

VASTRAJET®

16 HEADS

USER MANUAL



Foreword

This user manual is briefly describing the operational aspects of the **VastraJet (16 Heads)** machine. In this document, the step-wise instructions for handling various aspects of the machine with visual screens are provided for easy and better understanding. It also describes the error messages encountered while working with the machine with appropriate remedial actions required to be taken by the user.

This manual serves as the reference tool which guides their customers how to use or operate the **VastraJet (16 Heads)** machine without anyone else assistance. The information provided in this document ensures its uniqueness and language quality. For safe and proper use of the product, please read this manual carefully and follow all the instructions.

Disclaimer

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The reference table is shown in the below table:

Doc Type	Doc Code	Version	Machine Name	Date of Issue
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1. About Document

Purpose

The purpose of this document is to guide and educate the targeted audience about the Printer and its Printer Manager software so that they can easily and effectively handle as well as use it as per their requirements. Additionally, this document also provides step-wise instructions for handling various aspects of the printer and its related software with the help of graphical screens for easy and better understanding. Moreover, the document also describes commonly encountered problems while working with the printer and Printer Manager software with appropriate remedial actions.

Intended Audience

This document is meant for all the users who want to use the Printer for their printing business. Sometimes, the targeted audience has little knowledge about the printer but in most of the cases, targeted audience is much familiar with the terminologies of printer and printing business. Thus, this document is designed to facilitate both types of users.

2. Machine Overview

Front View

The **Front View** of the machine is shown as below:

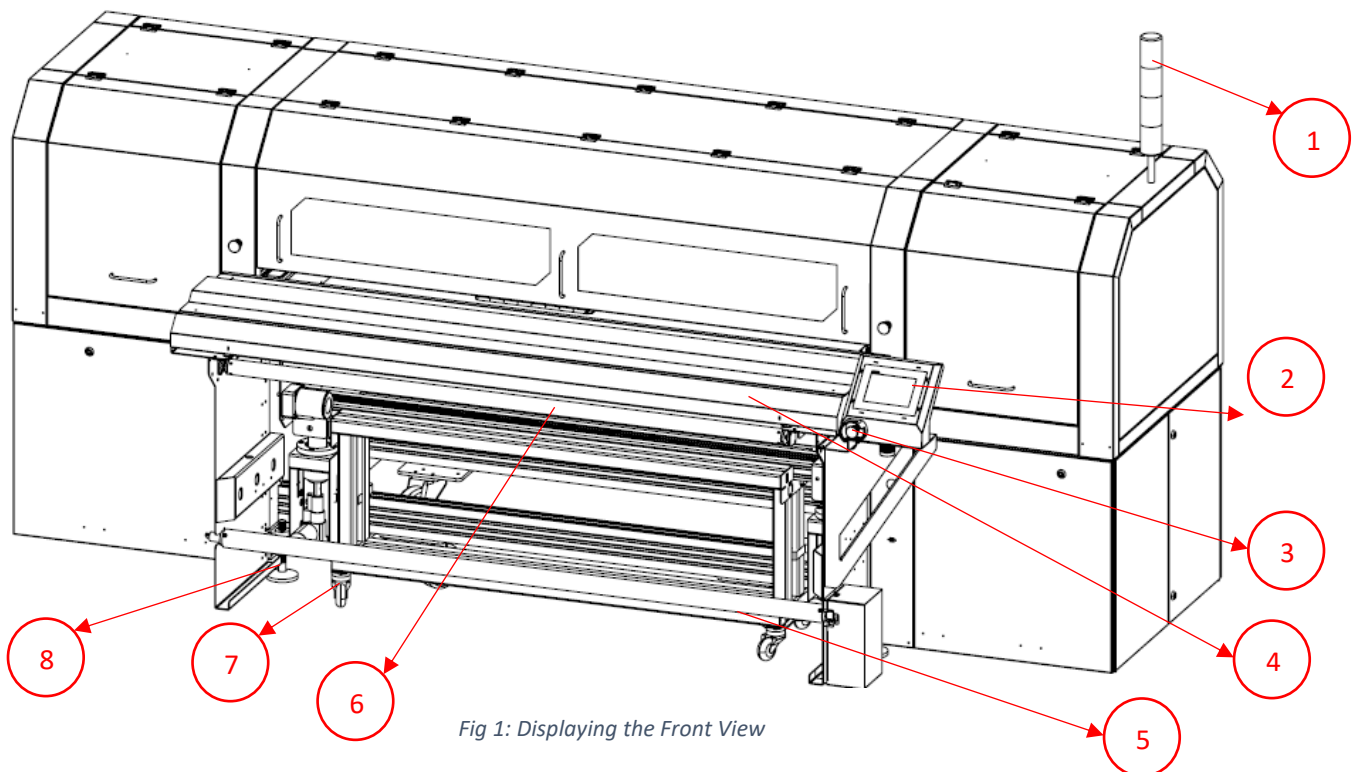


Fig 1: Displaying the Front View

- | | |
|----------------------|----------------------|
| 1. Light Tower | 2. HMI Control Panel |
| 3. Take Up Regulator | 4. Print Dryer |
| 5. Take Up Roller | 6. Stretcher Roller |
| 7. Wheel | 8. Leveller |

Back View

The **Back View** of the machine is shown as below:

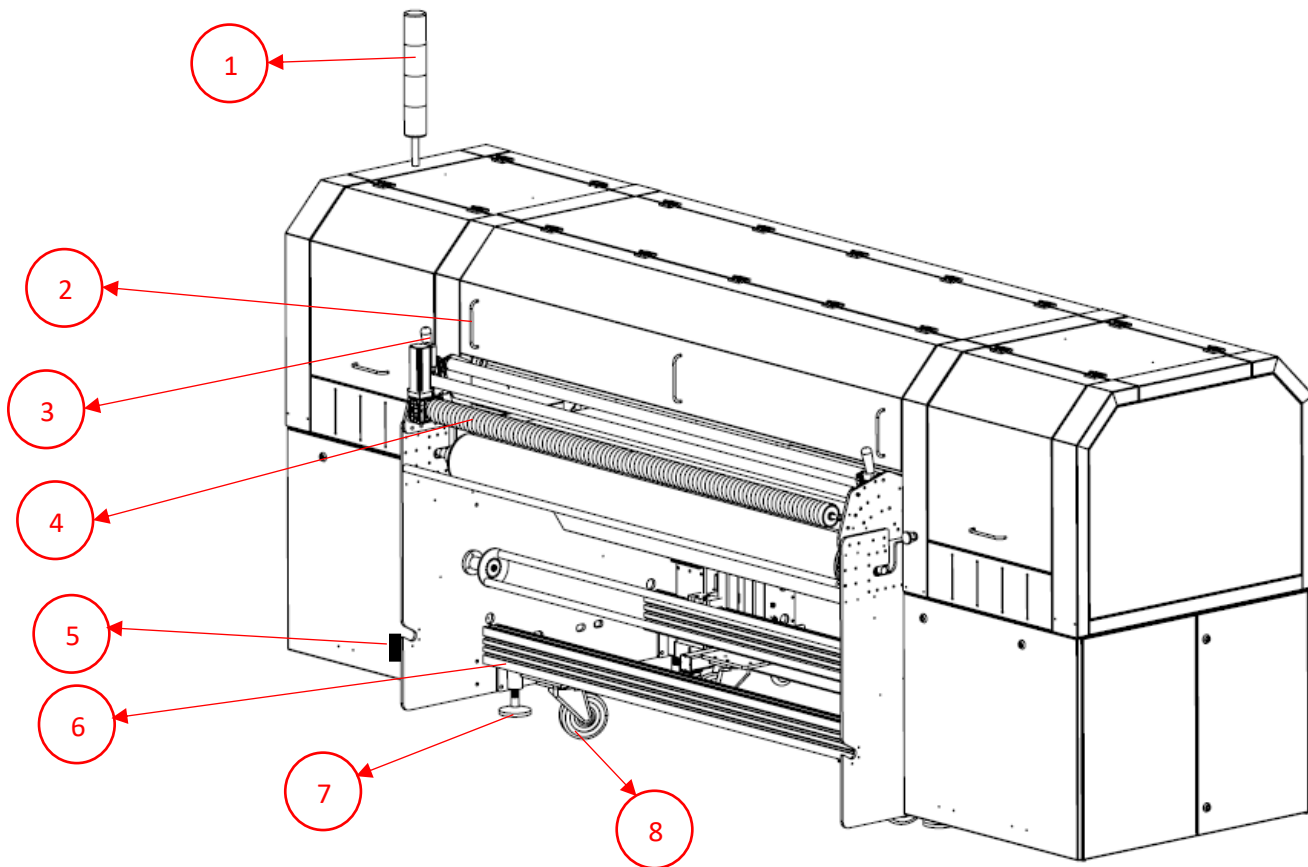


Fig 2: Displaying the Back View

- | | |
|----------------------------------|----------------------|
| 1. Light Tower | 2. Door Handle |
| 3. Belt Tension Adjustment Screw | 4. Spreader Roller |
| 5. Machine Power | 6. Fabric Supply Rod |
| 7. Leveller | 8. Wheel |

The **Water Tank** is shown in the image below:

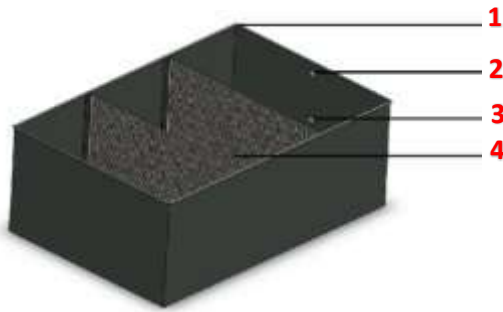


Fig 3: Displaying the Water Tank

- | | |
|-----------------|-----------------|
| 1. Water Tank | 2. Water Inlet |
| 3. Water Outlet | 4. Filter Plate |

The Washing Tub is shown in the image below:

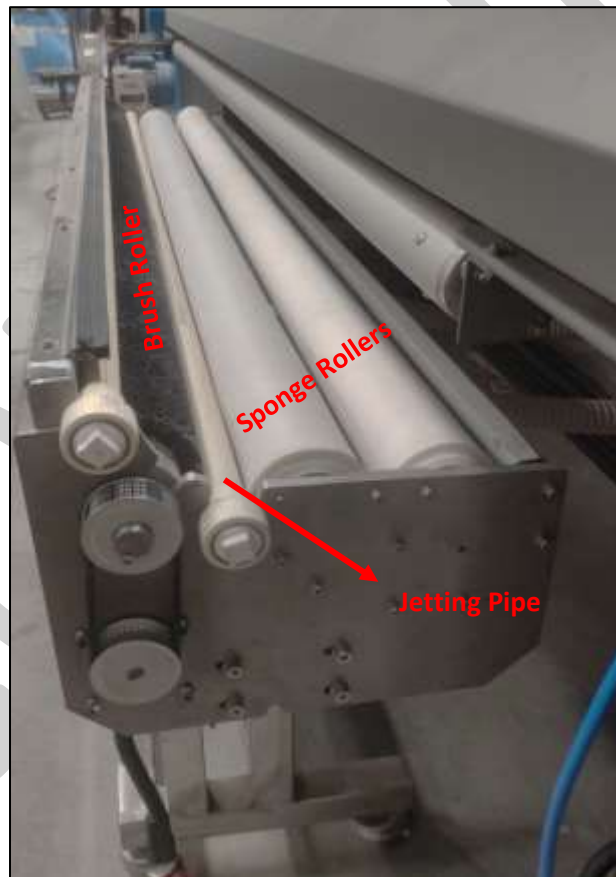


Fig 4: Displaying the Washing Tub Unit

3. Getting Familiar with Printer Manager Interface

The User Interface of the Printer Manager software is shown as below:

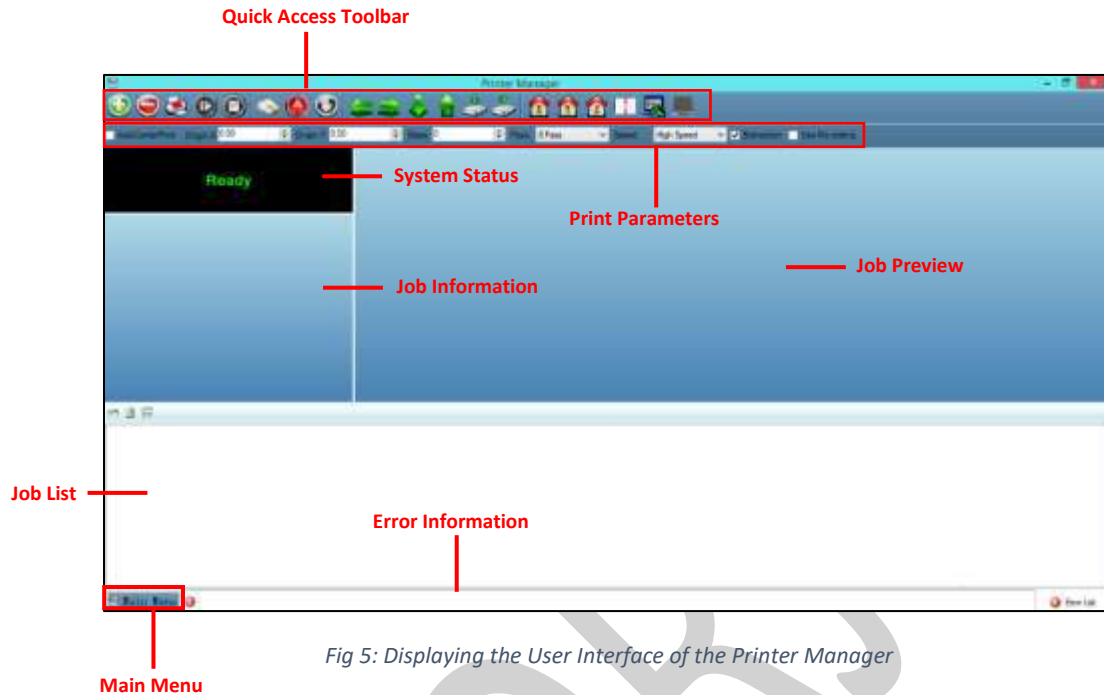


Fig 5: Displaying the User Interface of the Printer Manager

The description of the Printer Manager window is given as below:

Main Menu: Consist of several sub menu options viz. Settings, Tools, and also provide variety of functions in well organize manner.

Quick Access Toolbar: Display frequently performed actions like Add Job, Delete Job, Print Job, Pause or resume, Abort job, Check nozzle, Move left, Move right, Move forward, Move backward, Z Move Down, Z Move Up, Move carriage to origin, Move carriage to origin Y, Move carriage to origin Z, Measure Paper Width, Edit job and Roll or Flat, are available as buttons on the Quick access toolbar.

Job Information: Display the properties of the selected job like File Name and Path, Status, Print Size, Print Area, DPI, Pass, and more

Job Preview: Show the job preview as well as print progress in this area.

Job List: Displays the thumbnail preview of added jobs.

Error message: Displays the system generated error messages.

4. Getting Ready for Printing

Switch ON Procedure

Follow these steps to switch ON the printer:

Step 1: Turn **ON** the Main Power switch located on the back side of the machine. When machine starts, first the Z axis initializes to the Home Position and moves down to the print height. The Capping Station initializes automatically as per its position viz. UP or Down. If Capping is in the Up Position, it moves down, then in the UP direction and vice versa in case of the Down position.

Additionally, the carriage moves to the left limit, then to the right limit. Again, back to the left Home position.

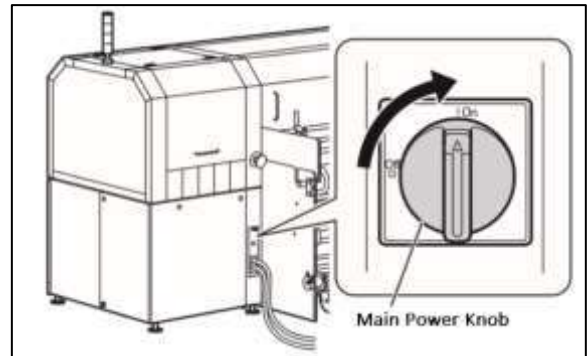


Fig 6: Turning ON the Main Power Knob

Step 2 Run the wash cycle for 10 – 15 minutes.

Step 3: Check the ink level in the Main tank.

Step 4: Check the water level of the Humidifier and refill it, if required.

Step 5: Check the Waste Ink Bottle and empty it, if full.

Step 6: Check Distill Water/Colin Water in the Capping Tray and refill it, if required.

Note: Water level should be 15 mm in height.

Step 7: Check Carriage position and move it toward right, if required. The Carriage should be in the right side of the Home Position Limit Switch.



Fig 7: Turn ON the Print Engine

Step 8: Turn **ON** the Print Engine power.

Note: Before initializing the machine, manually move the carriage to check for any obstacle and switch ON the Print Engine to verify whether everything is OK or not.

Now, the automated process of machine initialization gets started. First, the Z axis initializes to the Home Position and moves down to the print height. The Capping Station initializes automatically as per its position viz. UP or Down. If Capping is in the Up Position, it moves down, then in the UP direction and vice versa in case of the Down position.



Fig 8: Displaying the Capping Station

The Z Fork sensor is used to set the Up and Down limit of the Z. The Z Fork sensor is shown in the image below:

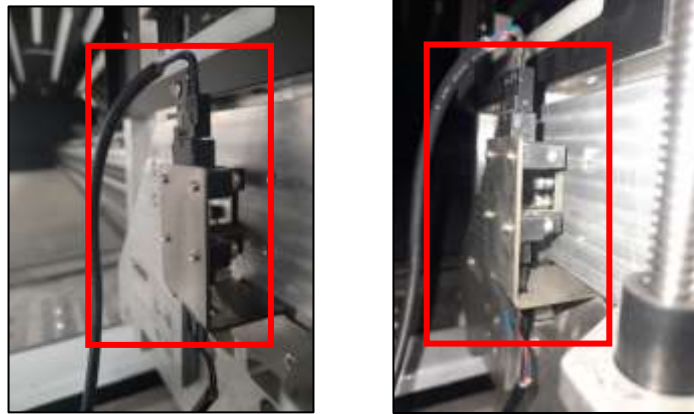


Fig 9: Displaying the Z Fork Sensor

Step 9: After initialization is completed and Carriage is in the Home Position, Turn ON the ink valves.

Step 10: Check Negative Pressure (**-4.0 to -4.5 kPa**) and if not OK, then adjust it using the **Vacuum Regulator Knob** as shown below:

Note: In Vastrajet (16 Heads), negative pressure is -4.0 – 4.5 kPa.

Step 11: Load the fabric and engage the Press Roller (Refer to the Loading Fabric section).

Step 12: Take care about fabric handling from supply and take up sides.

Step 13: Check the take up power and set it as per requirement. The take up is shown in the image below:

Step 14: Check Print Head Nozzles status by issuing the Nozzle Test command. If nozzle test result is not OK or nozzles are blocked, clean the Print Head by performing the steps given in the Head Cleaning section.

Step 15: Check whether Jetting and Brush Roller working properly or not.

Step 16: Rip the image file using the Ripping software provided with the machine.

Step 17: Set the print origin to specify the printing starting position.

Now, the printer is ready for printing.



Fig 10: Adjusting the Negative Pressure

Signal Lamp Description

Signal Lamp description is given as below:

Color	Light of Steadily	Flashing Light		Remarks
Red	Emergency	System Error		Need to Restart
Orange	Printer is Working	Printer in working mode		
Green	Printer is ON			
Blue	Printer is ON			



Fig 11: Displaying the Signal Lamp

Setting Menu

The Setting window consists several tabs such as Printer, Move, Preference, Calibration, Multilayer and Service. All these tabs further consist several sub section or commands likes user can see Print Setting, Color bar, Z move, Capping, etc in Printer tab. Similarly, other tabs also consist different section and their settings. Let's learn in details about the Setting window in upcoming sections.

