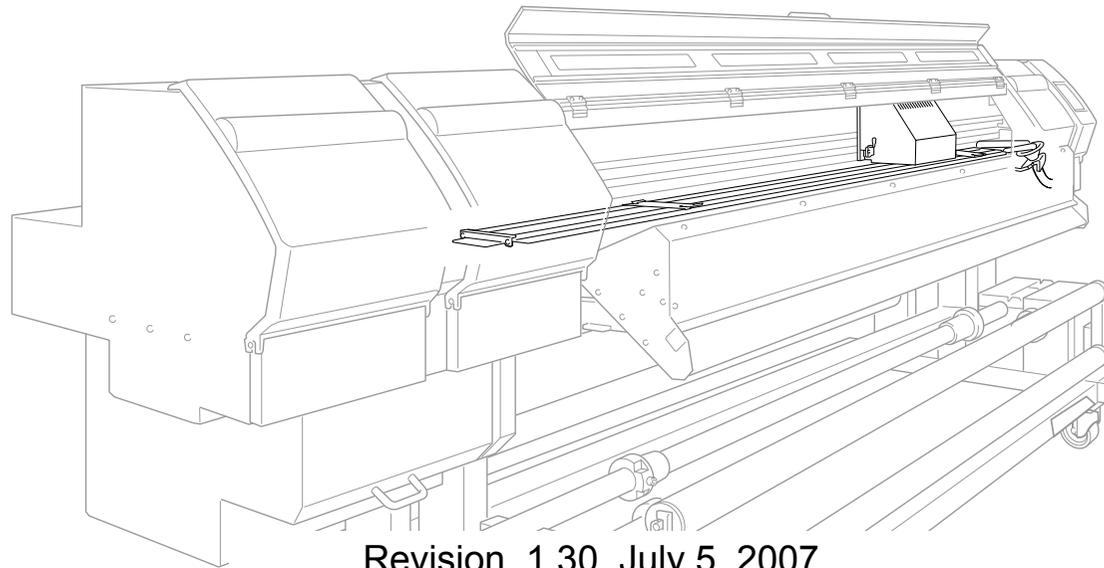




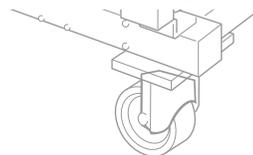
Service Guide Book

MU-1000



Revision_1.30_July 5, 2007

Roland DG Corporation



Revision Record

Revision No.	Date	Description of changes
1.00	2007.03.05	First Edition
1.10	2007.03.23	2 Installation_Board Change The parts number for Signal Junction Board has been corrected.
1.20	2007.05.30	Additional information for “Caution Messages” (as “Caution Messages_appendix”) has been added. Others_Transportation has been added.
1.30	2007.07.05	Mesh Printing_Flushing has been revised.



Contents...

1. General Information

2. Installation

3. Mesh Mode

4. Mesh Printing

5. Maintenance

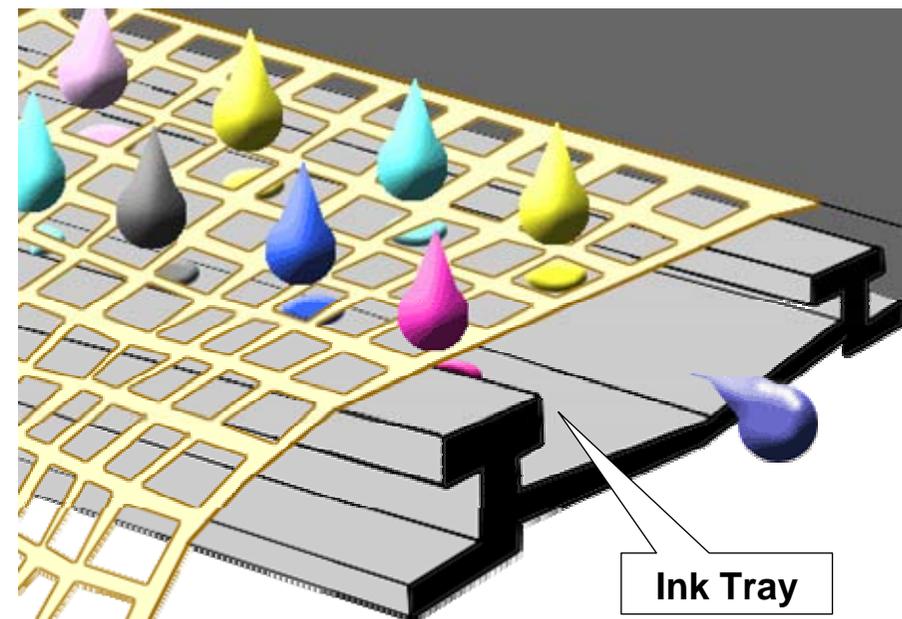
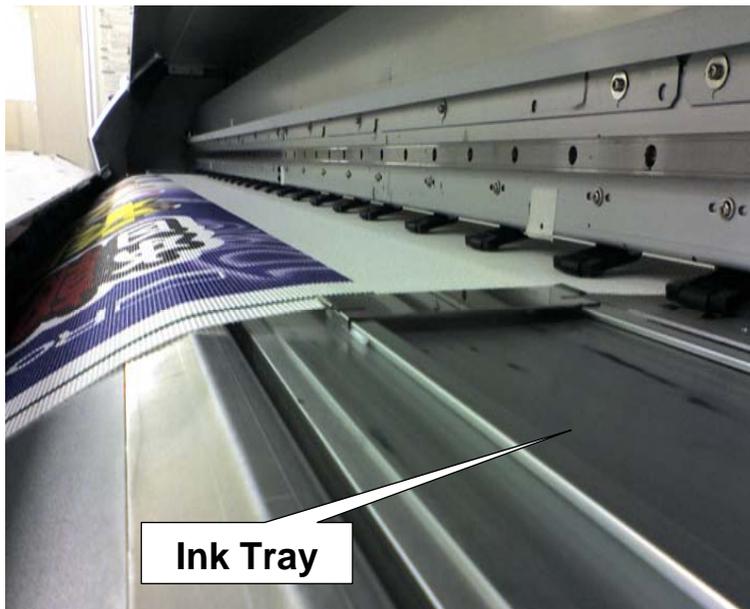
6. Others

1. *General Information*

- **MESH UNIT, MU-1000**
- Option for Mesh Printing
- Supported Model : AJ-1000
- Max. Loadable Media Width : 1220~2641mm
- Max. Printable Width : 2600mm
- Package Dimension : W2920 x D260 x H300 mm
- Package Weight : 28kg (11kg without packages)
- Operational environment : 20~32°C / 35~80% *

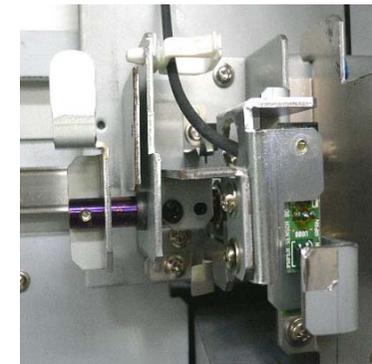
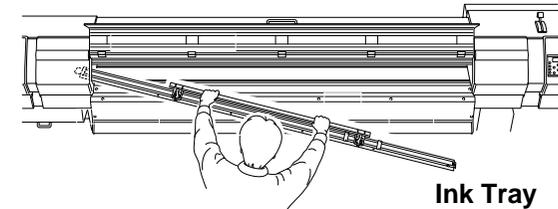
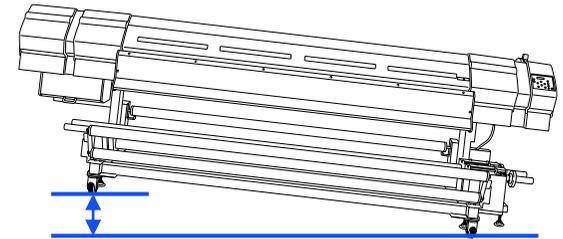
Exception for lightweight mesh Media

- **Mesh has pores which allow ink to pass through.**
To catch and direct the passed ink to drain, Ink Tray and other necessary attachments required.
- **Mesh will be bridged overpassing the Ink Tray.**
Mesh substrate should be kept floating above the Ink Tray.



