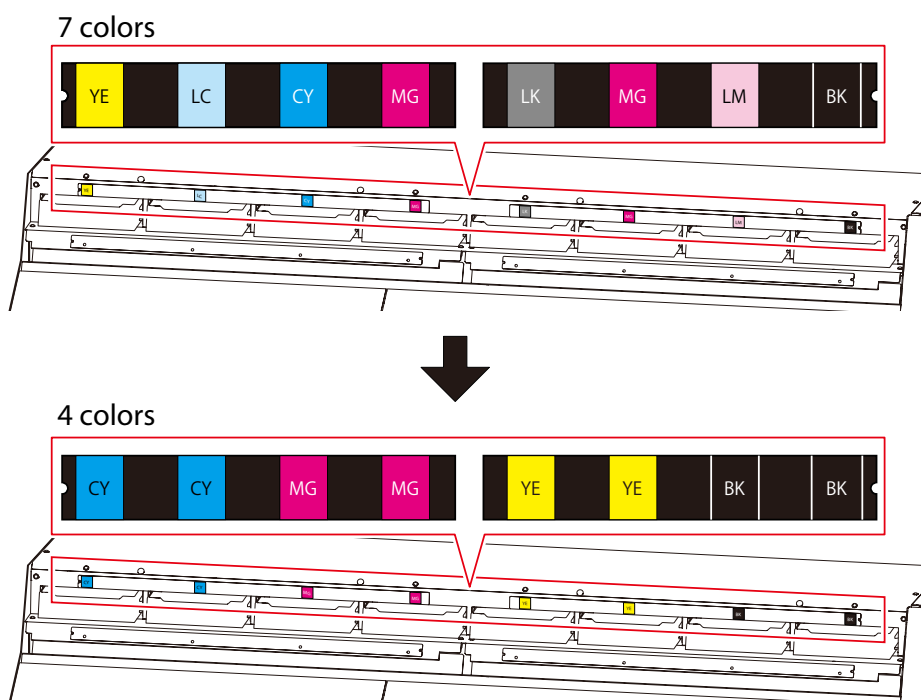
- 4.** Attach the longer tube to the tube joint.



5. Tighten eight screws to secure the cover.



6. Place the four-color-mode label over the seven-color-mode label.

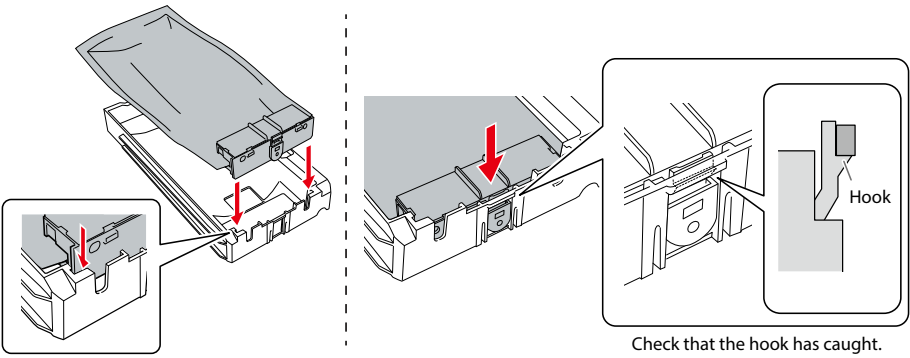


7. (End of procedure)

☐ Ink filling

CAUTION

- Make sure to shake the ink pouch before setting it in the pouch tray.
- Shake the WH ink pouch 50 times (approximately 20 seconds).



CAUTION

When the message "EMPTY DRAIN BOTTLE" appears, be sure to discard. If not discarded at this step, the discharged ink will overflow.

☐ Installing the cutting tool

☐ Network settings

IP address of the PC: _____

IP address of the printer: _____

☐ Bidirectional adjustment

CAUTION

Perform this adjustment using the media the user uses.

☐ Upgrading the firmware

Upgrade the firmware to the latest version.

☐ Time and date setting

Set from [SERVICE MENU] > [CLOCK] > [DATE]/[TIME]

Installing RIP software

Refer to the Quick Start Guide and install RIP software.

☐ 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 PC

Turn off the PC's power-saving functions which make the PC goes standby or sleep. It may stop a job being output.

Installing RIP software

Refer to "[Manual Library](#)" and install Roland OnSupport.

☐ 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.

Basic operations

Refer to the User's Manual and explain following to the user.

- ☐ Switch on!

CAUTION

Always leave the main power on. Maintenance operation is automatically carried out every eight hours while the machine is not in use. Use the sub power switch for the daily powering on and off.