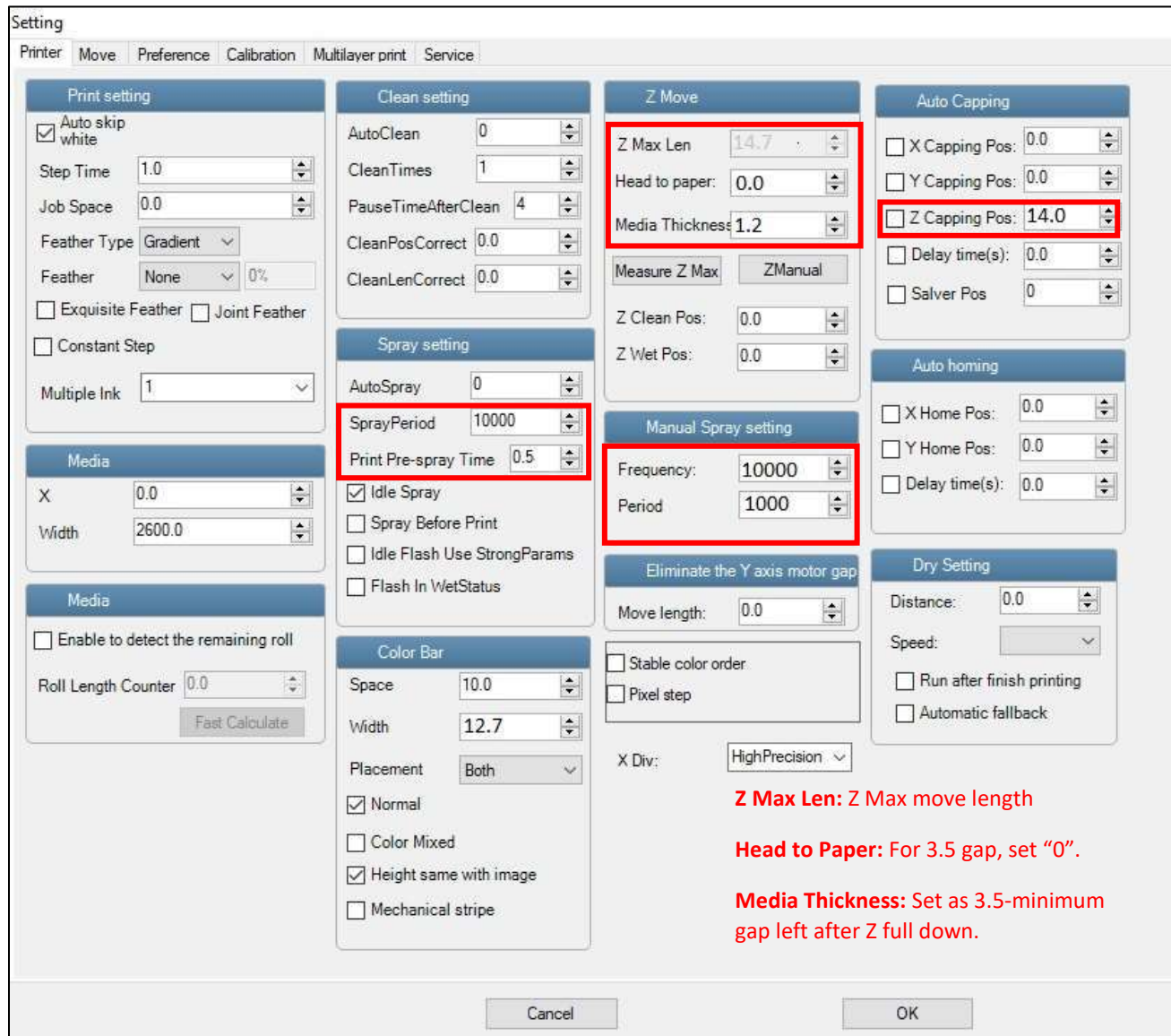
Spray Period value must be 10,000.

Manual Spray settings are:

Frequency: 10,000

Period : 1000

The **Setting** window with the **Printer** tab is shown in the below image:



Setting

Printer | Move | Preference | Calibration | Multilayer print | Service

Print setting

- ☒ Auto skip white
- Step Time: 1.0
- Job Space: 0.0
- Feather Type: Gradient
- Feather: None 0%
- ☐ Exquisite Feather ☐ Joint Feather
- ☐ Constant Step
- Multiple Ink: 1

Media

- X: 0.0
- Width: 2600.0

Media

- ☐ Enable to detect the remaining roll
- Roll Length Counter: 0.0
- Fast Calculate

Clean setting

- AutoClean: 0
- CleanTimes: 1
- PauseTimeAfterClean: 4
- CleanPosCorrect: 0.0
- CleanLenCorrect: 0.0

Spray setting

- AutoSpray: 0
- SprayPeriod: 10000**
- Print Pre-spray Time: 0.5**
- ☒ Idle Spray
- ☐ Spray Before Print
- ☐ Idle Flash Use StrongParams
- ☐ Flash In WetStatus

Color Bar

- Space: 10.0
- Width: 12.7
- Placement: Both
- ☒ Normal
- ☐ Color Mixed
- ☒ Height same with image
- ☐ Mechanical stripe

Z Move

- Z Max Len: 14.7**
- Head to paper: 0.0
- Media Thickness: 1.2
- Measure Z Max: ZManual
- Z Clean Pos: 0.0
- Z Wet Pos: 0.0

Manual Spray setting

- Frequency: 10000
- Period: 1000**

Eliminate the Y axis motor gap

- Move length: 0.0
- ☐ Stable color order
- ☐ Pixel step
- X Div: HighPrecision

Auto Capping

- ☐ X Capping Pos: 0.0
- ☐ Y Capping Pos: 0.0
- ☐ Z Capping Pos: 14.0**
- ☐ Delay time(s): 0.0
- ☐ Salver Pos: 0

Auto homing

- ☐ X Home Pos: 0.0
- ☐ Y Home Pos: 0.0
- ☐ Delay time(s): 0.0

Dry Setting

- Distance: 0.0
- Speed:
- ☐ Run after finish printing
- ☐ Automatic fallback

Cancel OK

Z Max Len: Z Max move length

Head to Paper: For 3.5 gap, set "0".

Media Thickness: Set as 3.5-minimum gap left after Z full down.

Fig 12: Displaying the Setting Window

Note: Z Capping Pos: This value is required for capping.

Describing the different sections of the Setting window, as given below:

<p>Print setting</p> <p>Auto skip white: Enable to auto skip the white space in the image during printing.</p> <p>Step Time: Set time interval of the feed motor during printing.</p> <p>Job Space: Set space between multiple jobs.</p> <p>Feather: Select the type of feather effect and intensity percentage of the feather.</p> <p>Multiple Ink: Enable to select the color depth of an image according to the passes. The available options are Default, Double, and More.</p>	<p>Color Bar</p> <p>Space: Specify the distance of the color bar from the image.</p> <p>Width: Set width of the color bar.</p> <p>Placement: Enable or disable the color bar and its placement viz. left, right, or both.</p> <p>Height same with image: If enabled, the height of the color bar is same as the image height.</p>	<p>Spray setting</p> <p>Auto Spray: Set the duration (number of passes) for auto spraying.</p> <p>Spray Period: Define the duration for spraying (set as 180). If the duration increased, spray frequency gets decreased.</p> <p>Print Pre-spray Time: This option works when the Spray Before Print option is enabled and used for defining the duration, if spray before issuing the Print command.</p> <p>Idle Spray: Spray during carriage at home position. This option must be enabled.</p> <p>Spray Before Print: This option works with the Print Pre-spray Time option. When enabled, one can specify the duration, if spray before issuing the Print command.</p>	<p>Z Move</p> <p>Head to Paper: By default, the height from head to paper (fabric) is 3.5mm. User can increase it as per uneven fabric like towel. Please note, if height will increase then it will lower down the printing quality.</p> <p>Media Thickness: In case, user uses the thicker fabric then this value is increased. Media thickness is to be set "3.5 - minimum gap left after Z full down".</p> <p>Please note that fabric thickness of 10mm can be printed.</p>
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The **Move** and **Preference** tabs are shown in the image below:

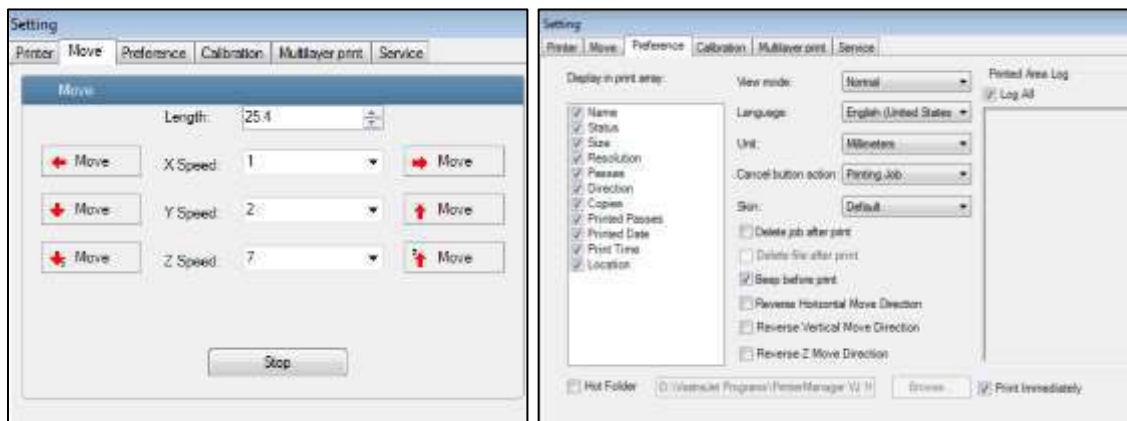


Fig 13: Displaying the Move and Preference Tabs

Note: Unit value can be changed using the Unit drop down list.

The **Calibration** tab is shown in the image below:

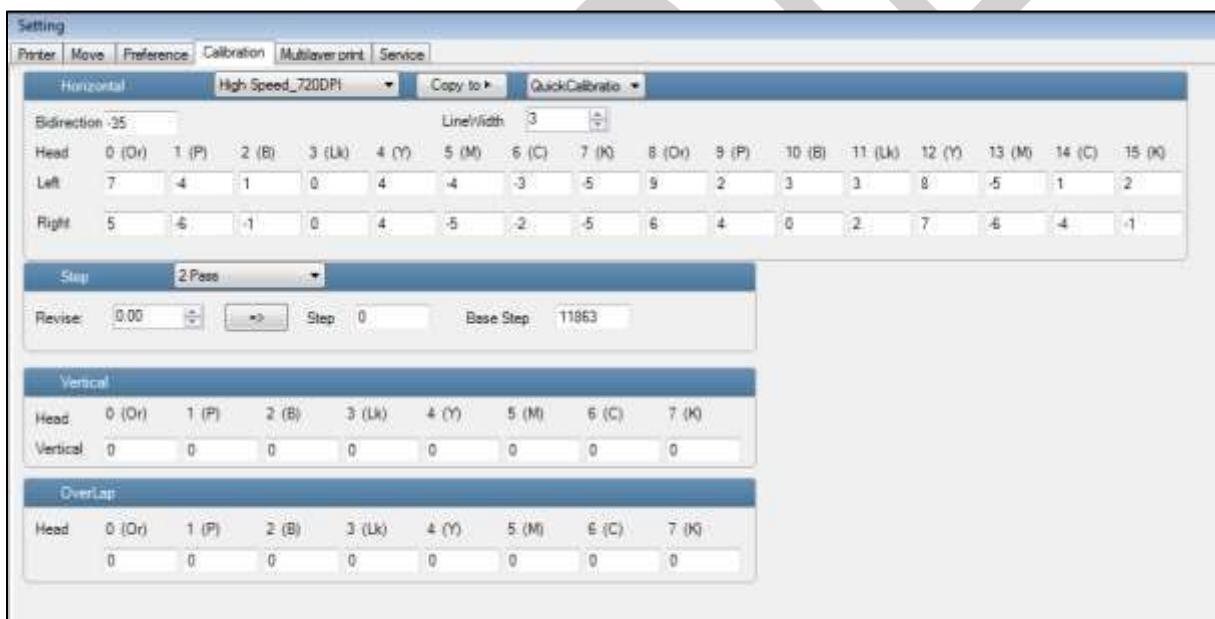


Fig 14: Displaying the Calibration Wizard

Note: Approximate Base Step value should be 11863.

Loading the Fabric

Follow these steps to load the fabric:

Step 1: Keep the well pressed and pre-treated fabric roll winded into the empty core of diameter 65-70mm (Refer to Fig 15).

Step 2: Insert the supply roller into the core of the fabric roll (Refer to Fig 15).

Step 3: Attach the core holders on both ends and tighten them with the help of knob.

Step 4: Remove the roller stopper pin and place the supply roller into the rear of the machine, as shown in the image below:

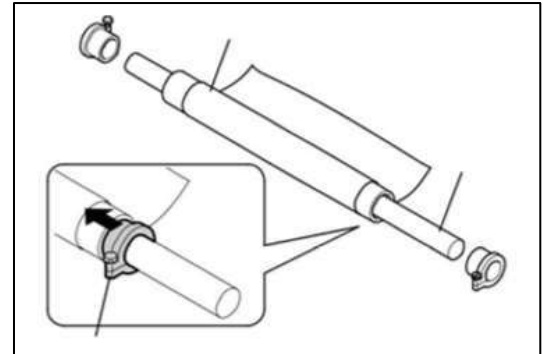


Fig 15: Inserting the Fabric Roll into to Supply Core

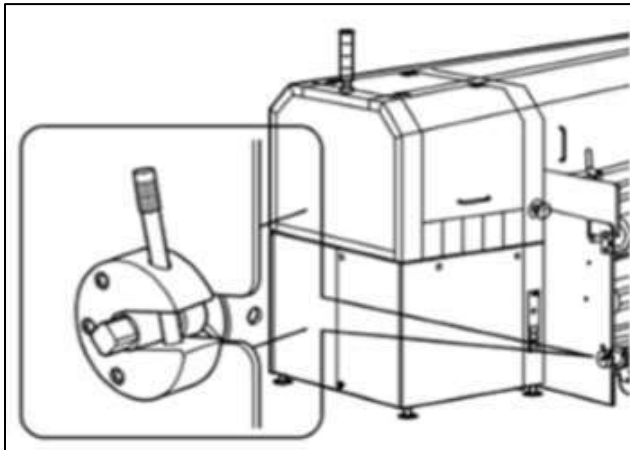
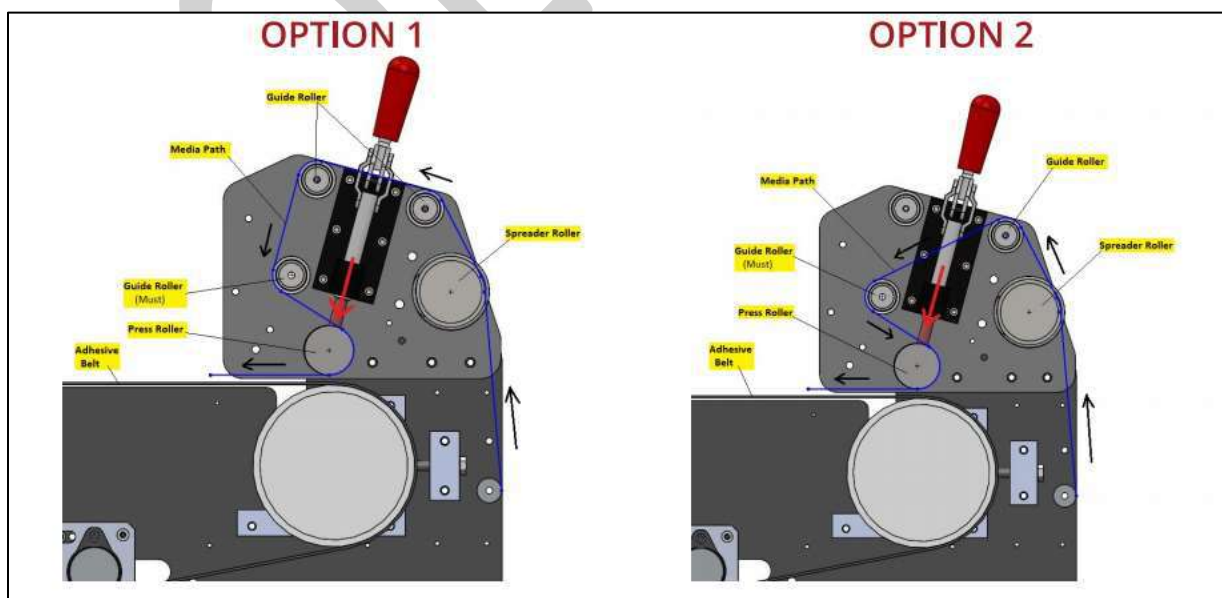


Fig 16: Placing the Supply Roller into the Rear

Step 5: Pull out the fabric and roll it, passing through the fabric tensioner and onto the fabric guiding rods. User has four options to follow the fabric path, if recommended fabric path is not followed then there is a high risk of pinching hands.

Fabric paths are shown as below:



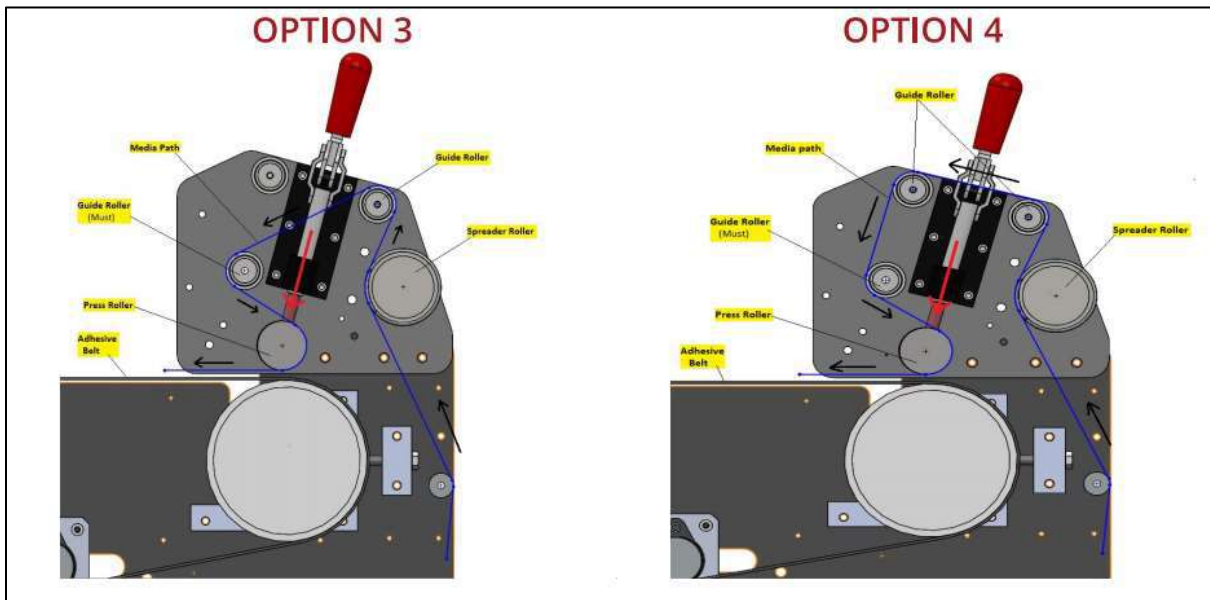


Fig 17: Displaying Different Four Options of Fabric Path

The Spreader Roller is shown in the image below:

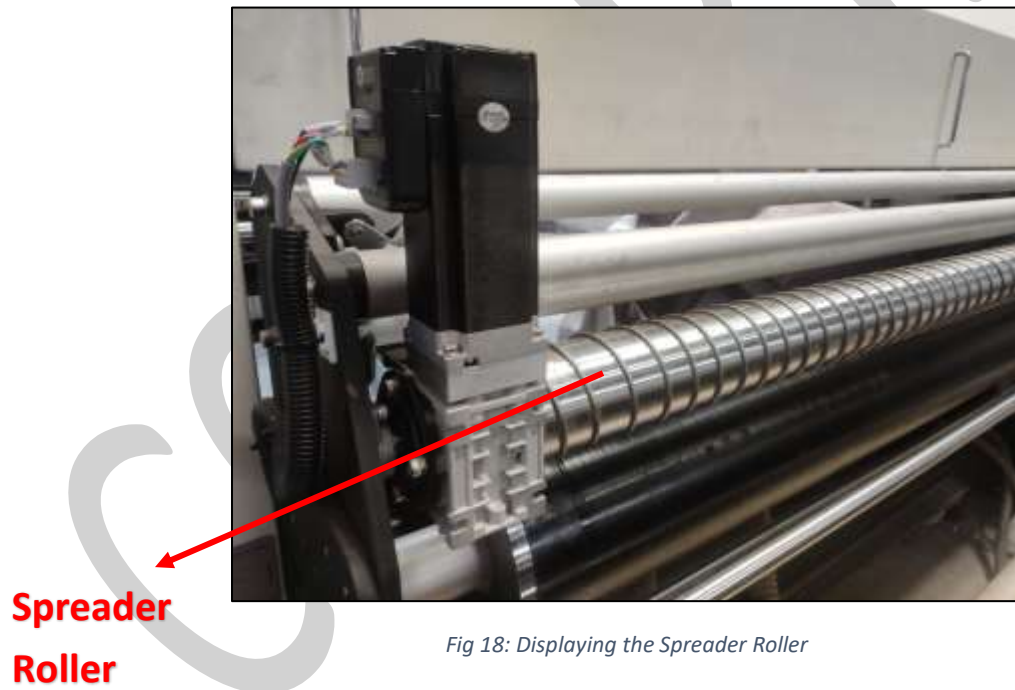


Fig 18: Displaying the Spreader Roller

Step 6: Carefully stretch the fabric stretched to keep it wrinkle free and easily pass below the press roller. Additionally, pull down the press roller through toggle handle, as shown below:

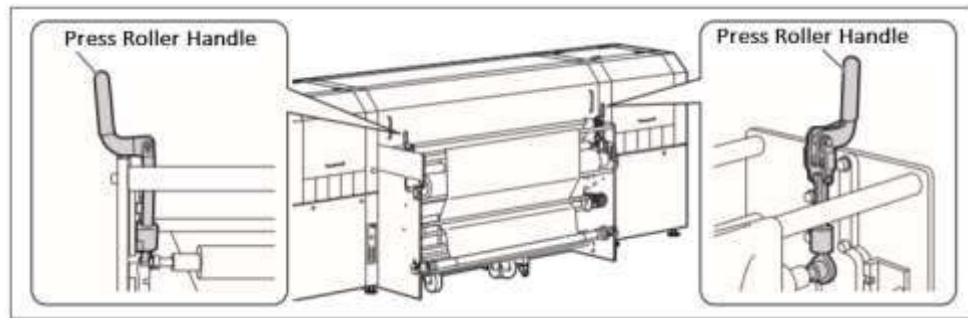


Fig 19: Stretching the Fabric

Step 7: Adjust the Fabric Tensioner to stretch the fabric and remove wrinkles or any slack, as shown below:

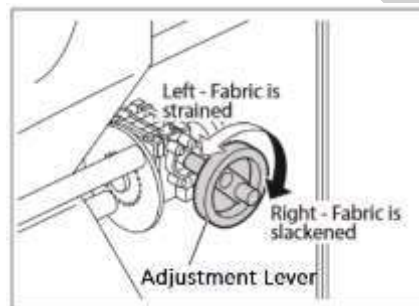


Fig 20: Adjusting the Fabric Tensioner

Note: Do not over tension the fabric.

