COLORJET

India's largest manufacturer of digital inkjet printers

METRO

DIGITAL TEXTILE PRINTER

KONICA HEAD

INSTALLATION AND TROUBLESHOOT GUIDE

EFFICIENT INDIAN ENGINEERING

Foreword

This installation guide is briefly describing the operational aspects of the **METRO (Konica Head)** machine. In this document, the step-wise instructions for installing and operating the 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 service engineer.

This guide refers as the reference tool which guides the service engineer how to install the **METRO (Konica Head)** 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 document carefully and follow all the instructions.

Disclaimer

The information and instructions provided in this manual have been checked for accuracy, uniqueness, and reliability. ColorJet group reserves all the rights to modify and revise this manual as per the company requirements without any prior notice.

The reference table is shown in the below table:

Doc Type	Doc Code	Version	Machine Name	Date of Issue
Installation Manual		1.0	METRO (Konica Head)	

Table of Contents

1. Site Layout

The **Site Layout** of the printer is shown as below:

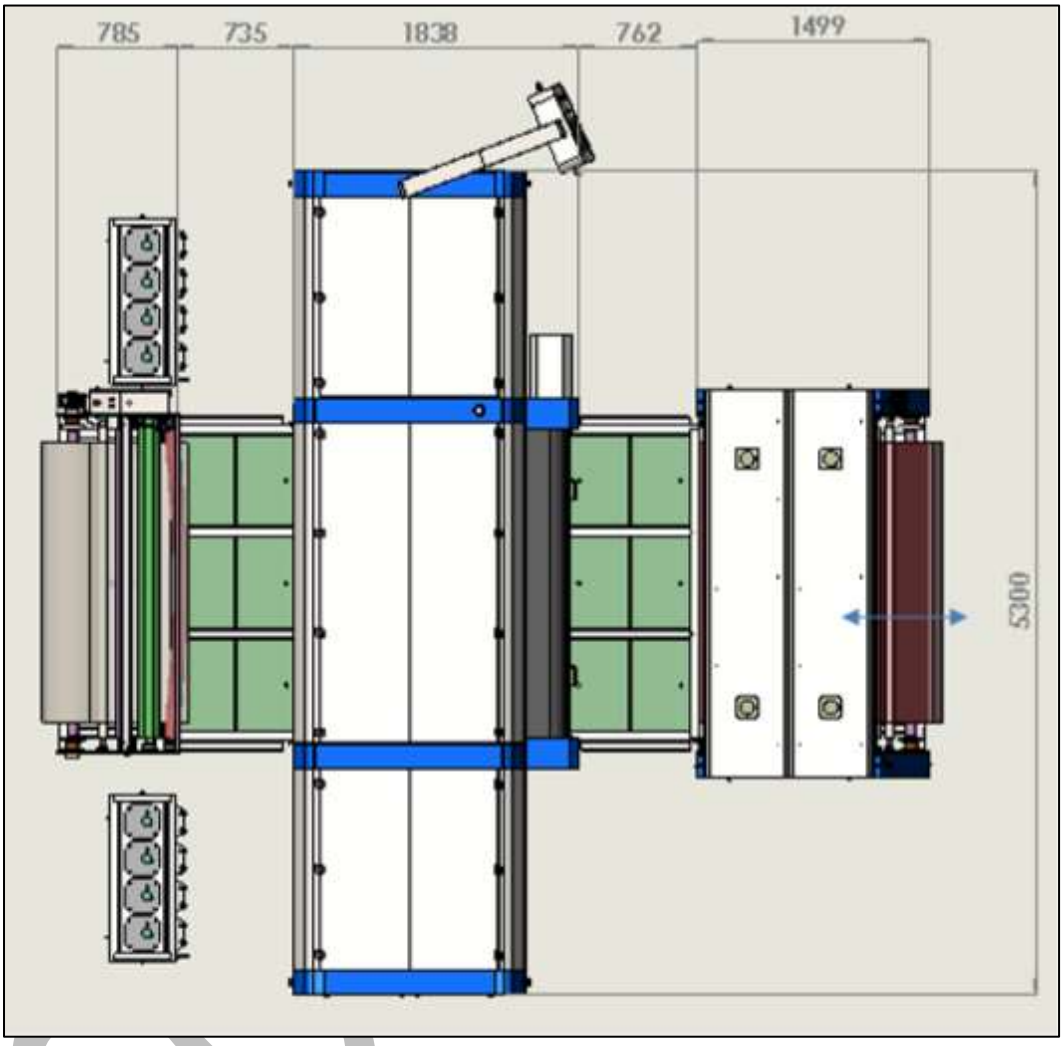


Fig 1: Displaying the Site Layout

Machine Dimensions

Dimension, weight and other details are given as below:

Printer

- **Gross Weight:** 4738 Kg
- **Net Weight:** 4300 Kg
- **Printer Dimensions (L x W x H):** 5300 x 1840 x 2450 MM
- **Packing Dimensions (L x W x H):** 5520 x 2160 x 2533 MM
- **CBM (Cubic Meter):** 30.2

Dryer

- **Gross Weight:** 686 Kg
- **Net Weight:** 500 Kg
- **Dryer Dimensions (L x W x H):** 2560 x 1500 x 1350 MM
- **Packing Dimensions (L x W x H):** 2660x 1960 x 1770 MM
- **CBM (Cubic Meter):** 9.23

Feeder

- **Gross Weight:** 658 Kg
- **Net Weight:** 617 Kg
- **Feeder Dimensions (L x W x H):** 2350 x 800 x 1210 MM
- **Packing Dimensions (L x W x H):** 2560 x 960 x 1530 MM
- **CBM (Cubic Meter):** 3.76

Room Dimensions

Room Dimension (L x W x H): 8500 x 8000 x 3500 MM

Note: Door opening and ceiling height should be as per above dimensions.

2. Safety Precautions

Emergency Stop Button

Sometimes, it may possible that machine behaves unusually. In such situations, immediately press the **Emergency Stop** button and shut off the machine using the main power button. Try to resolve the problem and after confirming it's safe to restart, gain start the machine and resume operations. The **Emergency Stop** button is shown in the image below:

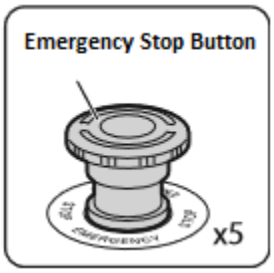


Fig 2: Displaying the Emergency Stop Button

Precautions for Use

Carefully read the instructions given below for the safe use of the machine. Neglecting them can damage or malfunction the machine or lower down the print quality.

- Avoid direct wind coming from an air blower or air conditioner onto the machine. It can dry ink in the printer head nozzles, clogging injection ports, lowering print quality, and more.
- Clean the print head, if the printer has not been used for more than a weak to avoid print head nozzle blockage.
- Don't apply more pressure while installing the main or sub ink tanks as it can cause ink leakage, damage the machine, or contaminating the surroundings.
- Use the machine within the specified temperature and humidity range to avoid halt in operations.
- Use gloves while working with the internal parts of the machine to avoid damage.

Precautions for Fabric Use

Unprinted Fabric (Roll)

To keep the print result last in best conditions, carefully observe the following precautions during the machine handling:

- Do not use the stain fabric.
- Do not scratch the printing side.
- Moisture transfer to fabric may negatively impact the print quality.
- Carefully hold the edges of the fabric roll. It is recommended to wear cotton gloves while loading the fabric.
- Fabric surface may get wavy or curved by a sudden temperature and humidity change. When setting the fabric into the machine, flatten the surface with hands without making any scratches or stains.