- ☐ Loading media

- ☐ Setup of media

- About the [Media Setting] menu

The [Media Setting] menu guides the settings in the interactive mode. Using this menu, you can set all of the basic settings only by setting according to the instructions on the display. The setting details can be stored as the preset menu. The items set through the [Media Setting] menu can be also set individually.

- ☐ Setting the output-start location

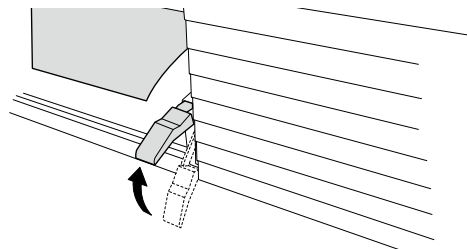
- ☐ Printing tests and normal cleaning

- ☐ Pausing and cancelling output

- ☐ Cutting off the media

- ☐ Switch off

Lift the sheet loading lever up when the machine is not in use.



Maintenance

☐ Checking the remaining ink amount

CAUTION

The remaining ink amount displayed on the operation panel screen is slightly different from the actual remaining amount.

☐ How to replace the ink pouch

CAUTION

- Shake the ink pouch gently before installing it.
- Shake the WH ink pouch 50 times (approximately 20 seconds).
- Be sure to replace with an item of identical type. Never mix items of different types.
- Never leave the machine with any ink pouch removed. The print heads may become clogged.
- When printing is paused, the coloring at the seam may be altered when printing resumes. Before you perform lengthy printing, check
- the amount of ink remaining in the ink pouches.
- Never store ink at any locations where high temperature may occur or exposed to open flame.

☐ Disposing of discharged ink

- The message "EMPTY DRAIN BOTTLE" appears when a certain amount of discharged fluid has collected in the bottle. Make sure to discard the discharged ink.

CAUTION

- "EMPTY DRAIN BOTTLE" message disappears when "NO" is selected without disposing of discharged fluid.
- If "NO" is selected continuously, the hand or the work floor may get soiled by overflowing discharged fluid from drain bottle.
- Never place discarded fluid near an open flame.
- To store discharged fluid temporarily, use the included drain bottle or durable sealed container such as a metal can or polyethylene tank, and cap it tightly.
- Dispose of discharged fluid properly, in accordance with your local laws.

☐ Cleaning

- Pinch rollers
- Grit rollers
- Platen
- Front paper sensor
- Rear paper sensor
- Front cover
- Media clamps

CAUTION

- Never use gasoline, alcohol, thinner, or any other flammable material.
- Clean by wiping with a cloth moistened by neutral detergent diluted with water then wrung dry.

☐ Care and maintenance of the print head

- Normal cleaning
- Medium cleaning
- Powerful cleaning
- Super cleaning

CAUTION

Super cleaning consumes a large amount of ink. Perform super cleaning only when normal, medium, powerful, and manual cleaning cannot solve missing dot problems.

☐ Manual cleaning of the print head

CAUTION

- To keep the stable output condition at all times, perform the manual cleaning more than once a month.
- The cut rail is not detected by the sensor. Be sure to put it back when completing the manual cleaning.

☐ Wiper replacement (Be careful of the orientation of the wiper when installing it.)

☐ Cleaning the wiper tray and replacing the tray pads

CAUTION

Place the tray pad with an orientation that matches the shape of the wiper tray.

☐ Replacing the blade

☐ Installing the cutting tool

☐ When the machine is not in use for a prolonged period

NOTE

- Turn on the sub power SW once a month.
The message [PRESS THE POWER KEY TO CLEAN] appears once a month.

CAUTION

Keep at a constant temperature and at a relative humidity.
Even when the machine is not in use, keep it at a temperature of 5 to 40 °C (41 to 104 °F) and at a relative humidity of 20 to 80% (with no condensation). Temperatures that are too high may degrade the ink and cause malfunction. Temperatures that are too low may cause the ink to freeze and damage the print heads.

☐ Uneven colors

- Damper cleaning
Perform when uneven color problems cannot be solved by shaking the ink pouch tray and mixing the separated ink components.
- Super cleaning
Perform when damper cleaning is not effective in solving uneven color problems.

CAUTION

Cleaning errors occur if ink runs out during damper cleaning. Be sure to install ink pouches that have a large remaining amount of ink.

Fully utilizing the machine



☐ Preset function

- Saving various settings as a name assigned preset
- Loading a saved preset

All menu items listed below can be saved in presets.

- [PRINT] (Print heater), [DRYER]
 - [PREHEATING], [Idling]
 - [DRYING TIME]
 - [ADJUST BI-DIR SIMPLE SETTING]
 - [ADJUST BI-DIR DETAIL SETTING]
 - [CALIBRATION]
 - [EDGE DETECTION]
 - [SCAN INTERVAL]
 - [VACUUM POWER]
 - [FULL WIDTH S]
 - [FEED FOR DRY]
 - [FORCE], [SPEED], [OFFSET], [UP-SPEED]
 - [CALIBRATION] (in the [CUTTING MENU])
 - [PRINT-CUT ADJ.]
 - [CROP-CUT ADJ.]