Step 8: Press Advance arrow icon from the HMI to move the belt forward and remove the wrinkles, if any, as shown below:



Fig 21: Moving the Belt in the Forward Direction

Step 9: Pass the fabric between the front Print Dryer and the Stretcher Rollers. The Print Dryer is shown as below:



Fig 22: Displaying the Print Dryer

Step 10: Insert the Empty Core into the Take Up roller, with core holders at both edges. The take up roller is shown as below:



Fig 23: Displaying the Take Up Roller

Step 11: Attach the falling edge of the fabric to the core by sticking evenly and properly.

Step 12: Set the take up power to 70% approx. (depends on the fabric type) and switch on the Take Up from the HMI. Additionally, move the belt forward a little, so that fabric gets securely winded into the take up roller.

Ink Refiling

The **Main Ink Tanks** are shown in the image below:

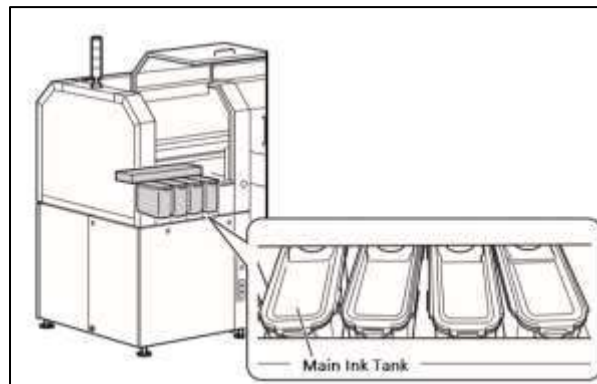


Fig 24: Displaying the Main Ink Tank and Sub Ink Tank

Points need to remember:

- The Main Ink Tanks are located at the back of the printer (four on each side)
- Ink in the Main tanks is pumped to the Sub Ink Tanks located at the Carriage Assembly.

The Ink Pumps are shown in the image below:

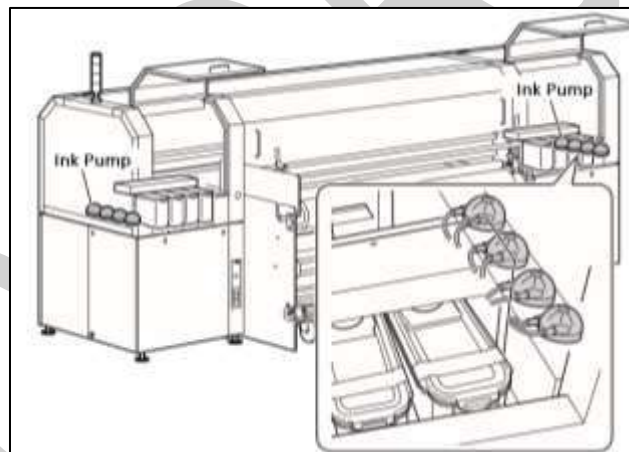
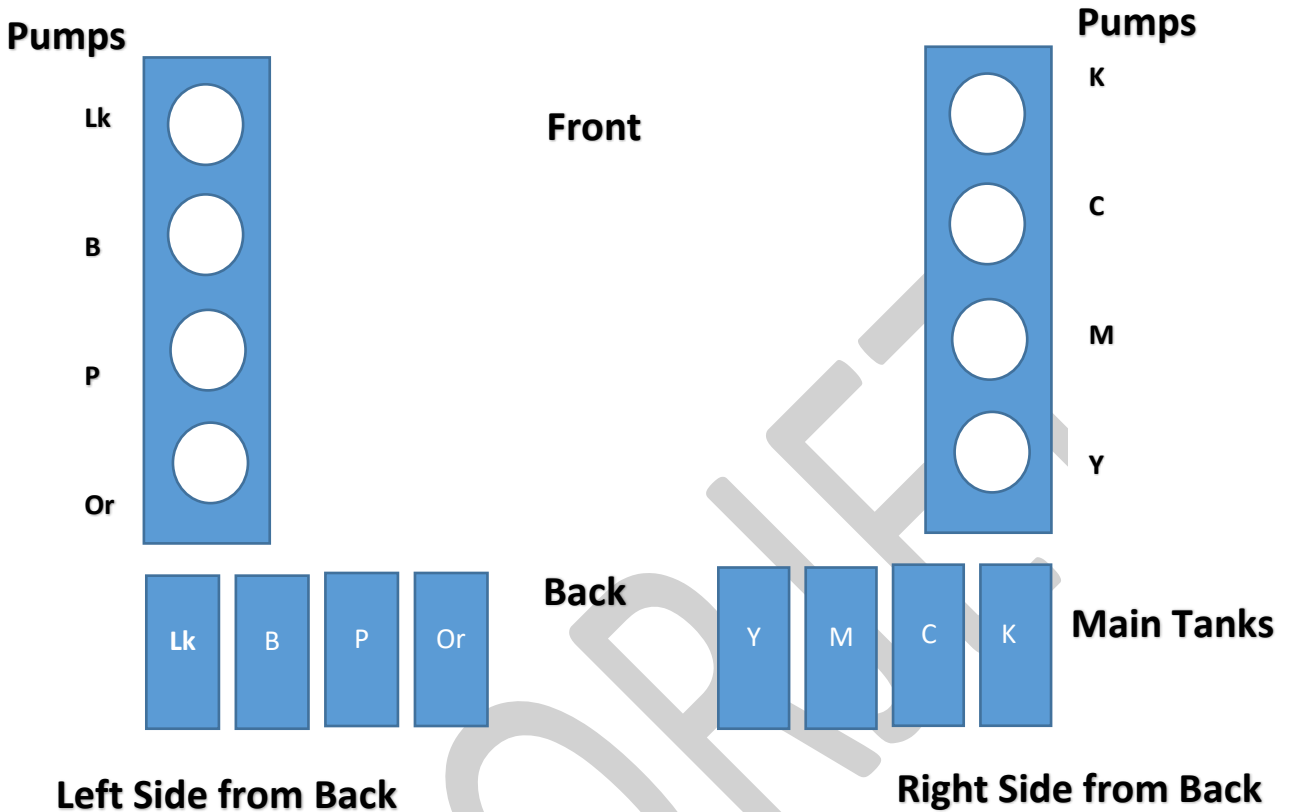


Fig 25: Displaying the Ink Pumps

The **Ink System** and its sequence is shown in the image below:



Follow these steps to fill ink:

Step 1: Remove the back cover of the printer.

Step 2: Remove the Main Ink Tank cover and refill ink (as per the color stickers), as shown below:

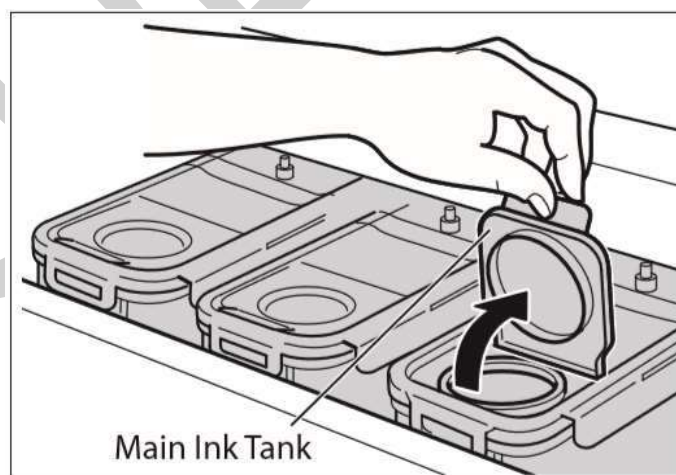


Fig 26: Refilling the Main Ink Tank

Feeding Password

The Password option enables operator to feed or change password of the printer. On clicking **Password** option under the **Tools** menu, the **Password** window appears with two options viz. Time Password and Language Password. Let's learn to feed password in the machine.

Follow these steps to change the passwords of the printer:

Step 1: Click on the **Main Menu**→**Tools**→**Password** path, as shown below:

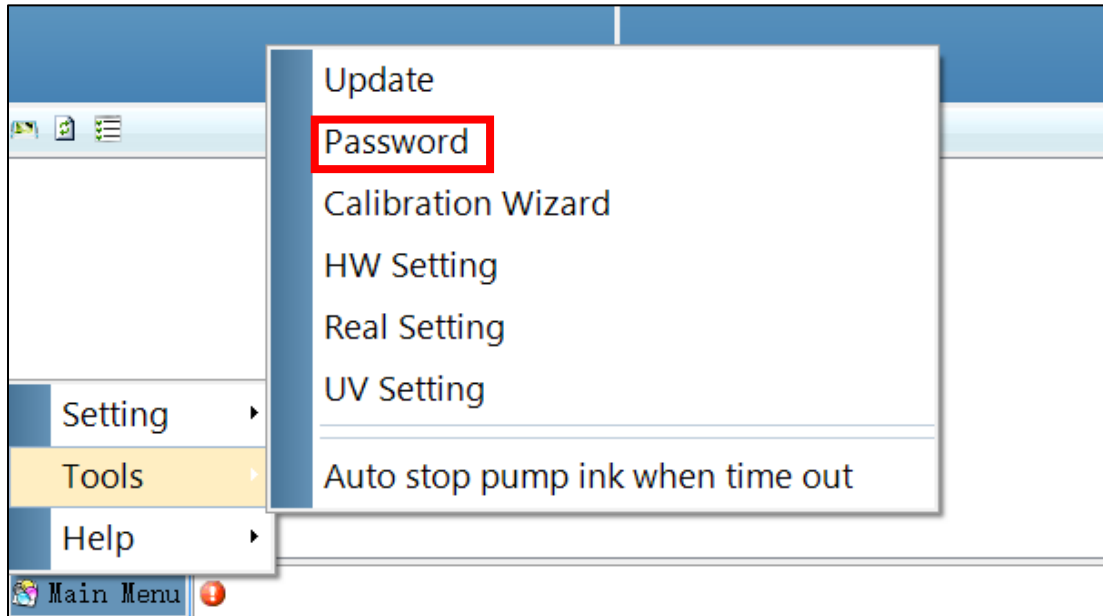


Fig 27: Selecting the Password Option

The **Password** window appears on the screen as shown below:

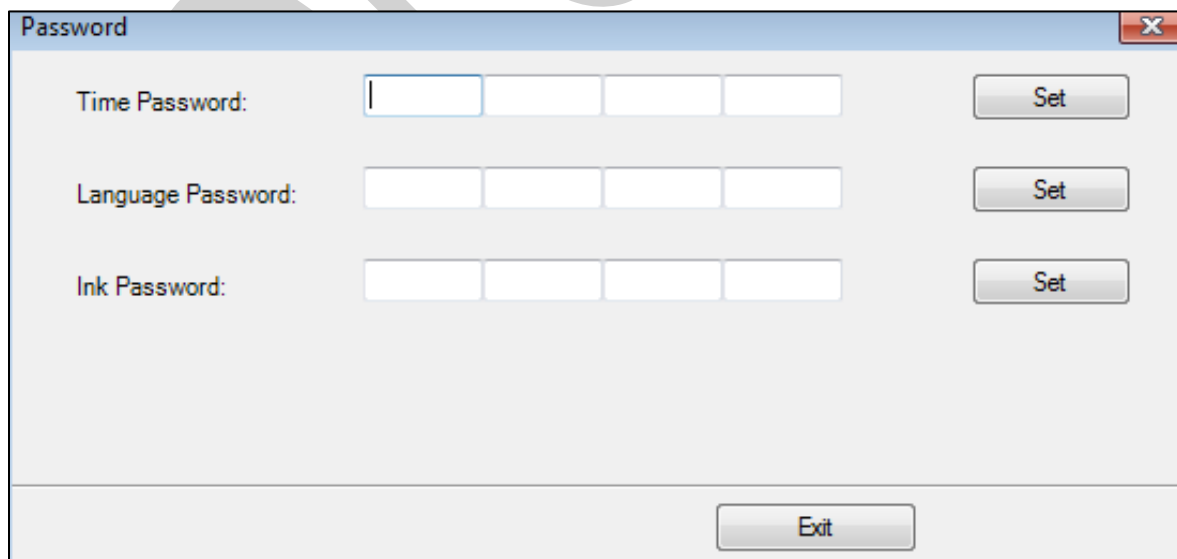


Fig 28: The Password Window

Step 2: Set values in the **Time Password** field as per the requirements (Refer to Fig 28).

Note: The length of the password field must be of 16 digits.

Step 3: After feeding the passwords, *click* on the **Set** button in front of both the options (Refer to Fig 28).

Step 4: *Click* on the **Exit** button to close the **Password** window (Refer to Fig 28).

Note: When “**First Warning**” appears, kindly contact Head Office with the following screen:

- Password Screen (Refer to Fig 28)
- About Us Screen

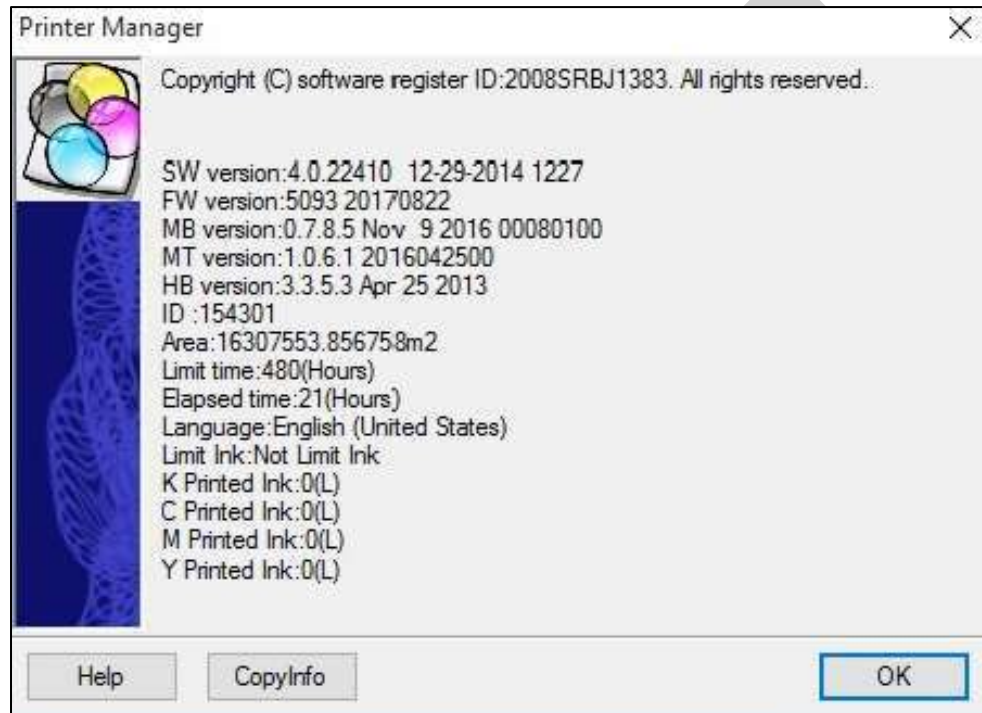


Fig 29: Displaying the About Us Screen

5. Glue Coating

Glue Implementation

Glue is composed of three different chemicals and two solvents.

Chemicals:

- **Prima:** It is used as a primitive coat, for smoothening the belt surface. This is to be done only when the previous glue layers have been washed completely.
- **Therma:** It is used for an intermediate coat, for activating and deactivating the glue according to the temperature variation.
- **Perma:** It is the final glue coat, to make the belt sticky for the fabric.

Solvent:

- **Cleantek:** This liquid solution is used for the renewing/refreshing the tackiness of the Perma adhesive. In digital printing, the adhesive film must be even, thin and hard (to maintain accurate distance in between print head and fabric). The Cleantek removes foreign elements, like dust and micro fibers, from the top layer, hence enhancing the adhesion property of the Perma. If there is no improvement using the Cleantek, it means it's time for a coat of the Perma.
- **Solvtek:** This is used either to dilute the adhesives, or to complete removal of the all adhesive layers. The following are the two main reasons for removing all the glue layers: -
 - When the thickness of the adhesive layer goes on increasing due to multiple coat of the Perma.
 - When the glue layer feels smudgy or groovy (in terms of evenness).

Stages of Glue (Adhesive) Process

Stage 1: Prima coat

Stage 2: Therma coat

Stage 3: Perma coat

An interval of 4hrs is required for the glue to set and dry. After each glue coat, run the glue cycle for 50 minutes with glue heater ON. After final coat of Perma, printing can be started. The third stage is generally a repetitive process, repetition depending on the frequency of printing hours. And when the glue coats get uneven or once in 2-3 months, whole process has to be repeated after removing existing Glue layers.

Note: Average consumption for the Cleantek solvent is 500ml for one time.

Approximate consumption of chemicals for a year:

- **Prima :** Approx. 2 Ltrs
- **Therma:** Approx. 2 Ltrs
- **Perma:** Approx. 5 Ltrs
- **Cleantek:** Approx. 4 Ltrs
- **Solvtek :** Approx. 10 Ltrs

Note: Actual consumption depends on the work load, fabric type, and the maintenance. Generally, shelf life for these chemicals is approx. 4 years.

Shelf life for this chemical are approx. 4 years. Some of the Glue are having these chemicals as base and it harms the belt or adversely affects the life of the Printing Blanket (Conveyor Belt):

RECOMMENDED

Alcohol
Methyl alcohol
Ethyl alcohol
Isopropyl alcohol
Ester
Butyl acetate
Ethyl acetate

NOT RECOMMENDED

Aromatic
Benzene
Toluene
Xylene
Aliphatic
Hexane
Cyclohexane
Ketone
Acetone
Methyl ethyl ketone (MEK)

NOT RECOMMENDED

Chlorinated hydrocarbon
Methyl chloride
(Mono)chlorbenzene
Chloroform
Trichloroethane
Trichloroethylene
Ether
Ethyl ether
Tetrahydrofurane (THF)

Glue Process Preparation

Follow these steps for glue process preparation:

Step 1: Keep the **ventilators** and **exhaust** fans ready.

Step 2: Lift up the **Press Roller** and remove the fabric, if any.

Step 3: Run the **Wash Cycle** from HMI, simultaneously belt can be cleaned by wiping with cloth.



Fig 31: Running the Wash Cycle

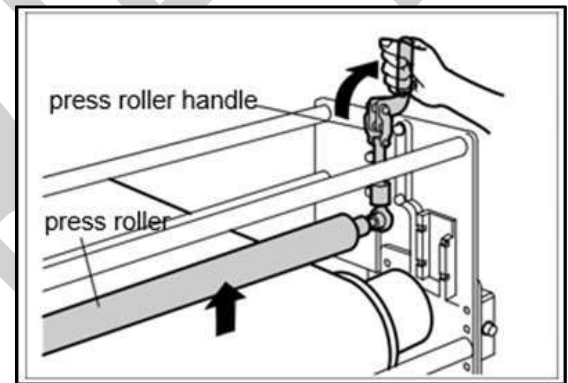


Fig 30: Displaying the Press Rollers

Step 4: Put masking PVC tape on both edges of the Conveyor Belt, by simultaneously moving the belt through HMI in slow speed.

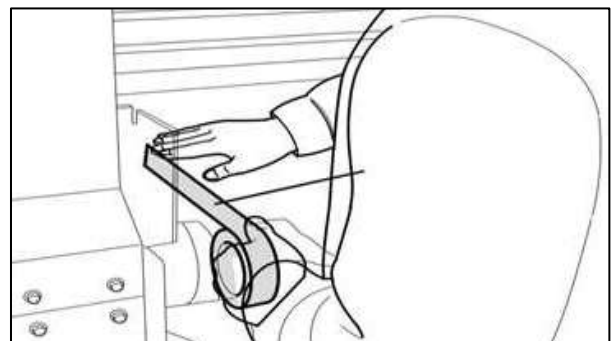


Fig 32: Using Masking Tape

Step 5: Put on gloves, goggles, and face mask for safety



Fig 33: Using Safety Precautions

Step 6: Keep ready the following items: -

- Glue container(500-600ml), whichever required
- Home cleaner liquid spray
- Pouring container
- Waste bin
- Woven cotton bud sticks (for spreading the glue)

Glue Coating Procedure

Note: Extreme care to be taken during the glue process, any negligence may render the coat unsuitable for use, and complete process may be required to be repeated. 3 persons will be required for this process.

Follow these steps to start the glue coating process:

Step 1: Put the Press Roller down.

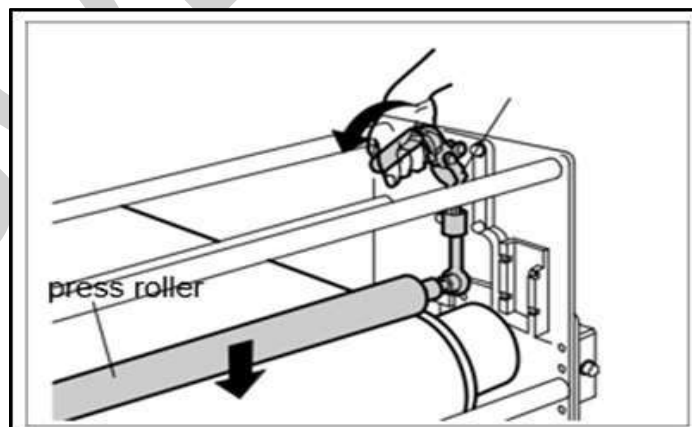


Fig 34: Closing the Press Roller

Step 2: Set the HMI to Glue Cycle mode, set the belt speed as 7 (Ensure that belt direction is reverse, and washing tub should be down).