Mainly 4 actions make Mesh Mode.

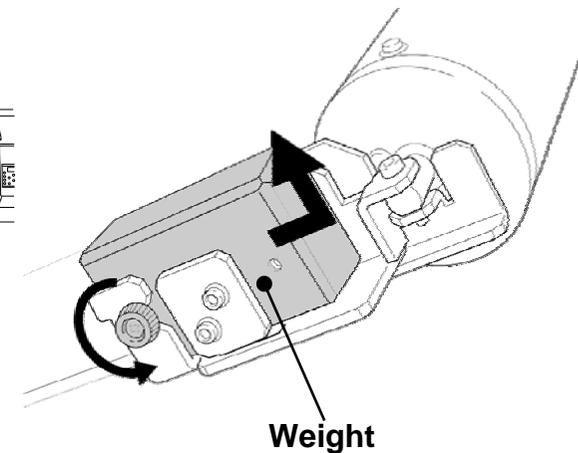
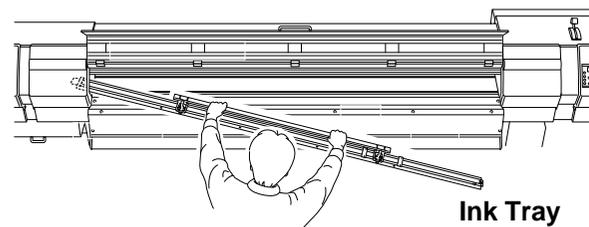
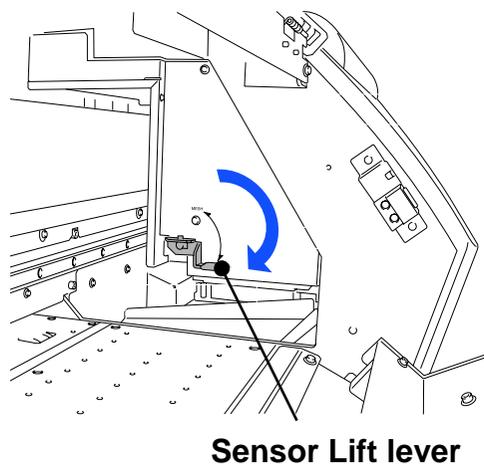
1. Set up AJ-1000 at a slant.
(10mm lift on the Left Adjusters)
2. Ink Tray with special Media Clamps attachment
(with Mesh Sensor installed)
3. Paper Side Sensor modify
4. Weights on Front Dancer Roller
 - It gives additional tension onto Mesh Media.



Paper Side Sensor modified

[Mesh Mode] ↔ [Normal Mode] convertible

- To turn back to Normal Mode...
 1. Lower the Sensor Lift Lever to [Normal] position.
 2. Detach the Ink Tray. (after clean-up Ink Tray)
 3. Detach the Weights from Front Dancer Roller.

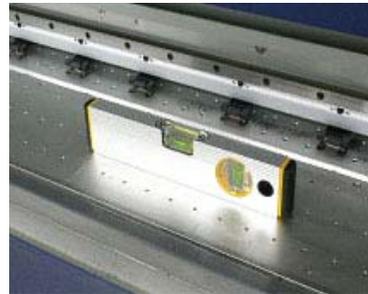
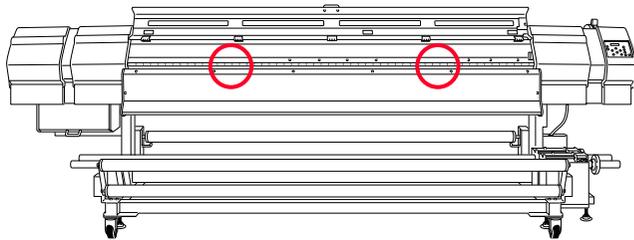


2. Installation

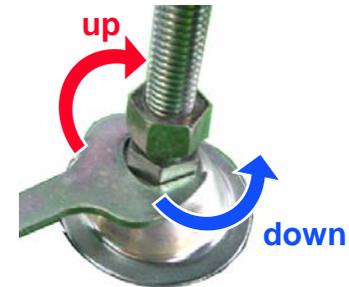
Set up AJ-1000 at a slant.

1. Have the right horizontal for AJ-1000.
 - Put a level vial at the 2 positions, in order to check the right horizontal back-forth and right-left.

* Level vial should be put just in front of the reflection tape.

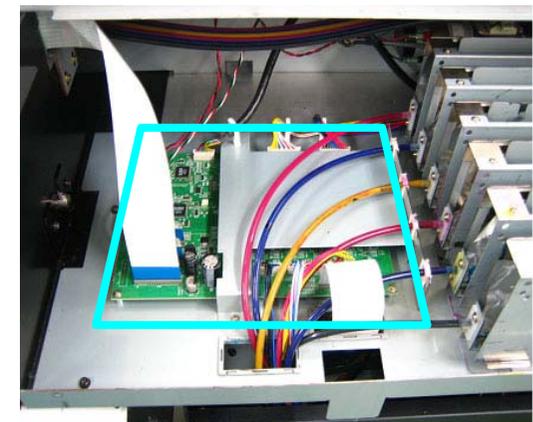
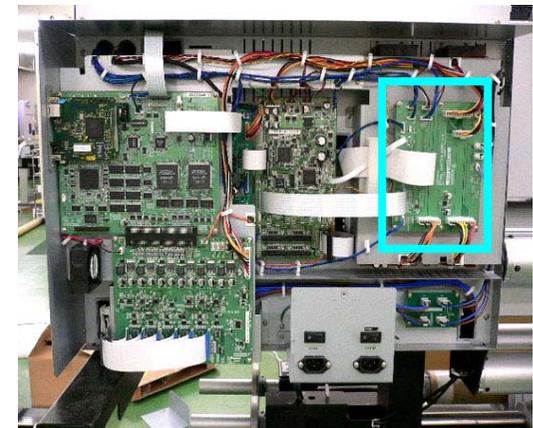


2. Raise up the left Adjusters for 10mm (rear and front ones).
 - 2 turns at maximum for each adjuster.
Total 5 turns for a adjuster make 10mm.



Boards change required for some AJ-1000.

- Parts # **W700105621** :
ASSY,SIGNAL JUNCTION BOARD AJ-1000
 - ZU20100 ~ ZV00340
 - Replace with the Signal Junction Board which newly has CN9 connector.
- Parts # **W700105511** :
ASSY,PUMP DRIVE BOARD AJ-1000
 - ZU20100 ~ ZV00340
 - Replace with the Pump Drive Board which newly has CN4 connector.



Parts #1000003109 : KIT,MESH UNIT AJ-1000

A set of the above two boards for subject AJ-1000 machines.

3. Mesh Mode

“**Mesh Mode**” is a special printing mode dedicated for Mesh material.

When in Mesh Mode...

- [M] shows up on the machine's LCD display.
- Print Head Carriage is raised up automatically to give space for Ink Tray.



Mesh Mode is activated when AJ-1000 recognizes the following 3 conditions.