☐ Correcting for misalignment in bidirectional printing*1

☐ Reducing horizontal banding (feed calibration function) *1

☐ Adjusting the head height to match media thickness *1

CAUTION

*1 Perform these procedures for each media individually. Bidirectional adjustment and feed calibration are required after changing the head height. If you are setting feed calibration on your machine, check in advance that [Use Printer Settings] is selected on Roland VersaWorks Dual.



☐ Accommodating to the types and conditions of media

- Using transparent media [EDGE DETECTION DISABLE]
- Printing on hard-to-dry media [SCAN INTERVAL]
- Using media that is easy to be wrinkled or is hard to be fed [VACUUM POWER]
- Speeding up output for narrow media [FULL WIDTH S]
- Using media that causes static electricity. [PERIODIC CL.]
- Using sticky media [MEDIA RELEASE ENABLE]

☐ Fully utilizing cutting function

- Preventing pulling of the media with undue force when performing cutting only [PREFEED]
- Fine-tuning the cutting conditions [CUT CONFIG FORCE/SPEED/OFFSET/UP-SPEED]
- Accurately adjusting the cutting-in amount
- Performing distance correction during cutting [CUTTING MENU CALIBRATION]

CAUTION

When you perform print & cut, be sure to set [CALIBRATION] in the [CUTTING MENU] to "0.00%." Otherwise, the printing and cutting positions may become misaligned. This calibration is to be used only when performing cutting only.

☐ Correcting misalignment of the printing and cutting positions

- [PRINT - CUT ADJ.] (print & cut position adjustment)

☐ Prioritize the settings of the machine to the settings of RIP software

- [CUTTING PRIOR]

☐ Viewing the automatic environment correction function settings

CAUTION

This function is for correcting the print & cut misalignment caused by the stretch/shrinkage of encoder scale. Make sure to set it to [ENABLE] at all times. [AUTO ENV. MATCH]: ENABLE (default)

☐ Printing with crop marks

- Aligning automatically and cutting
- Aligning manually and cutting

☐ Correcting misalignment for printing and cutting when using crop marks

CAUTION

- If misalignment occurs when performing print & cut with crop marks printed, perform this correction.
- Perform bidirectional adjustment before doing this correction.

☐ Using the print light (interior light)

☐ Roland Mobile Panel

Required System Environment

Supported operating systems	• iOS 8.0 or later • Android 4.4 or later * Mobile Panel may not work on some Android devices even if their operating system is version 4.4 or later.
Supported languages	• Japanese • English
Communication method	• Bluetooth 4.0 LE * The mobile terminal you are using must support the above communication method.

CAUTION

- Download Mobile Panel from App Store and Google Play.
- Turn on Bluetooth communication on the machine. (Default: OFF)
- Check that sub power SW is on and the machine's operation panel display shows one of the following screens.

W1100mm

W1100mm
B

SETUP SHEET

Output operation management

☐ Determining what happens when ink runs out

- [EMPTY MODE]

☐ Returning all settings to their initial values

- [FACTORY DEFAULT]

Outputting from RIP software

☐ Printing

Others

☐ Tell the user to see the User's Manual when error messages are displayed.

- If a service call occurs, switch off and on the machine and see if the problem is solved before calling for inquiry. Sometimes errors can be recovered just by restarting the machine.

☐ Explain how to cap the print heads.

- If the print heads do not return to the standby position, the user needs to perform capping. Refer to the User's Manual "If the Print Heads Still Do Not Move" under Chapter 6 "Print Heads Stop Moving"

Consumable parts and replacement cycle

Parts Name	Replacement Cycle
Print head	6 billion shots / nozzle (6,000,000 kshots)
Wiper	Wiping 3,000 times
Cap top	6 months
Scan motor	3,000 hours
Ink tube	3,000 hours
Tray pad	Wiping 1,000 times
Lithium battery	24 months
Pinch roller	Replace it when worn out.
Cutter protection	Replace it depending on the scratches.

* Replacement cycle is currently being tested. It may change according to the result of the endurance test.

