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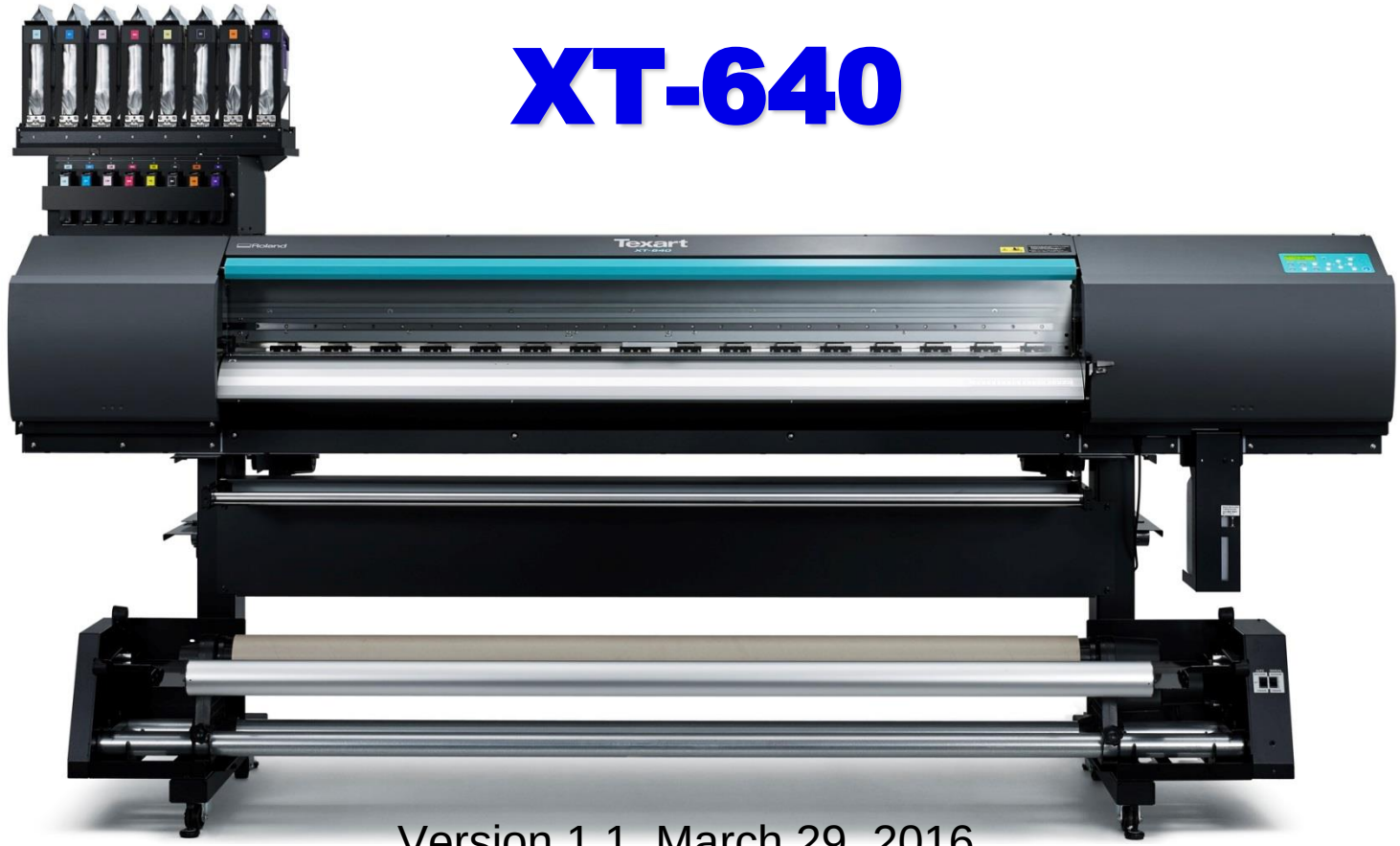
Product Guide

XT-640



Version 1.1 March 29, 2016

Roland DG Corporation

Version	Date	Description of Changes
1.0	December 14, 2015	First Edition
1.1	March 29, 2016	P. 11: Correction of erroneous description Incorrect: refer to the setup guide and the service note. Correct: refer to Chapter 5 of the service note. P. 21: Added 1 pass print mode

Contents

1. Product Information
2. Printing Theory
3. Ink
4. Ink Line
5. Take-up Unit
6. Media Heating System
7. Cleaning Function
8. Special Pump Operation
9. Interface
10. Other Features
11. Software
12. Installation
13. Transport
14. Consumables

1. Product Information

Imagine. Roland

XT-640

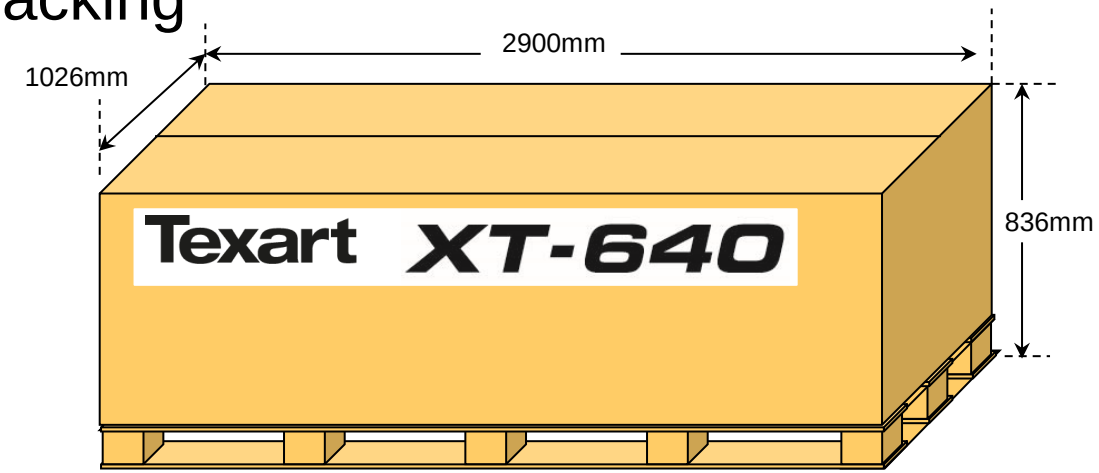
XT-640 is dye-sublimation printer developed based EJ-640

- Series name: Texart
- 64 inch, print only
- Dual gold print heads in staggered arrangement
- Ink: Texart INK
- Ink configuration:
  - 4 colors CMYK × 2
  - 8 colors CMYKLcLmOrVi
- Electrical driven auto-choke system
  (Each of 8 valves closes individually)
- Roland ink switching system (4 colors only)
- 1 liter ink system (BIF-1)
- Feed adjuster optimized for roll media
- Take-up unit: TUC-3/TU3-64 (Optional)
- RIP software: ErgoSoft Roland Edition

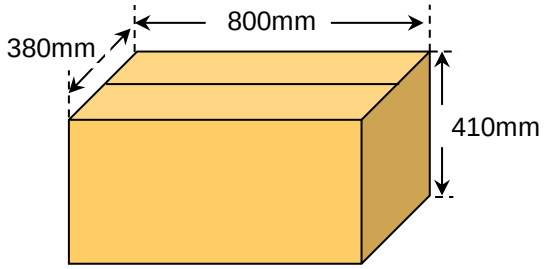
- Difference from EJ-640

Item	Specification	EJ-640	XT-640
Heating System	Built-In Heater	pre, print, dryer	**only dryer**
Feed Adjuster	Front Side	-	✓
	Rear Side	✓	✓
Ink Supply	Roland Ink System 1L Ink System	BIF-2	**BIF-1**
	Ink Type	EJ ink	**Texart Ink**
RIP	Bundled RIP Software	RVW Dual	**ErgoSoft**
Colors	Number of Colors	4 / 7	**4 / 8**

- Packing



Machine

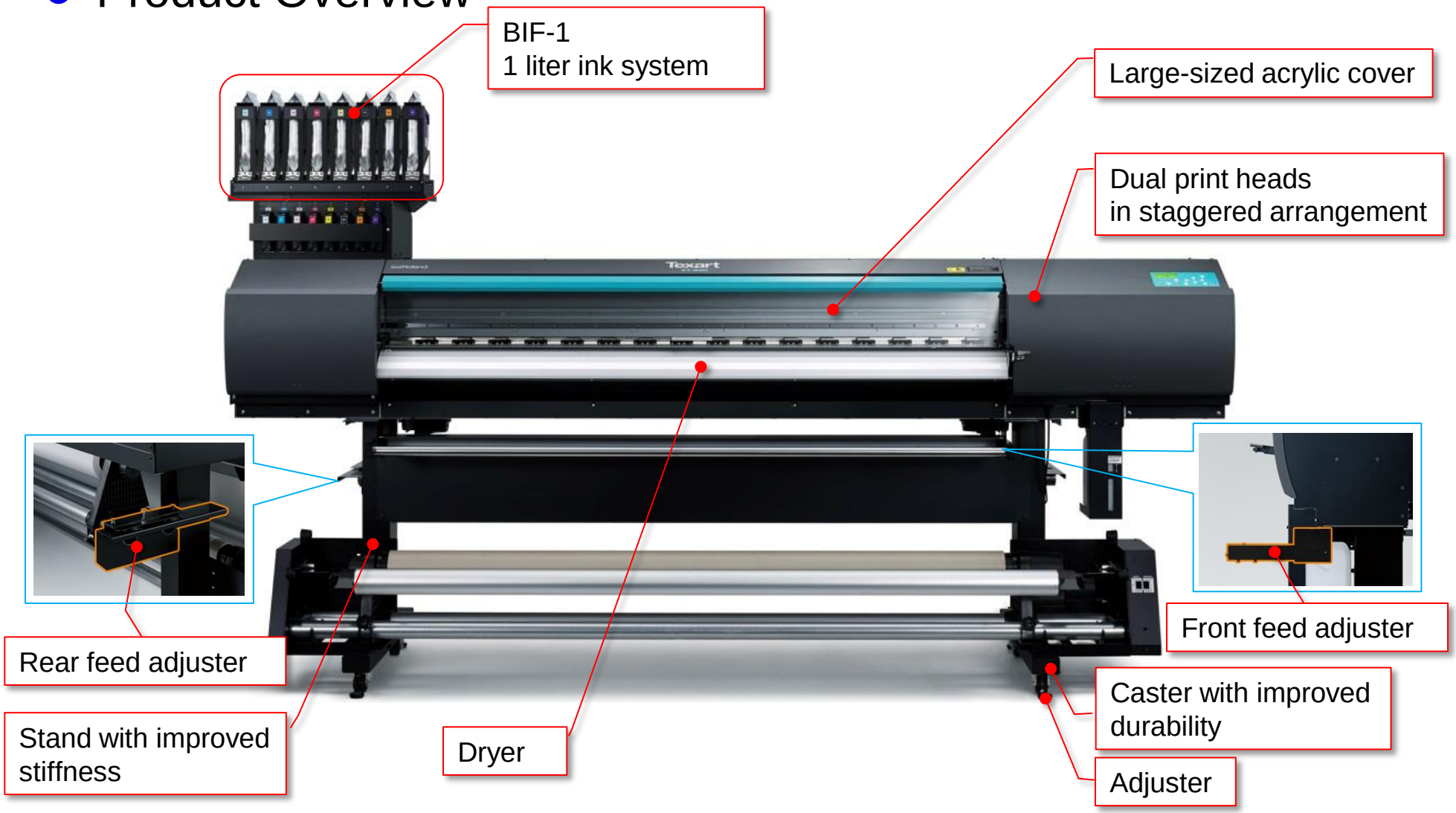


1 liter ink system（BIF-1）
*Packed in a separate box

- Specification

Media width	259 to 1625mm
Maximum printing width	1615mm
Media weight	40kg
Exterior dimensions (with stand)	2835[W] x 830[D] x 1650[H]mm Weight: 214Kg
Power requirements	AC100 to 120V ±10%,5.5A, 50/60Hz AC220 to 240V ±10%,2.8A, 50/60Hz
Power consumption	During operation: approx. 750W, Sleep mode: approx.70W
Environment	Power on: Temperature: 18 to 25° C, humidity: 35 to 65% RH (noncondensing) Power off: Temperature: 15 to 30° C, humidity: 20 to 80% RH (noncondensing)