Fig 35: Enabling the Glue Cycle Mode

Step 3: Go to the back of the machine. Pour the 70% glue equally throughout the belt, near the Press Roller, leaving the 10cm from both the edges.

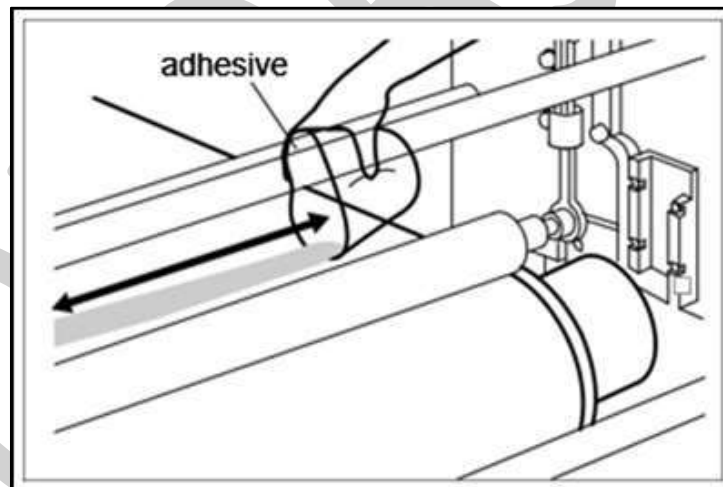


Fig 36: Pouring the Glue

Step 4: Let the two persons hold the Press Roller firmly, so that it doesn't move.

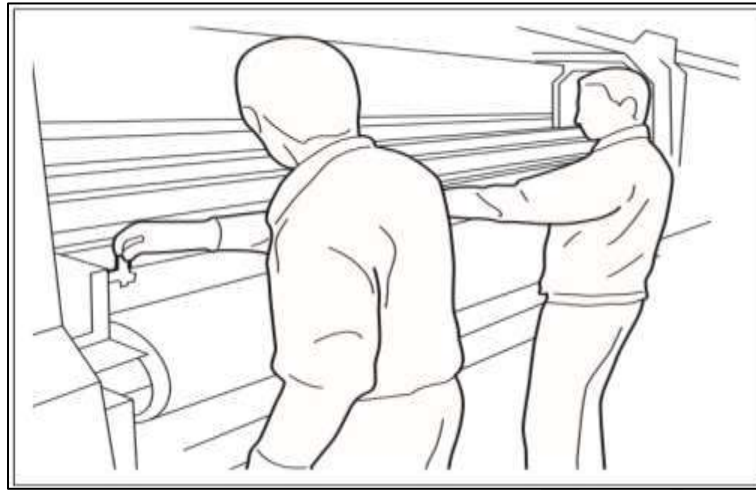


Fig 37: Closing the Press Roller

Step 5: Once the glue has crossed the press roller, speed can be increased to 20. Using the cotton bud stick, keep spreading the glue from the area where glue is in excess, to the area wherever the glue is less in quantity.

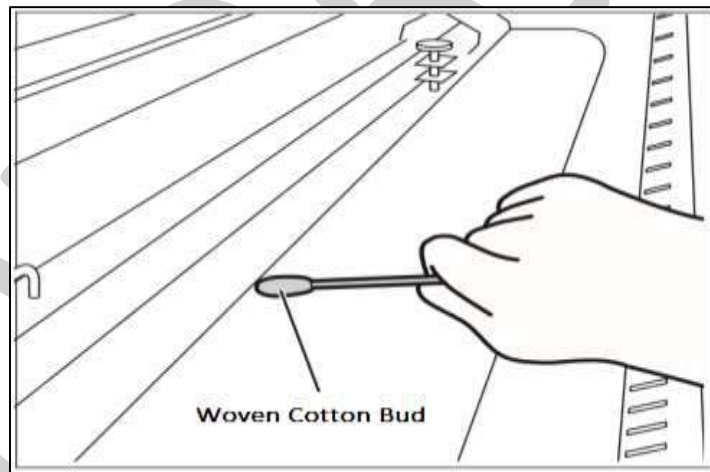


Fig 38: Spreading the Glue

Step 6: Wherever the glue under the press roller is diminishing, pour the remaining glue over such areas.

Step 7: When glue below the Press Roller seems to be diminishing at some areas, and becoming of higher viscosity and uneven, person standing in front, should start spraying the cleaner liquid continuously till the end.

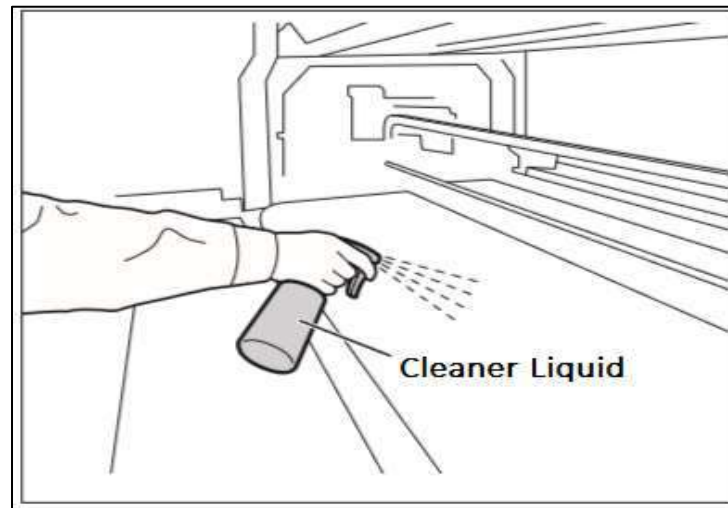


Fig 39: Spraying the Cleaner Liquid

Step 8: Later the cleaner liquid spraying should be done throughout the belt, until the remaining glue appears to be deactivated, due to mixing of cleaner liquid.

Step 9: Once the glue seems to be deactivated, stop spraying liquid, and do simultaneously and quickly below steps: -

- Slightly rotate the Press Roller in opposite direction, to move the sticky portion upwards away from the belt.
- Lift the Press Roller from the both sides at a time and stop the glue cycle immediately from the HMI screen.

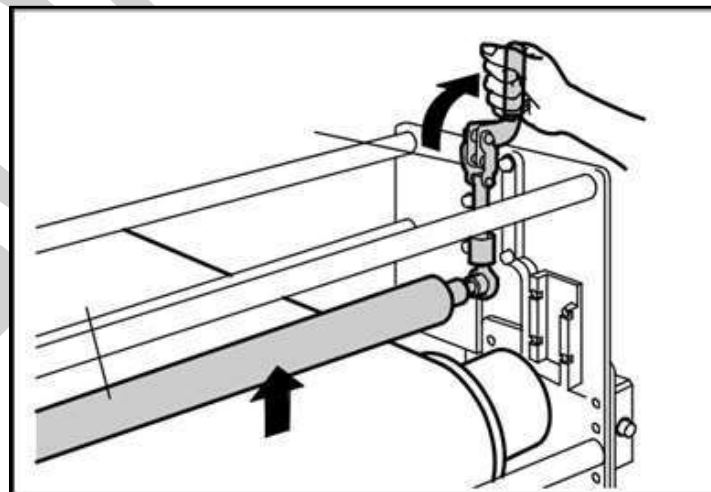


Fig 40: Lifting Up the Press Roller

Step 10: Remove the excess deactivated glue and throw in the waste bin. Wipe up only the area where liquid is present, touching dry belt will damage the coating.

Step 11: Once excess glue is removed, run glue cycle for 30-50 min with glue dryer on.

Step 12: Wipe off the glue from the Press Roller, with the help of cleaner damp towel.

While cleaning the Press Roller, cover the belt surface with poly sheet to avoid the glue remains falling on the belt surface.

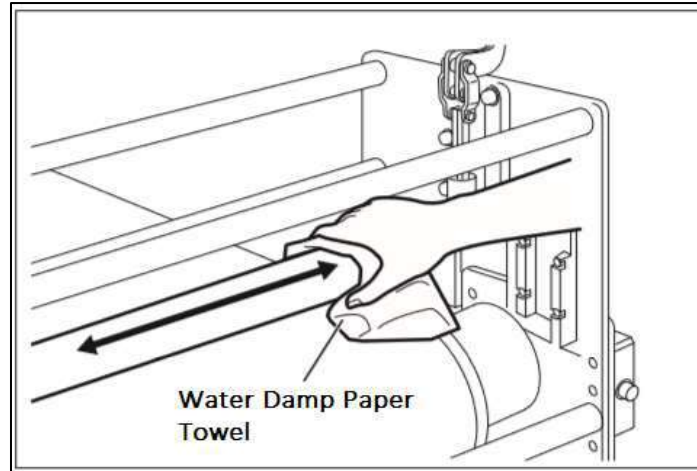


Fig 41: Wiping Off the Glue from the Press Roller

Step 13: Leave machine idle for 4 hours to let glue dry and set. (Next glue coat has to be done only after resting period of 4 hours) Above process has to be repeated for every glue coat process.

Glue Removing Preparation

Prepare and ready the following below mention things before removing glue:

- Prepare proper ventilators.
- Wear proper safety armament to prevent from touching glue and cleaner.
- Put cover sheets on under belt, printer front and rear to protect them from dropped glue and cleaner.

Note: Do not use the Belt Washing Unit during the glue coating or glue removing process. Additionally, glue or the cleaner may damage the brush-roller or sponge roller, thus put a cover on the washing unit.

Glue Removing Procedure

Glue coat gets damaged due to several reasons like during unpacking or unloading. Thus, service engineer needs to remove the damaged glue coating and recoat the glue on the belt.

Follow these steps to remove glue:

Step 1: Prepare cleaner which is dedicated to using glue.

Step 2: Wipe cloth or paper towel with purified water. Place wipe clothes on belt to cover belt.



Fig 42: Wiping the Belt

Step 3: Pour cleaner liquid (Solvtek) onto wipe clothes.

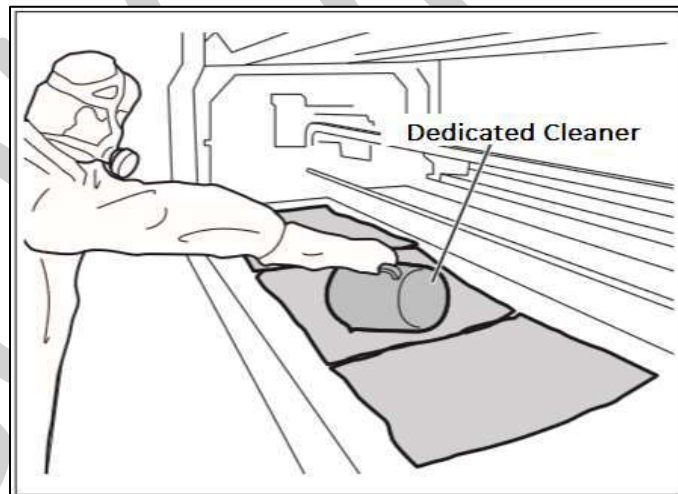


Fig 43: Pouring Cleaner Liquid

Step 4: Wait 5 minutes to dissolve glue.

Step 5: Wipe dissolved glue and cleaner by wipe clothes.

Step 6: After wiping out the part, turn the belt and repeat wiping until wipe out over all.

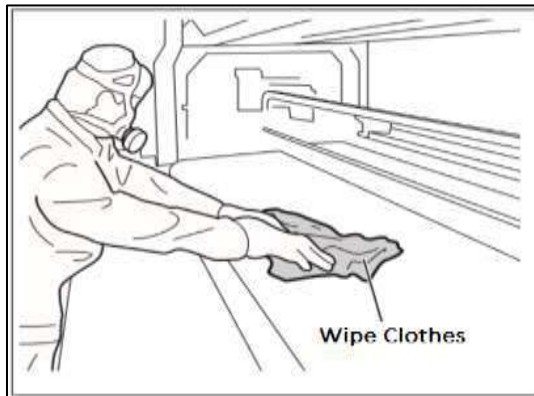


Fig 44: Wiping the Glue

Step 7: Spray or pour purified water onto the belt.

Step 8: Wipe out cleaner on the belt by paper towel.

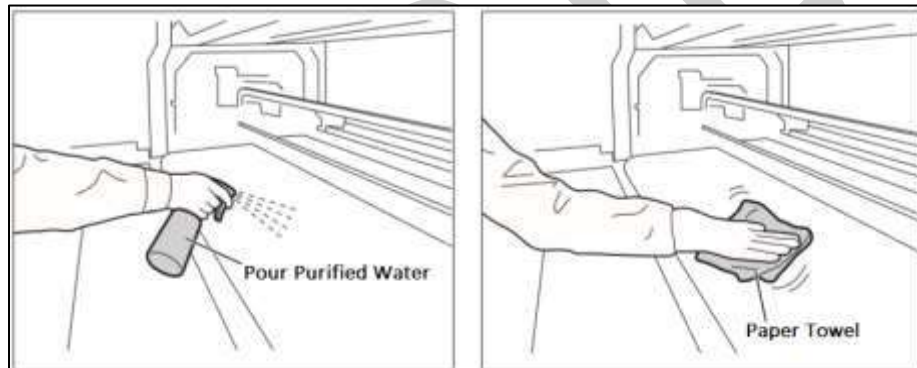


Fig 45: Wiping Out Cleaner from the Belt

Step 9: After clean up the part, turn belt and repeat cleaning until clean up over all. Remove cover sheet which covers washing unit.

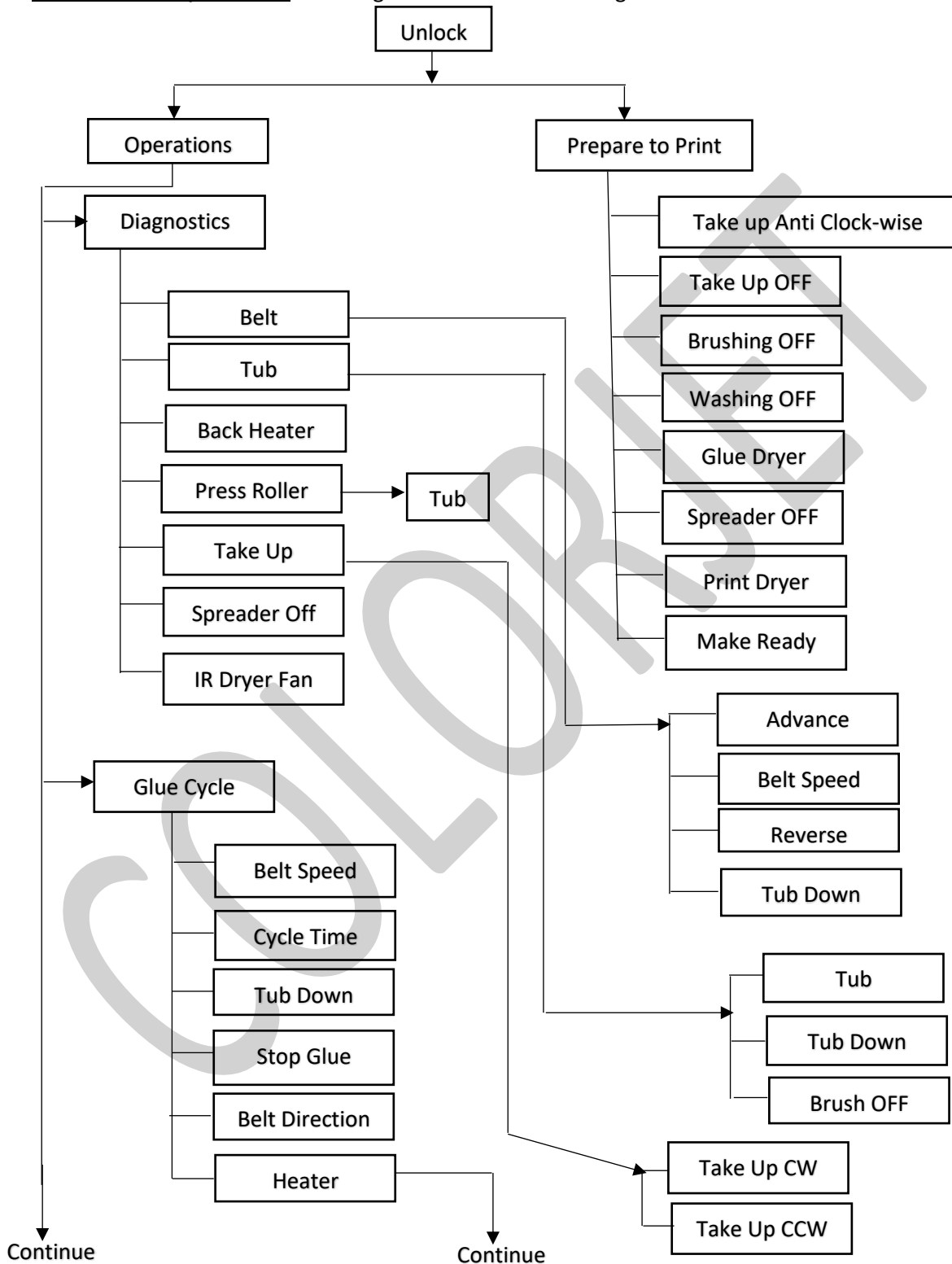
Step 10: Finally, remove remained cover sheets, and keep the belt dry.

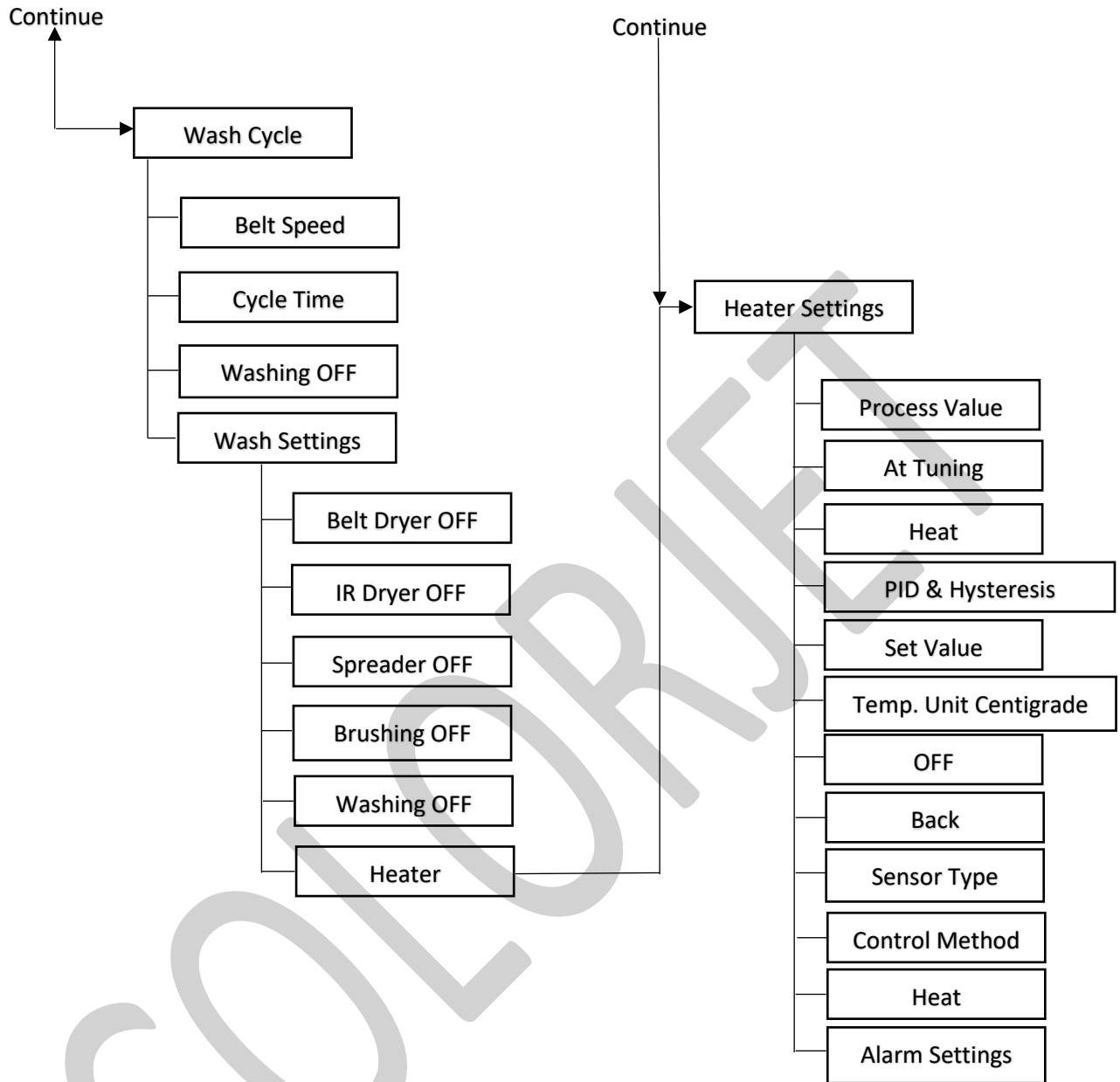


Fig 46: Removing the Cover Sheet

6. Control Panel Operational Flow Chart

The **Control Panel Operational** flow diagram is shown in the image below:





7. Control Panel Operations

Initial Screen

The **Start Up Screen** is shown as below:



Fig 47: Displaying the Start Up Screen

The Start Up screen appears, when HMI gets power ON.