Maintenance Checklist

VG-640 / VG-540 Maintenance Checklist

Date: _____

User name: _____

Serial number: _____

Check items		Operation points	Check	
Interview the customer		Ask the customer if there is something that he/she is concerned about.	☐ Done	
Output / Get report before maintenance		[Get Report] by Peck, or print both Service Report and History Report.	☐ Done	
Check drain bottle		If 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.	☐ Good ☐ Dispose	☐ Reset
Upgrade the firmw are to the latest version		Upgrade the firmw are if the installed firmw are is not the latest version.	☐ OK	
Check Consumable Parts	Print head	Determine if it should be replaced based on the SHOT COUNT in the History Report, the test print result and the customer's interview . Replacemnet cycle : 6 billions shots	☐ Good ☐ Replacement done	☐ Reset
		Perform manual cleaning by using cleaning sticks and cleaning liquid.	☐ Dispose	
		Output the test patterns of BIAS to check the error, and perform adjustment if necessary.	☐ Good	☐ Adjustment done
	Scan Motor	Determine if it should be replaced based on MOTOR ERROR and MOTOR HOURS S in the History Report, or on the motor sound w hen performing a print and the customer's interview . Put grease on the gear if you replace the motor. Replacement Cycle : 3,000 hours	☐ Good ☐ Replacement done	☐ Reset
	Wiper	Determine if it should be repalced on the performance of the cleaning or the wiping times of the history report. Replacement Cycle : Wiping count 3,000 times	☐ Perform cleaning	☐ Replacement done
	Linear Encoder Scale 1	Check if the Encoder Scale has any dirt or dust or any ink on. And, check the Encoder Module, too.	☐ Perform cleaning	☐ Replacement done
	Linear Encorder Scale 2	Check the Linear Encorder Sheet with [SERVICE MENU]>[PRINT MENU]>[LINEAR CHECK]. If result is not good, upgrade the firmw are and the RVW and perform cleaning and replacement if necessary.	☐ Good ☐ Perform cleaning	☐ Replacement done
	Cap Top	Determine if it should be replaced based on the performance of the cleaning or the period from the time w hen the Cap Top w as repalced last time. Replacement Cycle : 6 months	☐ Good ☐ Perform cleaning	☐ Replacement done
	Tray pad	Determine if it should be replaced based on the performance of the cleaning or the period from the time w hen the Cap Top w as repalced last time. Replacement Cycle : WIPING COUNT 1,000 times	☐ Good	☐ Replacement done
Lithuium Battery	Replacement Cycle : 24 months	☐ Good	☐ Replacement done	
Check Mechanical Parts	Carriage Belt	Check if the carriage belt does not touch the upper end or low er end of the drive pulley and idle pulley w hen the head carriage moves in the full width. Adjust the belt position, if necessary.	☐ Good	☐ Adjustment done
	Cutter Protection	Replace it depending on the scratches.	☐ Good	☐ Replacement done
	Pinch Roller	Check if it is not w orn out or not dirty, or not deformed. Check if it rotates smoothly.	☐ Good	☐ Replacement done
	Grid Roller	Remove foreign substances put on it by using a brush.	☐ Done	
Check printing		Check that there is no problem w ith the printing operation and printing result.	☐ Done	
Check cutting		Check that there is no problem w ith the cutting operation and cutting result.	☐ Done	
Output / Get Report after maintenace		[GET REPORT] by Peck, or print both Service Report and History Report.	☐ Done	
Remarks				

How to Transport the Machine

The machine can be transported in three different ways.

Be sure to observe the following points when transporting.

CAUTION

- Once the arrangement to transfer the machine is complete, move the machine promptly, and turn on the power immediately after the machine is relocated. If you leave the machine without turning on the power, the deposited ink is coagulated, and it may result in problems such as clogging of the print heads.
- When moving the machine, keep it at a temperature between 5 to 40°C (41 to 104°F) and at relative humidity between 20 to 80% (with no condensation). Failure to do so may result in breakdown.
- Handle the machine with care when moving, keeping it level (not tilted at an angle) and preventing it from striking other objects.

Transport with Ink Filled

Prepare to move the machine.

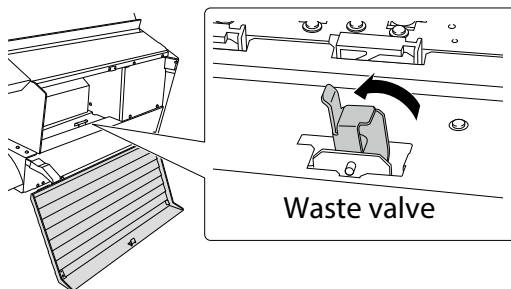
1. Go to [MENU] > [SUB MENU] > [INK CONTROL] > [CIRCULATE INK], and press the [ENTER] key. The machine circulates ink through the ink lines (8 color mode only).



2. Go to [MENU] > [SUB MENU] > [MAINTENANCE] > [DRAIN TRAY], and press the [ENTER] key. When the cleaning liquid of the wiper tray is discharged, the sup power SW turns off automatically.