- Do not wet the fabric.
- Keep the box or bag that came with the fabric. They can be used for storage.
- Store fabric in a cool and dry place. Avoid direct sunlight.
- When storing a fabric roll, use the bag that came with it. Put the roll into the bag and store in a horizontal position.
- Remove the fabric roll from the printer after use. Rewind unused part and wrap the roll into the bag that came with it for storage.

Printed Fabric (Roll)

Follow the instructions for the printed fabric, as given below:

- Do not rub or scratch the printed fabric.
- Do not touch the printed side of the fabric.
- Let the printed fabric dry completely without folding or piling up.
- Avoid direct sunlight
- When storing printed fabric, follow the instructions that came with fabric to avoid color change

Precautions for Ink Use

Ink Before Use

Carefully observe the following given instructions for storing ink:

- Store ink in a cool and dry place to avoid direct sunlight.
- Try to finish the opened ink bottle as soon as possible to avoid ink dry situation. If keeping the opened ink out of necessity, tightly close the container to avoid contact of air.

Ink After Use (Waste Ink)

Printer's waste ink is industrial waste. Thus, it must be disposed according to regulations and local laws to avoid the environment pollution. If there is any confusion, kindly ask operators for industrial waste disposal to process waste ink.

3. Safety Requirements

Power Requirements

- **Printer**
  - **Print Engine:** Total Wattage: 5500Watts @ 220Volts AC 50Hz, Sinewave
    - Uninterrupted power supplies (flicker free) should be provided as it has digital circuit.
    - Safety: 32A MCB must be used to Power this Inlet.
  - **Belt Dryer:** Total Wattage: 4000Watts @ 220Volts AC 50Hz, Sinewave
    - Continuous (5 Sec breaks acceptable in 60 Secs) power supplies required.
    - Safety: 20A MCB must be used to Power this Inlet.
- **Dryer:** Total Wattage: 8500Watts @ 220Volts AC 50Hz, Sinewave
  - Uninterrupted power supplies (flicker free) should be provided as it has digital circuit.
  - Safety: 63A MCB must be used to Power this Inlet.
- **Feeder:** Total Wattage: 350Watts @ 220Volts AC 50Hz, Sinewave
  - Uninterrupted power supplies (flicker free) should be provided as it has digital circuit.
  - Safety: 5A MCB must be used to Power this Inlet.
- Wire gauge should be at least 6sqm, recommended 8sqm.
- Exclusive Earthing should be required for printer and it should not be shared with UPS & Building's common Earth.
- Printer and computer must share same exclusive earthing.

Water Supply Requirements

- 60L normal tap water for circulation
- Hose pipe inlet diameter 20mm and total length is 18mtr

Computer Requirements

- Minimum requirement
  - i5 processor (Quad Core)
  - 8GB RAM
  - 1TB HDD
- Recommended requirement
  - i7 processor (Quad Core)
  - 8GB RAM
  - Win7 Professional (64bit)

Environment Requirements

- Room temperature should be maintained in the range of 18-28 degree Celsius with humidity 35-80% RH, **Please Note:** Printer is equipped with dryers, it may raise the room temperature – A 10% additional load should be considered when designing the AC
- There should not be air draught in the room
- Closed dust-free room exclusive for Printer
  - **Light:**
    - CRI 98%
    - LUX Min 200

4. Installing Accessories

Levelling the Machine

In METRO, total number of levellers are twelve from which eight levellers are used in both cabinets (left and right) and four levellers are in the main machine.

The Main Machine Leveller is shown in the image below:

Fig 3: Displaying the Main Machine Leveller

The Cabinet Leveller is shown in the image below:

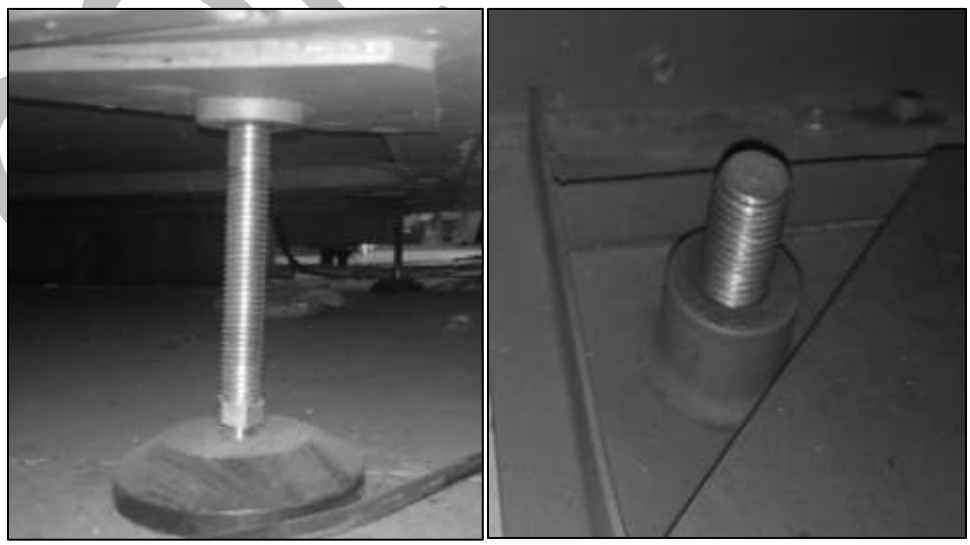


Fig 4: Displaying the Cabinet Leveller

LED Light

In METRO, LED lights are already fixed and service engineer needs to connect the connector, as shown below:

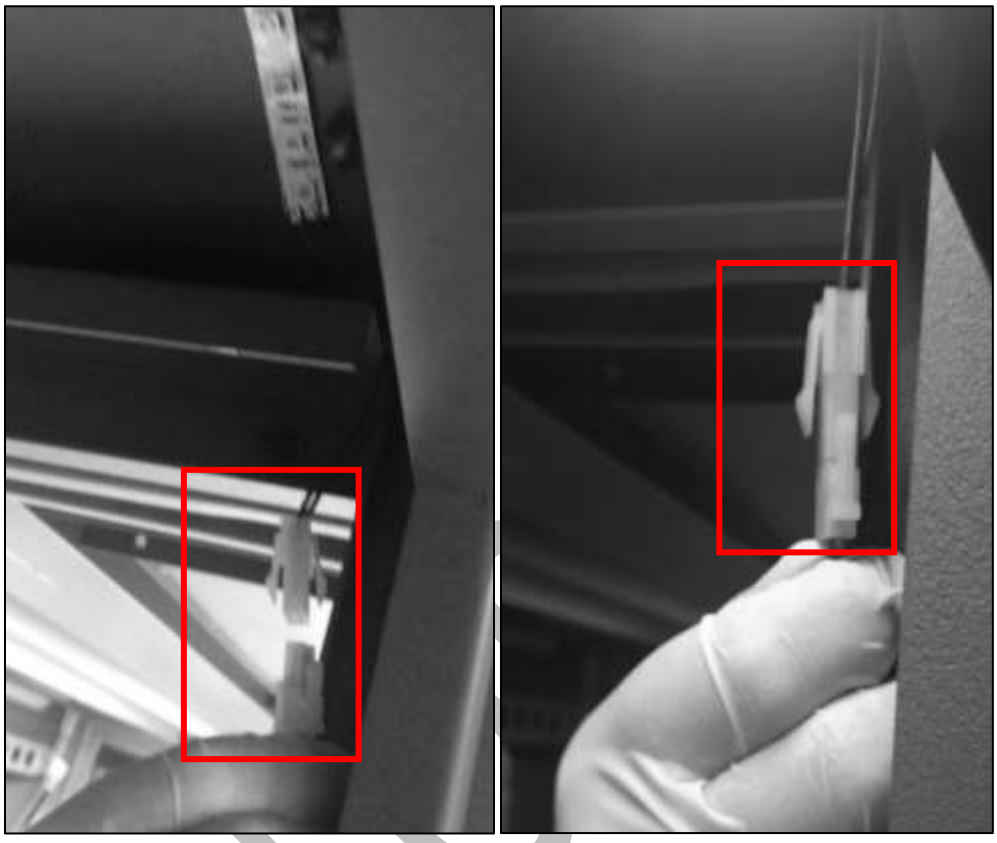


Fig 5: Displaying the LED Connector

Tower Light

Follow these steps to place the tower light:

Step 1: Place the tower light in the given space, as shown below:

Fig 6: Fixing the Tower Light

Step 2: Tight the screws to fix the tower light, as shown below:

Fig 7: Fixing the Screws

Step 3: Fix the Tower Light Connector to make the connection, as shown below:

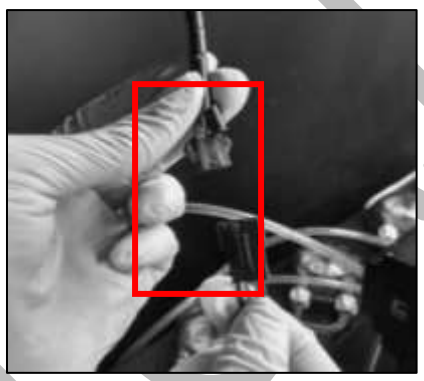


Fig 8: Fixing the Tower Light Connector

Now, the Tower Light is fixed.

Water Tank and Washing Tub

Follow these steps to place the water tank and water tub:

Step 1: Place the Water Tank to the back side of the machine.

Step 2: Connect the Water Inlet and Drain pipes to the Water Tank.

Connecting the Water Inlet pipes to the motor, as shown below:

Fig 9: Connecting the Water Inlet Pipes

Connecting the Water Outlet Pipe to the Water Tank, as shown below:

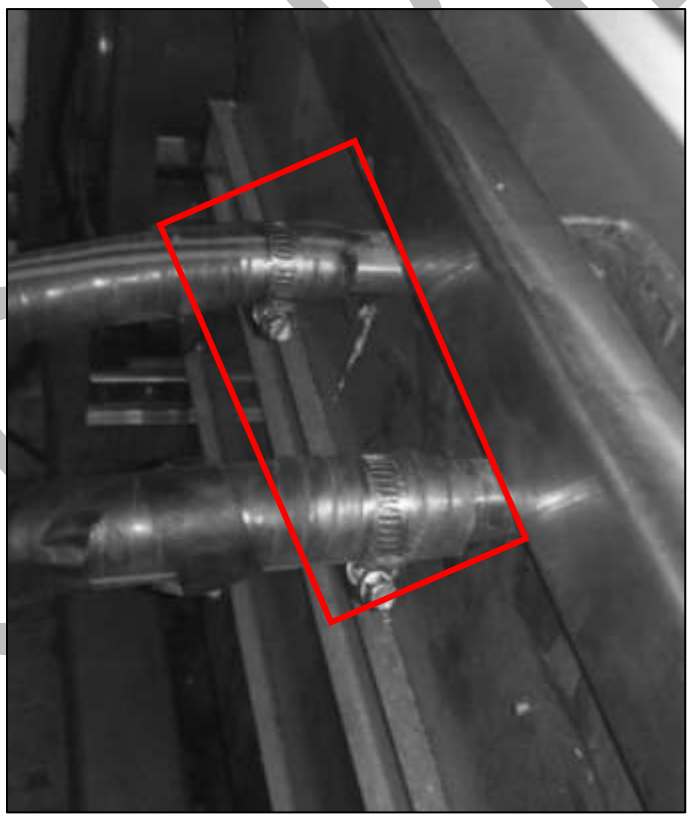


Fig 10: Connecting the Water Outlets

Step 3: Connect the Water Tank Inlet pipe to the Jetting Nozzle Pump using the Tightening Clamp, as shown below:

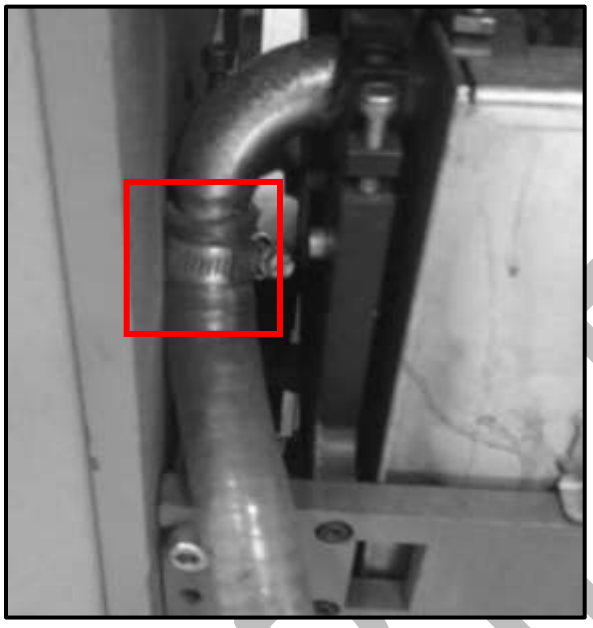


Fig 11: Connecting Water Tub Inlet Pipe to the Jetting Nozzle Pump

Step 4: Similarly connect the Water Outlet pipes to the Washing Tub from both sides, as shown below:

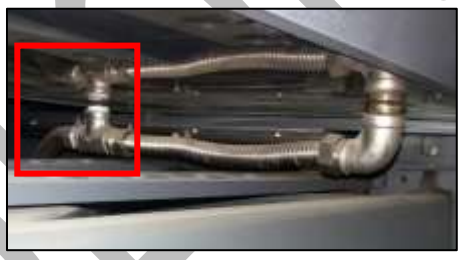


Fig 12: Connecting the Water Outlet Pipes

Step 5: Fill the tank with 3/4th of water.

Now, the Water Tank and Washing Tub is installed.