1. Mesh Sensor is ON.
2. Paper Side Sensor is set at Mesh Mode position.
3. System SW changed.

1. Mesh Sensor is ON.

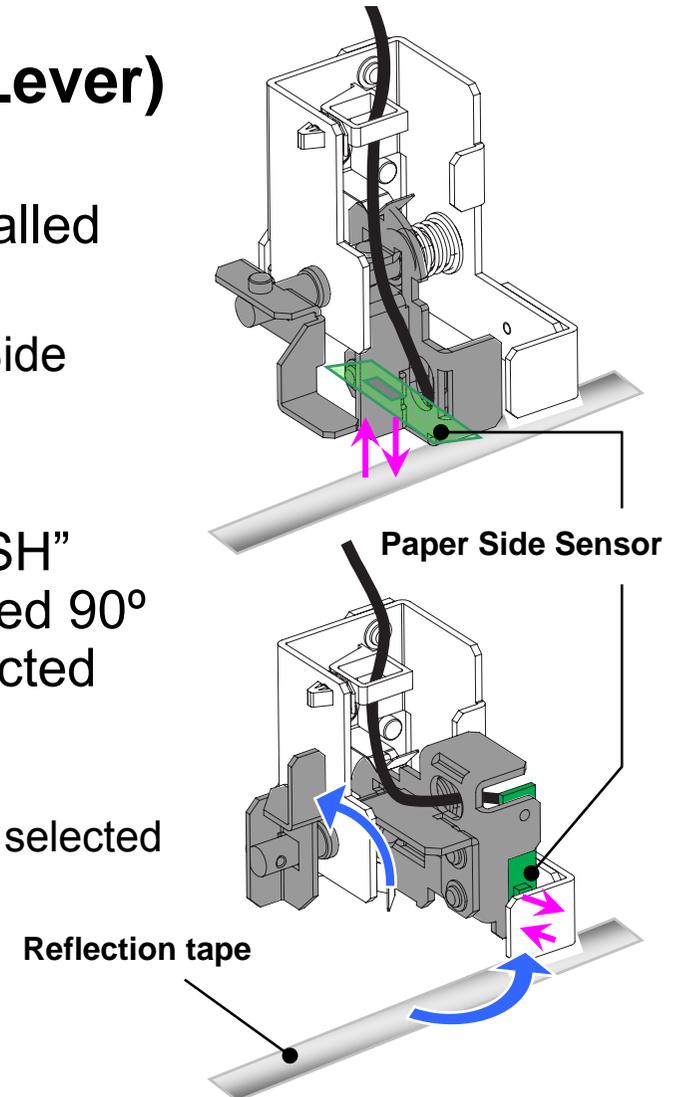
- Install the Mesh Sensor unit at the left side of platen. Ink Tray pushes the Mesh Sensor switch ON being magnetically touched.



2. Paper Side Sensor (Sensor Lift Lever)

- Install a modified Paper Side Sensor called “Sensor Lift Lever.”
 - Sensor Lift lever is to set the Paper Side Sensor off from the reflection tape.
- By setting the Sensor Lift lever at “MESH” position, the Paper Side Sensor is turned 90° to front, then it always detects the reflected signal from its own plate part.

(Similar operation when Media Type “CLEAR” is selected in normal mode.)



3. System SW change

- [SERVICE MENU] > [SYSTEM SW] > [PAGE 5], set 2nd digit from the right to [1].



- Firmware of AJ-1000 should be version 1.70 and above.

Printer Settings when in Mesh Mode.

You can have full choices in user menu as same as normal mode, but some settings are ignored and operated as another setting.

HEAD HEIGHT	HIGH MIDDLE (LOW)	“LOW” has no effect. When this is set to “LOW”, it operates as “MIDDLE”. (“LOW” = “MIDDLE”)
SHEET TYPE	CLEAR OPAQUE	Whichever is set, Media width is not detected automatically. Set [SHEET WIDTH] and [SHEET POS.] manually. - CLEAR : Rear Paper Sensor OFF - OPAQUE : Rear Paper Sensor ON
VACUUM POWER*1	0 %	Other value in % is ignored. Always Vacuum Fan disabled as 0%.
FULL WIDTH S	SHEET FULL (OFF)	“OFF” operates as same as “SHEET”. (OFF = SHEET)
PRINT HEATER*2	OFF	Any degree setting is ignored. Always PRINTER HEATER disabled.

*1 : Fan runs only in [SERVICE MENU]>[SUB MENU]>[FAN CHECK].

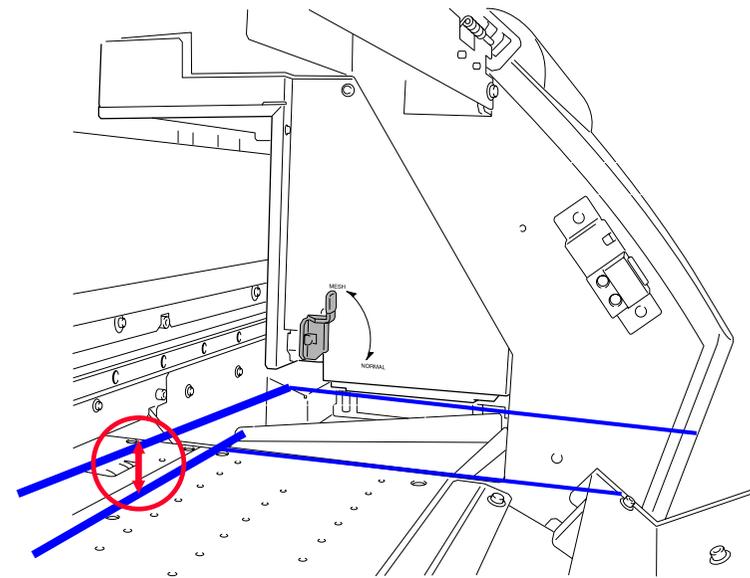
*2 : Can be ON in [SERVICE MENU]>[HEATER MENU]>[HEATER CHECK].

Head Height from the Platen

Print Head Carriage is raised up (7mm higher than normal mode) automatically by motor drive.

The heights shown here are distance from the platen (without Ink Tray) to the surface of the print head.

	MESH MODE	Normal Mode
HIGH	11.0 mm	4.0 mm
MIDDLE	10.0 mm	3.0 mm
LOW	-	2.0 mm



Head Height from the Ink Tray

Head Height is 1mm higher than Normal Mode.

Ink Tray is 6mm tall, and the special Media Clamp* is 1mm thick.

* Media Clamp is necessary for any type of mesh materials.

	MESH MODE	Normal Mode
HIGH	5.0 mm	4.0 mm *
MIDDLE	4.0 mm	3.0 mm *
LOW	-	2.0 mm *

* Heights for Normal Mode is distance from the Platen.

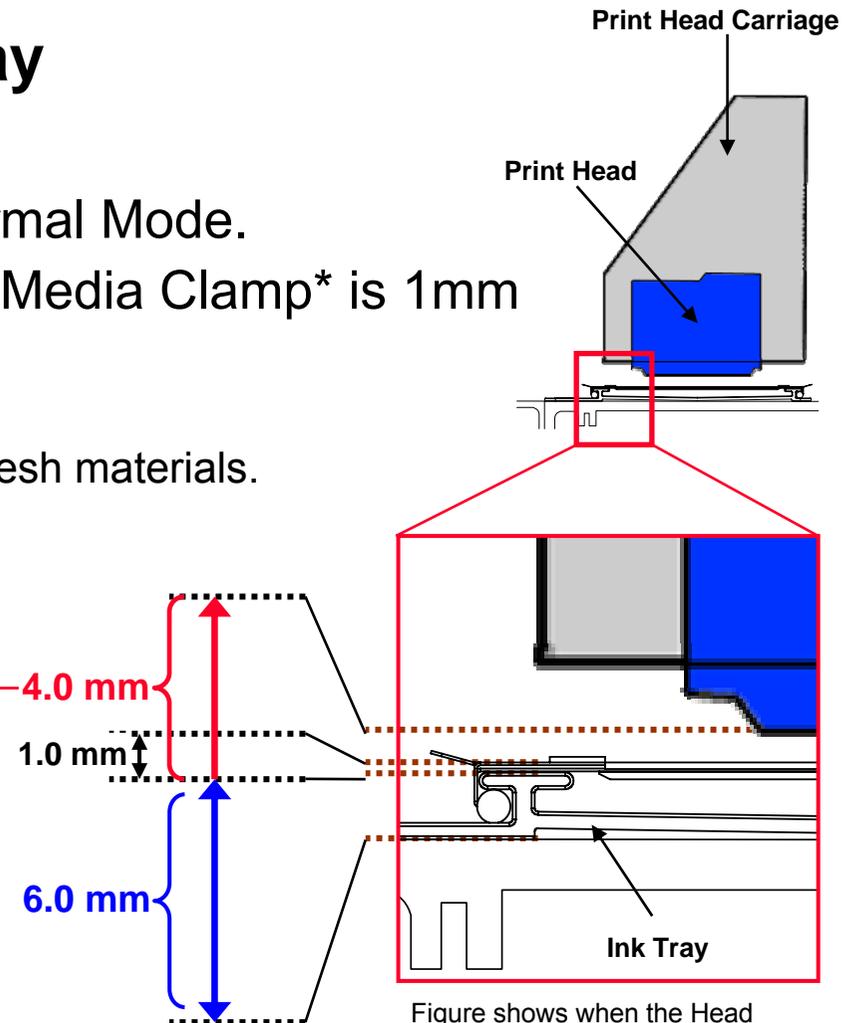


Figure shows when the Head Height is set "MIDDLE"