Main Menu

After unlocking the Start Up screen, the **NO CYCLE IS SELECTED** (also known as Main Menu) screen appears with **OPERATIONS** and **PRINT TO PREPARE** options, as shown below:



Fig 48: Displaying the NO CYCLE IS SELECTED Screen

OPERATIONS: Move to the OPERATIONS screen and perform different operations viz. DIAGNOSTICS, GLUE CYCLE, and WASH CYCLE.

PREPARE TO PRINT: Move to the PREPARE TO PRINT screen to make the Conveyor Belt system "Online".

Mode Settings

In VastraJet, there are two modes viz. **OPERATIONS** and **PREPARE TO PRINT**. Let's discuss them one by one.

OPERATIONS Mode

When you select the **OPERATIONS** icon on the HMI, the **OPERATIONS** screen appears as shown below:



Fig 49: Displaying the OPERATIONS

DIAGONSTICS: Move to the SERVICE MODE screen.

GLUE CYCLE: Move to the GLUE CYCLE screen to start the glue coating and removing process.

WASH CYCLE: Move to the WASH CYCLE screen to wash the Conveyor Belt.

← Icon: Go back to the previous screen.

SERVICE Mode

To open the **SERVICE MODE** screen, select the **DIAGONSTICS** icon from the **OPERATIONS** screen (Refer to Fig 49). The **SERVICE MODE** screen is shown as below:



Fig 50: Displaying the SERVICE MODE Screen

BELT: Move the belt manually.

TUB: Move the washing Tub Up, Down, and maintenance.

BELT DRYER FAN: Switch ON or OFF the BELT DRYER FAN.

TAKEUP: Run the fabric Take Up motor manually.

IR DRYER FAN: Switch ON or OFF the IR DRYER FAN.

Controlling Belt Motion

To control the belt motion, select the **BELT** icon from the **SERVICE MODE** screen (Refer to Fig 50). The **BELT MOTION** screen appears as shown below:



Fig 51: Displaying the BELT MOTION Screen

BELT SPEED HZ: Set the speed of the Conveyor Belt.

ADVANCE: Move the belt in the forward direction.

REVERSE: Move the belt in the reverse direction.

TUB DOWN: Lower down the tub.

Setting Belt Speed

To set the belt speed, select the **BELT SPEED HZ** icon from the **BELT MOTION** screen. The **Numeric Keypad** appears on the **BELT MOTION** screen, as shown below:



Fig 52: Setting the Belt Speed

Now, enter the belt speed in the **Numeric Keypad** and select the **Enter** button to set the belt speed.

Setting Washing Unit

To set the position of washing tub, select the **TUB** icon from the **SERVICE MODE** screen. The **WASHING UNIT** screen appears, as shown below:



Fig 53: Displaying the WASHING UNIT Screen

TUB: Move the washing tub in upward direction.

TUB DOWN: Move the washing tub in downward direction.

BRUSHING OFF: Switch ON or OFF the washing tub functioning.

TUB MAINTT: Move the tub to the maintenance position.

Controlling Take Up Motion

To update the take up motion, select the **TAKE UP** icon from the **SERVICE MODE** screen. The **TAKE UP MOTION** screen appears on the screen, as shown below:



Fig 54: Displaying the TAKE UP MOTION Screen

TAKEUP CW: Move the take up in clockwise direction.

TAKEUP CCW: Move the take up in anti-clockwise direction

Setting Glue Cycle

To start the glue cycle, select the **GLUE CYCLE** option from the **OPERATIONS** screen (Refer to Fig 49). The **GLUE CYCLE** screen appears as shown below:



Fig 55: Displaying the GLUE CYCLE Screen

BELT SPEED: Specify or select the belt movement speed in percentage.

CYCLE TIME: Specify the duration for which belt is to be run.

START/STOP GLUE PROCESS: Use for starting and stopping the glue process cycle.

BELT DIRECTION: Choose the belt movement direction.

HEATER: Go to heater setting and make desirable changes as per the requirements.

Setting Wash Cycle

To start the wash cycle, select the **WASHING CYCLE** option from the **OPERATIONS** screen (Refer to Fig 49). The **WASHING CYCLE** screen appears as shown below:



Fig 56: Displaying the WASHING CYCLE Screen

BELT SPEED: Specify or select the belt movement speed in percentage.

CYCLE TIME: Specify the duration for which belt is to be run.

WASHING OFF: Use for starting and stopping the washing cycle.

WASH SETTINGS: On clicking the WASH SETTINGS, the WASH CYCLE SETTINGS screen appears. Please refer the below section.

You can open the **WASH CYCLE SETTINGS** screen simply by selecting the **WASH SETTINGS** button (Refer to Fig. 56) from the **WASHING CYCLE** screen. The **WASH CYCLE SETTINGS** screen appears as shown below:



Fig 57: Displaying the WASH CYCLE SETTINGS Screen

Using the settings screen, you can ON or OFF the Belt Dryer, Print Dryer, Jetting, Brushing, Washing, and Heaters.

Controlling Heaters Settings

To change or update the heater settings, select the **HEATERS** button from the **WASH CYCLE SETTINGS** screen (Refer to Fig 57). The **HEATERS SETTINGS** screen appears as shown below:

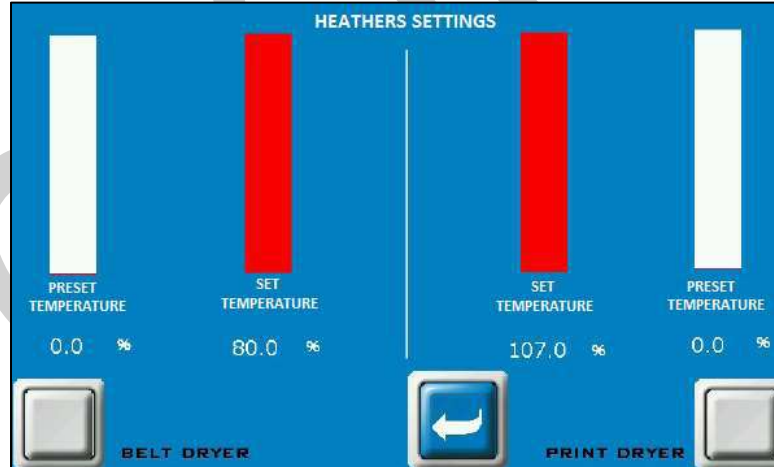


Fig 58: Displaying the HEATERS SETTINGS Screen

Using the above screen, change the belt and print dryers' settings by updating the SET and PRESET TEMPERATURES.

PREPARE TO PRINT Option

The **PREPARE TO PRINT** enables to make the Conveyor Belt online. You can ON or OFF Brushing, Jetting, and Washing, take up, print dryer, and belt dryer. Additionally, you can also set the take up directions. The **PREPARE TO PRINT** screen appears when you select the **PREPARE TO PRINT** option from the **Start Up** screen, as shown below:



Fig 59: Displaying the PREPARE TO PRINT Screen

After making the desirable changes, select the **MAKE READY** option to save the selection and the **Confirmation** screen appears to ask whether you want to save the changes or not, as shown below:



Fig 60: Displaying the Confirmation Dialog Screen

On clicking to the **YES** button, the **ONLINE** screen appears as shown as shown below:



Fig 61: Displaying the ONLINE Screen

Using the above screen, you can make the Conveyor System Online or Offline. Additionally, you can also update Heaters, Belt Dryer, and Take Up power settings.

The description of different options is given as follow:

- **OFFLINE:** Use to make the Conveyor Belt **"ONLINE"**.
- **STOP:** Use to make the Conveyor Belt **"OFFLINE"**.
- **STATUS:** On clicking this button, you will be redirected to the **PREPARE TO PRINT** screen from where you can enable or disable the given options.
- **HEATERS:** Heater temperature can be set using the HEATERS icon.
- **OVERRIDE:** Heaters can be overridden to go **"ONLINE"**
- **TAKEUP POWER:** Display the take-up power on the screen.

8. Printer Software Operations

Setting the Print Origin

Print origin sets the print starting point with the left limit switch as the reference point. It can be set by two ways; moving and positioning the carriage and typing the offset value directly in the given field.

Follow these steps to change the print origin:

Step 1: Move the carriage at the position from where you want to start the printing by *clicking* on the left and right buttons on the **Quick Access Toolbar**, as shown below:



Fig 62: Adjusting the Carriage Position

Step 2: After positioning the carriage, *click* on the **Set print origin** icon on the **Quick Access Toolbar**, as shown below:



Fig 63: Selecting the Set Print Origin Option

On clicking the **Set print origin** icon, the current position of the carriage gets updated in the **Origin X** text box, as shown below:



Fig 64: Displaying the Origin Value

Now, the printing origin gets set. Additionally, you can also enter the print origin value manually in the Origin X field under the Print Parameter section.

Calibrating Wizard

Print Heads should be calibrated to ensure good printing quality. To open the Calibration Wizard, *click* on the **Main Menu→Tools→Calibration Wizard** path, as shown below:

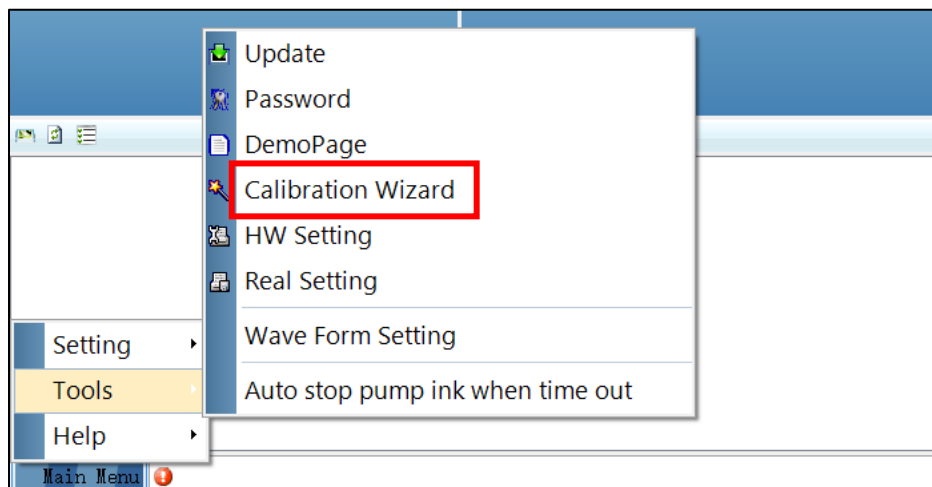


Fig 65: Selecting the Calibration Wizard Option

This should bring up the calibration wizard which is shown below:

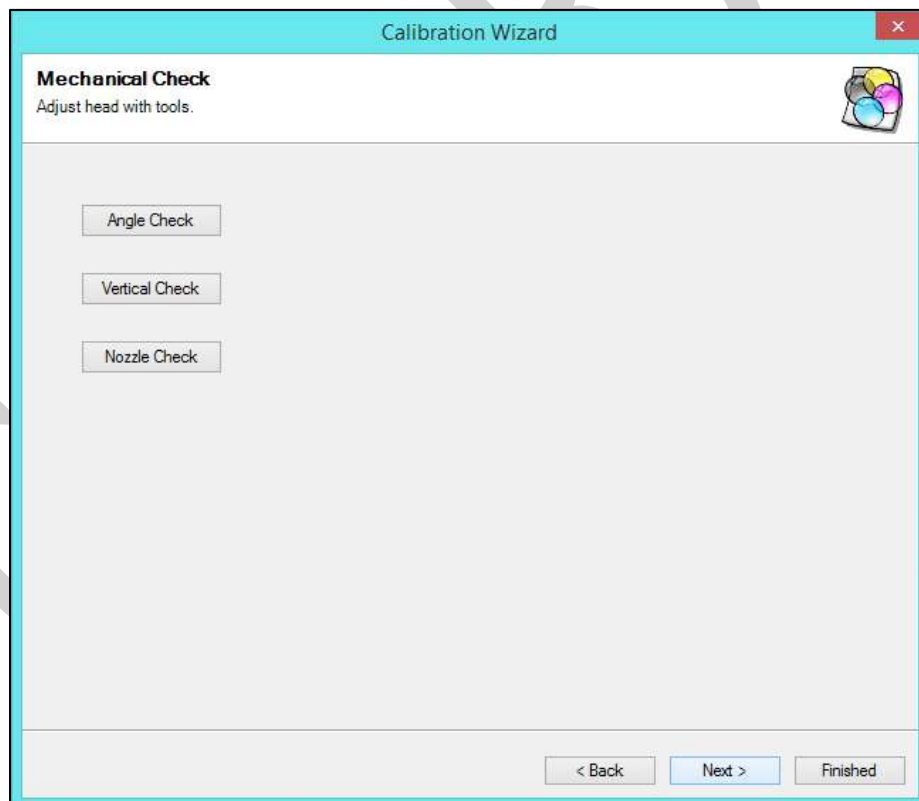
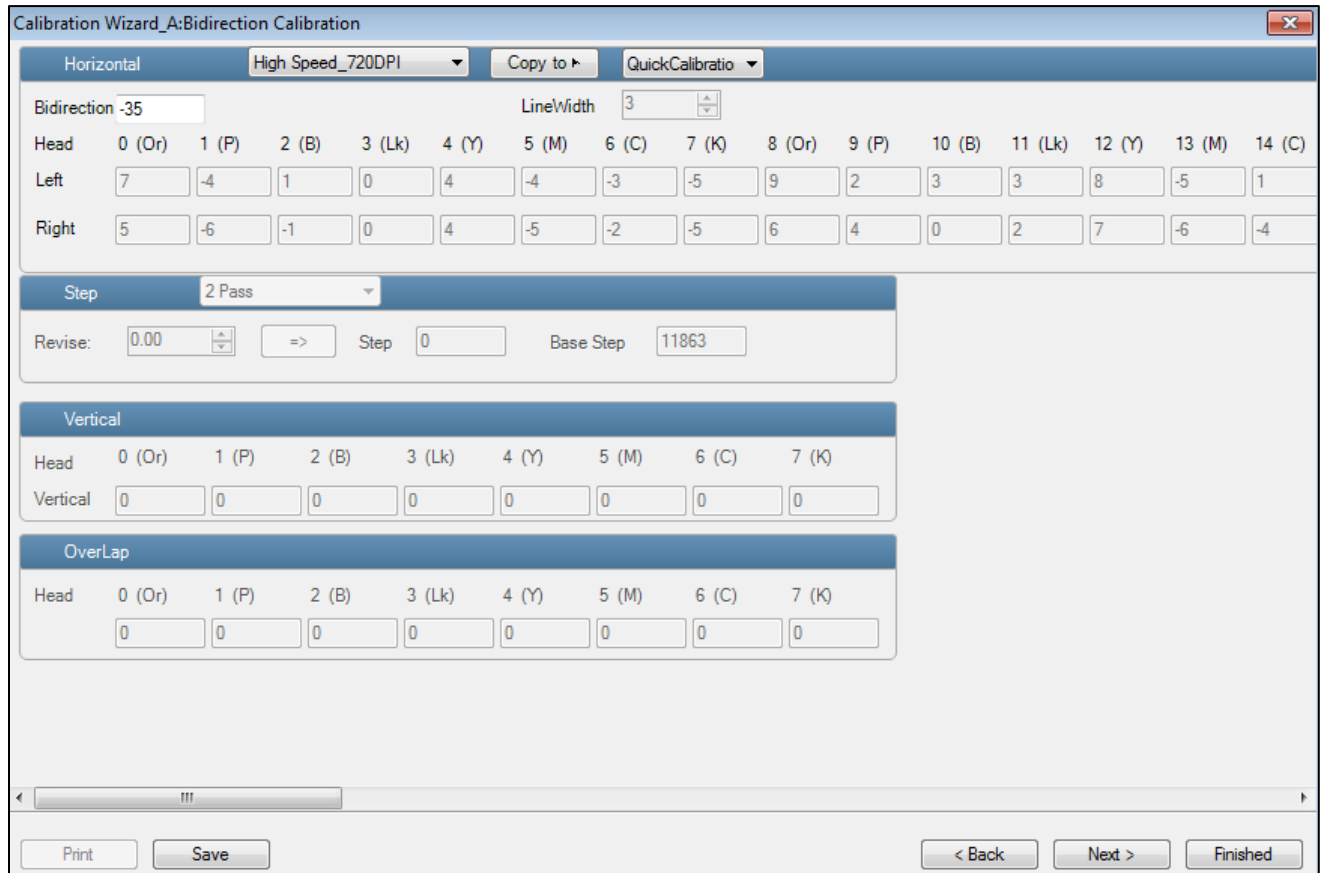


Fig 66: Displaying the Calibration Wizard

When you press the **Next** button, we redirect to the software calibration screen, as shown in the below images:



Calibration Wizard_A: Bidirection Calibration

Horizontal High Speed_720DPI Copy to QuickCalibratio

Bidirection -35 LineWidth 3

Head	0 (Or)	1 (P)	2 (B)	3 (Lk)	4 (Y)	5 (M)	6 (C)	7 (K)	8 (Or)	9 (P)	10 (B)	11 (Lk)	12 (Y)	13 (M)	14 (C)
Left	7	-4	1	0	4	-4	-3	-5	9	2	3	3	8	-5	1
Right	5	-6	-1	0	4	-5	-2	-5	6	4	0	2	7	-6	-4

Step 2 Pass

Revise: 0.00 => Step 0 Base Step 11863

Vertical

Head	0 (Or)	1 (P)	2 (B)	3 (Lk)	4 (Y)	5 (M)	6 (C)	7 (K)
Vertical	0	0	0	0	0	0	0	0

OverLap

Head	0 (Or)	1 (P)	2 (B)	3 (Lk)	4 (Y)	5 (M)	6 (C)	7 (K)
	0	0	0	0	0	0	0	0

Print Save < Back Next > Finished

Fig 67: Displaying the Printer Calibration Options

Let's discuss each user related test and their result one by one in upcoming section.

Horizontal Calibration

Horizontal Calibration checks the bi-directional, left, and right alignment and corrects it by adding or subtracting the correction value from the default set value. It has to be performed for each print mode, whichever is required. Let's discuss each type of horizontal test one by one.

Bi-direction Calibration

Bi-directional calibration is performed to achieve dot placement accuracy between the "Left to Right" and "Right to Left" print sweeps. If the bi-direction offset value is correct, the Left to Right test print would align accurately with the Right to Left test print at "0" position. In case of error in the Bi-Direction offset, the Left to Right and Right to Left print would align at some other point on the scale.

The Bi-direction Calibration result is shown in the image below:

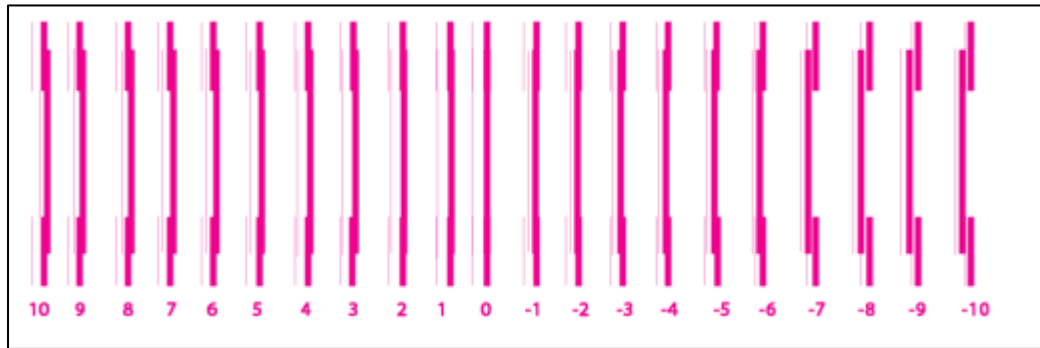


Fig 68: The Bi-Direction Calibration Output

Based on the above figure, you can notice that the Bi-direction calibration is good at “0” position. The correction value is “0” which means you need not to correct the bi-direction value. Sometimes, the correction value can either positive or negative. If the correction value is positive, then you need to add it in the current bi-direction adjust value or subtract the same if negative.

Left to Right and Right to Left Calibrations

Left to Right Calibration is performed to achieve dot placement accuracy of all colors (Cyan, Magenta, Yellow) with respect to base color (black) during the carriage’s left to right print sweep. Similarly, Right to Left calibration is used to achieve dot placement accuracy during the carriage’s right to left sweep.

When the position of the test head is correct, then it would align perfectly with the reference color at “0” position, indicating that the error position is “0”. If the test Print Head’s position saved in the system is inaccurate then it would not align at “0” position, but at some other point on the calibration scale. The position at which the test head aligns perfectly with the reference head, indicates the error in position.