Ink Tank

Follow these steps to connect ink tanks:

Step 1: Unlock the Ink Knobs of each color in the below shown direction:

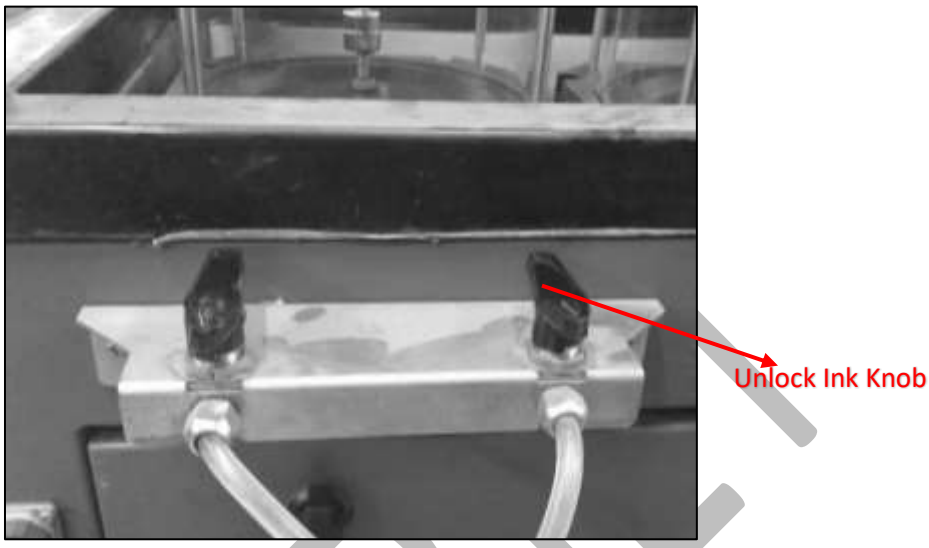


Fig 13: Unlocking the Ink Knob

Step 2: Connect the Ink Inlet Pipe to the Fitting Connectors, as shown below:

Fig 14: Connecting the Ink Inlet Pipe to the Fitting Connectors

Adjusting the Conveyor Belt Tensioning

Follow these steps to adjust Conveyor Belt tensioning:

Step 1: Tighten the adjustment rings on the right and left sides of the belt in the rear, using a pair of pliers.

Step 2: Make sure that tighten the rings on the right and left sides with the same torque.

Step 3: Mark any two points vertically at a measuring span of 1000mm in the Belt. Start tensioning the belt by adjuster bolts thread by thread equally on both sides, till the length becomes 3mm (max) in excess (i.e.,1003mm), as shown below:

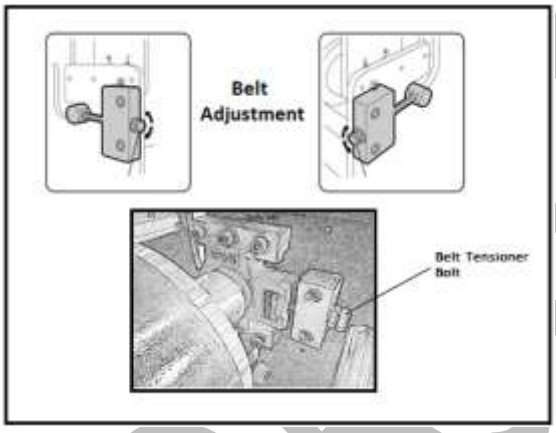


Fig 15: Tightening the Conveyor Belt

Now, the Conveyor Belt tensioning gets adjusted.

Controlling Belt Movement

To control the belt motion, select the **BELT MOVEMENT** icon from the **MAIN MENU** screen. The **BELT MOVEMENT** screen appears as shown below:

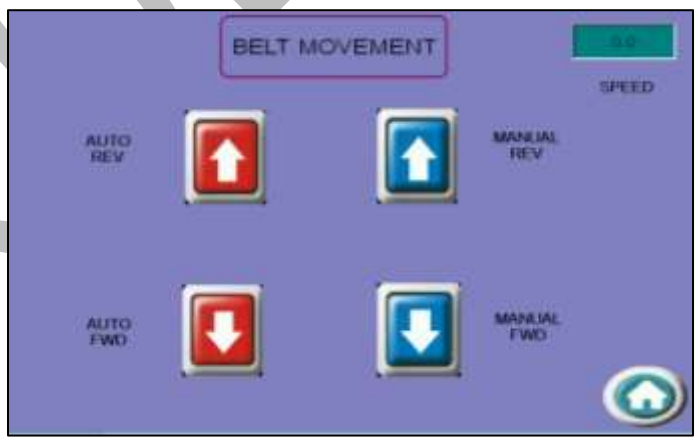


Fig 16: Displaying the BELT MOTION Screen

Using the **BELT MOTION** screen, you can perform the following actions:

- **SPEED**: Set the speed of the Conveyor Belt.
- **AUTO REV**: Auto move the belt in the reverse direction.
- **AUTO FWD**: Auto move the belt in the forward direction.
- **MANUAL REV**: Manually move the belt in the reverse direction.
- **MANUAL FWD**: Manually move the belt in the forward direction.

Setting Belt Speed

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

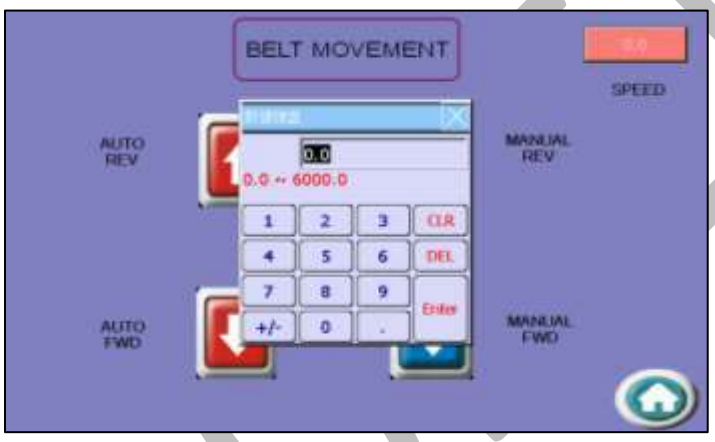


Fig 17: Setting the Belt Speed

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

Centering of Belt

Below section explains about centering of belt, when it has shifted towards edge of the roller:

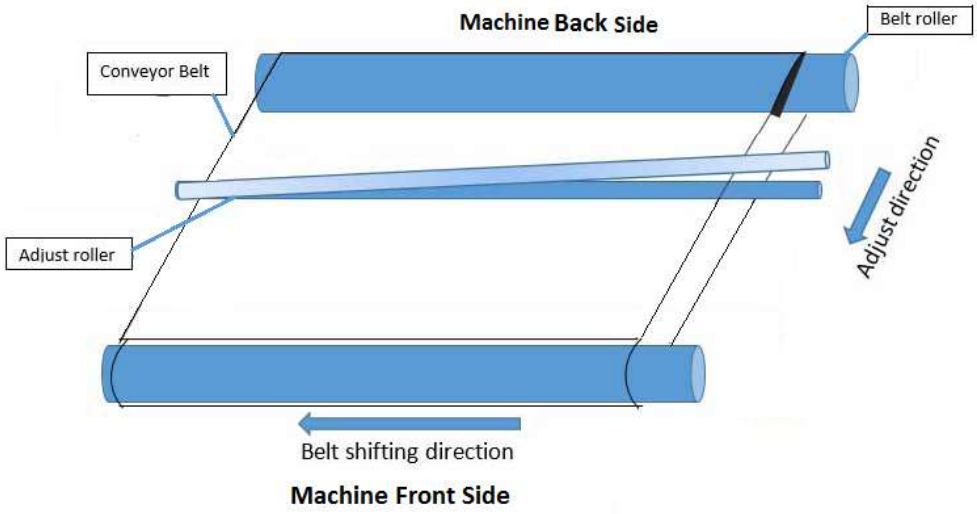
- If the belt is shifting one side more than 5mm in 1 hour, do the following
    - Wait for the running print to be completed, if repeats are given, stop immediately after the running image is completed, and prevent giving next command.
    - Takeout the fabric, lower the tub and run glue cycle in reverse direction with 70% speed.
    - When the belt is rotated reversely (without adjusting), further shifting is stopped and belt starts moving in opposite direction. Closely monitor the process until it comes in the center. Once belt has positioned centrally, glue cycle has to be stopped and shifting control adjustment has to be done as mentioned further in next section.
- If the belt shifting has crossed 5mm outside the roller, print has be stopped immediately and belt has to be repositioned in center by loosening the tensioner screws, else severe damage to belt can happen. If you feel unconfident about doing so, please call the engineer.