- Product Overview



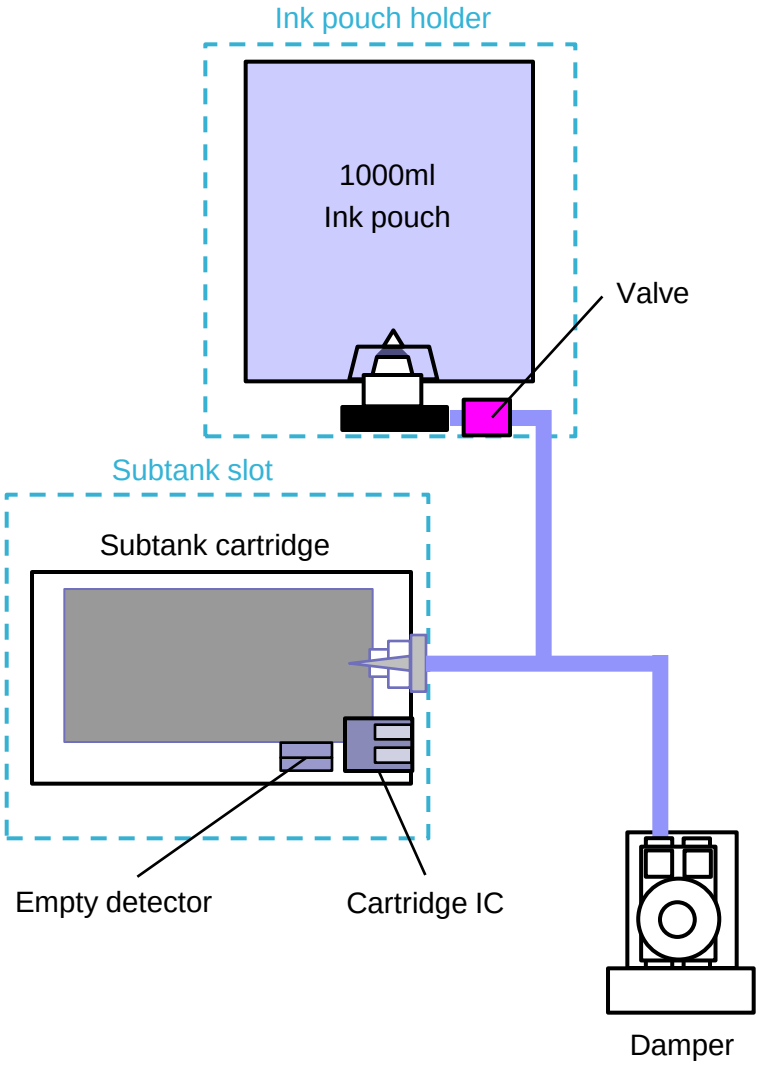
BIF-1

Original 1L Ink System

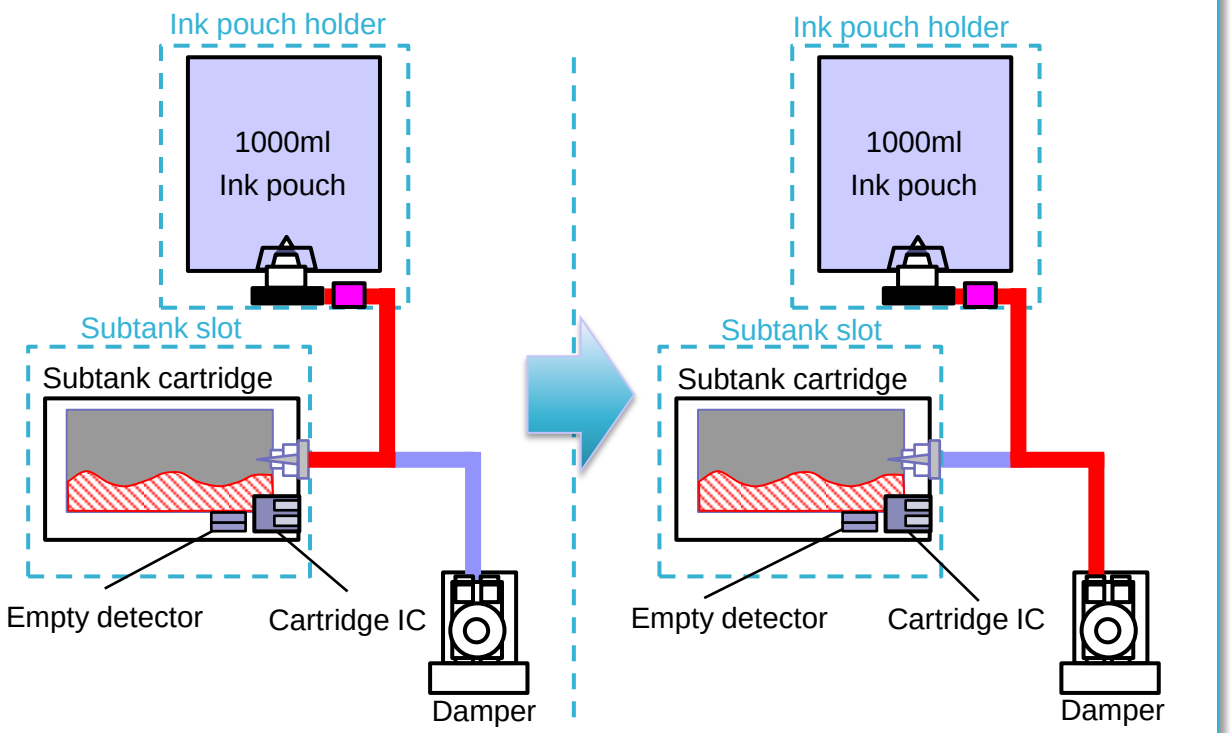
- Designed to prevent ink from being exposed to the air, which ensures stable printing
- Enables continuous printing for hours
- Roland Ink Switching System (4 colors only)
- Easy to install and remove an ink pouch
- The installation of BIF-1 should be performed by service engineers.

4C

8C

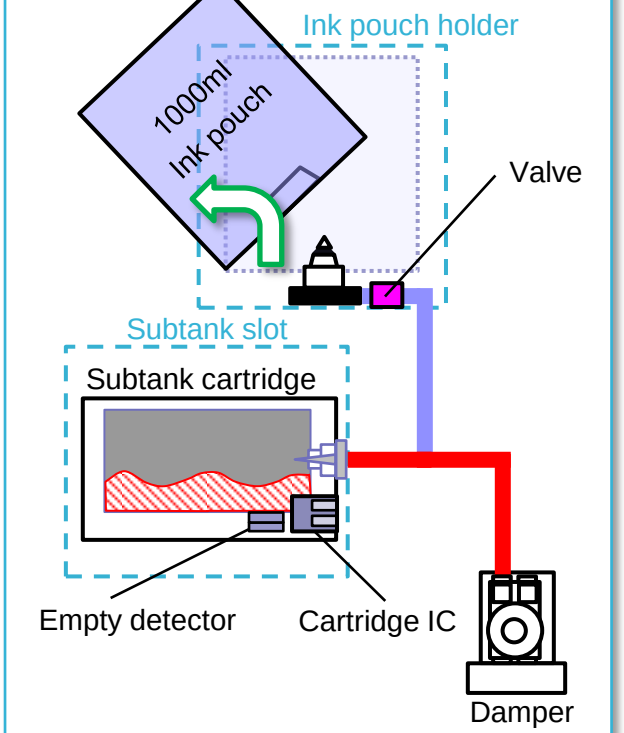


BIF-1 - Ink Flow



1. When an ink pouch is installed, approx.100cc of ink moves to the sub tank.

2. Then ink will be supplied only from the ink pouch.

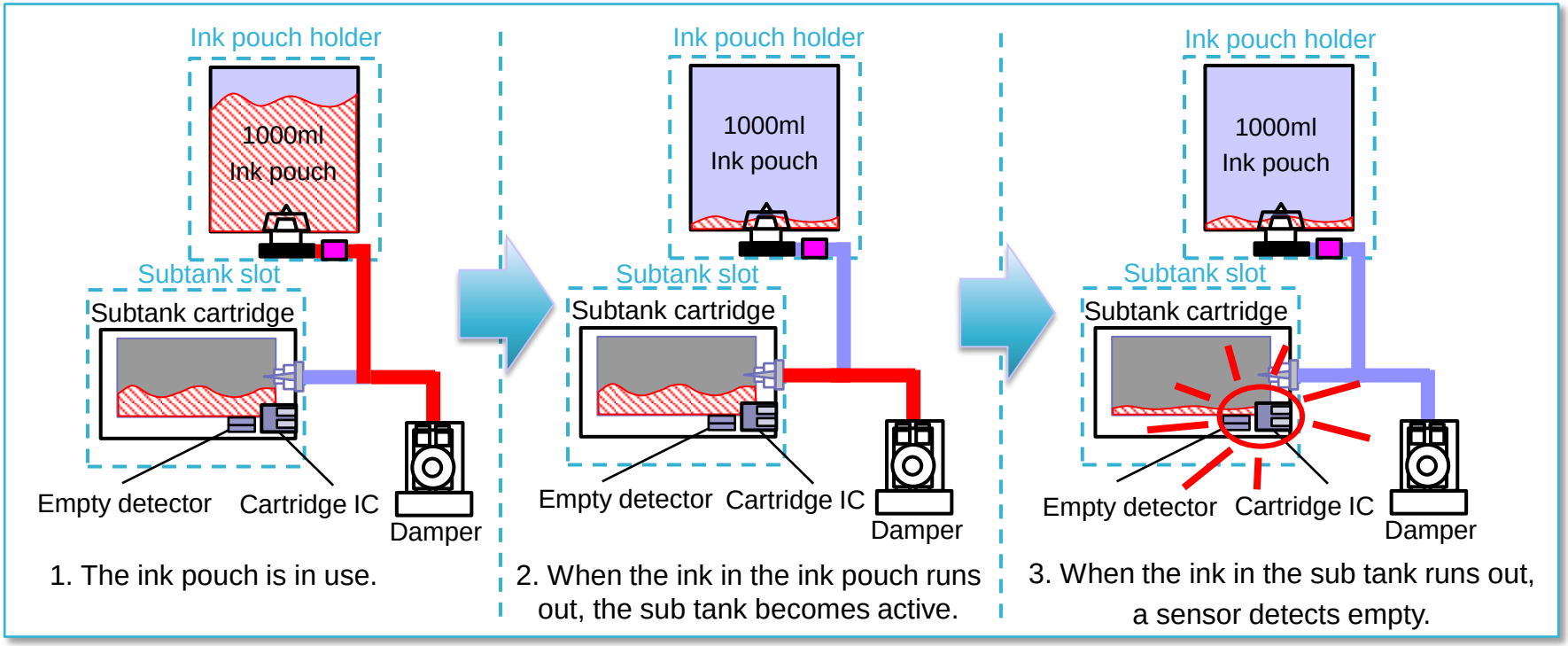


3. When the ink pouch is removed, the valve closes, and the sub tank becomes active.

* The ink remaining amount in the ink pouch cannot be checked neither with RIP software nor in the Main Menu on the Operation Panel. In other words, there is no “INK REMAINING” menu in the Menu List.
* The sensor detects empty only when the ink in the sub tank runs out.

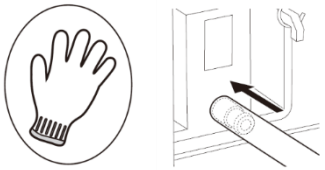
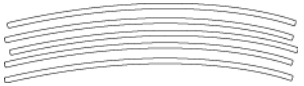
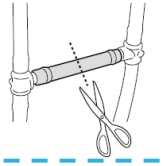
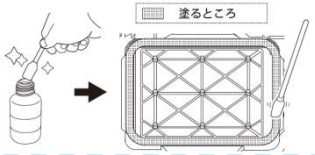
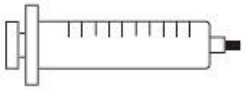
BIF-1 - Ink Pouch Replacement -

- BIF-1 allows you to replace an ink pouch even during the printing. However, if you replace an ink pouch before the empty is detected, the ink will remain in the sub tank for a long time, resulting in the settlement of ink components.
- In order to avoid problems such as uneven colors, it is recommended to replace an ink pouch after the ink in the sub tank runs out and the empty is detected.
- In order to prevent the settlement of ink components, refresh sub tanks once every 6 months.