4. Mesh Printing

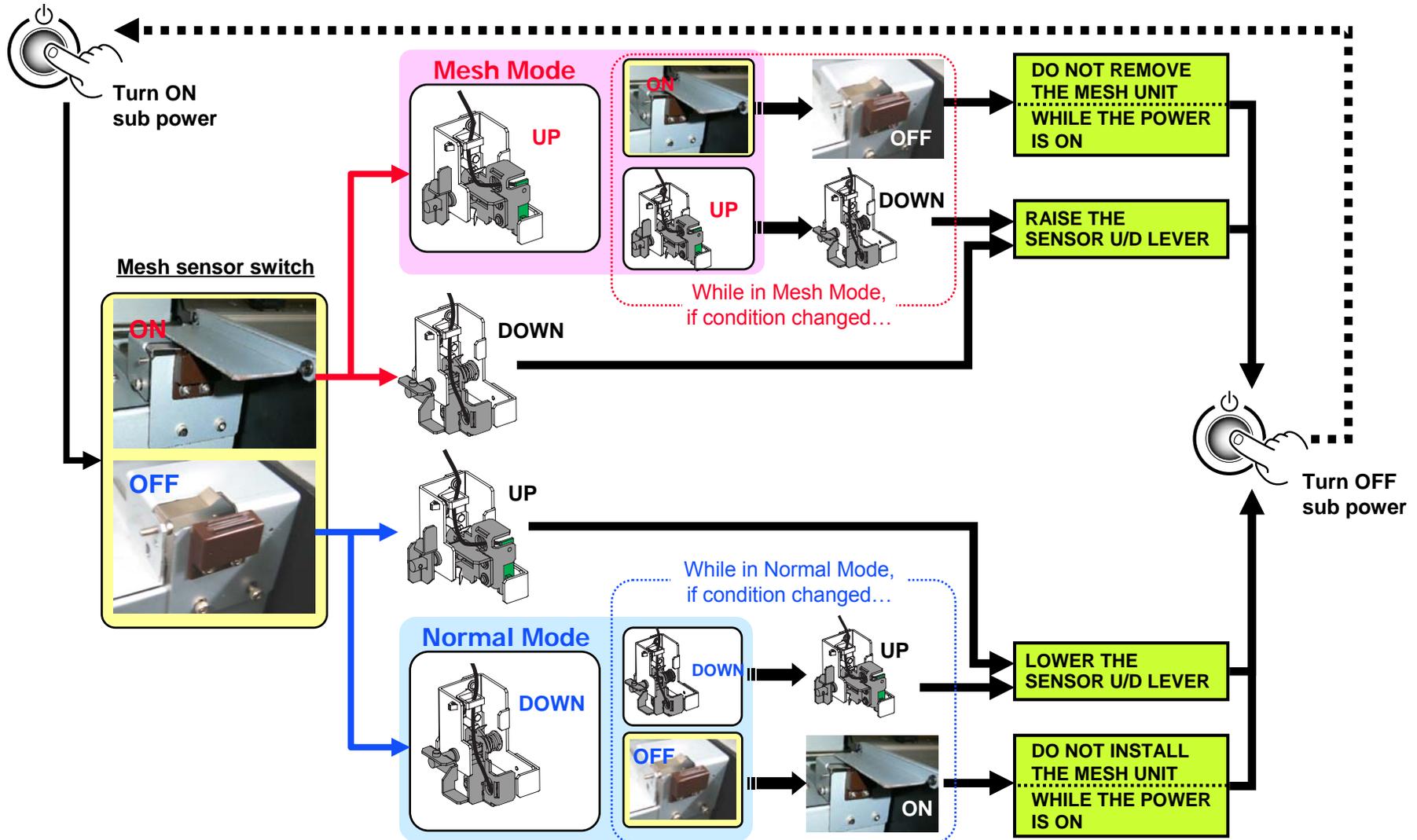
- **Media Profile for Mesh (Roland VersaWorks)**
 - Media Profile dedicated for Mesh is **NOT** available.
 - The color printed on Mesh substrate cannot be measured properly.
 - >> Use existing any Media Profiles for AJ-1000.
 - **[Generic Matte Banner 3R]*** is recommended.
 - Due to millions of pores on mesh, the printed color often shows up in dull color look. “Generic Matte Banner 3R” uses light color ink more than other Media Profiles, that realizes high-density printing. High-density may act effectively to improve dull color look more vivid.
- * This is available in Roland VersaWorks version 2.20.

Check the actual color look and the Mesh condition prior to starting a real job printing.

Mesh Printing_Caution Messages

NOT AVAILABLE ON MESH MODE	<p>“TEST PRINT” in followings. [SERVICE MENU]>[PRINT MENU]>[HEAD ADJUST] >[BIAS] >[VERTICAL] >[HORIZONTAL] >[BI-DIR.DEFAULT] [SERVICE MENU]>[MOTOR MENU]>[AGING] >[SCAN] >[FEED] >[BOTH]</p> <p>Displayed for one second.</p>	
CLEAN THE MESH UNIT ↵	<p>Whenever the Loading Lever is released while in Mesh Mode. Press [ENTER] key.</p>	
DO NOT INSTALL THE MESH UNIT	WHILE THE POWER IS ON	<p>When in normal mode and Mesh Sensor is on. Turn off the sub power and turn on back again.</p>
DO NOT REMOVE THE MESH UNIT	WHILE THE POWER IS ON	<p>When in Mesh Mode and Mesh Sensor is off. Turn off the sub power and turn on back again.</p>
RAISE THE SENSOR U/D LEVER	<p>When in Mesh mode and Sensor Lift lever is in normal position. Turn off the sub power and turn on back again.</p>	
LOWER THE SENSOR U/D LEVER	<p>When in normal mode and sensor Lift lever is in Mesh position. Turn off the sub power and turn on back again.</p>	

Mesh Printing_Caution Messages_appendix



- **Test Patterns**

- Test print of [BIAS], [HORIZONTAL] and [BI-DIR.DEFAULT] can NOT be done in Mesh Mode.
A caution message appears.

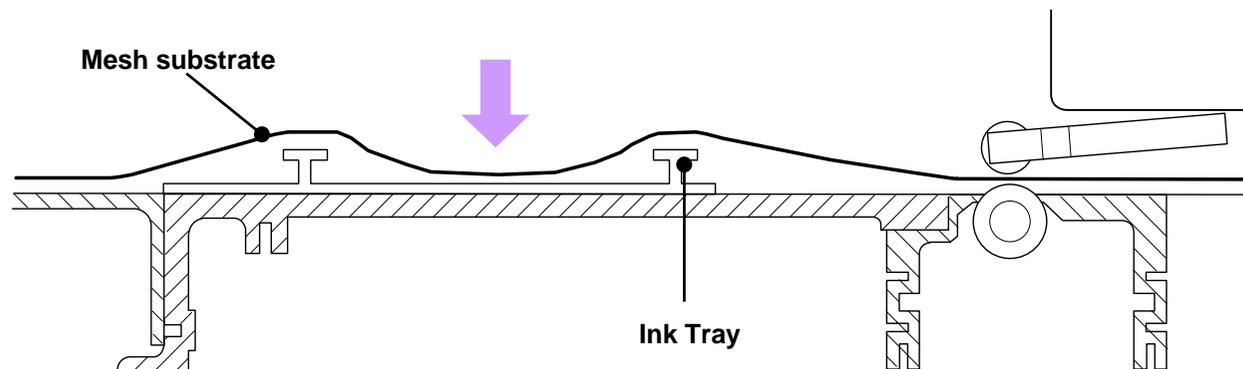
>> Adjustments for Head Alignment and nozzle check by [TEST PRINT] key should be completed before entering in Mesh Mode.