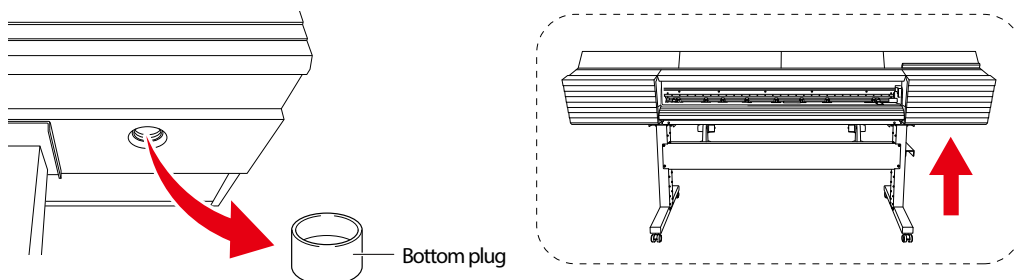


3. The message below appears. Open the waste valve.

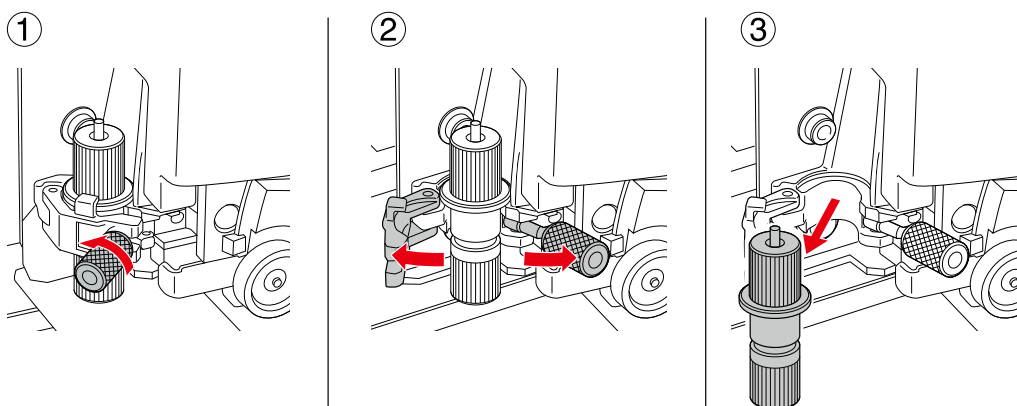


4. Turn off the main power SW.

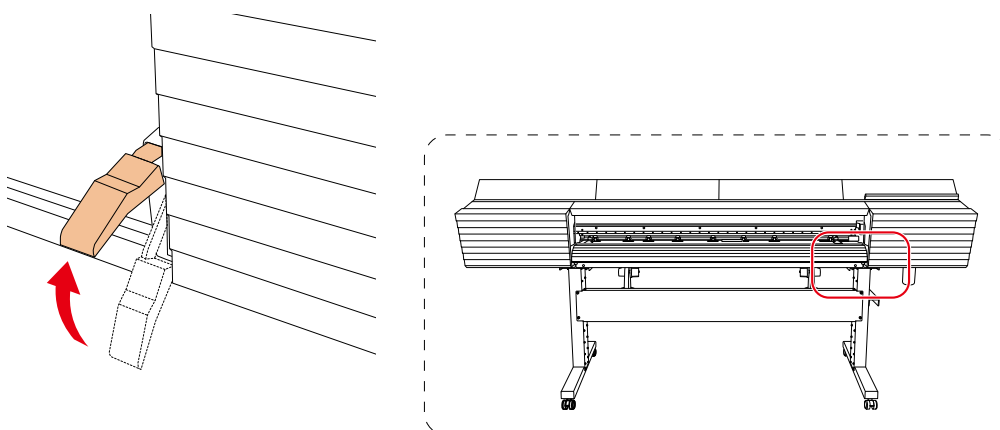
- 5.** Empty the drain bottle. Then, attach the bottom plug.



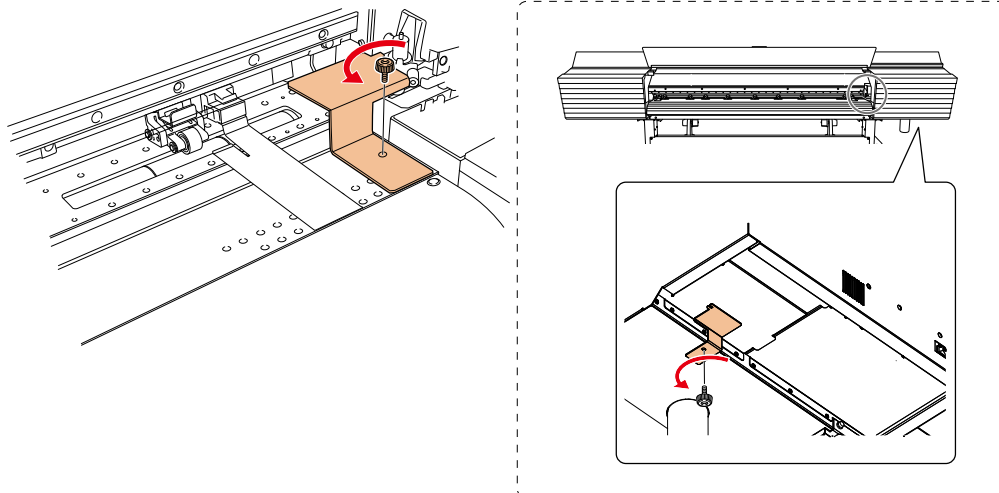
- 6.** Remove the blade holder.