BIF-1 Installation

- The machine and BIF-1 are packed in separate boxes.
- Service engineers need to bring the following parts and tools.

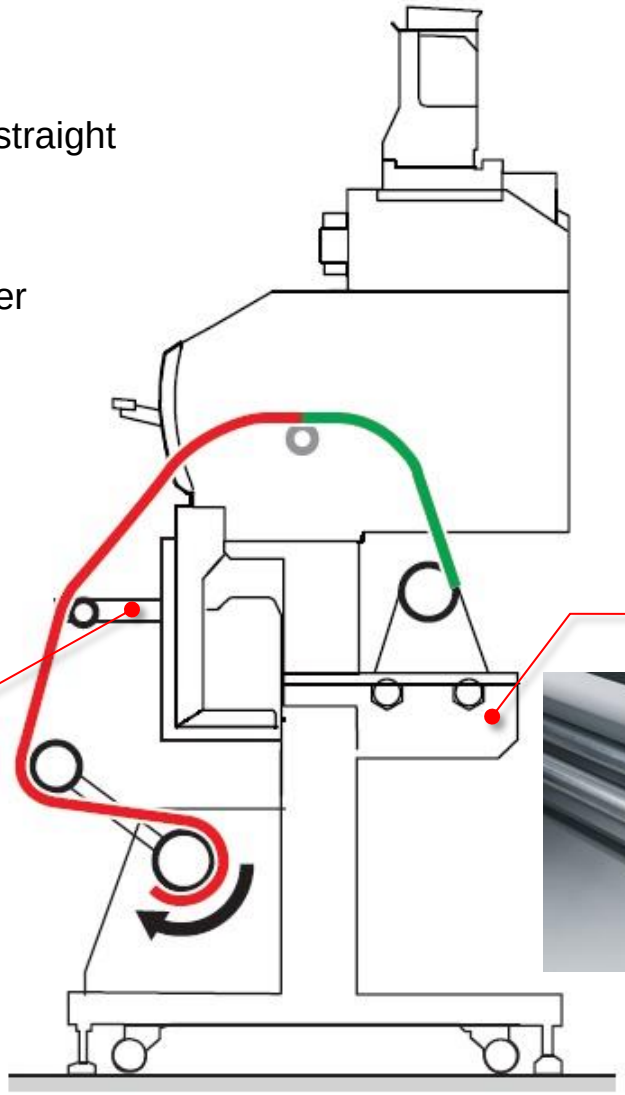
1	Gloves (anti-slip)		Tubes inserted to ink pouch holders need to be replaced with included tubes at the time of installation. Wear gloves when replacing, and be careful not to bend them.
2	Spare tubes		In case a tube bends, use a spare tube. A bent tube has low gas barrier capability to prevent ink from solidifying, causing missing dots. P/N 1000002455 ASSY,TUBING 3*3080MM FP-740
3	Scissors to cut off ink tubes (8 colors)		When using 8 colors, it is required to cut off ink tubes at the time of installation.
4	Cleaning liquid		Apply cleaning liquid (CJ-CL) to the cap top before ink filling.
5	Syringe		Check if the ink line from the ink pouch to the choke valve is airtight.

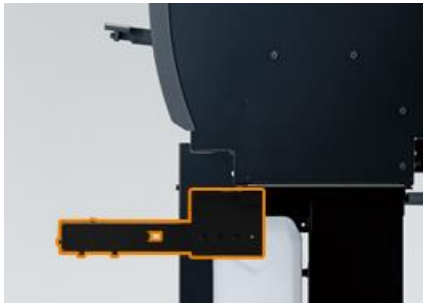
Rev.1.1 *For detailed instructions on how to install the ink system, refer to Chapter 5 of the service note.

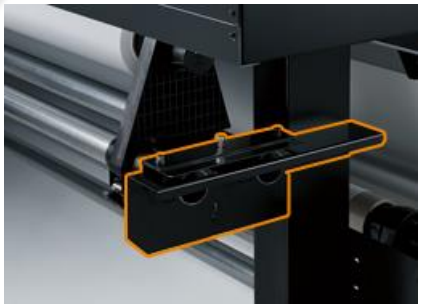
Feed Adjuster

- Allows you to adjust parallelism of the roll media, grit rollers, and take-up unit to feed the media as straight as possible.

- The installation and adjustment of the feed adjuster should be performed by service engineers.





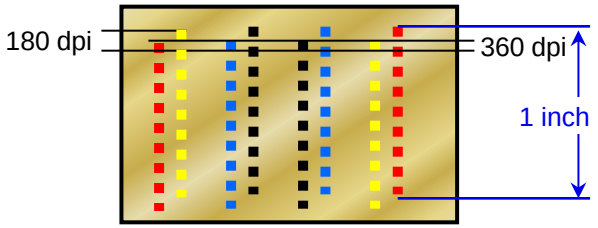


- Print Head
  - Piezo inkjet print head
    - It can fire 7 different sizes of dots.
      (One print mode uses appropriate 3 sizes.)
  - Dual print heads in staggered arrangement
  - 180 nozzles per line (8 lines in total)
  - Nozzle pitch: 360 dpi
  - Print width: Approx. 1 in.
  - Head rank
    - 24 digits × 3 lines
      e.g.:

      197997F8 (1/3)

      090928D9 (2/3)

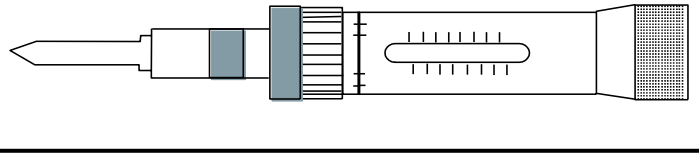
      19C9FT01 (3/3)

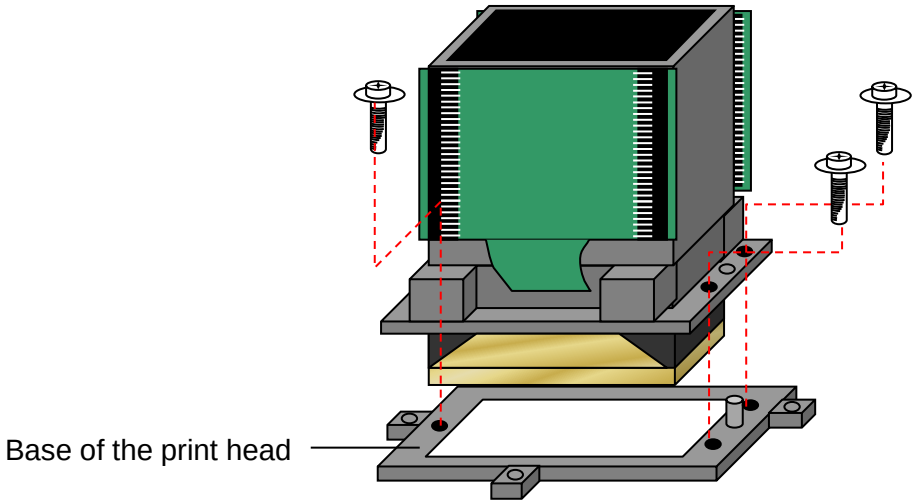


How to Fix the Print Head

- The print heads are secured with three screws.
- Tighten the screws with a 0.2Nm (20cNm) torque driver.

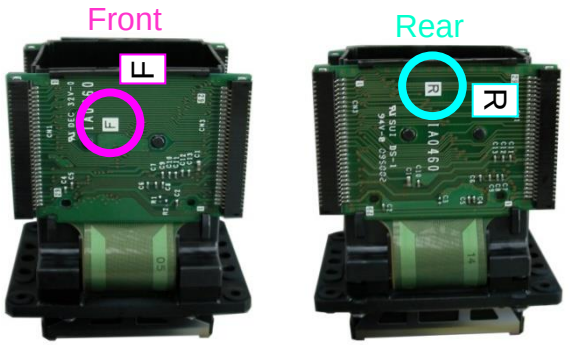
ST-056 TORQUE DRIVER NS





!! IMPORTANT !!

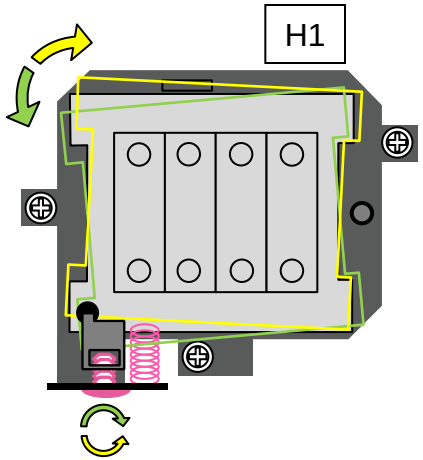
The print head has a front and back side.
Look at the letters on the boards.
"F" means front, and "R" means rear.
The head rank label is on the left side of the print head.

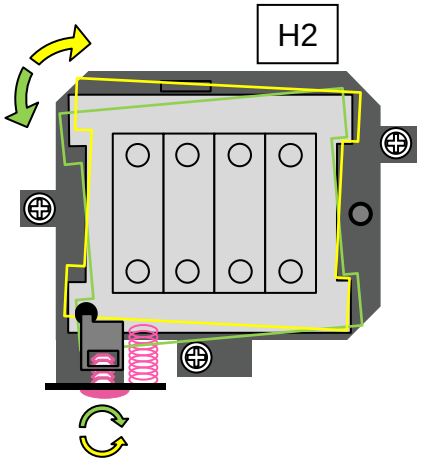


Print Head Adjustment

BIAS

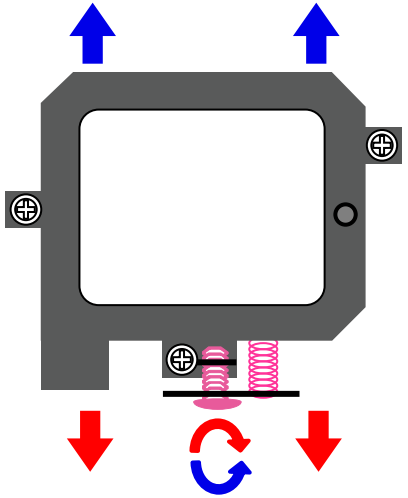
- Perform BIAS adjustment to each print head.
- The spring is pushing the print head clockwise.
- Tightening the Phillips head screw makes it turn counter-clockwise.