NOT AVAILABLE
ON MESH MODE

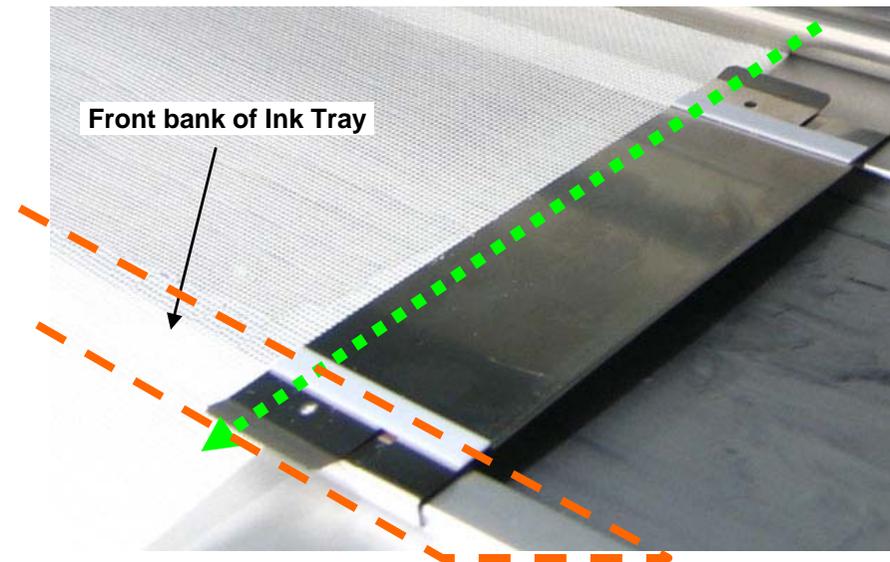
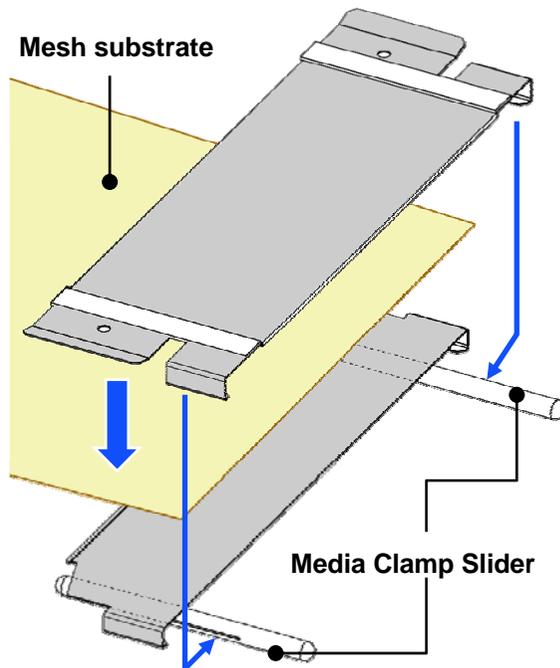
- **Feed Calibration**

- Test pattern of Feed Calibration cannot be checked correctly.
It is very difficult to judge the correct value visibly due to pores on mesh.
- >> Set the appropriate value accordingly by checking several rehearsal printings.

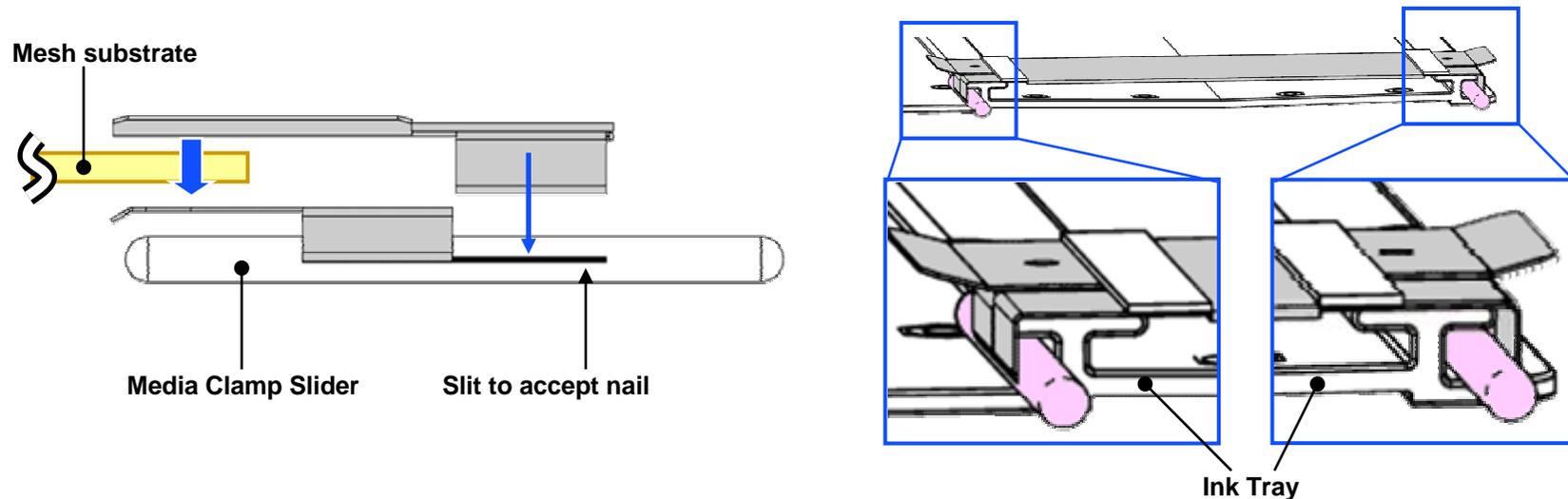
- **Media Clamp is “must.”**
 - Mesh substrate is not elastic enough to pass over the Ink Tray. To help bridging the Ink Tray, special Media Clamp is necessary for actual operation.
 - Mesh media often has fuzz on the edge. The Media Clamp prevents from touching the print head.
 - **If Media Clamp is not used...**
 - Mesh substrate sinks into drained ink in the middle of the Ink Tray.
 - Print Head nozzle clogging happens.



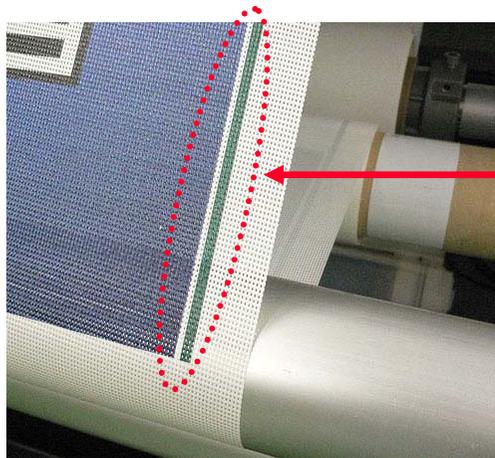
- **How the Media Clamps work.**
 - Media Clamp consists of 2 pieces of plates. Mesh substrate will be sandwiched at both edges, then the Media Clamp helps it reaching the front bank of Ink Tray.



- **How the Media Clamps operate.**
 - 2 pieces of plates are held and fixed together by Media Clamp Sliders.
 - The Media Clamp Slider has a slit to accept the nail of the plate.
 - Media Clamp Sliders are going to be fit into the ditch of Ink Tray, allowing to move sideways* only.
 - * You can not detach the Media Clamps unless you remove the stopper screws. Be careful of its direction when assembling.