The **Horizontal Calibration (Left and Right)** result is shown in the image below:

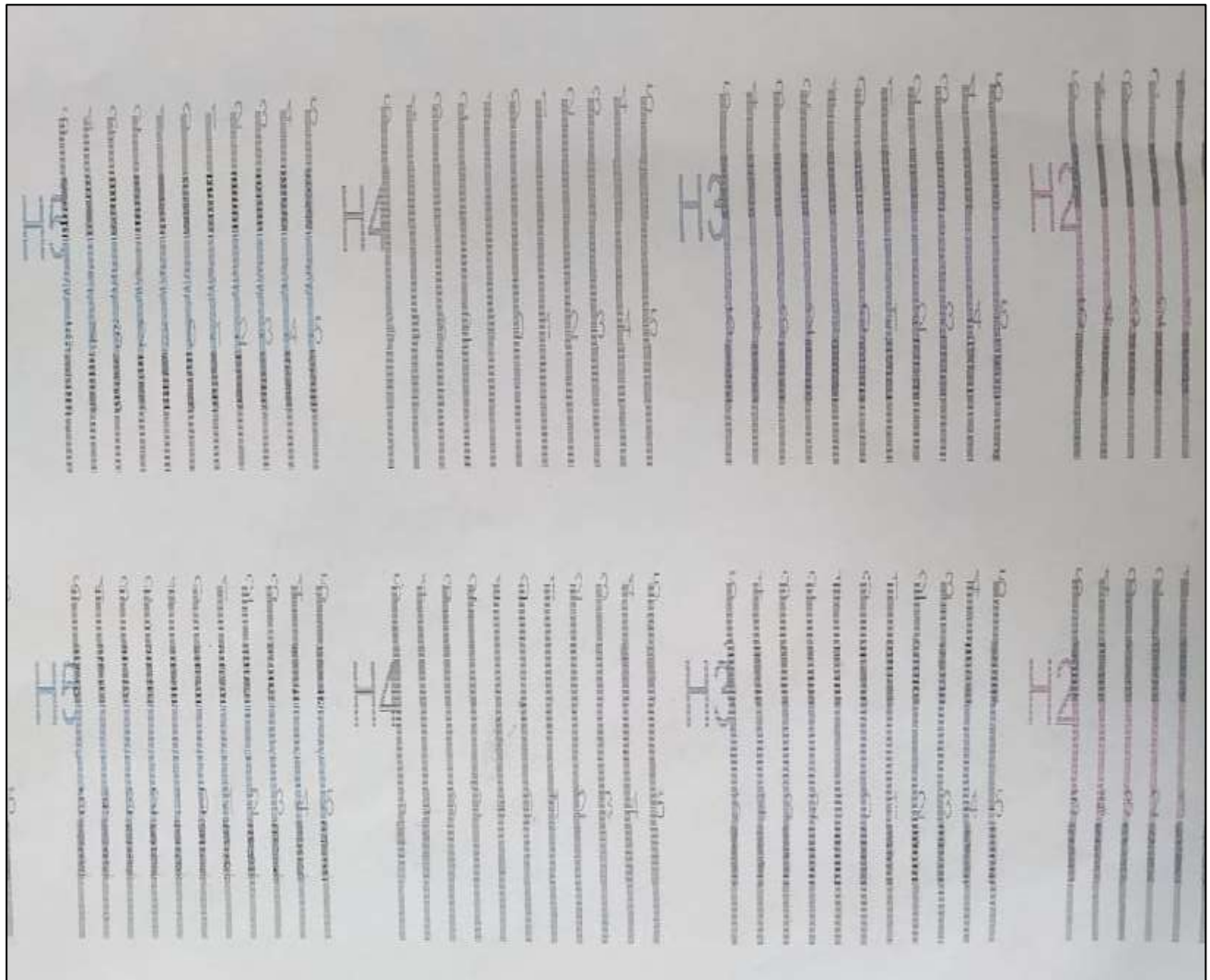


Fig 69: Displaying the Horizontal Calibration (Left and Right)

Step Calibration

The printer step calibration is performed to verify and correct fabric feeding. The printer prints a complete image pass by pass. A pass is the horizontal carriage sweep perpendicular to the fabric movement. After each pass the printer moves the fabric forward for the next pass. This movement of fabric is called a step. The distance by which the fabric is moved is called the step size and it has to be accurate. Step size errors cause horizontal white or dark bands to appear in the print output. Step size needs to be adjusted for multiple factors like thickness and roughness of the print fabric etc. Step calibration should be used to fine adjust the step size and has to be done for each desired pass.

The Step Calibration result image is shown as below:

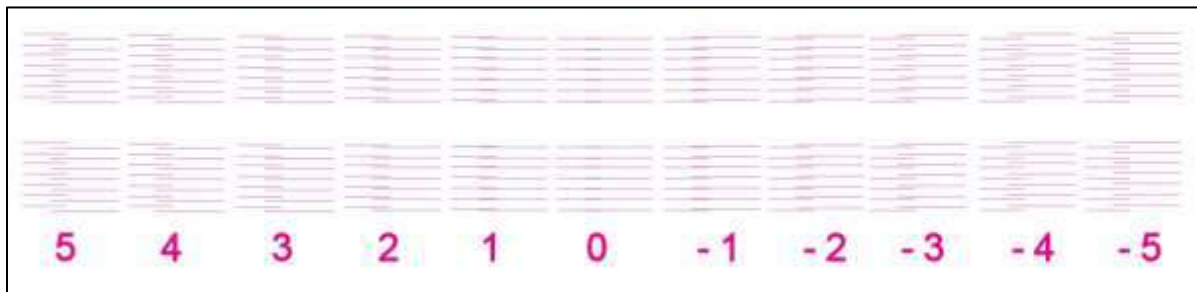


Fig 70: Displaying the Output of the Step Calibration

From the above figure, you get the accurate step adjust correction value. The correction value is either positive or negative. If the value is positive, then add it in the current step adjust value for the Print Head calibration. On the other hand, if the value is negative, then subtract the value from the current step adjust value. From the above, you can conclude that the pattern is corrected at “0” position.

The **Step Calibration** and its parameters are shown in the image below:

Fig 71: The Step Calibration Parameters

Note: Approximate Base Step value should be 11863.

Follow these steps to perform step calibration:

Step 1: Select the desired pass from the list and click on the **Print** button (Refer to Fig 71).

Step 2: Feed the correction value in the **Revise** field (the correction value up to two decimal places) (Refer to Fig 71).

Step 3: Click on the => icon (Refer to Fig 71) on the Step Calibration window. The correction value result will be reflected in the **Step** field (Refer to Fig 71). The same step value will also be displayed in the **Steps** field on the **Quick Access Toolbar**.

Setting Print Parameters

Using the Printer Manager, you can manually change print preferences as per the printing requirements such as print origin, printing speed, no of steps, and more as shown below:




Fig 72: Setting Printing Parameters

The description of printing parameters is given as follows:

- **Origin X:** Directly enter the print origin value.
- **Steps:** Remove step size errors in the current print job by specifying number of steps.
- **Pass:** Choose the number of passes with which the print job should be printed. Increasing the number of passes improves the print quality but at the cost of printing time.
- **Speed:** Choose the printing speed like High Speed, Medium, and Low.
- **Medium Speed:** Set the Y printing speed viz. Standard Speed and Low.

Setting Z Position Using Printer Manager

Open the Setting window by pressing the  icon available on the **Quick Access Toolbar**. The **Setting** window appears on the screen, as shown below:

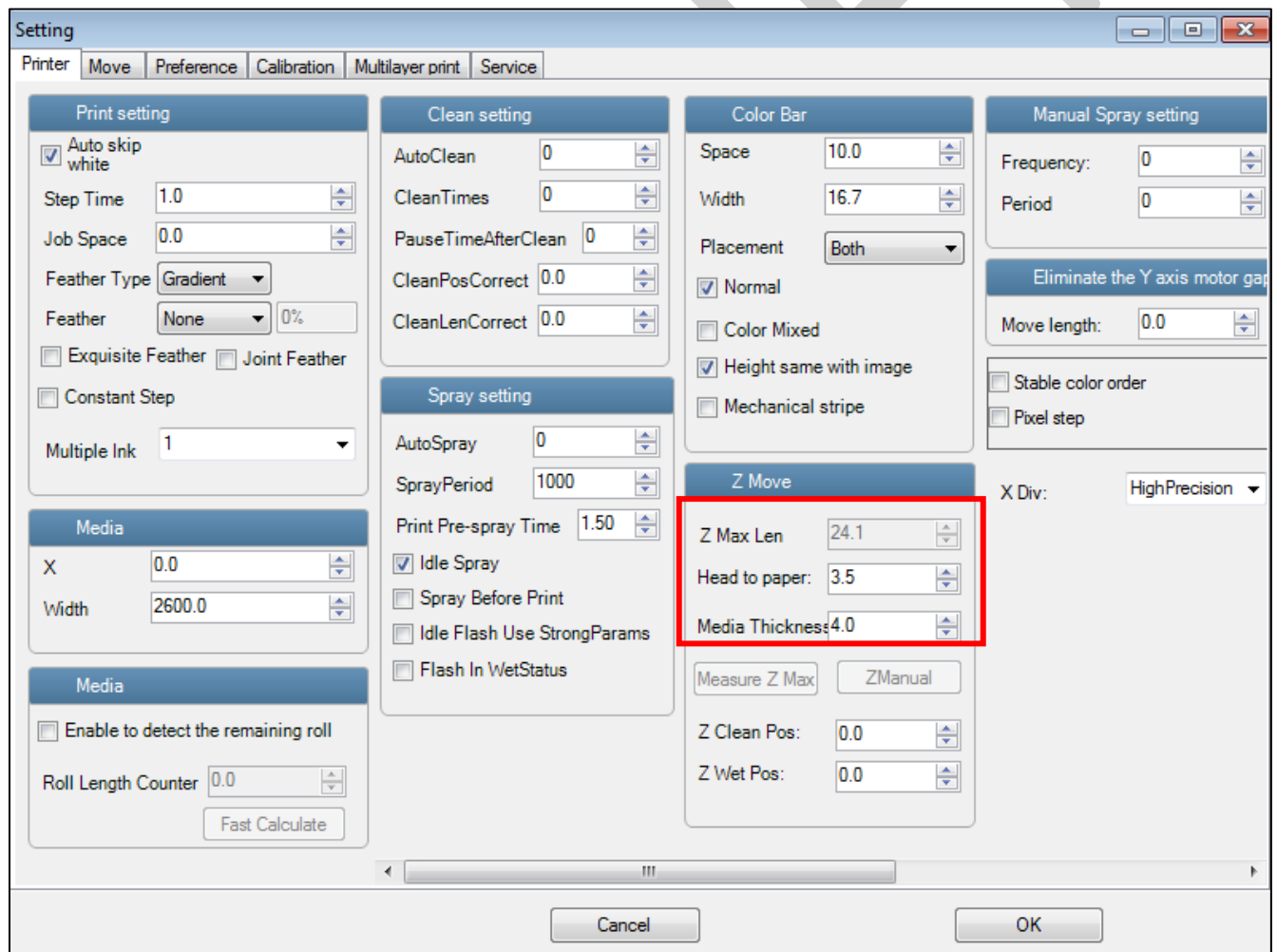


Fig 73: Setting Z Position

Follow these steps to set Z height using the software:

Step 1: Enter height from head to paper in the given field (Refer to Fig. 73).

Step 2: Enter fabric thickness as per fabric type (Refer to Fig. 73).

Step 3: After providing all values, click on the **Z Manual** button to set the Z axis (Refer to Fig. 73).

Manually Setting Z Position

To manually set Z position, click on the **Move Z Up** or **Move Z Down** icons, as shown in the image below:

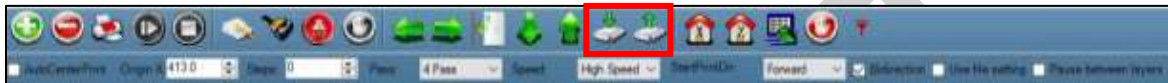


Fig 74: Manually Setting Z Position

Adding Jobs

There are two ways to add jobs in the Job List area viz. the Add Job button and right click on the Job List area. Let's discuss both the ways one by one.

Follow these steps to add jobs in the Job List area:

Step 1: Click on the **Add Job** button on the **Quick Access Toolbar**, as shown below:



Fig 75: Clicking on the Add Job Button

The **Open** window appears on the screen.

Step 2: Navigate to the location where the image file with extension **".prt"** and **".prn"** is stored (Refer to Fig 76).

Step 3: Click on the **Open** button to add the file into the **Job List** area.

The Open dialog box is shown in the image below:

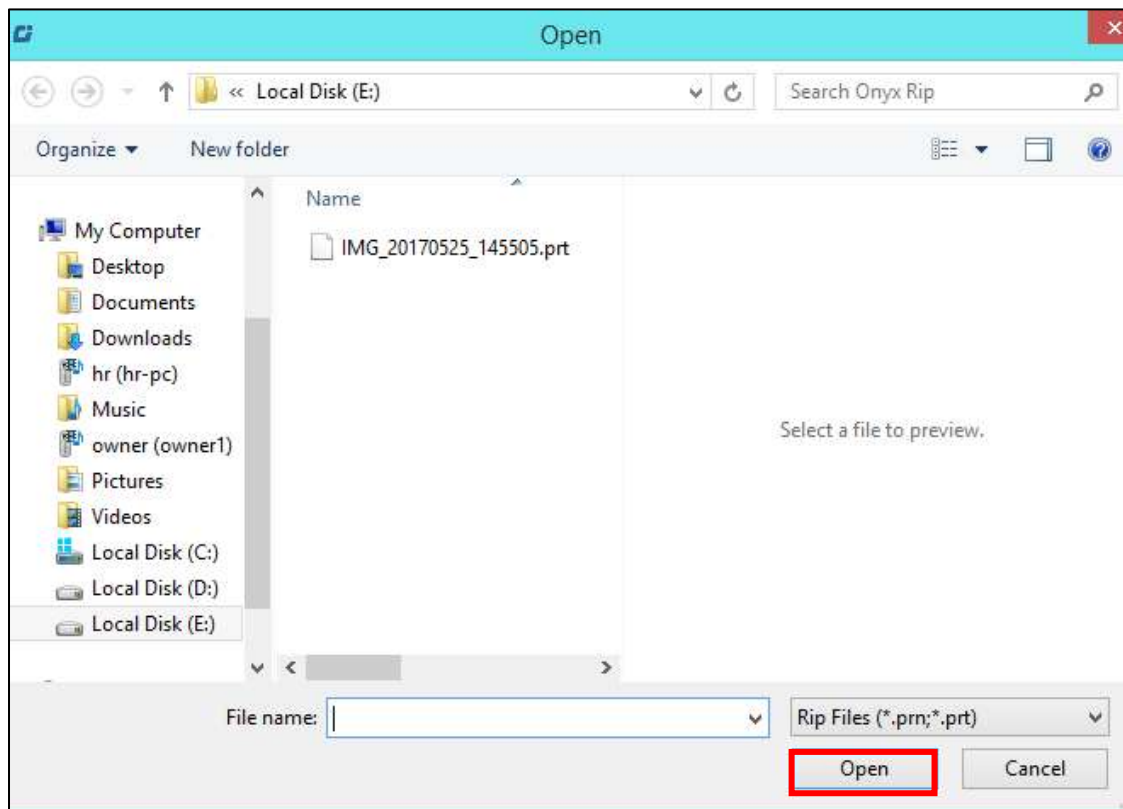


Fig 76: Adding the Job

Now, the selected image appears in the Job List area, as shown below:

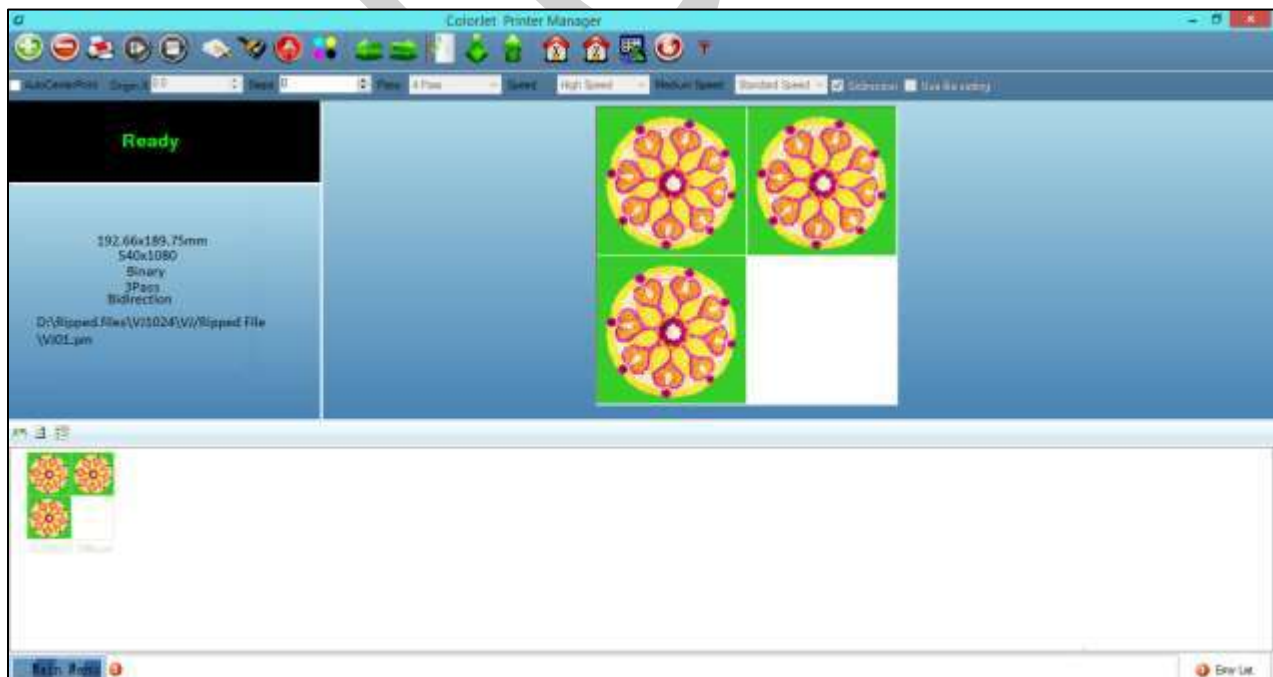


Fig 77: Displaying the Added Job and Their Details

Once a file has been added its information such as file path, size, resolution, and number of passes can be viewed in the Job Information area. User can also add a job simply by right clicking on the Job List area and selecting the **Add Job** option from the context menu, as shown below:

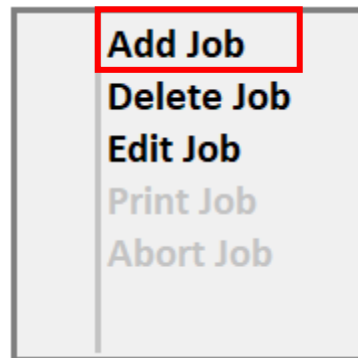


Fig 78: Displaying the Context Menu

On selecting the **Add Job** option, the **Open** window appears and follow the above-mentioned steps to add more jobs.

Note: To delete the selected job, *click* on the **Delete job** icon on the **Quick Access Toolbar**.

Editing Job

Follow these steps to edit the selected job:

Step 1: Select the job for which details you want to edit from the **Job List** area.

Step 2: Right-click on the selected job. The context menu appears on the screen.

Step 3: Select on the **Edit** option from the context menu, as shown below:

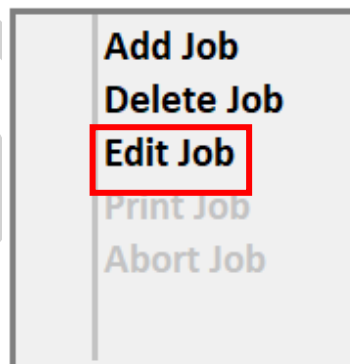


Fig 79: Selecting the Edit Job Option

The **Edit Job Form** appears with the list of options viz. Clip, Reverse Print, and Tile.

Step 4: Select the desired checkbox in front of the Clip, Reverse Print, and Tile options. On clicking to any option, its related parameters get appeared on the right pane and you can edit them as per the requirements. In our case, we have selected the **Clip** checkbox.

Step 5: After making the desired changes, *click* on the **OK** button to apply the settings, as shown below:

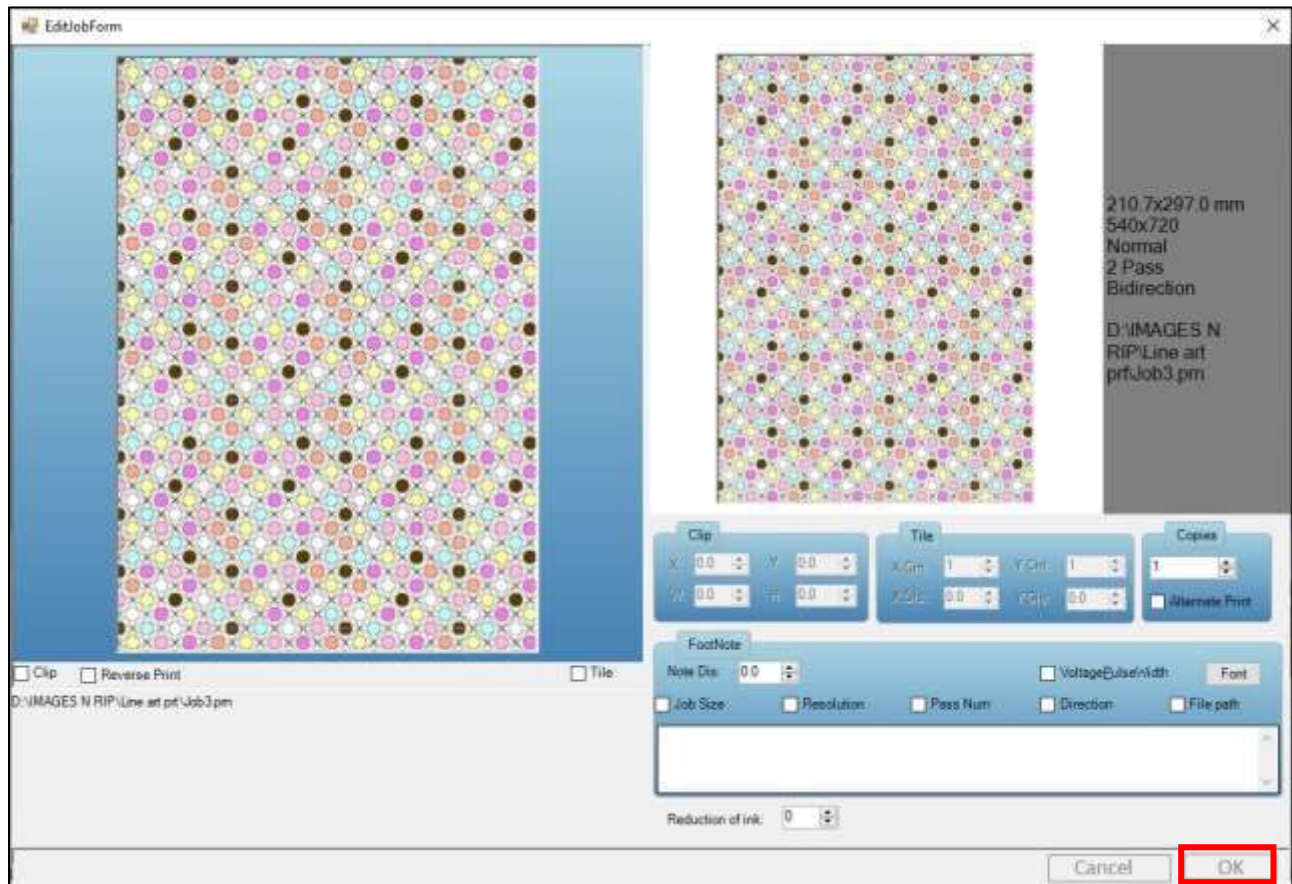


Fig 80: Displaying the Edit Job Form Window

Similarly, you can click on any other option and its related options get enabled in the right pane of the Edit Job form.