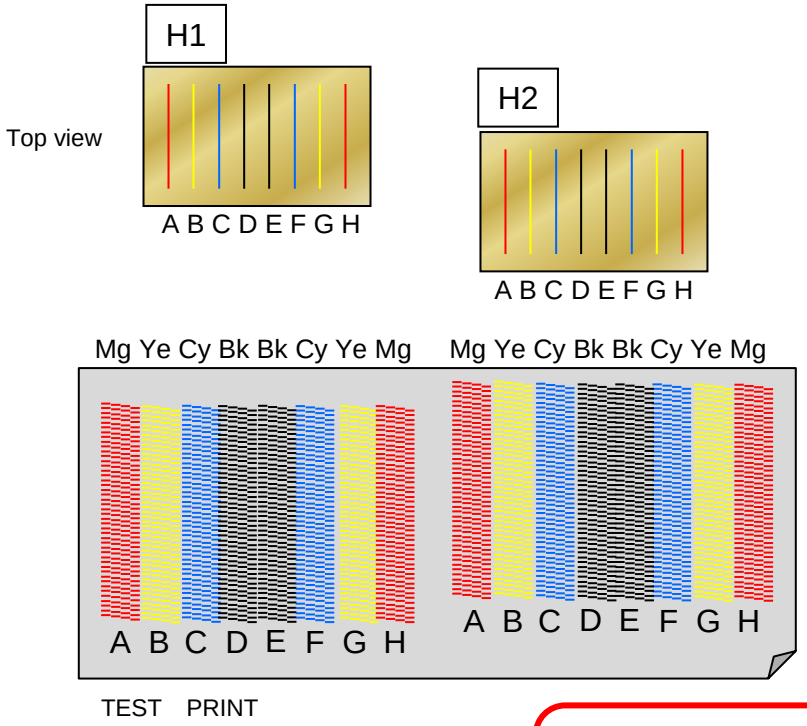


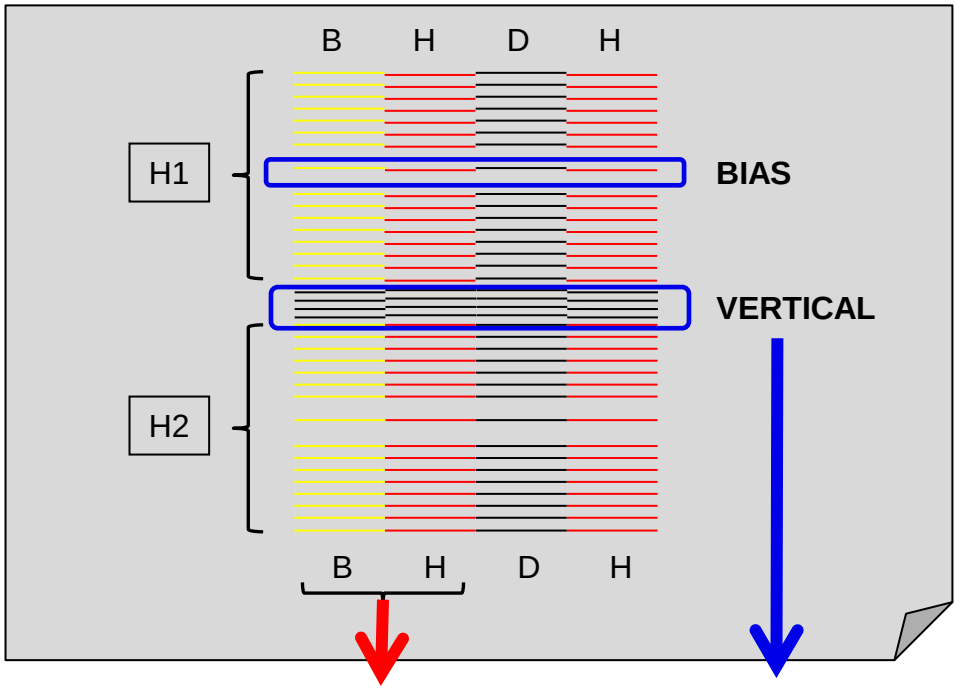
VERTICAL

- VERTICAL alignment is necessary for H2 based on H1(standard head).
- Tightening the Phillips head screw makes the head base move towards the front side.

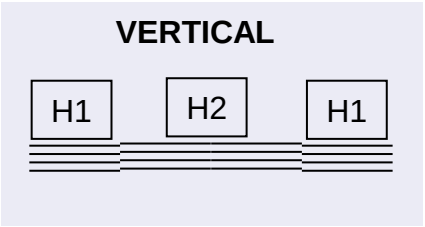


- Test Patterns for Head Adjustment (4 colors)



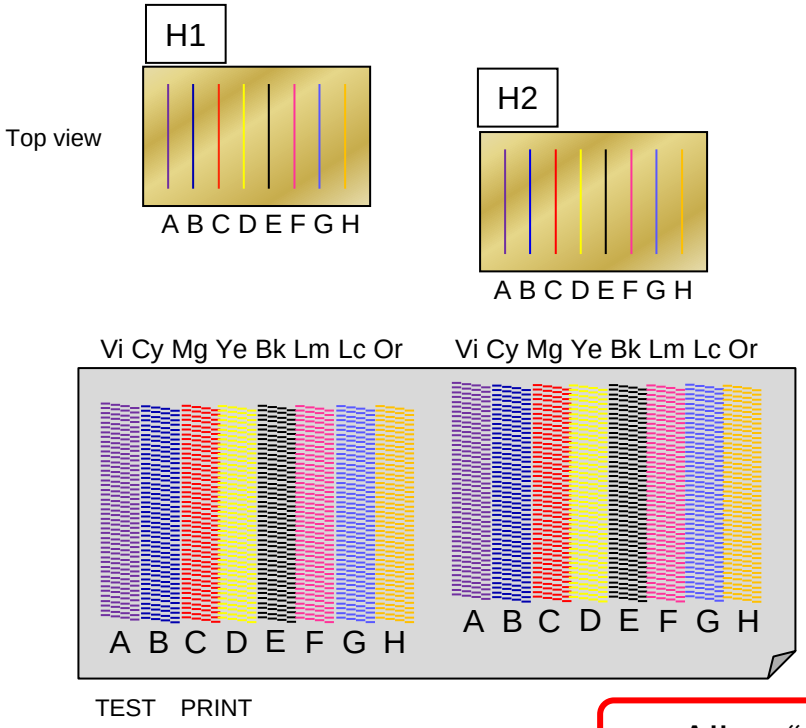


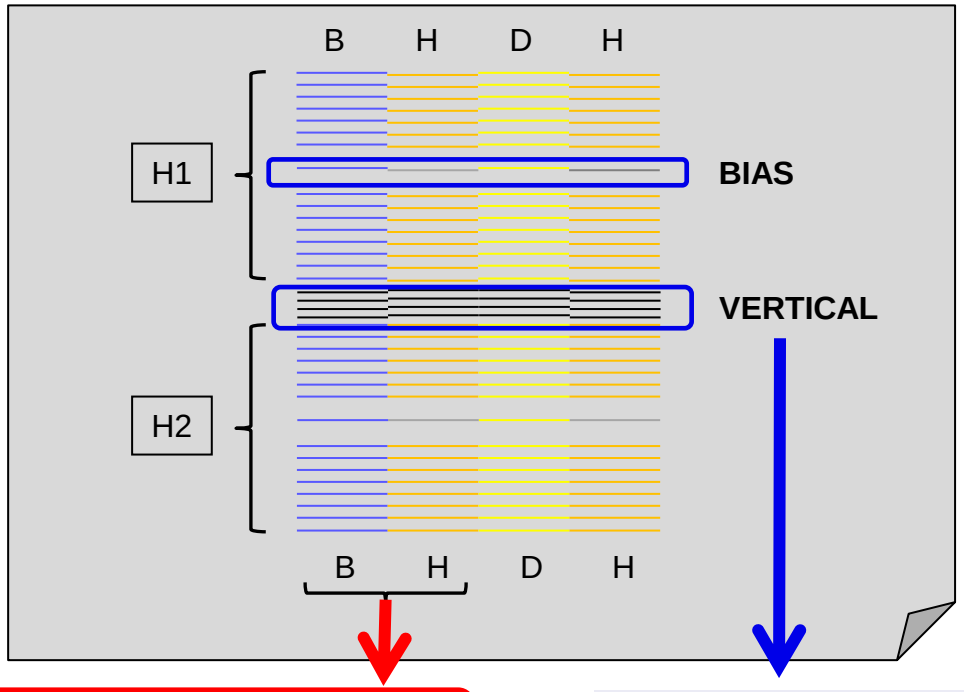
Align “Ye and Mg” for BIAS.
“Bk and Mg” can be used as supplementary.



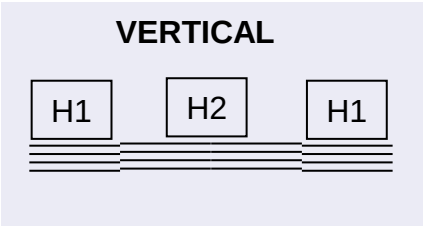
Align the patterns vertically for both BIAS and VERTICAL.
Slight misalignment influences the print quality.

- Test Patterns for Head Adjustment (8 colors)



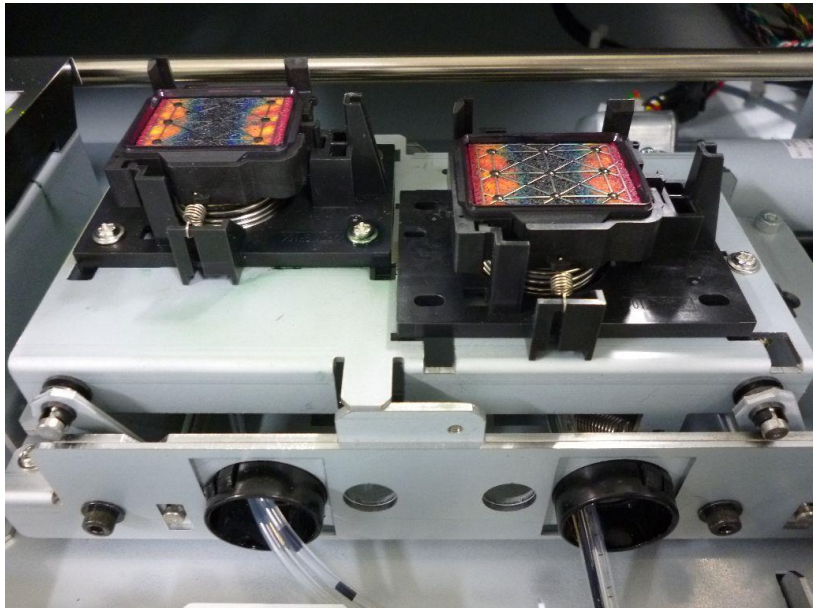


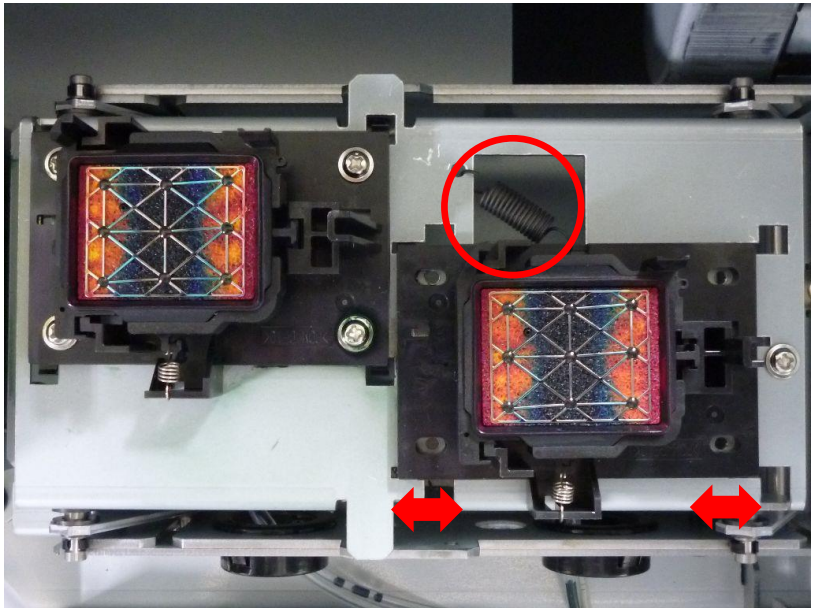
Align “Cy and Or” for the BIAS.



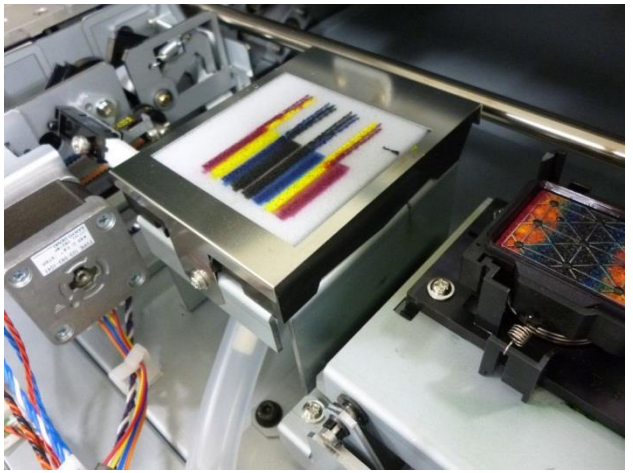
Align the patterns vertically for both BIAS and VERTICAL.
Slight misalignment influences the print quality.

- Capping Unit
  - Capping unit is lifted up by the contact with the head carriage.
  - Movable right capping unit absorb the production variance of a print head positioning.