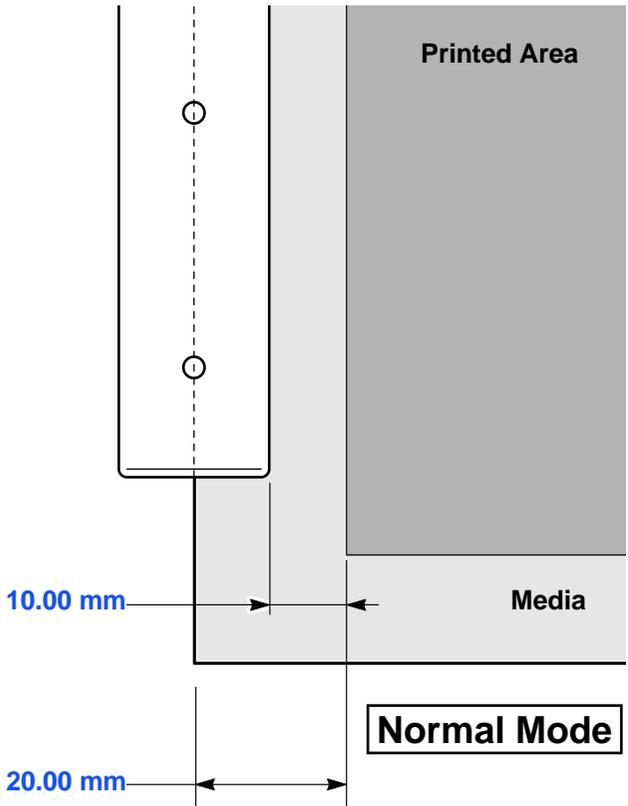
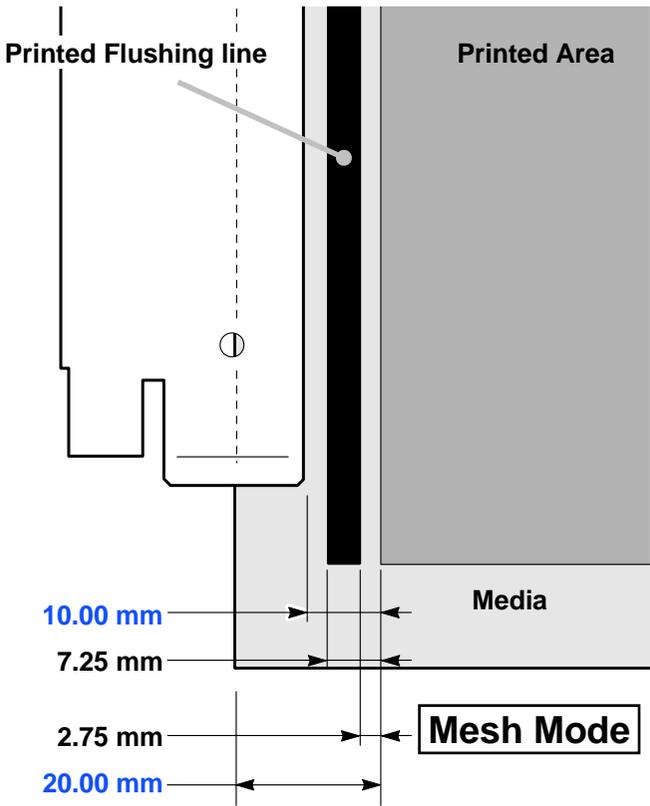
- **Flushing lines at margin space on Media.**
 - Flushing lines (4.5mm wide) at margin space at both edges are printed in every printing pass.
 - Printer performs flushing to the cap top normally. However, in mesh mode the height of printhead is raised up for 7mm. If flushing was done normally, fired dots cannot reach the sponge of the cap top, then fly away as mist. To avoid this mist, flushing is to be done on the media as it is the shortest distance from the printhead.



Flushing line is not always printed in black. Nozzles for necessary colors in a job will fire the required color dots, that makes other color sometimes.

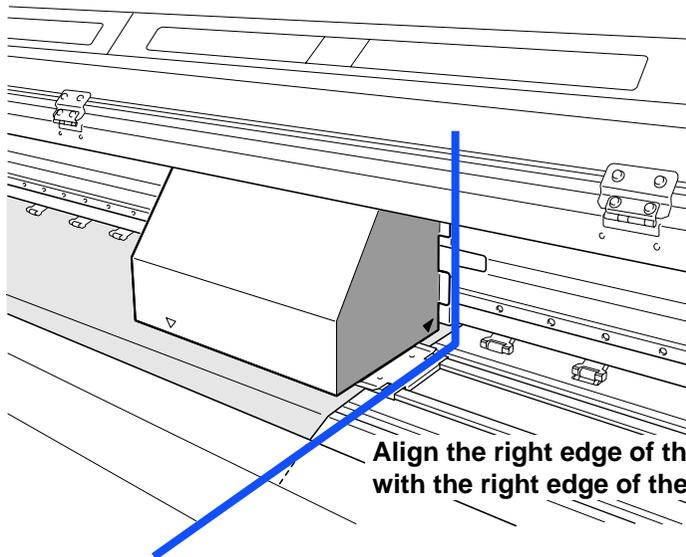
Mesh Printing_Side Margin

- **Paper side margin is the same as normal mode.**
 - Even the flushing lines are printed, the margin space remains same as in normal mode.

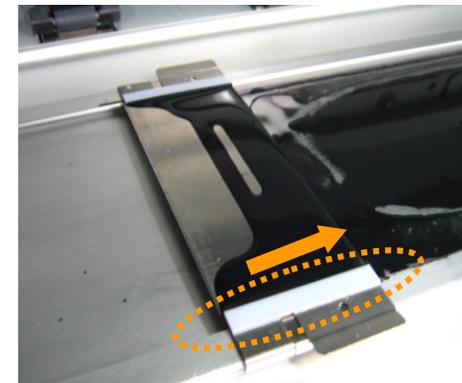


- **Sheet Width and Sheet Position**
 - Flushing lines are printed at margin space on Media. So that, media setup [SHEET WIDTH] and [SHEET POS.] should be set appropriately.
 - Otherwise, flushing is printed on the Media Clamp that may cause dirty edge printing or head nozzle clogging etc.

Set the Media width and position correctly.

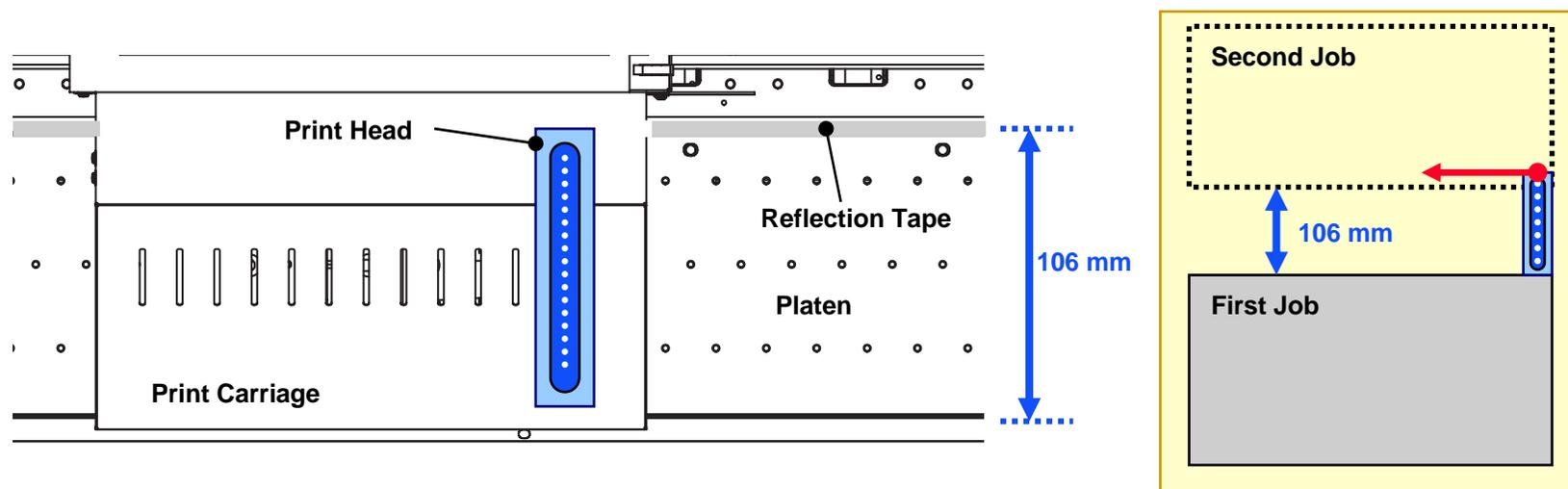


Align the right edge of the Print Head Carriage with the right edge of the Mesh Media.



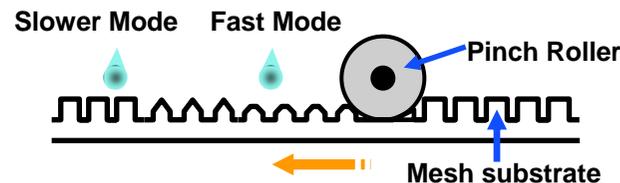
Even if the flushing was done on Media Clamp, white plate is supposed to lead the landed ink to draining direction.