Belt shifting control

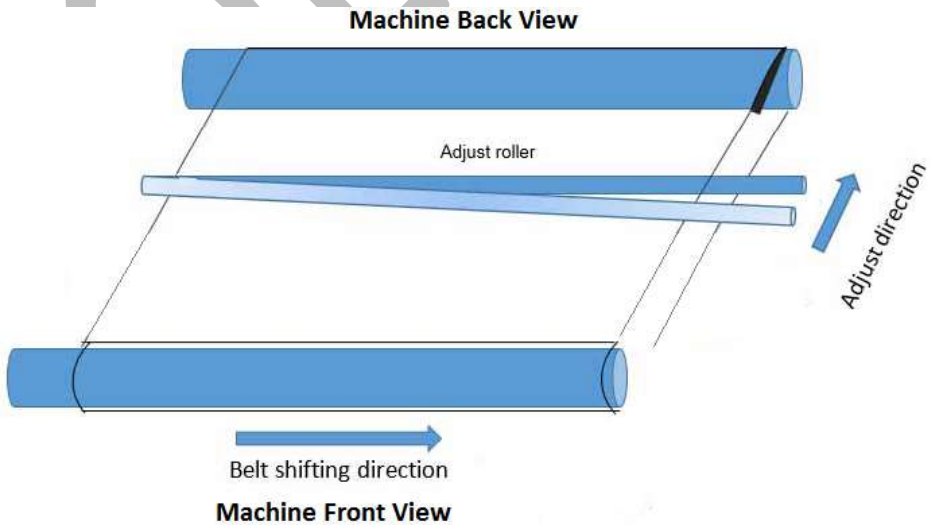
Below procedure explains about the Conveyor Belt shifting control.

- Belt shifting can be controlled 'on the fly' as well as when print is stopped.
- To control the position of Adjust Roller, turn the Toggle switch into FWD/REV direction (The Toggle Switch is available backside of the HMI) as per the requirements.

Case-I: Belt Shifted Towards Left



Case-2: Belt Shifted Towards Right



Setting Washing Unit

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

Fig 18: Displaying the WASHING UNIT Screen

After setting the tub position, switch ON the brush, belt dryer, jetting pump, print dryer.

Using the **WASHING TUB** screen, you can perform the following actions:

- **BRUSH OFF**: Switch ON or OFF the brush unit.
- **BELT DRYER**: Switch ON or OFF the belt dryer.
- **TAB DOWN**: Move the washing tub in upward direction.
- **JETTING PUMP**: Switch ON or OFF the jetting pump of the machine.
- **PRINT DRYER**: Switch ON or OFF the print dryer.

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)
- 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 19: Running the Wash Cycle

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

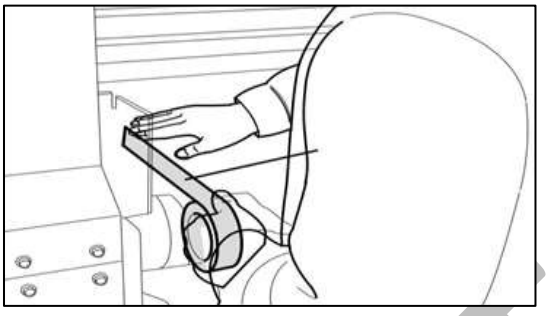


Fig 20: Using Masking Tape

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

Fig 21: 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.

Step 2: Set the Belt Movement (Refer to the "**BELT MOVEMENT"** section) and switch ON the dryer.

Note: Belt speed should be slow.

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.

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

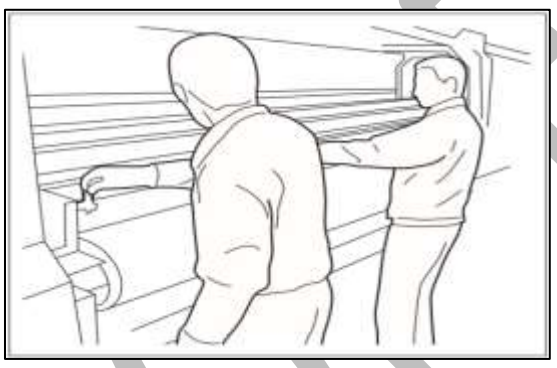


Fig 22: Closing the Press Roller

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.

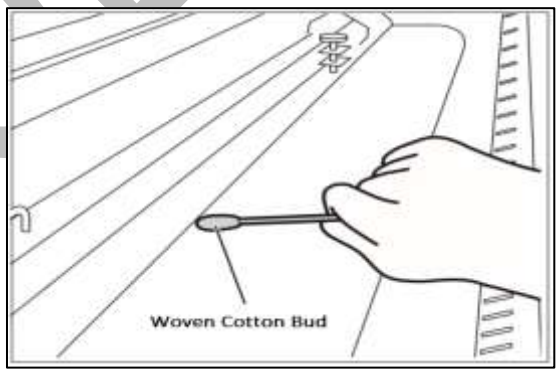


Fig 23: Spreading the Glue

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.

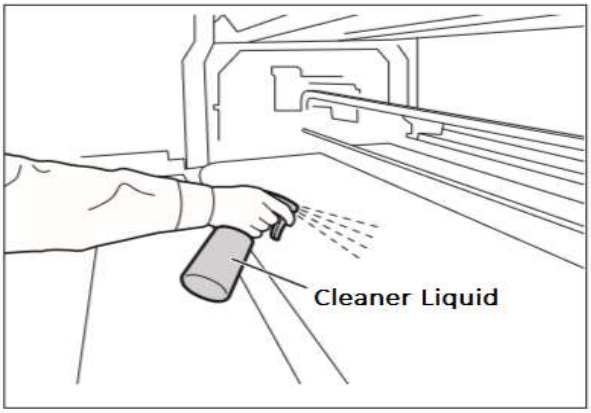


Fig 24: Spraying the Cleaner Liquid

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.

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.

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 25: Wiping the Belt

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

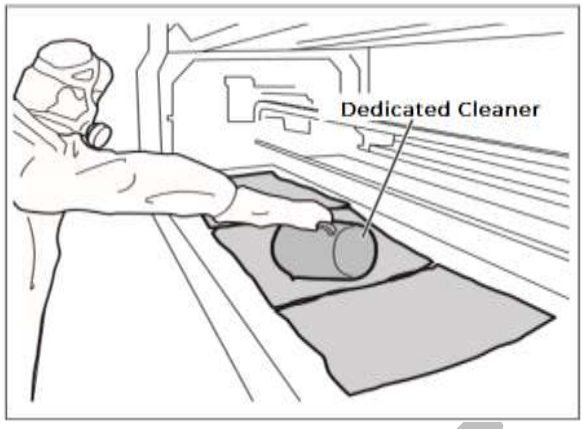


Fig 26: Pouring Cleaner Liquid

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 27: Wiping the Glue

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

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

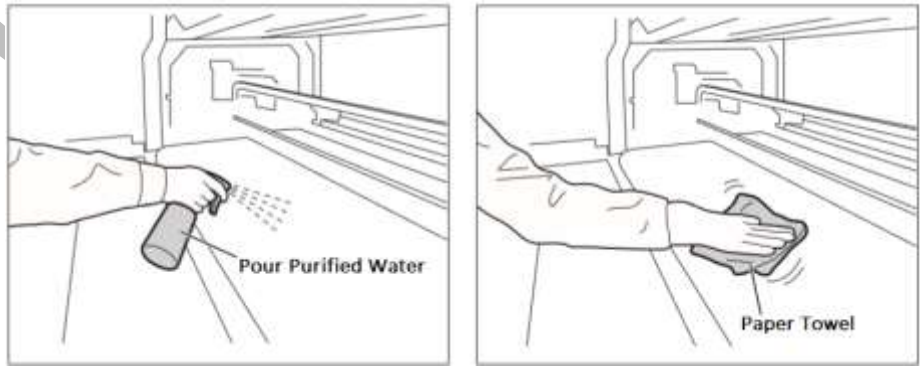


Fig 28: Wiping Out Cleaner from the Belt

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 29: Removing the Cover Sheet

5. Loading the Fabric

Follow these steps to load the fabric:

Step 1: Run the **Supply Motor** in the manual.