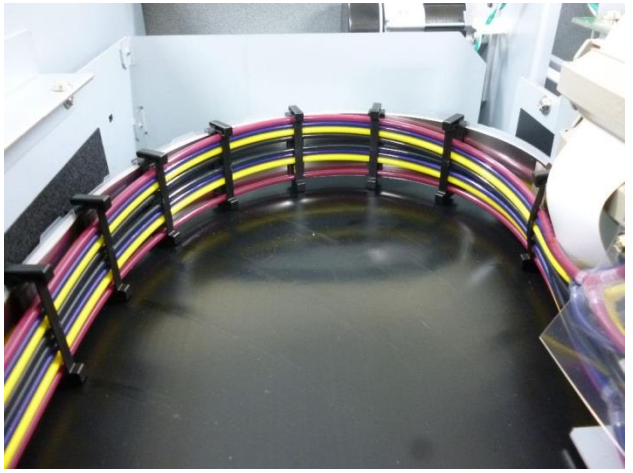




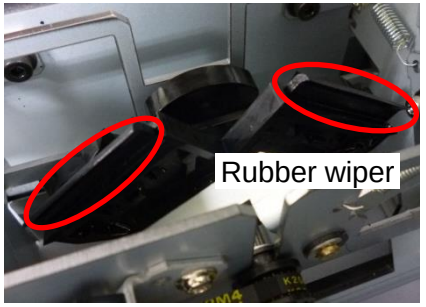
- Flushing Unit
  - Independent unit for the flushing while printing



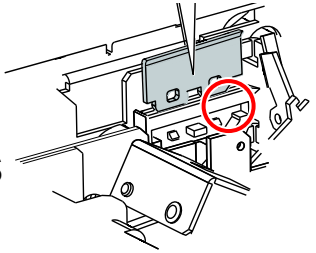
- Tube
  - No inter-connection of the tubes
  - Gas-barrier tubes for a stable operation
  - Broad inner structure for the reliable tubes with larger flexion

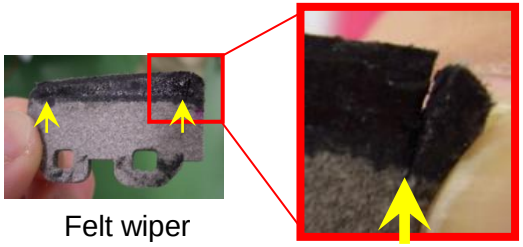


- Wiper Unit
  - Rubber wipers (dual)
    - Wipes the print head surface
    - Has a front and back side and needs to be attached correctly so that cleaning will be performed properly



  - Felt wipers (dual)
    - Does not scrape the print head surface but collects waste ink on the rubber wipers
    - Does not have a front and back side
    - Has a slit on both sides and wipes the corners of the print heads





  - Wiper scraper
    - Collects waste ink on the rubber wipers and is installed under the wiper unit

Printing Speed (4 Colors)

Rev.1.1

Profiles		Print Mode	Resolution (dpi)	Pass	Direction	Throughput
Decoration	Banner Satin	Draft	360 x360	1pass	Bi	102m²/h *
Decoration	Banner Banner Satin Display Toromat Flag Ink Through	High Speed	540 x360	2pass	Bi	63 m²/h
		Production	540 x 360	3pass	Bi	41m²/h
		Standard	360 x 720	4pass	Bi	30m²/h
		High Quality 1	720 x 720	9pass	Bi	13m²/h
		High Quality 2	720 x 1440	12pass	Bi	10m²/h
Apparel	Tricot Smooth Tricot Emboss	High Speed	540 x 360	3pass	Bi	41m²/h
		Standard	360 x 720	4pass	Bi	30m²/h
		High Quality	720 x 720	9pass	Bi	13m²/h

*** When using 1 pass print mode, you may experience banding or offset issue depending on printing and environmental conditions. Please conduct test printing in advance to check your results.**

- Printing Speed (8 Colors)

Profiles		Print Mode	Resolution (dpi)	Pass	Direction	Throughput
Decoration	Banner Banner Satin Display Toromat Flag Ink Through	High Speed	540 x360	4pass	Bi	31m²/h
		Production	540 x 360	5pass	Bi	25m²/h
		Standard	360 x 720	8pass	Bi	15m²/h
		High Quality 1	720 x 720	16pass	Bi	7m²/h
		High Quality 2	720 x 1440	24pass	Bi	5m²/h
Apparel	Tricot Smooth Tricot Emboss	High Speed	540 x 360	5pass	Bi	25m²/h
		Standard	360 x 720	8pass	Bi	15m²/h
		High Quality	720 x 720	16pass	Bi	7m²/h

- Ink Consumption

Texart ink 4 colors x ErgoSoft Roland Edition

Unit : (cc)

Profiles	Print Mode	dpi	N2A	N5A
Display Tromat	High Speed	540 x360	4.20	2.45
	Production	540 x 360	4.25	2.50
	Standard	360 x 720	4.20	2.40
	High Quality 1	720 x 720	4.50	2.55
	High Quality 2	720 x 1440	4.80	2.75

Condition
Data: ISO N2A
Size: A0 (841mm x 1189mm)

Texart ink 8 colors x ErgoSoft Roland Edition

Unit : (cc)

Profiles	Print Mode	dpi	N2A	N5A
Display Tromat	High Speed	540 x360	11.25	5.85
	Production	540 x 360	11.30	5.90
	Standard	360 x 720	11.25	6.25
	High Quality 1	720 x 720	7.75	4.65
	High Quality 2	720 x 1440	10.35	6.15

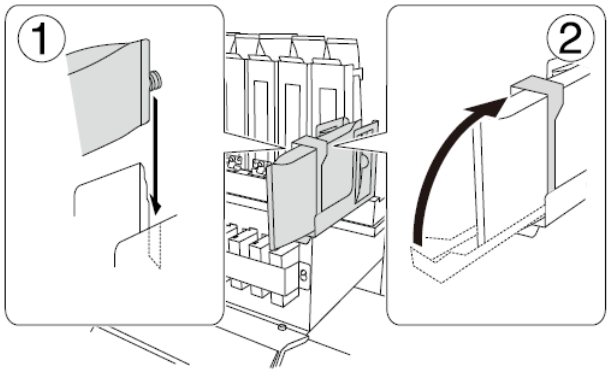
Condition
Data: ISO N5A
Size: A0 (841mm x 1189mm)

3. Ink

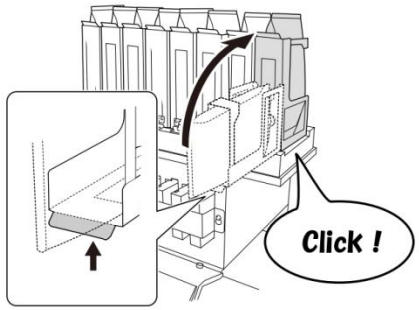
- Texart ink
  - 8 colors : C M Y K Lc Lm Or Vi
  - Model number : SBL3-BK / CY / MG / YE / LC / LM / OR / VI
  - Ink capacity : 1000cc

* An ink pouch is not equipped with an IC chip.

Shake an ink pouch gently.



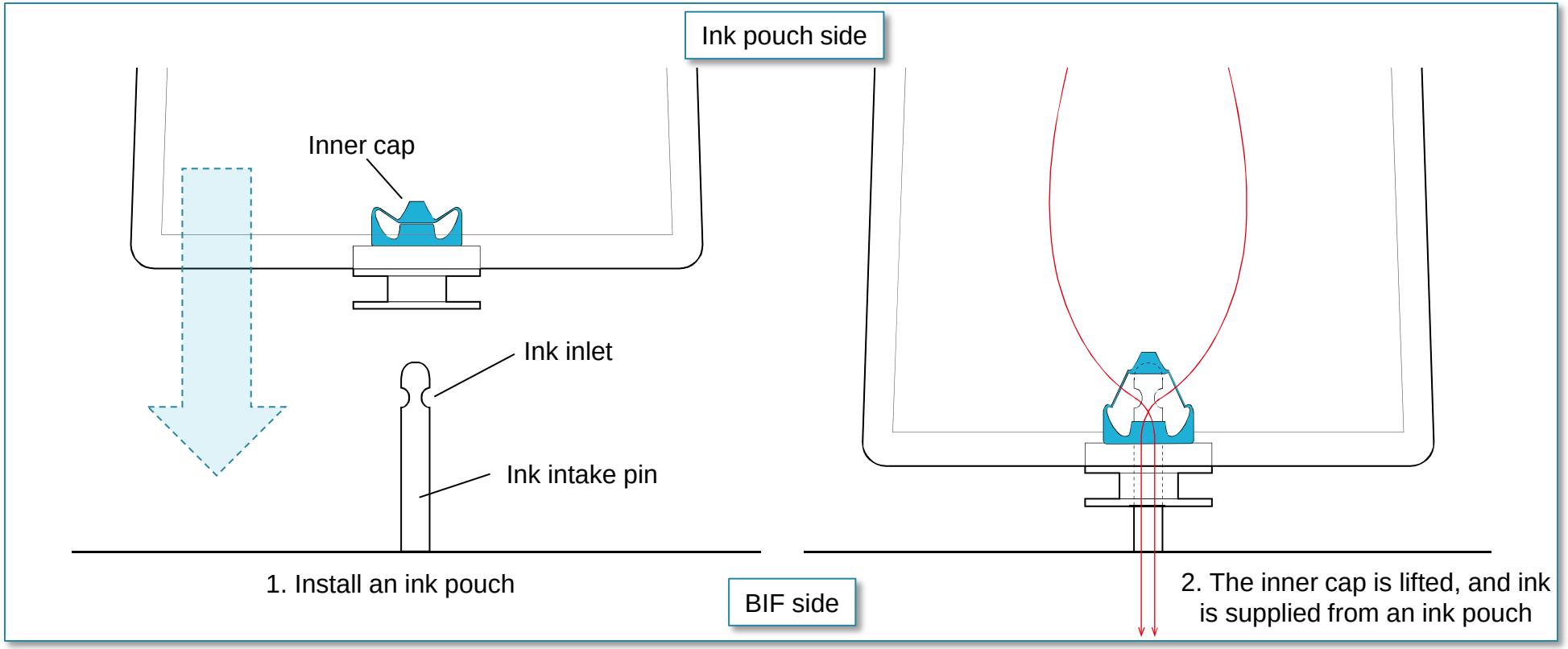
Install the new ink pouch.
Raise the stopper.



Raise the ink pouch holder.

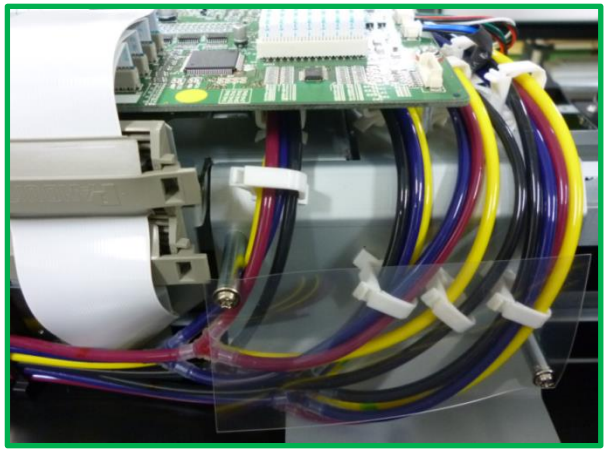
- Texart ink

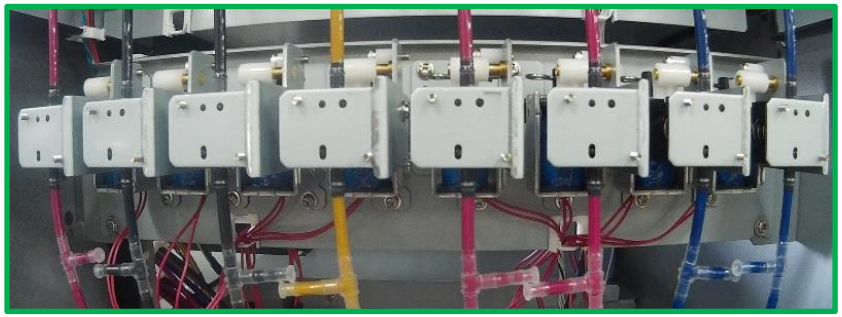
  Structure of an ink pouch



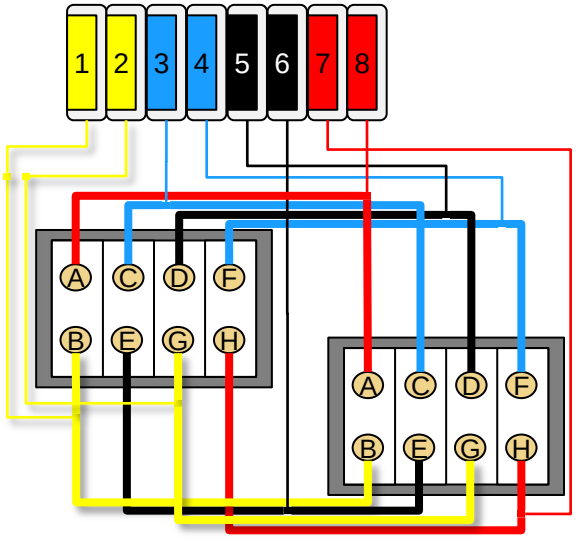
4. Ink Line

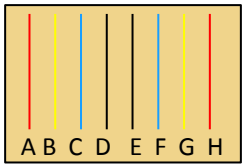
- Ink Line
  - Electrical driven auto-choke system (Each of 8 valves opens/closes individually.)