- **Page Margin between jobs is 106mm or more.**
 - The minimum margin between pages (jobs) is 106 mm. Setting less than 106mm is ignored and always operated as 106mm. You can set more than 106mm from the computer.
 - AJ-1000 does not feed the media in reverse. Due to data processing reason, the origin of a next job is set at 106mm far from the previous job ending line.
This 106mm is the nearest origin position for AJ-1000.



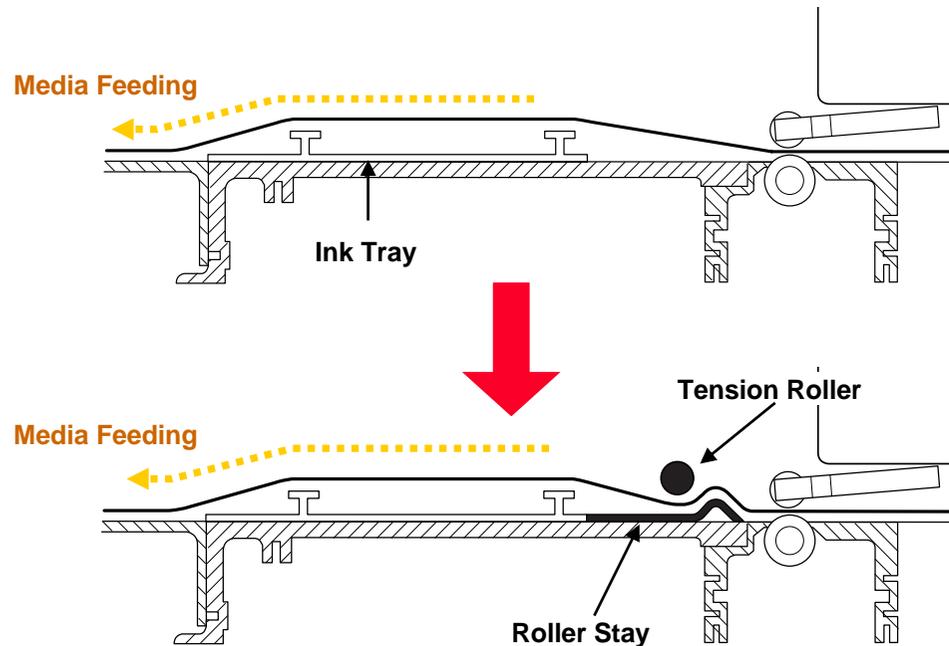
Precautions

- **Footsteps of Pinch Rollers.**
 - Depending on the Mesh composition, the footsteps of Pinch Rollers are quite visible.
 - >> Slower (high resolution) print mode makes less noticeable.



- **Mesh pores allow ink to go to reverse face.**
 - When ink overflows, ink may turn around to reverse face.
 - >> Use a low-density Media Profile.
 - >> Do not use “Overprinting.”

- **Tension Unit for lightweight Mesh Media.**
 - Use “Tension Unit” for lightweight Mesh Media.
As a reference, Mesh under 200g/m² requires Tension Unit.
 - Tension Unit is to remove wrinkling by giving additional tension before entering into the Ink Tray.



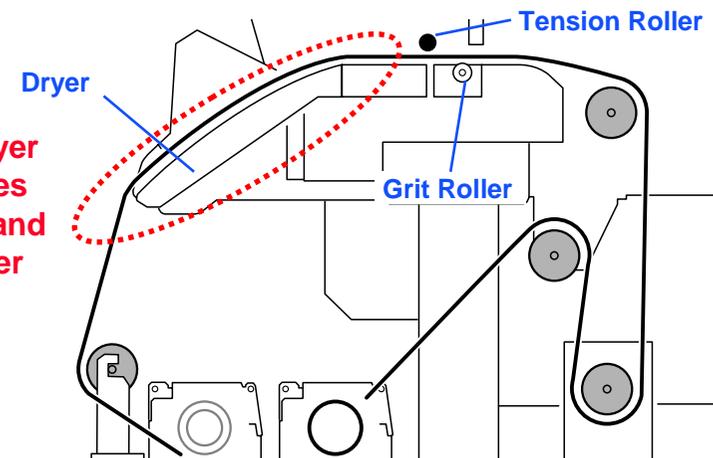
- **Lightweight Mesh Printing**

CAUTION

1. In a low-humidity environment, **static electricity** may make media feed **unstable**.
>> Adjust the ambient humidity : 40% ~ 80%
2. **Media composition** may affect **clinging** onto the dryer.
Depending on media composition, the surface to print (front face / reverse face) may be susceptible to cause friction on the dryer because of its coating or its burr on substrate.
>> Lower the temp. for the dryer : around 40°C



Media feeding stops on the dryer due to clinging onto it. It causes wrinkling between Grit Roller and Tension Roller, while Grit Roller keeps feeding the Media.



- **Lightweight Mesh Printing**

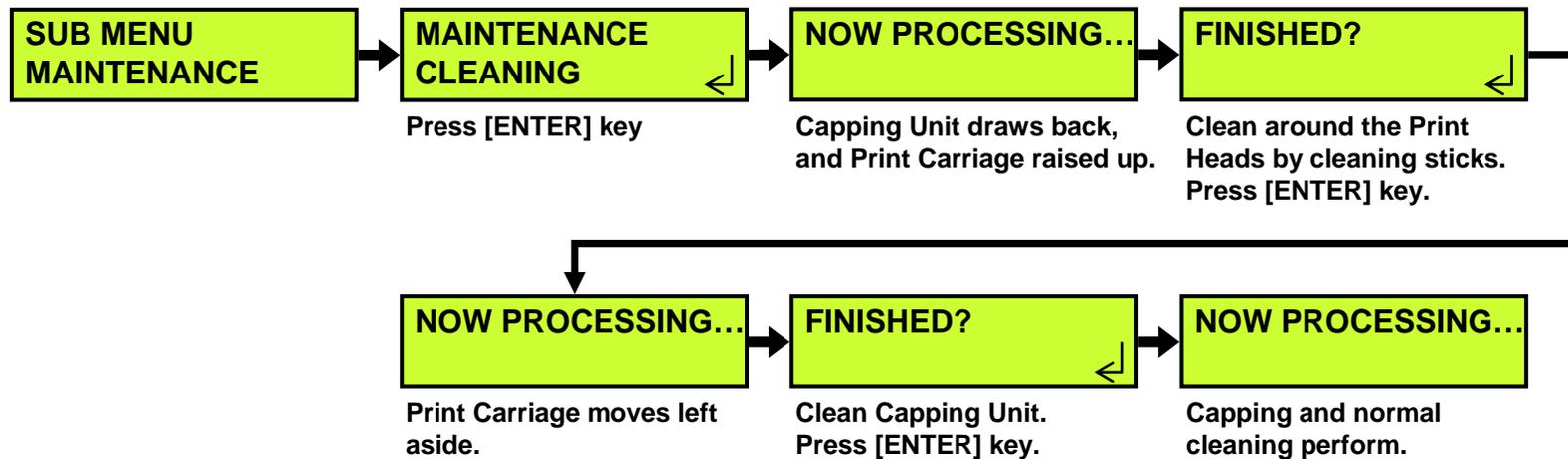
- **TIPS**

1. Use a **print mode with many passes** (higher resolution).
 - When feeding amount is big, inelastic mesh substrate wrinkles and warps easily to have a media jamming. When feeding amount is small, even if inelastic mesh, it does not warp enough for a jamming.
2. Wipe out periodically the ink splattered in mists on the road for Media feeding.
 - Mesh printing creates many mists, which may be landed on the surface of dryer or nearby. It makes adherence to give friction for unstable Media feeding.

5. Maintenance

- **Cleaning using Cleaning Kit (User Menu)**

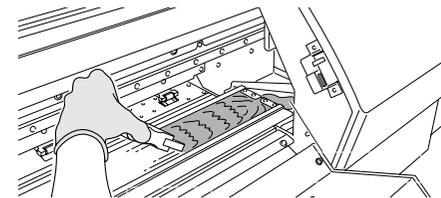
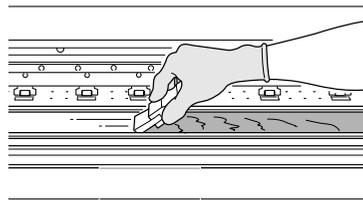
- Two steps, Print Heads and Capping Unit.