- 7.** Raise the loading lever.



8. Secure the print heads in place using the retainer.



9. (End of procedure)

Relocate the machine.

1. Turn off the main power SW, then turn off the sub power SW.
2. The following message appears. Press the [ENTER] key to fill the wiper tray with cleaning liquid.

WIPER TRAY IS
NOT FILLED

◀▶
↵

3. (End of procedure)

Transport with Ink Removed

Prepare to move the machine.

1. Go to [MENU] > [SUB MENU] > [MAINTENANCE] > [DRAIN TRAY], and press the [ENTER] key to discharge the cleaning liquid of the wiper tray.

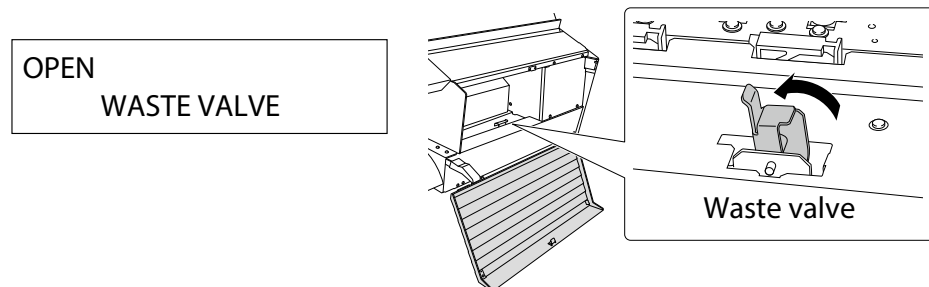
MAINTENANCE
DRAIN TRAY

◀▶
↵

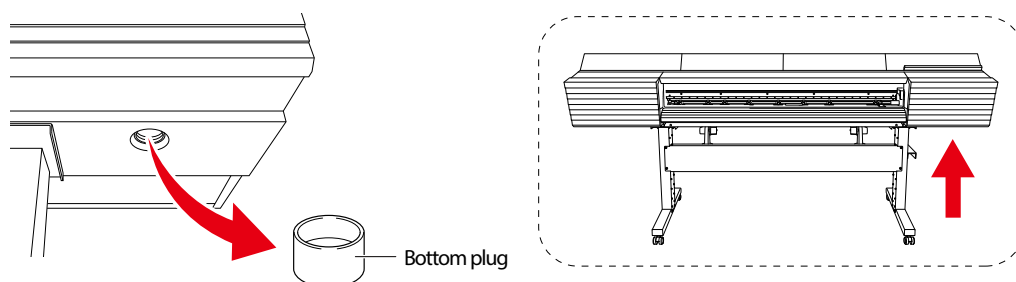
NOTE

If some cleaning liquid is left in the wiper tray, repeat this step until the wiper tray becomes empty.

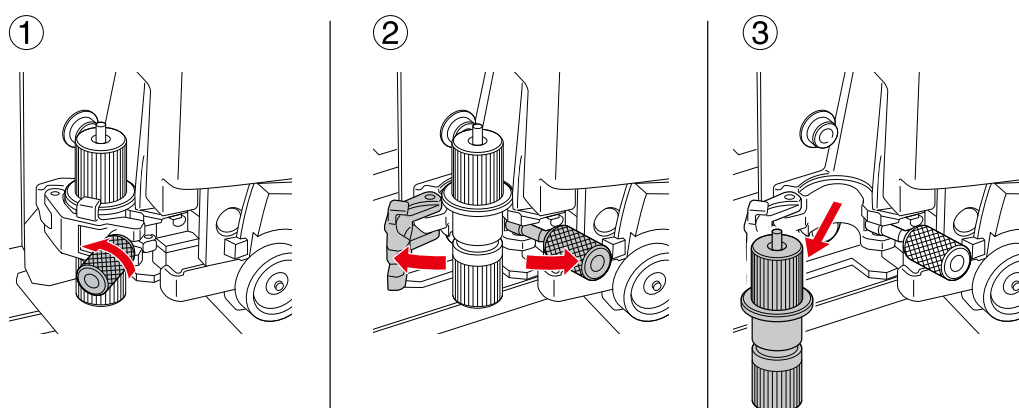
2. The message below appears. Open the waste valve.