Step 2: Stop the **Supply Motor** when the unlock position of Safety Chuk and Shaft get matched, as shown below:

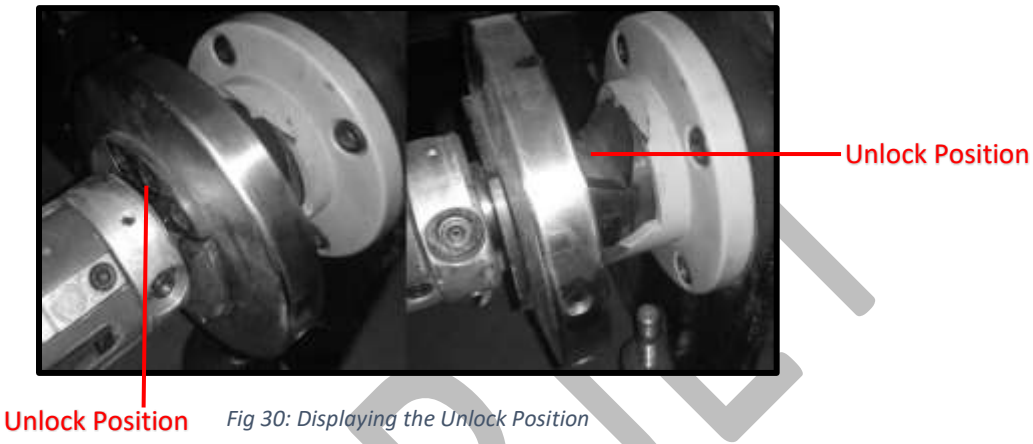


Fig 30: Displaying the Unlock Position

Step 3: Push the Safety Chuk to remove the shaft.

Step 4: Insert the shaft into the fabric roll.

Step 5: After inserting the fabric roll, fill air into the shaft to fix the roll with shaft, as shown below:

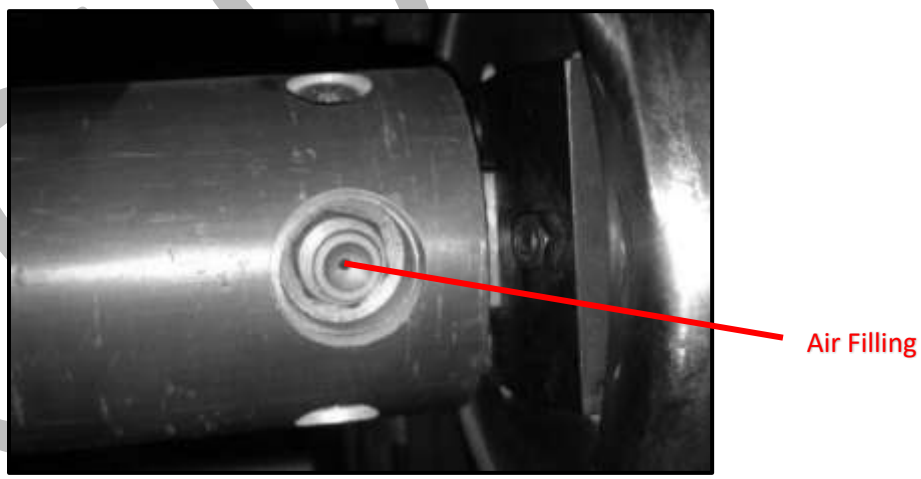


Fig 31: Filling Air

Step 6: Load the media as per the path given below:

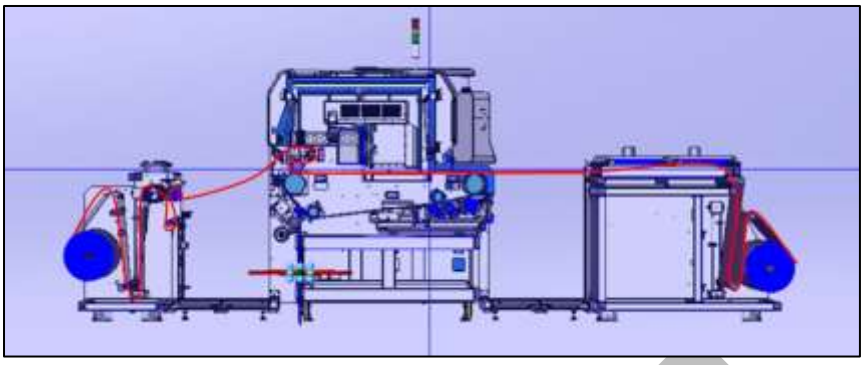


Fig 32: Displaying the Fabric Path

Now, the fabric is loaded.

6. Filling Ink

To refill ink, remove the Main Ink Tank cap and refill ink as per the color sticker. The **Main Ink Tank** is shown in the image below:

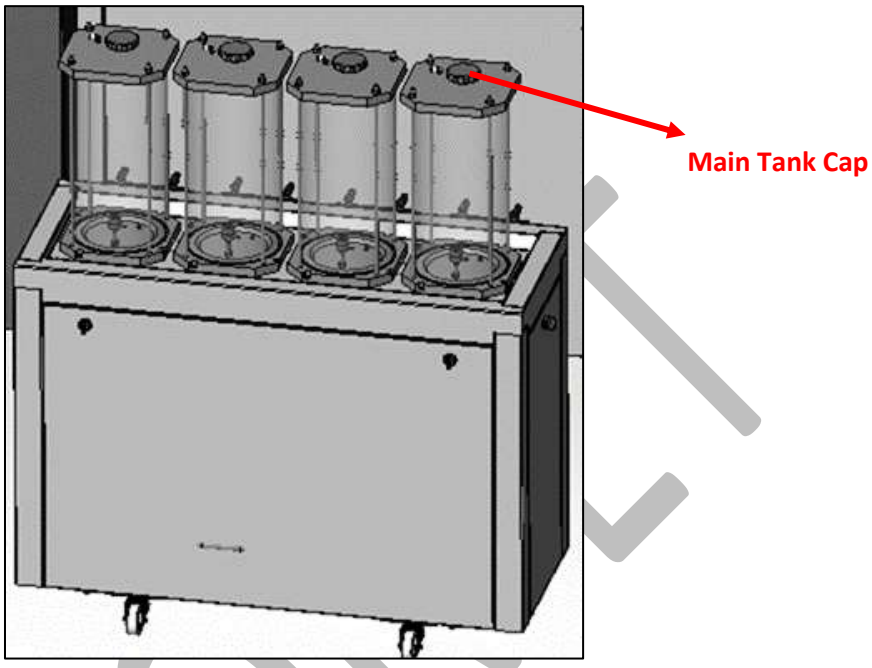


Fig 33: Displaying the Main Ink Tank

Points need to remember:

- The Main Ink Tanks are located at the back of the printer
- The capacity of ink main tank is 10Litre
- Ink in the Main tanks is pumped to the Sub Ink Tanks located at the Carriage Assembly.