Ripping and Printing

Ripping is an independent process which converts a raw image file into the machine-readable format and get the file ready for printing. The Rip software supports the tiff, jpeg, eps, psd, bmp file formats. After ripping the image file, the output file will be in **“.prt”** or **“.prn”** file format. Thus, you should first rip the image file before printing and then issue the Print command. While ripping, the color profiles are used to automatically perform the color corrections in the image. There are different combination of print modes and resources, as shown through the table:

Print DPI	Print Passes
540X720	2
540X1080	3
540X720	4

You can print an image on the selected fabric simply by clicking on the **Print Job** button available on the **Quick Access Toolbar**, as shown below:



Fig 81: Issuing the Print Job Command

'Printer Manager' is the operating software for this printer which will be bundled with machine. For printing, there are two ways:

- If 'Print to file' is selected in the Rip Software, ripped files will be stored in the particular folder which has to be selected by clicking 'Add Job' in Printer Manager by locating the path. 'Use file setting' has been disabled in this case.

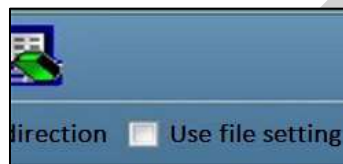


Fig 82: Selecting the Use File Setting

Printing command can be given directly from Rip software, if the Rip software supports printer driver to simultaneously rip and print. 'Use file setting' has been enabled from the Printer Manager software.

After issuing the Print command, the printing gets started and its progress details display in the Job Information area, as shown below:



Fig 83: Displaying the Printing Details

Pausing and Canceling Printing

If you find any defect during the printing process, you can immediately pause or cancel the current printing job using the Pause or resume and Abort Job buttons available on the **Quick Access Toolbar** as shown below:

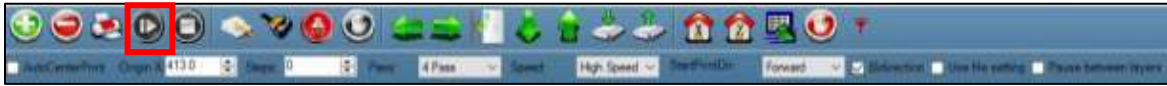


Fig 84: Issuing the Pause or resume Command

Similarly, you can abort the process by right clicking on the selected Job in the Job List area and select the **Abort Job** option from the context menu.

9. Head Cleaning

Print Head is a delicate part which needs to be cleaned as per the recommended methods to have long life and to ensure consistent print quality. Below sections give recommended steps to clean the Print Heads.

Head Purging

Head purging refers to the method in which heads are cleaned by forcing pressurized ink through the nozzles. In the printer, head purging buttons for each color are available on the carriage, as shown in the below figure:



Fig 85: Head Purging Buttons

The Purging Button Sequence is shown as below:



Note: If nozzles are found blocked even after normal purging, then try the powerful purging ("A" switch in purging board has to be kept pressed for few seconds and then required color switch has to be pressed).

Head Blotting

In Head Blotting, extra ink below the Heads is to be soaked using the Head Sponge Roller, as shown below:



Fig 86: Displaying the Head Sponge Roller

Note: Please strictly follow the below mentioned instructions:

- Do not apply force while absorbing residue inks with Head Sponge Roller after purging.
- Use skewed Sponge Roller properly dipped in RO water.
- Clean the Head Sponge Roller every time after Head Blotting process.
- Change RO water frequently in Head Sponge Roller tray.
- Purging should be performed not more than 2 to 3 seconds.

Head Spraying

Head spraying should be performed only when small percentage of nozzles are blocked. This method is used to avoid mixing of colors. When heads are sprayed all the nozzles are actuated at a high rate which helps in opening up dry nozzles of the printer. To perform head spraying, *click* on the **Spray** button available under the **Quick Access Toolbar**, as shown below:



Fig 87: Displaying the Spray Button

10. Switch OFF Procedure

Follow these steps to switch OFF the machine:

Step 1: Perform the Nozzle Test to check the status of head nozzles. If test result is not OK, then clean the head by referring the Head Cleaning section of this manual.

Step 2: Remove the fabric from the belt.

Step 3: Lift up the Press Roller handle, as shown below:

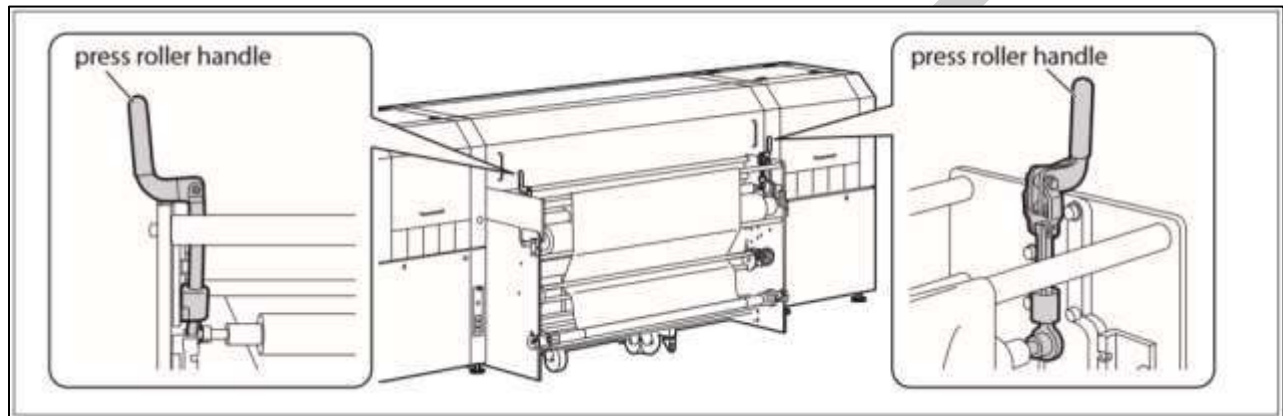


Fig 88: Lifting Up the Press Roller

Step 4: Put the HMI in Offline mode and run the wash cycle for 10 minutes.

Step 5: Move the washing tub down using the HMI, as shown below:

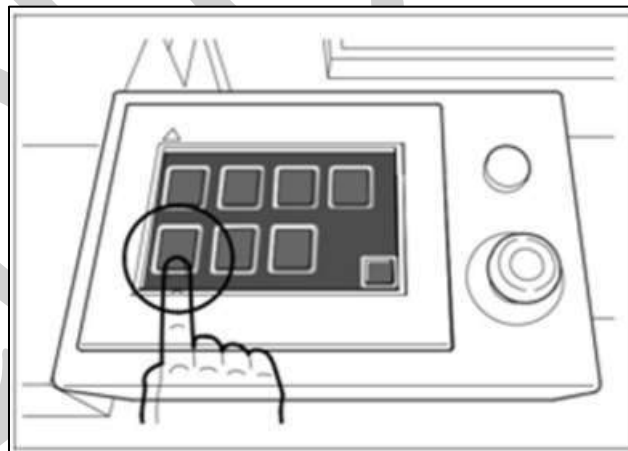


Fig 89: Moving the Washing Tub

Step 6: Turn OFF the ink valves by moving the knob in the clockwise direction, as shown below:



Fig 90: Turning OFF the Ink Valves

Step 7: Clean the Capping Station area and check the cleaning liquid in the Capping pads.

Note: Capping station pads should be filled 3/4th with Cleaning solution to avoid Print Head dryness (for Pigment/Disperse, can use wet tissue cloth laid over capping station).

Step 8: Move the carriage to the capping area by clicking on the Capping icon, as shown in the image below:



Fig 91: Clicking on the Capping Icon

The **Capping Station** is shown in the image below:



Fig 92: Displaying the Capping Station

When user clicks on the Capping icon, the carriage moves to the capping Position (Right) and Capping goes to the **Up** position.

Note: Never move the carriage manually over elevated capping station.

Step 9: Turn off the Print Engine and then move the Capping Knob to lock the carriage with capping, as shown below:



Fig 93: Displaying the Capping Knob

Step 10: Switch OFF the print engine, as shown below:

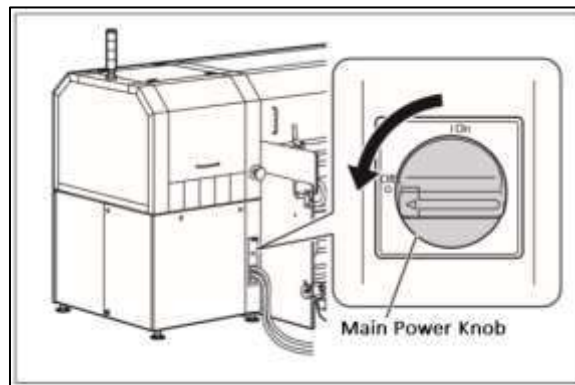


Fig 94: Switch OFF the Print Engine

Step 11: Check the belt position with respect to the roller. In case, Belt is not in “**Center**”, then move the Belt in the reverse direction using the Glue Cycle window till the Belt comes in center.

Step 12: Turn OFF the main power.

Step 13: Close all the covers of the printer.

11. Do's and Don't

Do's

1. Keep the room dust free and maintain the temperature between 25°C and 28°C
2. Use the Sponge Roller which is dipped and squeezed in fresh RO water
3. Clean the head sponge wiper after every wiping
4. Water filter plates should be fitted when jetting pump is on
5. Always care about the wrinkles on fabric, it may damage the Print Heads
6. Conveyor belt shifting has to be monitored regularly and also adjusted with the help of adjusting roller
7. Keep humidifier knob to minimum, to avoid ink fumes spreading
8. Humidifier must be ON during printing
9. Always check the water and its level in humidifier
10. Maintain the head negative air pressure between **-4.0 to -4.5 kPa**. Adjust slightly, if required
11. Change RO water twice a day in Head Sponge Wiper water tray
12. Maintain the water level in the water tank and refresh water every 3-4 hours
13. Add 2 spoons of **Caustic Soda** in every water recycle in tank
14. To avoid air in head pipes, always maintain the ink level more than 1 Litre in the main tank and wipe the Print Heads immediately after purging
15. Water tank filter plates should be cleaned every hour to remove stuck threads and also to avoid overflow
16. If negative pressure is increasing/fluctuating automatically, clean the nozzles of regulator knob
17. Always use the clean and fresh RO water for washing system for longer life of related parts
18. It's time for tub maintenance, if:-
 - a. Jetting pipe have choked nozzles
 - b. When brush roller is filled with threads
 - c. When sponge roller is not moving and has become slippery
19. When belt has shifted out of the roller
 - a. Do not give next print command
 - b. Remove fabric from the belt
 - c. Move the belt in the reverse direction with the help of Glue Cycle
 - d. After belt is in center, adjust the shifting control knob/roller slightly as taught

Don'ts

1. Don't wipe the Print Head with tissue paper or cloth piece as it may damage the head nozzles
2. Never remove both the water filter plates, when jetting pump ON
3. Don't hang up the jetting pump float manually as it may damage the pump
4. Don't over tension the fabric tensioner
5. Don't over adjust the belt shifting control roller/knob
6. Don't keep the shifting control roller screws loose
7. Never keep the printing continue, if the belt has shifted more
8. Don't pull the tub without disconnecting the brush motor connector during tub maintenance
9. Don't run the belt without jetting ON
10. Don't run the jetting pump when water tank is empty
11. Don't switch OFF the printer

- a. Without making the tub down
 - b. Without closing the finger valve
- 12. Don't leave the Print Heads without capped and pulling the sponge tray
- 13. Don't move the carriage over the Capping Station when printer is OFF and capping is in UP position
- 14. Don't turn the Capping Knob during printing
- 15. Don't print when glue layer is not smooth/peeled OFF

COLORJET

12. Maintenance

Print Head Maintenance

Print Head is an important and delicate part of the printer. Thus, it must be handled with care to ensure the long life of the Print Heads. For Print Head maintenance, the following instructions should be taken care:

- Perform the nozzle test daily 2-3 times before printing to monitor the blockage in the head nozzles.
- Avoid head damage due to fabric and Print Head confliction.
- Capping station should be cleaned.
- Capping station should be wet to avoid Print Head dryness with solvent.
- Color bar should be ON.
- Avoid ink spilling on the Print Head and head cables.
- Head cleaning roller has to be kept dip into the clean RO-water tray and squeezed before cleaning. Moreover, cleaning should be done only single time, i.e. it has to be cleaned and squeezed to reuse next time.
- Purging station area should be cleaned frequently.
- Degassing pressure has to be monitored regularly and it should be in between -75 to -95KPa. In case, degassing pressure is not maintained, then it may cause the nozzle blockage.
- Humidifier has to be always in working condition, which keeps the head nozzles wet and open.
- Carriage cover should always be fixed to protect electronics, after head maintenance.
- Don't use expiry ink and store the ink at favorable environment.

Precautions:

- Don't wipe Print Head nozzles with tissue paper or any piece of cloth, as it damages Print Head and nozzle plate.
- Don't use wear out head cleaning roller and replace it, when required.
- Color bar should always be enabled while printing.
- Idle spray should always be enabled with 10000 value.
- Avoid ink spilling on the Print Head and Head Cables.
- Uneven or partly peeled off glue coating on belt may damage the Head Nozzle Plate.
- Don't use wrinkled or non-ironed fabric roll, as wrinkle on fabric can cause accidents like entangling of fabric with head base.

Belt Maintenance

Conveyor Belt is an important part of the printer, thus belt and it's position should be monitored time to time and always be running well inside the rollers.

Centering of Belt

This section explains how to control the movement of the Conveyor Belt as it must run in the center. If the belt is shifting more than 5mm in 1 hour toward a side, then one should follow the below given instructions:

- Wait for the completion of the current printing process. If the print command repeats, then immediately stop giving the next print command for printing.
- Takeout the fabric, lower down the tub, and run glue cycle in reverse direction with the 70% speed.
- Rotate the Belt in the reverse or opposite direction until it comes in the Center. Once the belt has positioned centrally, stop the glue cycle. Now, the shifting control adjustment has to be done as mentioned further in next section.

Belt Shifting Control

Conveyor Belt is an important part of the printer, thus belt and it's position should be monitored time to time and always be running well inside the rollers.

Centering of Belt

This section explains how to control the movement of the Conveyor Belt as it must run in the center. If the belt is shifting more than 5mm in 1 hour toward a side, then one should follow the below given instructions:

- Wait for the completion of the current printing process. If the print command repeats, then immediately stop giving the next print command for printing.
- Takeout the fabric, lower down the tub, and run glue cycle in reverse direction with the 70% speed.
- Rotate the Belt in the reverse or opposite direction until it comes in the Center. Once the belt has positioned centrally, stop the glue cycle. Now, the shifting control adjustment has to be done as mentioned further in next section.

Belt Shifting Control

Belt Shifting Control switch and Actuator are shown in the image below:

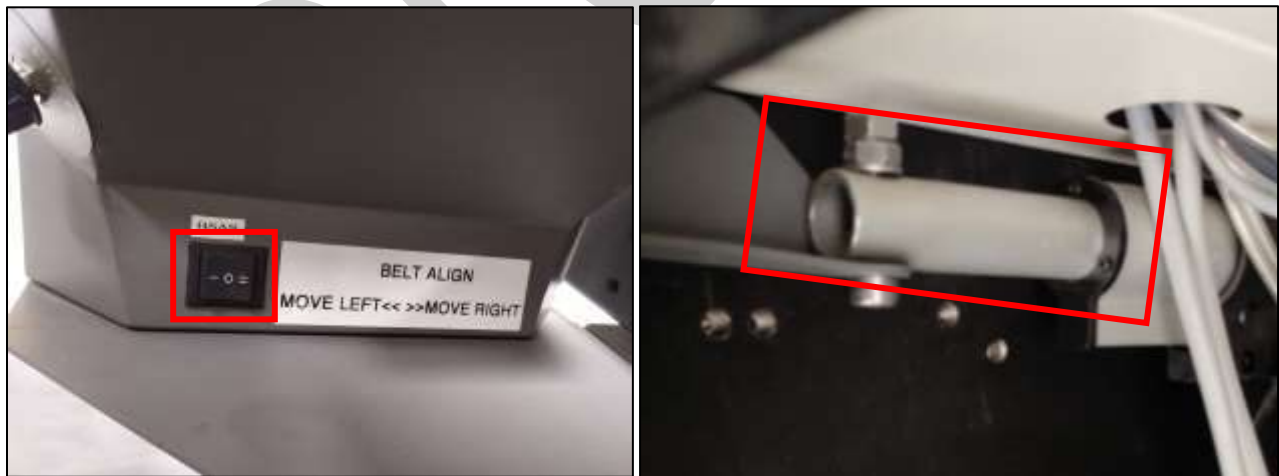


Fig 95: Displaying the Belt Shifting Control Switch and Actuator

The Belt Edge Guiding Roller is shown in the image below:

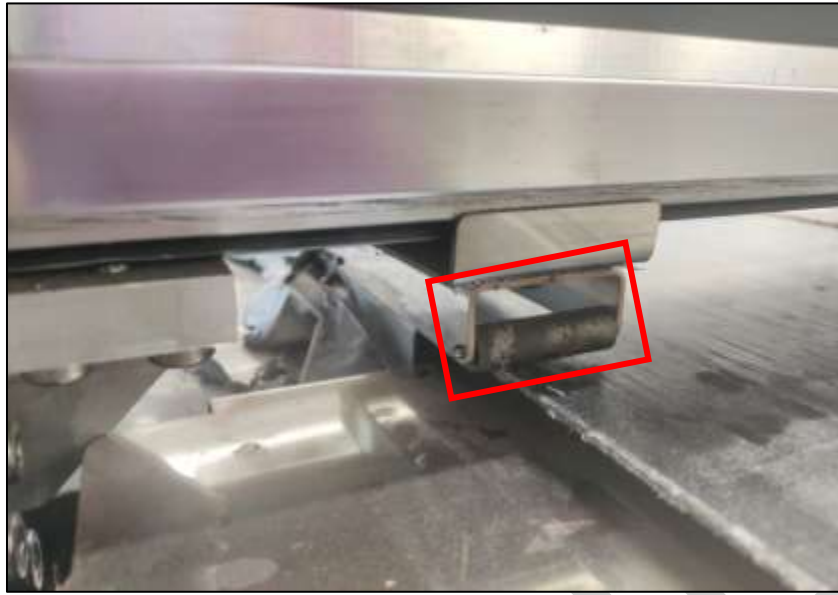


Fig 96: Displaying the Belt Edge Guiding Roller

Steps to control belt shifting:

Step 1: Turn ON the machine.