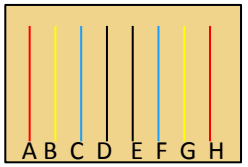




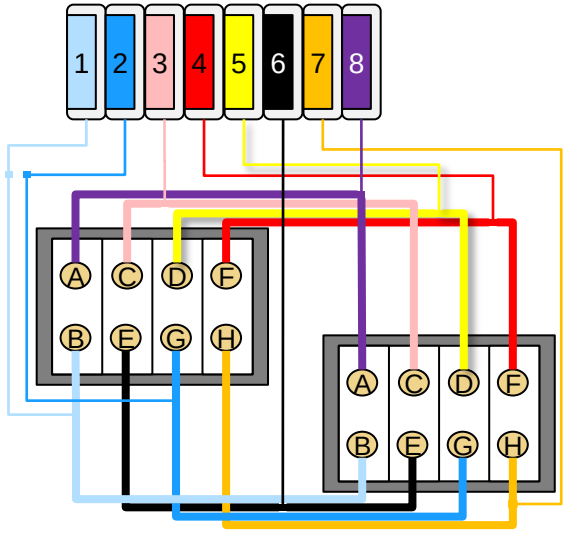
4 colors

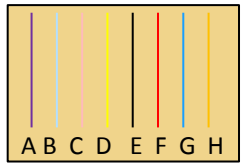


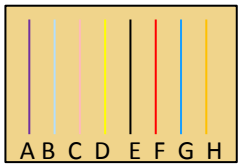




8 colors







5. Take-up Unit

- Take Up Unit: TUC-3/TU3-64 (Optional) - Optimized for Roll Media -

The take-up unit can be installed for use with either INWARD or OUTWARD curl, and service engineers will adjust it so that it gives just the right tension to media.

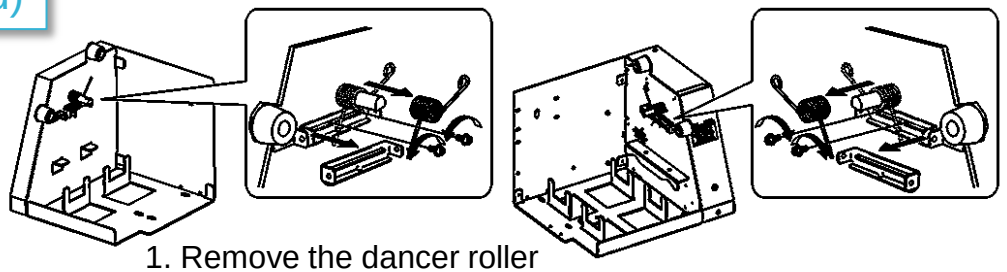
Take-up with INWARD curl is recommended in order to protect the printed side from being damaged, move on to the transfer process smoothly, and fully utilize the performance of the feed adjuster.

INWARD (Recommended)

Remove springs and screws from the TUC-3 control box and frame.

The take-up unit is adjusted for use with INWARD curl.

If you use it with OUTWARD curl, media will not be taken up properly.



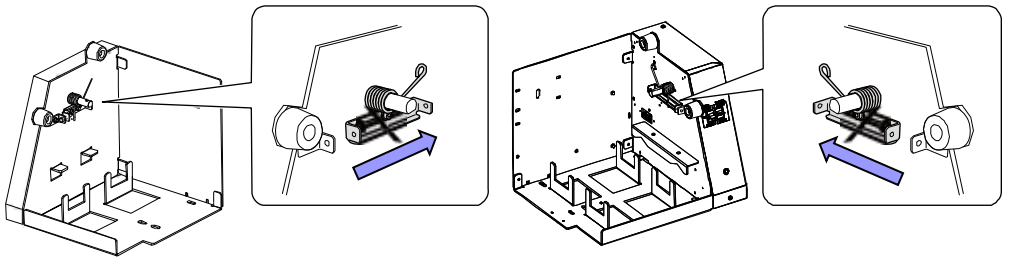
1. Remove the dancer roller
2. Remove the springs, screws, and brackets
3. Fix the dancer roller

OUTWARD

Adjust the position of springs and brackets of the TUC-3 control box and frame.

The take-up unit is adjusted for use with OUTWARD curl.

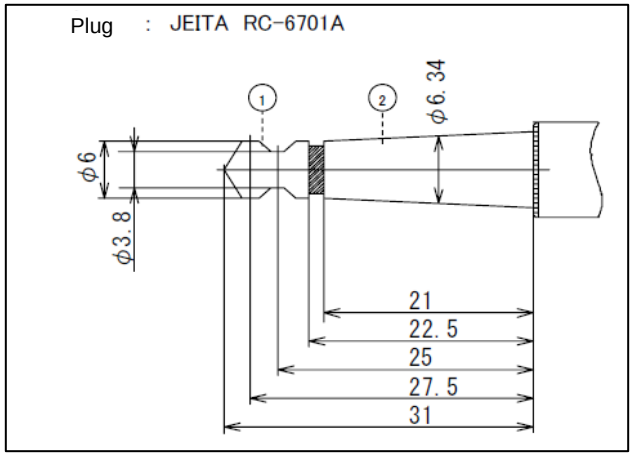
If you use it with INWARD curl, media will not be taken up properly.



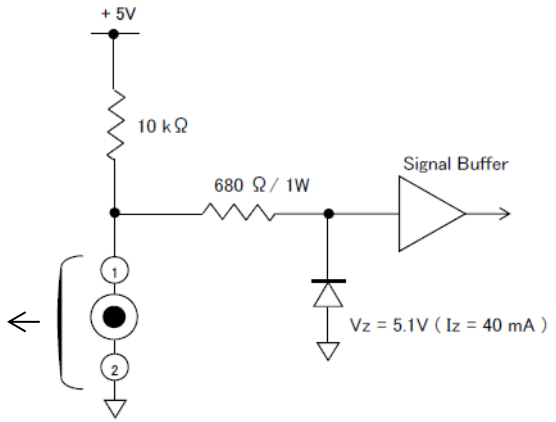
1. Loosen screws
2. Move brackets towards the back until they don't go any further
3. Tighten screws

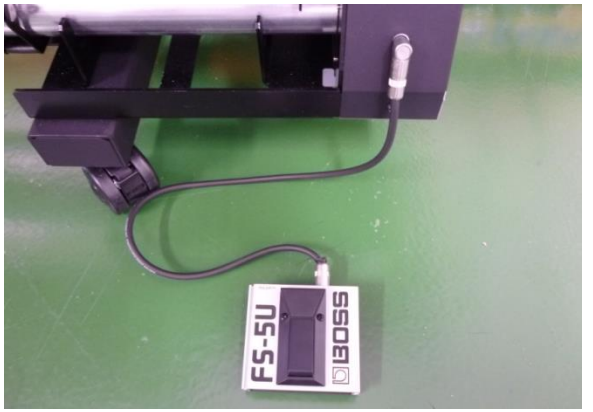
- On/Off operation by connecting a foot pedal
  *Only available from the 3rd party provider

Connector specification



Circuit diagram





As a reference, BOSS FS-5U has been tested to be compatible.

Specification of the plug:

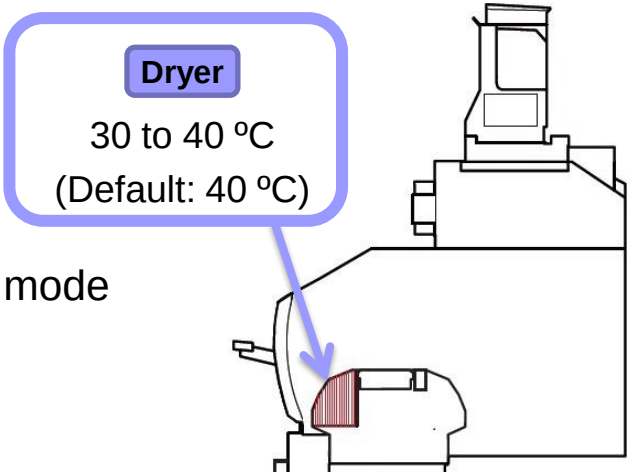
- Use a monaural plug (JEITA RC-6701A).
  *Do not use a stereo plug.
- By short-circuiting 1 and 2, it winds/rewinds the media depending on the direction set by the switch.
  *Do not apply voltage to the plug.

In case of using a foot pedal whose on/off signals are interchangeable, make sure that it is set to the “off” state to prevent unexpected operation when you plug it.

6. Media Heating System

- Media Heating System

The machine is equipped with a dryer for drying ink.



- Dryer: assist the drying time
  - 8 color mode needs longer drying time than 4 color mode

- 3rd party external heater
  - Depending on the printing conditions, an external heater may be needed.
    (It is described in the User's Manual Chapter 7 [Specifications].)

- 3rd party external heater information
  - Recommendation of 3rd party company in each region
    - Europe area: NITE Industrial
    - US area: BBC Industries
    - ASEAN area: NITE Industrial
    - Japan: Tohko *tested by DGJ (details follows in the next page)

- Test result with 3rd party heater
  - Print test with TOHKO's heater
    - Spec:

      Model name: PD Promo PD5153

      Heating technology: Halogen

      Power Consumption: 1500W AC100V Weight: 34kg

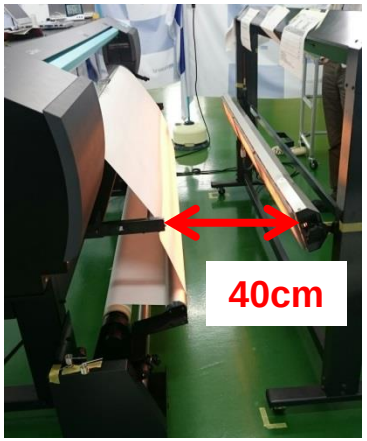
    - Settings:

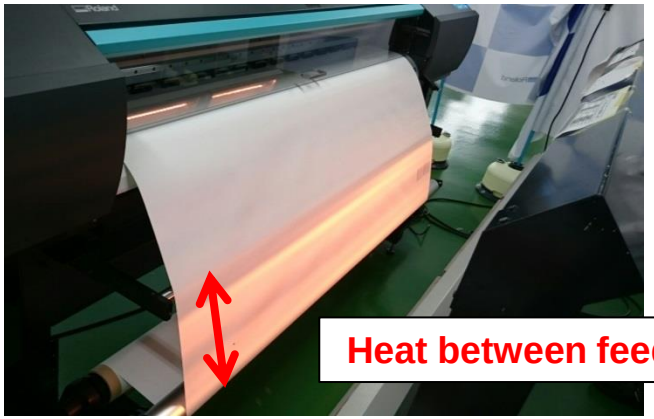
      Heating distance 40cm from feed adjuster (recommended in Tohko's Manual)

      Light height between feed adjuster and dancer bar

      Do not heat near the print head.