The **Ink Sub Tank** is shown in the image below:

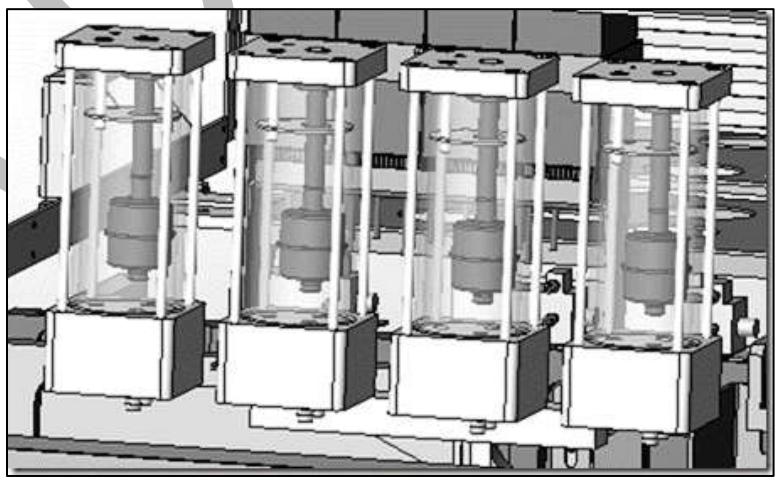


Fig 34: Displaying the Ink Sub Tank

7. Head Installation

Use this section, if Print Head is not installed in the printer.

The installation of Print Heads is to be done only by a service engineer. If the Print Head is not installed correctly, it can affect the printing quality.

Note: Don't apply much pressure on Print Head while handling it.

Follow these steps to install the Print Head:

Step 1: Remove the **Ink Inlet caps** gently to avoid damage to the Print Head, as shown below:

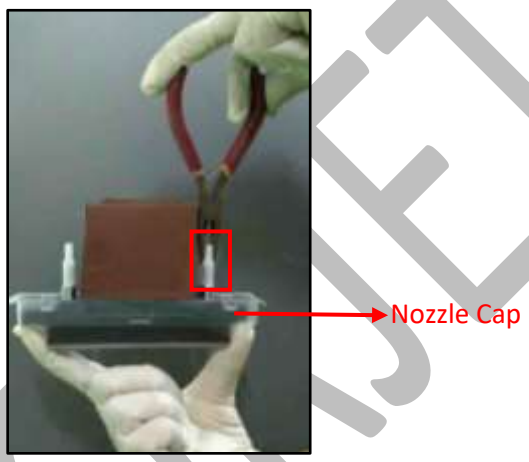


Fig 35: Removing the Ink Inlet Caps

Step 2: Fix the **Air Releasing pipe** on one end of the **Ink Inlet Tube** (Refer to Fig 35).

Step 3: Remove the **Nozzle Cap** from the Print Head (Refer to Fig 35).

Note: Don't put the Print Head (nozzle facing) on the rough or dusty surface.

Step 4: Mount the **Print Head** in the slot on the **Head Plate**.

Step 5: Fix all the screws gently on the Print Head, as shown below:

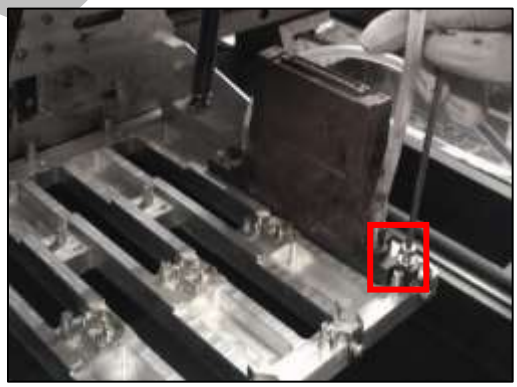


Fig 36: Fixing the Head Screw

Step 6: Connect Head Inlet pipe to the **Y Connector**.

Step 7: Connect refill connections to the head board (Refer to Fig 36).

Step 8: Remove the cap of the **Air Releasing Pipe** (Refer to Fig 36).

Step 9: Hold the **pipe down** and press the **Purging** button of a particular color.

Note: Carefully perform the above steps to avoid the chances of ink spilling.

Additionally, perform the same action for all colors and release ink up to 5ml.

Step 10: Simultaneous, release the Purging button and cap the **Air Releasing Pipe**.

Step 11: Insert one end of the head cable on the top of the Print Head by following the arrow mark.

Note: While inserting the head cable, the machine must be Switch OFF.

Step 12: Similarly, insert the second end of the head cable on the Head Board (Refer to Fig 37) as per color sequence. To verify the head cable orientation, please carefully view the highlight area as shown below:

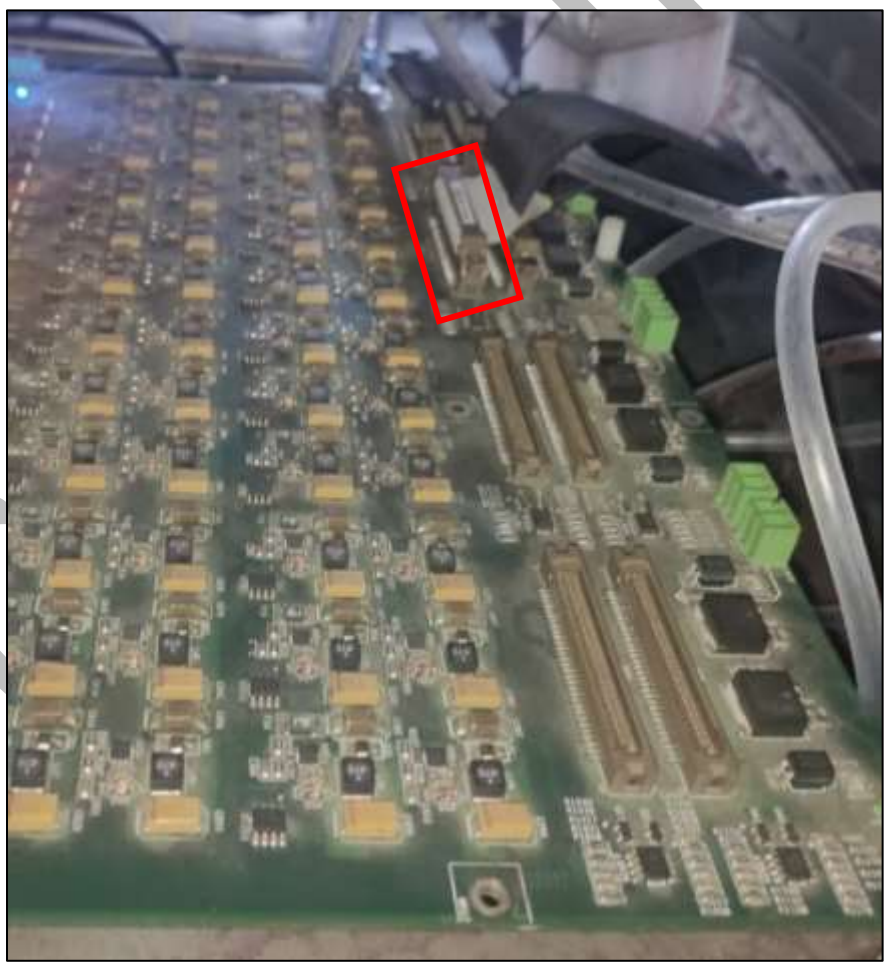


Fig 37: Inserting Head Cable on the Head Board

Step 13: Check whether the **Waste Bottle** is attached or not.