- **Ink Tray cleaning (by user)**

- Every time the media is unloaded, a message appears to lead user to clean Ink Tray with using included cleaning fluid and scraper.

CLEAN THE MESH UNIT ↵

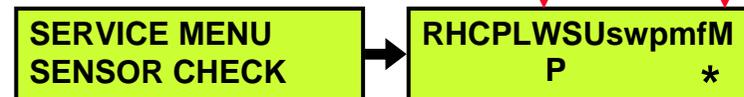


- **Mesh Sensor in [SENSOR CHECK] (Service Menu)**

- As Paper Side Sensor is modified as “Sensor Lift lever”, showing status has changed accordingly.

- ▣ Mesh Sensor as “M” :

- * : Mesh Sensor is on.
- (space) : Mesh Sensor is off.

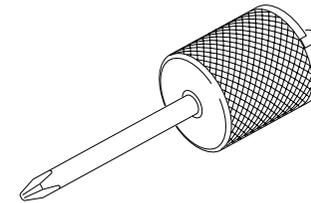


- ▣ Paper Side Sensor as “W” :

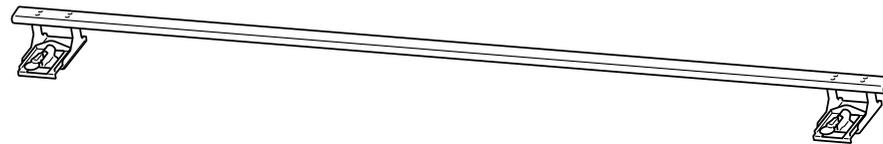
- (space) : Lever is normal position with reflected signal detected, or Lever is Mesh Mode.
- P : Lever is normal position with detectable media, or Lever is Mesh Mode.
- * : Lever is normal position with detectable media or out of reflection tape.

6. Others

- **Special screwdriver for Ink Tray**
 - A torque controlled screwdriver [0.2N.m]
 - Ink Tray is supposed to detach and attach accordingly to user's demand. A torque controlled screwdriver prevents damage of thread in screw hole, since the platen is aluminum.
 - This does not say "tick." Fasten until running idle.
(This is included in package of MU-1000.)

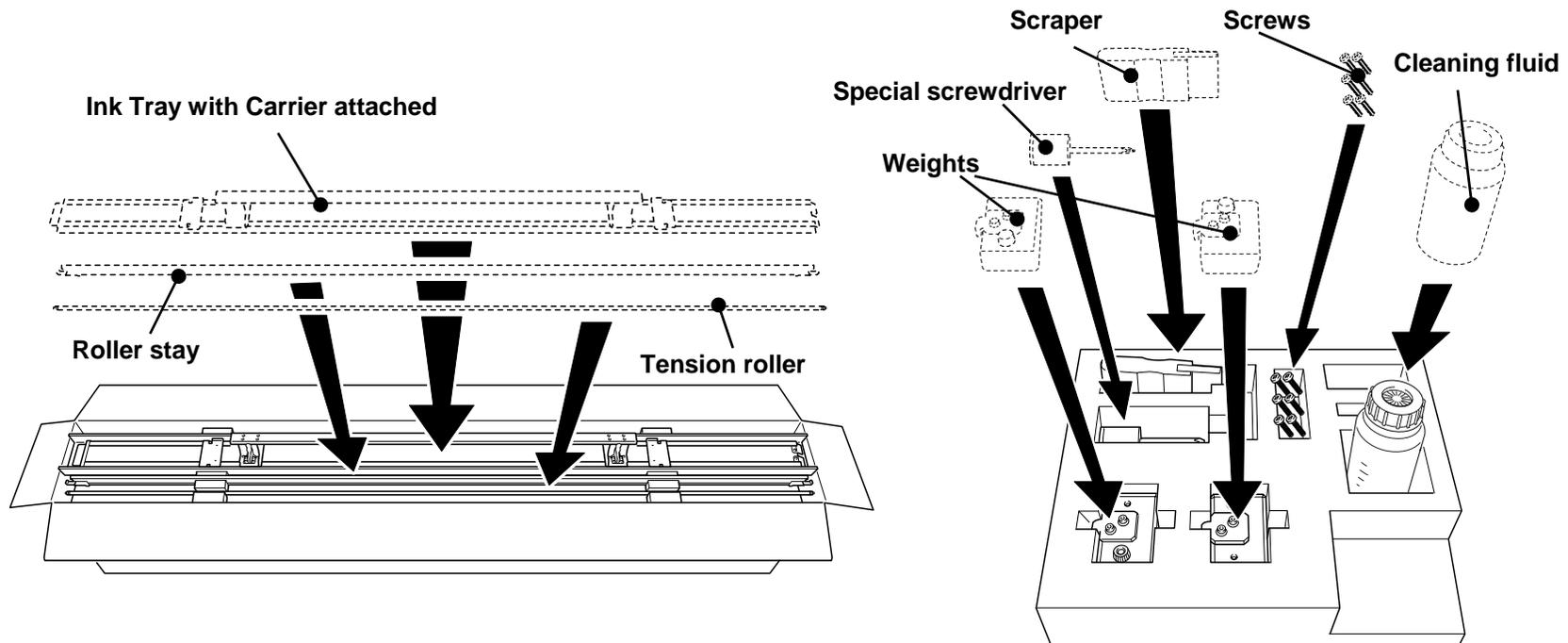


- **Ink Tray Carrier**
 - A special carrier with grabbing knobs.
 - Ink Tray is a very long part. For safe installation, use this Ink Tray carrier.



- **Storing**

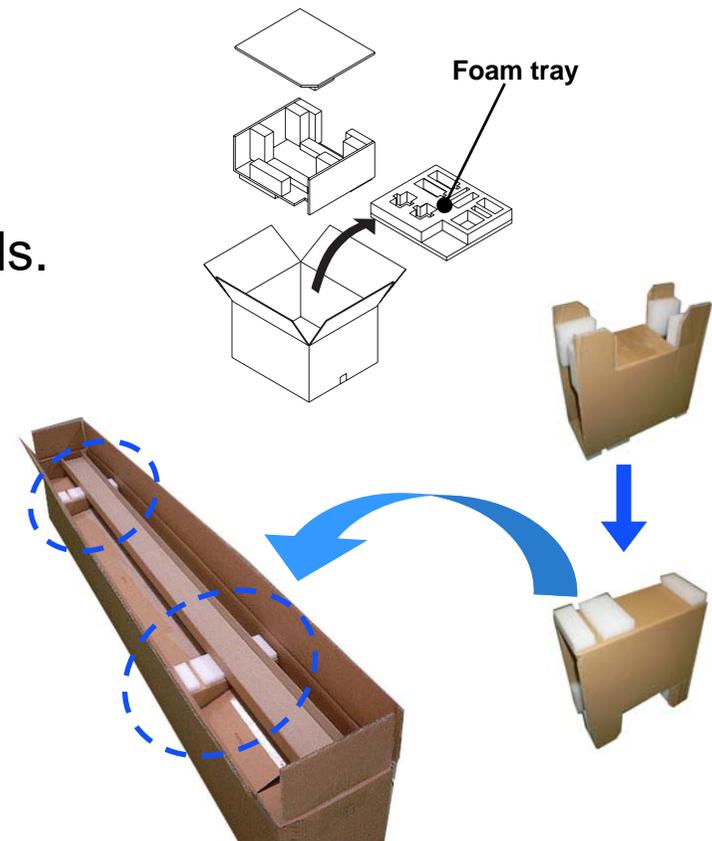
- For storing while the machine is in normal mode, you can store MU-1000 reusing its packages.



- **For storing**

- Packing materials should be arranged for storing Mesh Unit.

1. Take a foam tray out of the box .
2. Up side down of spacing materials.
3. Layout them as shown.



- **For Transportation**

- In order to attach retainers for print carriage and front dancer roller...
 1. Remove Tension Unit from the printer.
 2. Remove weights and weight holders from front dancer roller.