      Raise the temperature setting when printing the dark image.





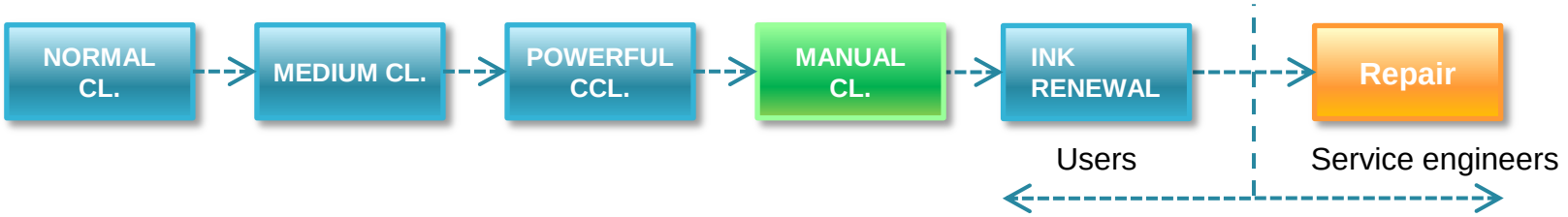
7. Cleaning Function

- Ink Consumption Amount for Cleaning

	Description	Ink Consumption	
NORMAL CL.	Daily care and maintenance	4 cc	
MEDIUM CL.	Perform if missing dots are not resolved by normal cleaning.	20 cc	
POWERFUL CL.	Perform if missing dots are not resolved by normal/medium cleaning.	31 cc	
INK RENEWAL	Perform if missing dots are not resolved by normal/medium/powerful/manual cleaning.	4 colors	199 cc
		8 colors	250 cc

*This is for reference only.

- Procedure to resolve missing dots

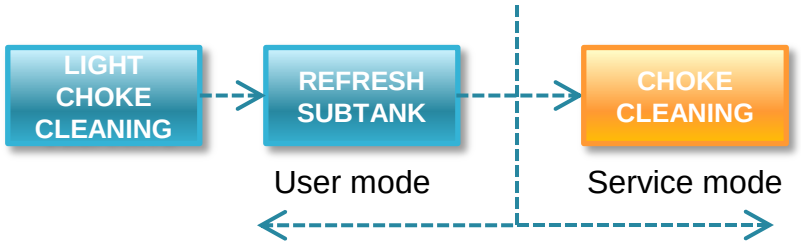


Ink Consumption Amount for Cleaning

	Description	Ink Consumption	
LIGHT CHOKE CL.	Perform this cleaning when printed colors are unstable or uneven, e.g., when color density is inconsistent, even if the same data is printed with the same settings. The amount of time required to complete ink renewal by rotating the pump while the chock valves are closed is shorter than that of choke cleaning. Therefore, stress on the print head and dampers are less compared to choke cleaning.	162 cc	
CHOKE CL.	Perform after replacing a damper. The machine rotates the pump while the chock valves are closed. It cleans the ink components settled at the bottom of dampers.	175 cc	
REFRESH SUBTANK	Refresh ink in the sub tanks once every six months. This operation is effective when uneven colors are not resolved by light choke cleaning.	4 colors	1390 cc
		8 colors	1232 cc

*This is for reference only.

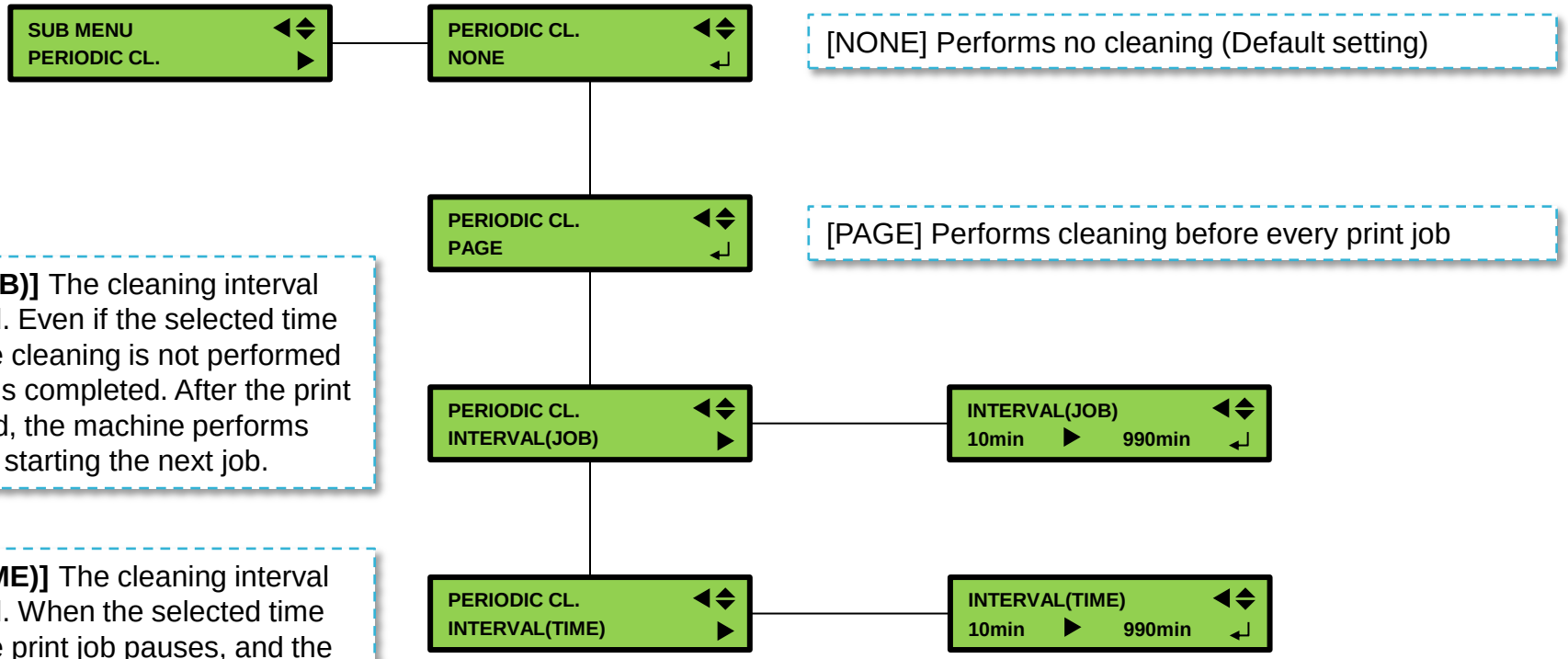
Procedure to resolve Unstable/Uneven Colors



Cleaning Function

Periodical Cleaning

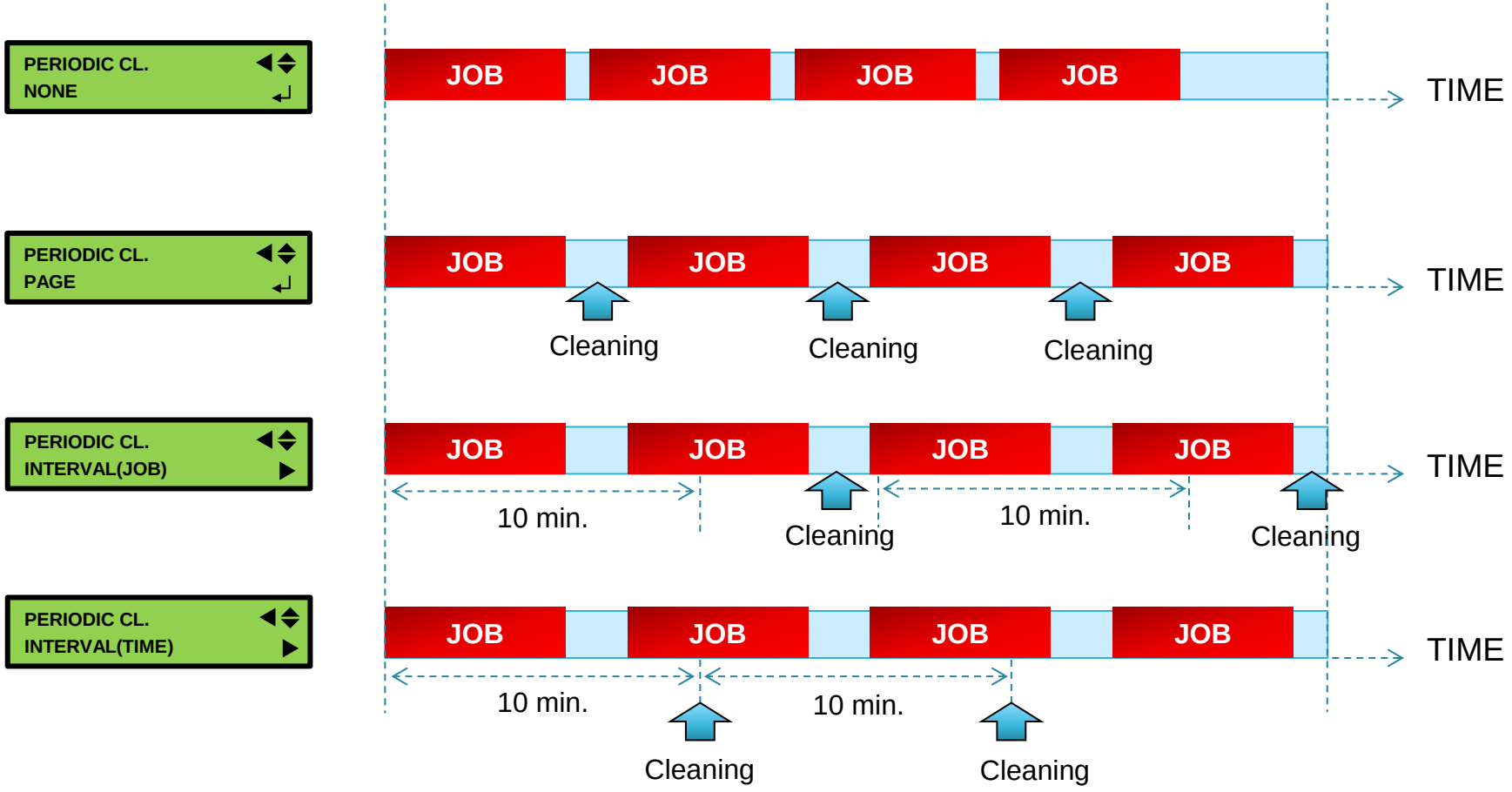
- The cleaning interval can be selected.



[INTERVAL(JOB)] The cleaning interval can be selected. Even if the selected time has passed, the cleaning is not performed until a print job is completed. After the print job is completed, the machine performs cleaning before starting the next job.

[INTERVAL(TIME)] The cleaning interval can be selected. When the selected time has passed, the print job pauses, and the machine performs cleaning.

- Timing of Periodical Cleaning



- Simulation of the Ink Consumption Amount per Month for Automatic Maintenance

Conditions of the simulation:

- Operation hours: 8 hours/day
- Operation days: 5 days/week (22 days/month)
- The machine does not enter the sleep mode during operation.

Ink Configuration	Ink Consumption Amount per Machine	Ink Consumption Amount per Ink Cartridge
4 colors	113.6cc	28.4cc
8 colors	113.6cc	14.2cc

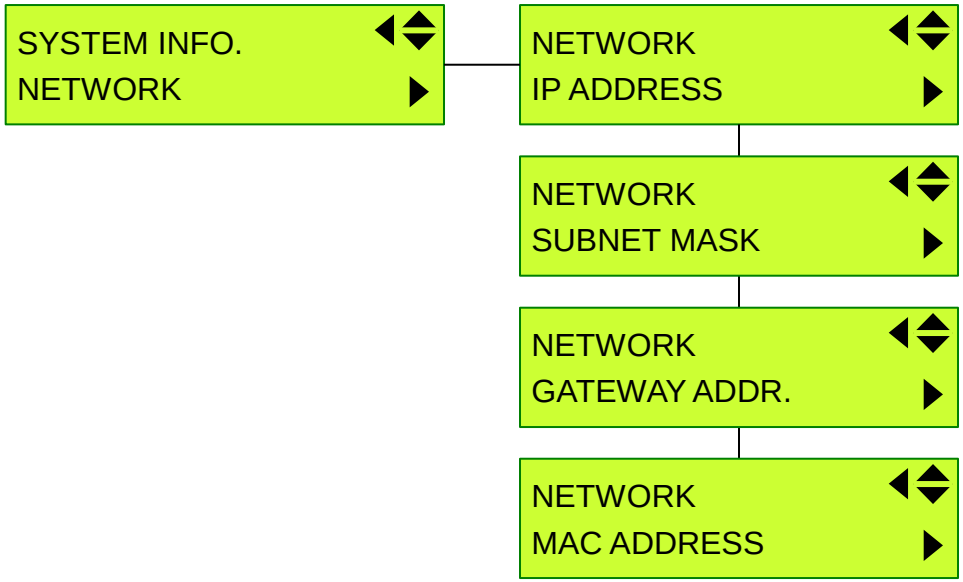
*This is for reference only. The ink consumption amount varies widely by usage conditions.