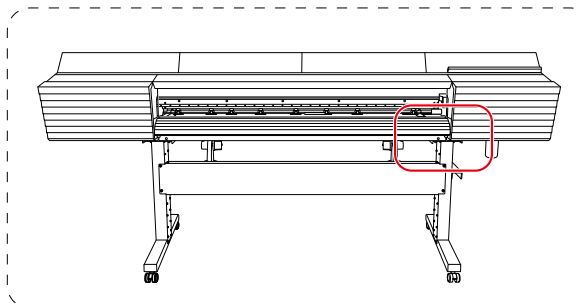
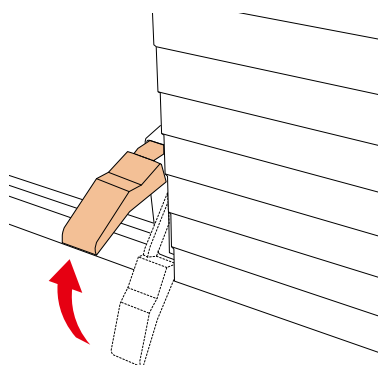
3. Remove the wiper cleaning liquid pouch and the ink pouches.
4. Perform [SERVICE MENU] > [SUB MENU] > [HEAD WASH] and clean the ink lines.
5. Turn off the sub power SW, then turn off the main power SW.
6. Empty the drain bottle. Then, attach the bottom plug.



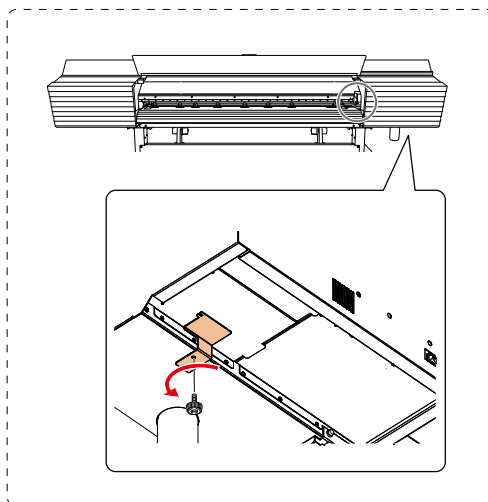
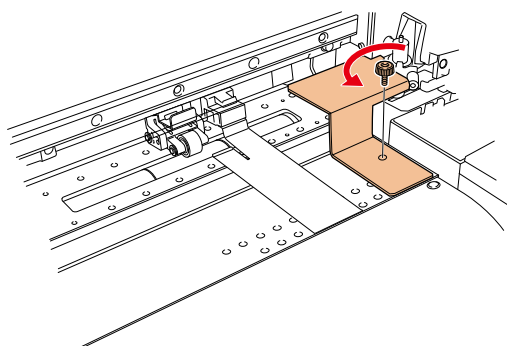
7. Remove the blade holder.



8. Raise the loading lever.



9. Secure the print heads in place using the retainer.



10. (End of procedure)

After the relocation

1. Turn on the main power SW, then turn on the sub power SW.
2. Perform ink filling in accordance with the on-screen instructions.
3. (End of procedure)