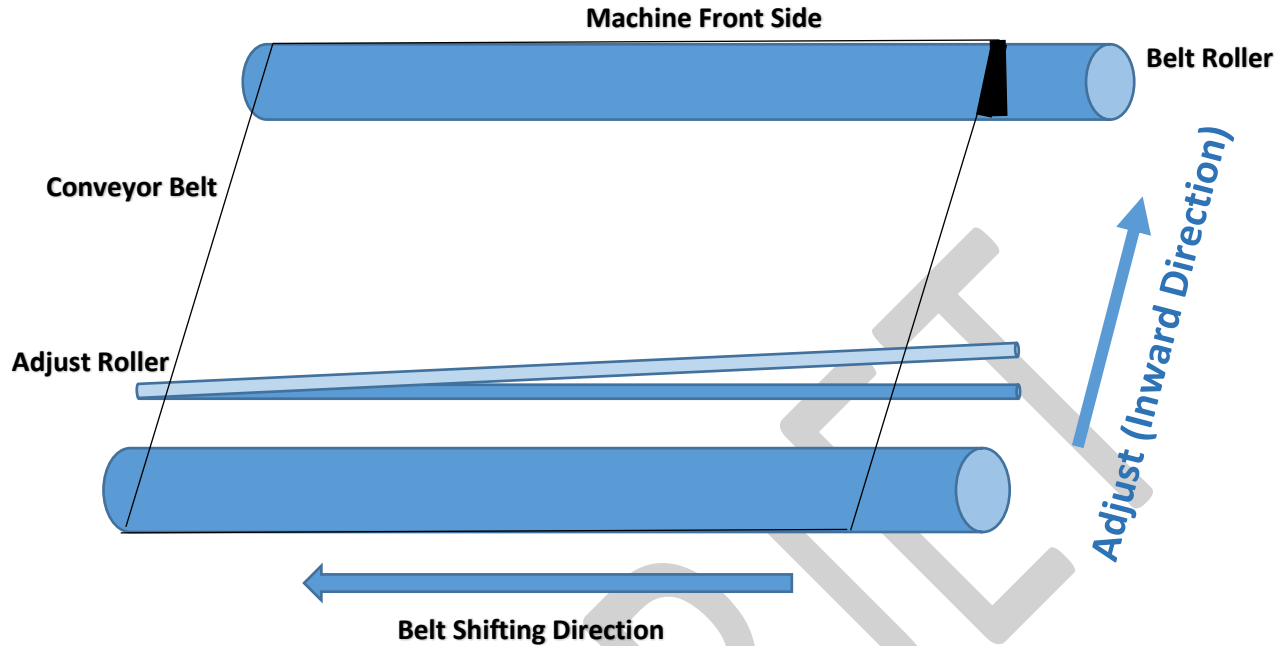
Step 2: Run the conveyor belt manually in slow speed using the Service Mode.

Step 3: Carefully observe the belt shifting.

Step 4: If the belt is shifting, press the Belt Shifting Control switch available on the back side of the HMI.

Note: While performing the belt shifting control process, user needs patience and carefully observe the shifting.

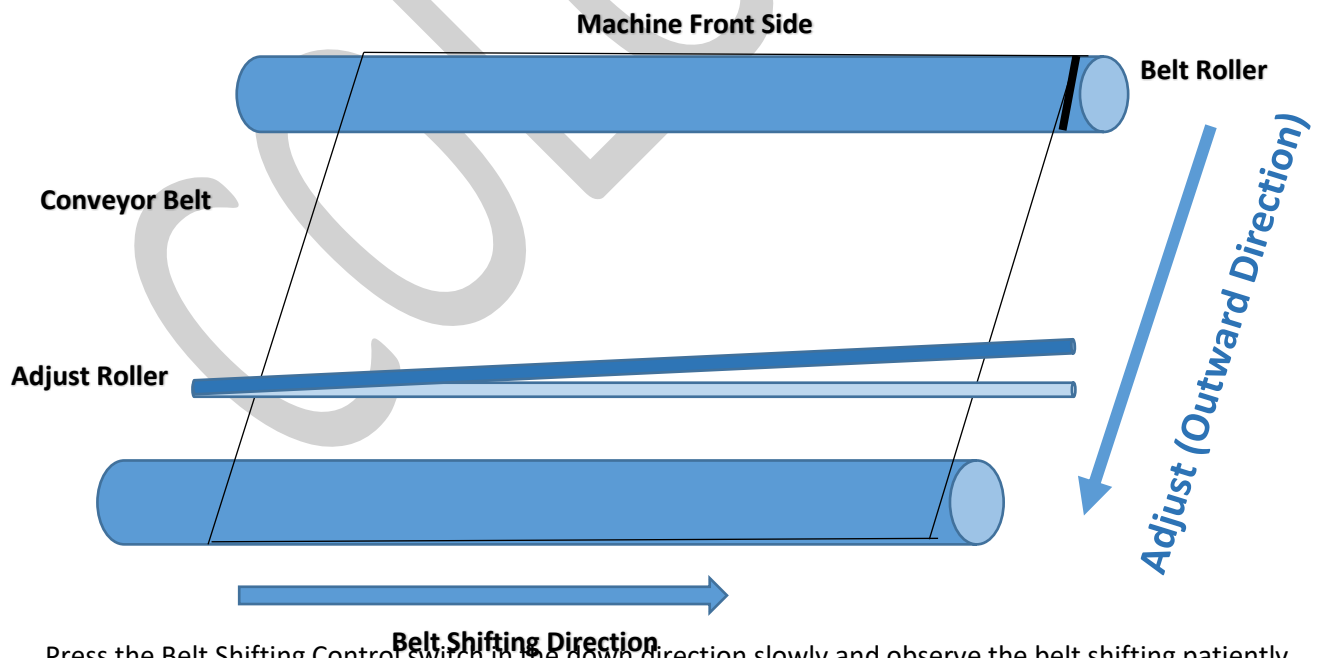
Case 1: Belt is Shifting Right Side from the Front



Press the Belt Shifting Control switch in the up direction slowly and observe the belt shifting patiently.

Note: Don't continuously press the Belt Shifting Control switch.

Case 2: Belt is Shifting Left Side from the Front



Press the Belt Shifting Control switch in the down direction slowly and observe the belt shifting patiently.

Glue Coating Layer

- It is strictly recommended that the Company suggested glue has to be used, otherwise it may cause damage to the sponge rollers, conveyor belt, brush motor assembly, and belt motor coupling.
- Glue coating has to be checked from time to time for its adhesive strength. Whenever required, fresh coating is to be done. Also wiping with wet cloth can clean the previous coating layer sometimes.

Precautions:

- If the glue layers are peeling off partly, it may harm the print head and also results in printing wastage.
- If Glue adhesion goes less, it can damage the print head as the fabric gets entangled with the Print Head during printing.

Environmental Maintenance

- Room temperature should be maintained in 23-28-degree Celsius range with humidity 60-80%RH.
- Closed dirt-free room exclusive for Printer.
- Proper cool with white lightings.

Negative Pressure Adjustment

- Maintain the head negative air pressure between **-4.0 to -4.5 kPa**. If the negative pressure is slightly be high or low, adjust it using the regulator knob.

The Negative Air Pressure display switch and regulator are shown in the image below:

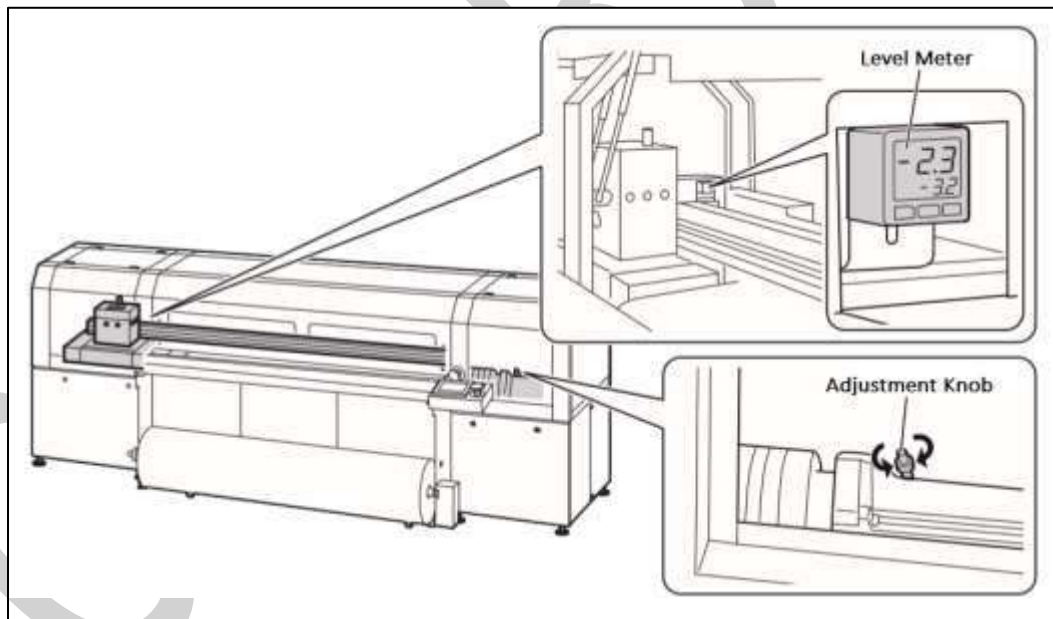


Fig 97: Adjusting the Head Negative Air Pressure

If the air pressure is within the standard range, then the value will be shown in green color, else in the red color, as shown below:



Fig 98: Displaying the Air Pressure Value

Note: In Vastrajet (16 Heads), negative pressure is -4.0 – 4.5 kPa.

- Degassing pressure value should be in between -75 to -95.

Daily Maintenance

- Check and refill the water in the Water Tray used for head cleaning roller.
- Renewal of water is done every 4 hours in the Water tank.
- Add 2 spoons of caustic soda in every water recycle.
- Renew water in the Wiping tray.
- Check the water level in the Capping tray and it, shouldn't be empty.
- Keep the Capping Plate surface clean, particularly before capping.
- Wiper blades should be cleaned using water rinse.
- Run the Wash Cycle after finishing each fabric roll and also remove the fabric thread, if any.
- Check the humidifier water level.
- Check the Waste ink bottle and empty it, if required.
- Clean the purging tray daily and empty it, if full.
- Check ink level in Main ink tank and refill it, if empty.
- Maintain the recommended air pressure.
- Check for any blockage in negative pressure regulator air inlet holes and clean it, if required.
- Belt shifting should be regularly monitored and adjusted, if required.
- Press roller and fabric guiding rollers should be wiped daily to remove the ink stains.

Precautions:

- While Print engine off and capping elevated, never move the carriage over the capping station.
- Don't turn ON the Capping knob when printer is running.
- Keep the Humidifier knob in minimum position.
- Always pour distill water in the Capping tray to avoid germs.
- Replace the head cleaning roller, if surface wear out.

Weekly Maintenance

Washing Tub Maintenance

Washing Tub is an integral part of the Printer. Its maintenance is equally important as the production job work. The timely maintenance increases overall productivity by minimizing the downtime of machine and increases the life of the tub related parts.

- Whole tub unit should be cleaned thoroughly.
- Water tank, jetting pipes, brush roller and refreshing tank water should be cleaned frequently to prevent from fabric threads, mold or algae choking the water flow in the tub, and its related parts.

Precautions:

- Tub should always be lowered before turning off the machine.
- Don't run the Wash Cycle while Jetting Pump is OFF.
- Don't run the Wash Cycle until the glue gets dry (after glue coating, wait for 3 or 4 hours).
- Always use the cleaned RO processed water for washing system.
- Don't forget to clamp the water pipes before starting the Wash Cycle.

Tub removal steps for Maintenance:

- Open the drain valve of the Main tank inlet to empty it.
- Remove the tub front covers.
- Lower down the tub using the HMI screen, as shown below:

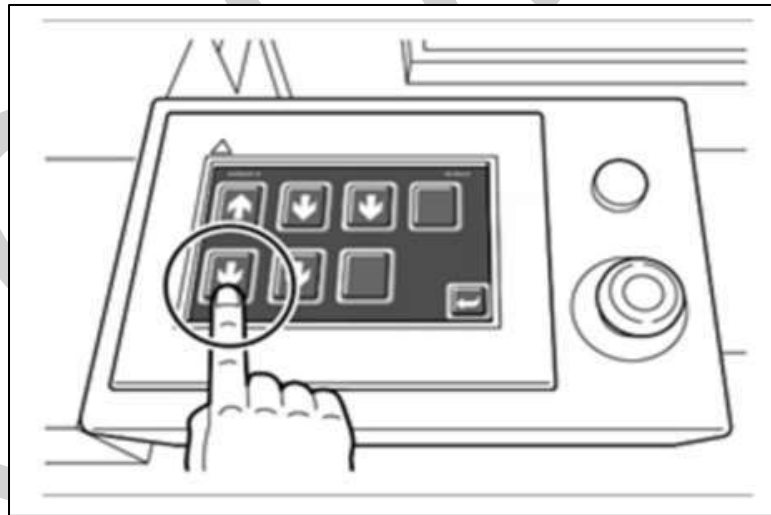


Fig 99: Removing the Tub

- Remove two fasteners (one on each side) from the actuator brackets, as shown below:

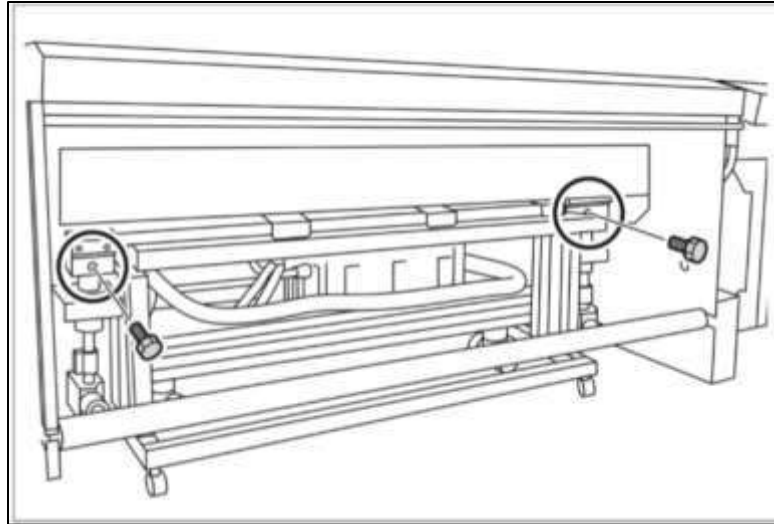


Fig 100: Loosing the Screws from the Actuator Brackets

- Disconnect the brush motor cable by its connector.
- Select the **“Tub Maint”** from the HMI screen to disengage the tub from the trolley.
- Pull out the trolley to start the maintenance work.

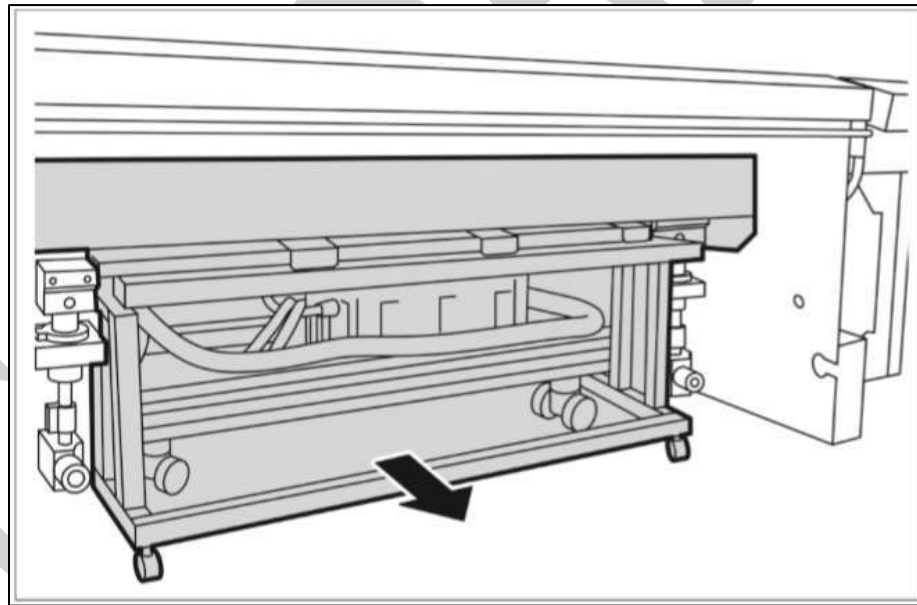


Fig 101: Removing the Trolley

Note: Care has to be taken, not to damage the wheels while moving the trolley outside.

- After completing the cleaning, reversely follow the above given steps to fix the tub.

Note: Trolley wheels may need to adjust up/down and tub in sideways during inserting tub into the machine.

Cleaning points:

Note: Use water to clean the washing tub, don't use any chemical or detergent.

- Comb the Brush to remove fabric threads, and thoroughly wash to remove Glue residue layer on it.
- Sponge rollers should be rinsed and squeezed simultaneously.
- Check the Jetting Pump for any choked pieces in its inlet.
- Flush the Jetting Pipe thoroughly to get rid from fabric threads by opening dead plug using exact size spanner 18mm.
- Clean the Water tank and its bottom thoroughly.
- Clean the Water Tank filter plates with the hard brush to remove stuck threads.
- Clean the Negative Pressure regulator air inlet holes for blockages.
- Replace the distill water in the Capping tray every week to avoid germs.

Computer Storage Management:

- Remove unwanted files from your computer to maintain a minimum of 10GB free space in hard disk.
- Remove unwanted programs and old ripped files from the computer to improve the speed of printing.

Monthly Maintenance

- LM guide should be wiped monthly.
- Cleaning the floor particularly the area near the water tank and washing tub.
- Encoder strip should be cleaned gently with wet tissue paper, on weekly basis.

13. Troubleshooting

Printer Not Initializing

- Emergency button is pressed
- Capping knob is in up position
- Print engine is OFF
- Servo driver is not powered ON/faulty
- Main Board is faulty
- Encoder sensor is not connected to HB
- Jumper is removed from MB
- Limit switch is disconnected

Jetting Pump Not Working

- Jetting pump float is down
- Water is less in the Water tank
- Not enabled from HMI
- Disable and re-enable the washing option from HMI
- Make printer offline & online
- Make sure belt is in motion and pump stops when belt is idle
- Tub sensor position is disturbed
- Jetting pump is having air lock /clog by foreign materials
- Pump is failure
- Pump fuse is blown

Water Seepage in Belt

- Tub is brought down and up during pause (in between print)
- Sponge roller is dry or left dry for few days
- Sponge roller is turn OFF/ shape is distorted
- Glue dryer is OFF

Belt Shifted

- Shifting is not monitored correctly
- Shifting control button is pressed simultaneously without correctly observing the requirements

Negative Pressure Drop/Not Working

- Adjust through vacuum regulator, if value drop to some points
- Meniscus vacuum switch is OFF
- Negative Pressure switch program is disturbed
- Ink overflowed from sub tank and filled in the reservoir
- Vacuum is not generated by pump (pump failure)
- Any ink/air tube is having leakage/cut/loose on fitting joints
- Vacuum pump connector is loose/open from MMCB

Fabric Not Sticking to Belt

- Glue heater is not ON or not working
- Glue coating layer needs the new glue coating
- Belt layer is full of dust/threads need manual cleaning/wiping

Print Not Drying/Ink Marks on Back of the Fabric

- Print dryer is not ON or not working
- Dryer temperature is not sufficient
- Coating of fabric is not correct
- Fabric supporting bar and Take Up roller is stained with ink

Ink Not Filling

- Main tank is empty
- Ink pipe is having cut/bend
- Ink pump is not working/connector loose/open
- Sub tank float connector is loosely connected to the headboard
- Sub tank float is not working

Fabric Not Peeling OFF

- Take-up torque value is less
- Core holder is slipping and not intact with roller
- Fabric is not stucked to the core

Impression of ink on plain fabric

- Belt is not washed properly
- Water in the tank is dirty and have fabric lints
- Fabric threads are stucked over the belt
- Brush is congested with fabric threads and not uprooting the threads from the belt

Printer Manager Not Showing "Ready"

- USB is disconnected from computer or loosely connected
- Print engine is OFF
- Main board is faulty
- USB cable is faulty

Print Stops in Between Printing

- USB cable is loose / faulty
- Image files are heavy in size
- Ground wire is disconnected
- Encoder scale is having ink stains/scratches
- Pulley or belt is slipping
- Ripped file is having error

Print is Shifting wrt Fabric/ Junk Printing

- Encoder scale is having ink stains (print shows vertical color bands)
- Encoder sensor is not clean
- Pulley or belt is loose or teeth wear out and slipping
- LVDS cable is faulty

Print is Blur

- No proper calibration viz. bi-direction and step
- Head height is disturbed and not calibrated for above
- Incorrect resolution is selected
- X div is selected "High Speed" instead of "High Precision"

Lines in Prints

- Nozzle blocked in heads (check nozzle test)
- Incorrect feed step (calibration required)
- Belt motor coupling loose

14. Error Handling

Error Code	Error Message	Error Description
400100D1	Print position overrun	Please try to print images or narrow width or increase printing the origin position.
04020002	Pumping cyan	Low ink level in tank and refill ink.
04020003	Pumping magenta	Low ink level in tank and refill ink.
04020004	Pumping yellow	Low ink level in tank and refill ink.
04020005	Pumping black	Low ink level in tank and refill ink.
04020008	Incorrect input in the Time Limit Password or may consist the forbidden character	Re-input correct password.
04020009	Illegal time-limit of the password	Re-input correct password.
0402000A	Time limit password and manufacturer ID doesn't matched	Re-input correct password.
0402000B	Time limit password and board ID doesn't matched	Re-input correct password.
0402000C	First Warning: 100 hours left against current time-limit password	Request for a new time password from the dealer.
0402000D	Second Warning: 50 hours left against current time-limit password	Request for a new time password from the dealer.
0402000E	Last Warning: 1 hour left against current time-limit password. After this, issue job gets stopped	Request for a new time password from the dealer immediately.
04020034	Pump ink overtime	Low ink level and warning is enabled in Printer Manager.
40020001	Data header error.	USB and common earthing related issue.
40020009	Image too width.	Kindly refer to the error code 400100D1 .
40020018	Serious Error: Exceed the time against the time limit password	Contact the dealer for time password expiration.
4002001A	USB1.1 connect	Kindly refer to the error code 40020001 and restart the machine.
4002001B	Serious Error: The language of the software setting does not correspond to authority. Please reset the software language or input the new language matching password again	Please reset the software language or input the new language matching password again.
40030000	USB communication error	Kindly refer to the error code 4002001A .
40030009	PRT resolution mismatch with printer resolution!	Incorrect Print Mode is selected.



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