8. Special Pump Operations

- Special Pump Operations

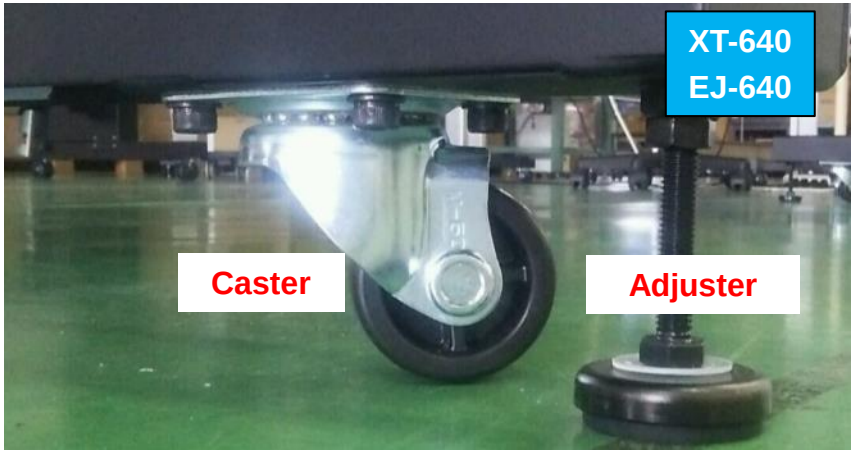
	Description	Ink Type	Ink Consumption	Waste Amount	Referential Time
FILL INK	It fills ink lines with ink. Cleaning liquid is not required.	4 colors	1541 cc	-	Approx. 25 min.
		8 colors	1451 cc	-	
PUMP UP	It removes ink in the tubes. (Ink in the sub tanks will not be removed.)	4 colors	-	264 cc	Approx. 15 min.
		8 colors	-	261 cc	
HEAD WASH	It cleans ink lines. 8 cleaning cartridges (CJ-CL) are required.	4 colors	1026 cc	-	Approx. 20 min.
		8 colors	894 cc	-	
REPLACE SUBTANK	Perform when replacing a sub tank. It removes ink in the ink tubes and sub tanks.	4 colors	1538 cc	-	Approx. 25 min.
		8 colors	1447 cc	-	

- Ethernet Port
  - The machine has an Ethernet port.
  - The IP address can be set in the operation panel.



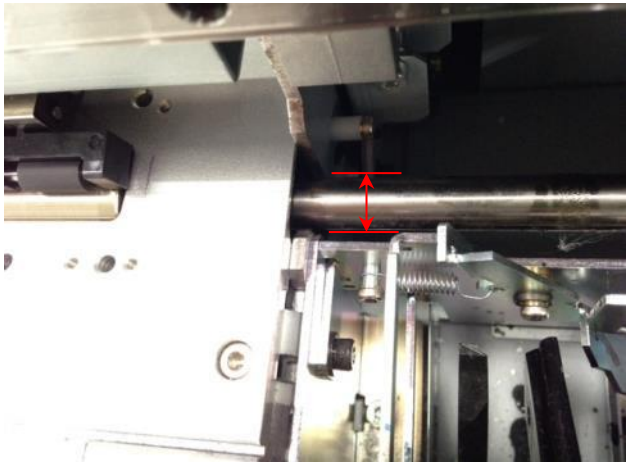
10. Other Features

- Improvements Made to Reduce the Printer Body Shaking During Printing
  - Stand with improved stiffness
  - Caster with improved durability
  - Adjusters have been added.



- Strengthened Guide Rail
  - It does not get distorted easily compared with that of XF-640.

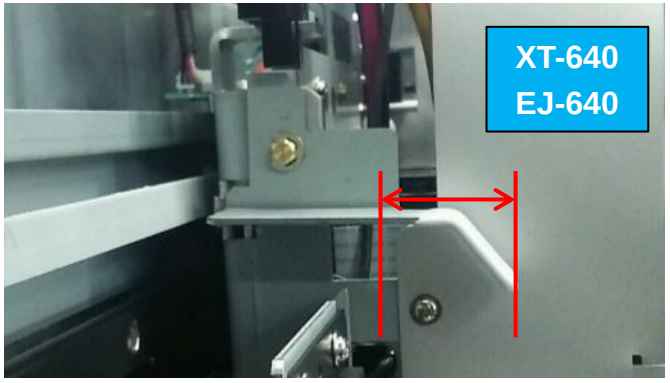
- Thicker Grit Shaft
  - The stability to feed media has been improved.

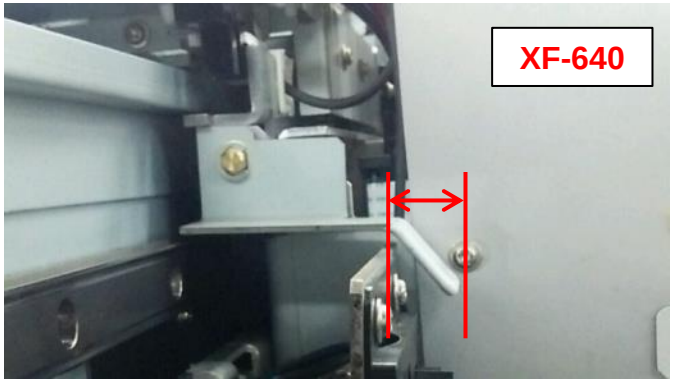


- New Main Board
  - The data processing time has speeded up.

- Strengthened Screw on the Feeder

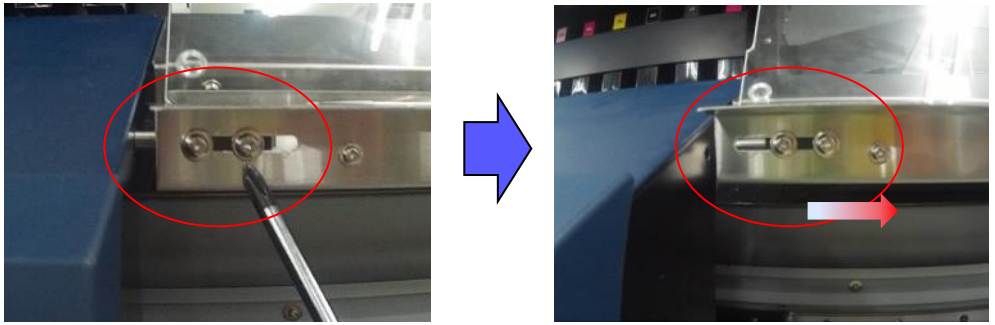
- Longer Up-and-Down Lever of the Print Carriage





- Large-Sized Acrylic Cover
  - The visibility has been improved so that the printing progress can be checked easily.

  - How to remove the cover



Loosen the screws on the left side of the front cover. Then, slide them to the right to remove the cover.

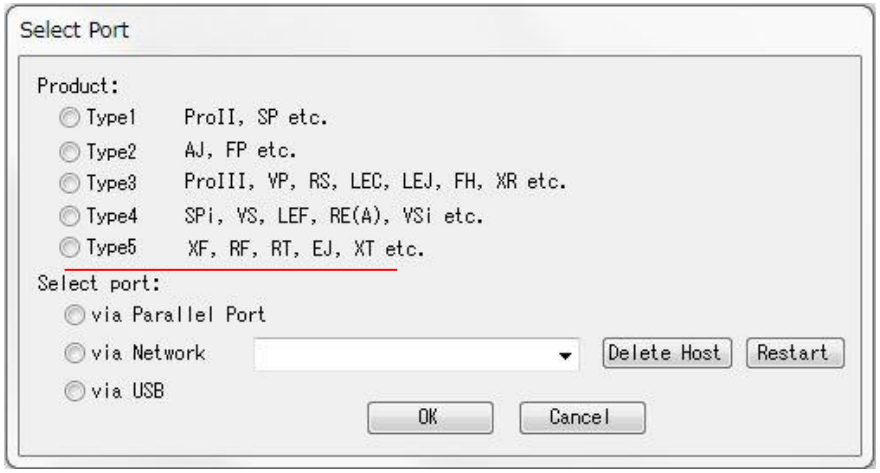
- Time-counting function
  - The remaining time until cleaning finishes is displayed.

- Interlock Function
  - The motor operation stops if you open the cover while the carriage is in motion.
  - The carriage cannot be operated with the cover open even in the service mode.

11. Software

- Software for End Users
  - ErgoSoft Roland Edition
    - The license key of the USB dongle cannot be reissued if lost.
    - Please inform users about it so that they will be careful in managing the license key.
  - Roland OnSupport Ver 2.40
    (Available on the website)

- Software for Service Engineers
  - Peck Version 6.90
    - Must be installed by SETUP.EXE
      (Installation procedure and details are stated in “readme.txt”.)
    - Select [Type5].



12. Installation

Installation

1	Unpacking	Referential time: 20 min.	Accumulated time: 20 min.
2	Printer installation	Referential time: 30 min.	Accumulated time: 50 min.
3	Ink system installation	Referential time: 25 min.	Accumulated time: 75 min.
4	Initial ink filling * The pump does not rotate for 20 minutes in order to let ink flow into sub tanks by its own gravity.	Referential time: 50 min.	Accumulated time: 125 min.
5	Take-up unit (TUC-3) installation * Check which setting a user takes beforehand, INWARD or OUTWARD.	Referential time: 15 min.	Accumulated time: 140 min.
6	Bidirectional adjustment Perform this adjustment using the media the user uses.	Referential time: 5 min.	Accumulated time: 145 min.
7	Feed adjuster adjustment	Referential time: 30 min.	Accumulated time: 175 min.
8	RIP software installation	Referential time: 15 min.	Accumulated time: 190 min.
9	Explanations about how to operate the machine and how to use RIP software	Referential time: Depends on the user's request	

*This is for reference only. The amount of time required for each procedure may vary depending on the installation environment.

13. Transport

- Transport of the Machine
  - The machine can be transported in three different ways.
  - For more details on how to transport the machine, refer to the service note.

  - Be sure to observe the following points when transporting.

with ink filled	with ink removed (without HEAD WASH)	with ink removed (with HEAD WASH)
Do not subject the machine to impact.	Do not subject the machine to impact.	Do not subject the machine to impact.
Do not expose the machine to temperatures exceeding 30ºC for a prolonged period. *1	Do not expose the machine to temperatures exceeding 30ºC for a prolonged period. *1	Do not expose the machine to temperatures exceeding 30ºC for a prolonged period. *1
Turn on the main power SW within 24 hours.	Perform FILL INK within the day.	Perform FILL INK within three days.

*1 During non-operation: Keep the machine at a temperature of 15 to 30˚C and relative humidity of 20 to 80%RH (no condensation).

14. Consumables

- Consumables

	Life Expectancy
Print head	6 billion times/nozzle *
Rubber wiper	Wiping count 3,000 times
Felt wiper	Wiping count 800 times
Cap top	24 Months
Wiper scraper	Replace when worn out or transformed
Scan motor	9,000 hours
Ink tube	3,000 hours
Flushing sponge	6 months
Sponge under the wiper	Replace when worn out
Battery	24 months
Pinch roller	Replace when worn out or transformed

* Even if 1 out of 8 nozzle lines reaches 6 billion times, the print head is regarded as the one which has reached the life expectancy.