Main Specifications

		VG-640	VG-540
Printing technology		Piezoelectric inkjet	
Media	Width	210~1,625 mm	210 ~ 1,371 mm
	Thickness	Max. 1.0 mm (39 mil) with liner, for printing Max. 0.4 mm (16 mil) with liner and 0.22 mm (9 mil) without liner, for cutting	
	Roll outer diameter	Max. 210 mm (8.3 in.)	
	Roll weight	Max. 40 kg (88 lb.)	Max. 30 kg (66 lb.)
	Core diameter (*1)	76.2 mm (3 in.) or 50.8 mm (2 in.)	
Printing/cutting width (*2)		Max. 1,600 mm (63 in.)	Max. 1,346 mm (53 in.)
Ink	Type	TrueVIS INK 500 cc pouch	
	Colors	Four colors (cyan, magenta, yellow, black) Seven colors (cyan, magenta, yellow, black, light cyan, light magenta, and light black) Eight colors (cyan, magenta, yellow, black, light cyan, light magenta, light black, and white)	
Printing resolution (dots per inch)		Max. 900 dpi	
Cutting speed		10 to 300 mm/s (0.4 to 11.8 in/s)	
Blade force(*3)		30 to 500 gf	
Blade	Type	Roland CAMM-1 series blade	
	Blade offset	0.000 to 1.500 mm (0.0 to 59.1 mil)	
Software resolution (when cutting)		0.025 mm/step (0.98 mil/step)	
Distance accuracy (when printing) (*4) (*5)		Error of less than ± 0.3 % of distance traveled or ± 0.3 mm (± 11.8 mil), whichever is greater	
Distance accuracy (when cutting) (*4)		Error of less than ± 0.4 % of distance traveled or ± 0.3 mm (± 11.8 mil), whichever is greater When distance correction has been performed (when the setting for [CUTTING MENU] - [CALIBRATION] has been made): Error of less than ± 0.2 % of distance traveled or ± 0.1 mm (± 3.9 mil), whichever is greater	
Repeatability (when cutting) (*4) (*6)		± 0.1 mm (± 3.9 mil) or less	
Alignment accuracy for printing and cutting (*4) (*7)		± 0.5 mm (± 19.7 mil) or less	
Alignment accuracy for printing and cutting when reloading media (*4) (*8)		Error of less than ± 0.5 % of distance traveled by media or ± 3 mm (± 0.2 in.), whichever is greater	
Media heating system (*9)		Print heater set temperature: 30 to 45°C (86 to 112°F) Dryer set temperature: 30 to 50°C (86 to 122°F)	
Connectivity		Ethernet (100BASE-TX/1000BASE-T, automatic switching)	
Power-saving function		Automatic sleep feature	
Power requirements		AC 100 to 120 V $\pm 10\%$, 9.8 A, 50/60 Hz or AC 220 to 240 V $\pm 10\%$, 5.2 A, 50/60 Hz	AC 100 to 120 V $\pm 10\%$, 7.9 A, 50/60 Hz or AC 220 to 240 V $\pm 10\%$, 4.1 A, 50/60 Hz
Power consumption	During operation	Approx. 1,270 W	Approx. 1,030 W
	Sleep mode	Four colors : 48 W Seven and eight colors : 43 W	
Acoustic noise level	During operation	63 dB (A) or less	
	During standby	53 dB (A) or less	
Dimensions (with stand)		2,945 (W) x 745 (D) x 1,310 (H) mm (116 [W] x 29.4 [D] x 51.6 [H] in.)	2,685 (W) x 745 (D) x 1,310 (H) mm (105.8 [W] x 29.4 [D] x 51.6 [H] in.)
Weight (with stand)		205 kg (451.9lb.)	191 kg (421lb.)
Environment	Power on (*10)	Temperature: 20 to 32°C (68 to 90°F), humidity: 35 to 80 % RH (no condensation)	
	Power off	Temperature: 5 to 40°C (41 to 104°F), humidity: 20 to 80 % RH (no condensation)	
Included items		Dedicated stands, power cord, media clamps, media holders, replacement blade for separating knife, User's Manual, etc.	

*1

The media holders of this machine are designed to be used exclusively with media that has a paper tube (core) with an inner diameter of 3 inches. To use 2-inch media, the optional media flanges are required.

*2

The length of printing or cutting is subject to the limitations of the program.

*3

- 500 gf is the maximum instantaneous blade force.
- The blade force must be adjusted according to details such as the media thickness.

*4

- Media type: Media specified by Roland DG Corp.
- Temperature: 25°C (77°F), humidity: 50%
- Roll media must be loaded correctly.
- Applicable when all pinch rollers that can be used with the media width are used.
- Side margins: 25 mm (1.0 in.) or more for both the left and right margins
- Front margin: 35 mm (1.4 in.) or more
- Excluding expansion/contraction of the media
- Not guaranteed when the print heater or dryer is used.
- Assumes all correction and adjustment functions of the machine have been used properly.

*5

- Print travel: 1 m (39.4 in.)

*6

- [PREFEED] menu item must be set to "ENABLE."

Range for assured repetition accuracy

- For media with a width exceeding 610 mm (24.0 in.): Length 4,000 mm (157.5 in.)
- For media with a width of 610 mm (24.0 in.) or less: Length 8,000 mm (315.0 in.)

*7

- Provided that the media feed length is 3,000 mm (118.1 in.) or less.
- Excludes the effects of slanted movement and of expansion and contraction of the media.

*8

- Data size:
64-inch model : 1,000 mm (39.4 in.) in the media-feed direction, 1,600 mm (63.0 in.) in the carriage-movement direction
54-inch model : 1,000 mm (39.4 in.) in the media-feed direction, 1,346 mm (53.0 in.) in the carriage-movement direction
- No lamination
- Automatic detection of crop marks at 4 points when media is reloaded
- During cutting, [PREFEED] menu item must be set to "ENABLE."
- Excluding possible shift caused by expansion/contraction of the media and/or by reloading the media.

*9

- Warm-up is required after the power is turned on. This may require 5 to 20 minutes, depending on the operating environment.
- Depending on the ambient temperature and the media width, the set temperature may not be reached.

*10

- Operating environment