Step 14: Perform the **Head Purging** for all colors.

Step 15: Perform the **Head Blotting** to gently clean the Print Head.

Step 16: Perform the **Nozzle Test** to check the nozzle status of all the Print Heads.

Now, print heads get installated.

8. Installation of Printer Manager

Before installing the Printer Manager software, please confirm that the **DotNet Framework** is available in your system. If it is not installed, then first install it.

With the **Printer Manager**, you need to install the following:

- DotNet framework (installed it, if not installed)
- USB Driver

Let's discuss the installation process in details. Follow these steps to install the printer manager software:

Step 1: *Insert* the installer CD of the printer manager in the CD-ROM. The installation process gets started automatically.

Immediately after the Windows Installer screen, the **Welcome to the Printer Manager Setup Wizard** appears, as shown below:

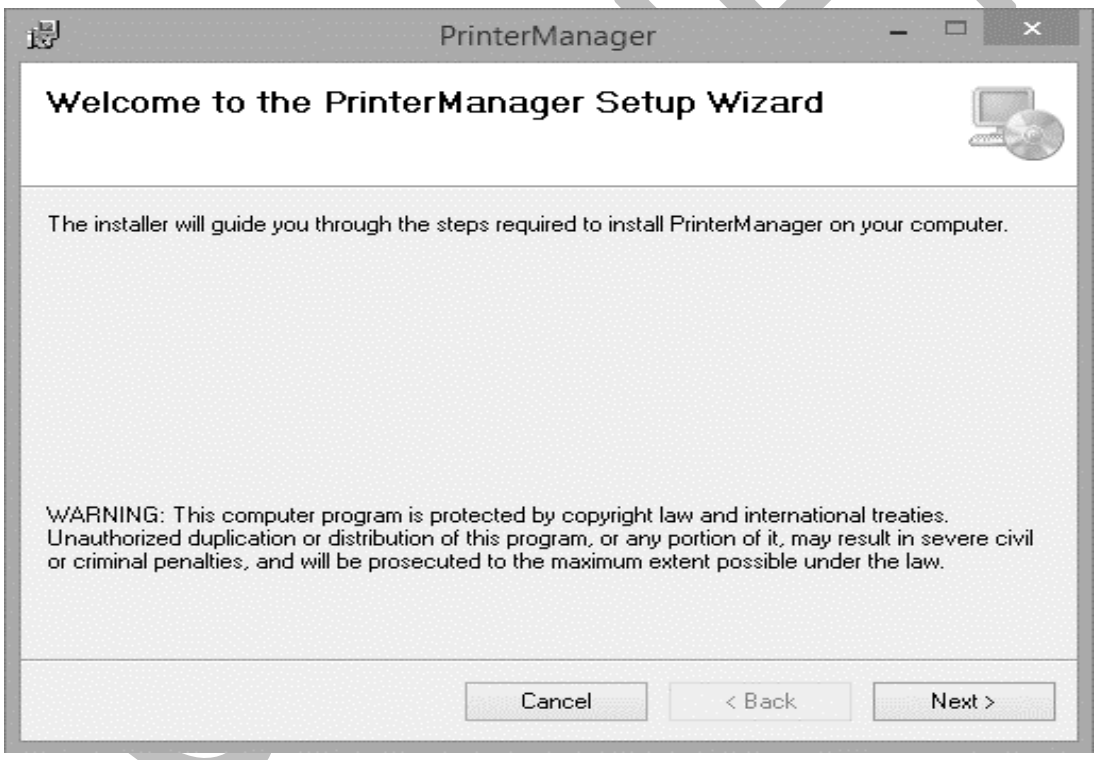


Fig 38: The Welcome Printer Manager Setup Wizard

Step 2: *Click* on the **Next** button to start the installation of the printer manager (Refer to Fig 38).

The **Select Installation Folder** window appears as shown below:

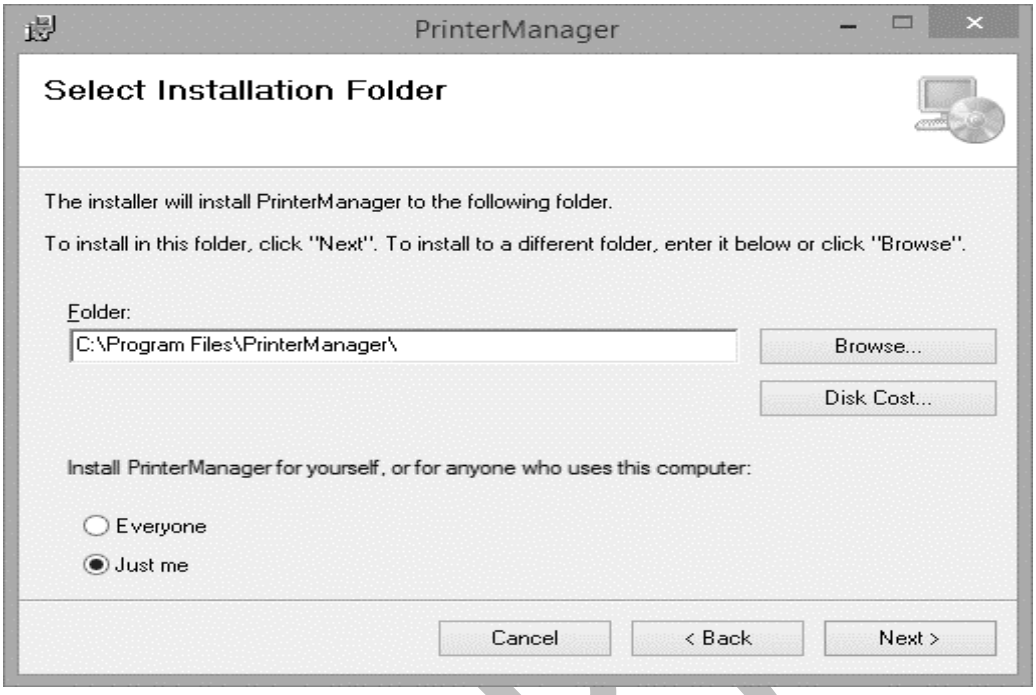


Fig 39: The Select Installation Folder Window

Step 3: *Click* on the **Browse** button to navigate to the location where you want to store all the setup files and then *click* on the **Next** button to move to the next step of installation (Refer to Fig 39). The **Confirm Installation** window appears.

Step 4: To confirm the printer manager installation, *click* on the **Next** button in the Confirm Installation window. The **User Account Control** window appears on the screen.

Step 5: *Click* on the **Yes** button in the **User Account Control** window to confirm that it an authorized program installation. The **Installing Printer Manager** window appears and displays the progress in installation. When the installation process completed, the **Next** button gets enabled.

Step 6: *Click* on the **Next** button in the **Installing Printer Manager** window to complete the installation process.

Now, the installation of Printer Manager is completed and the **Installation Complete** window appears on the screen, as shown below:

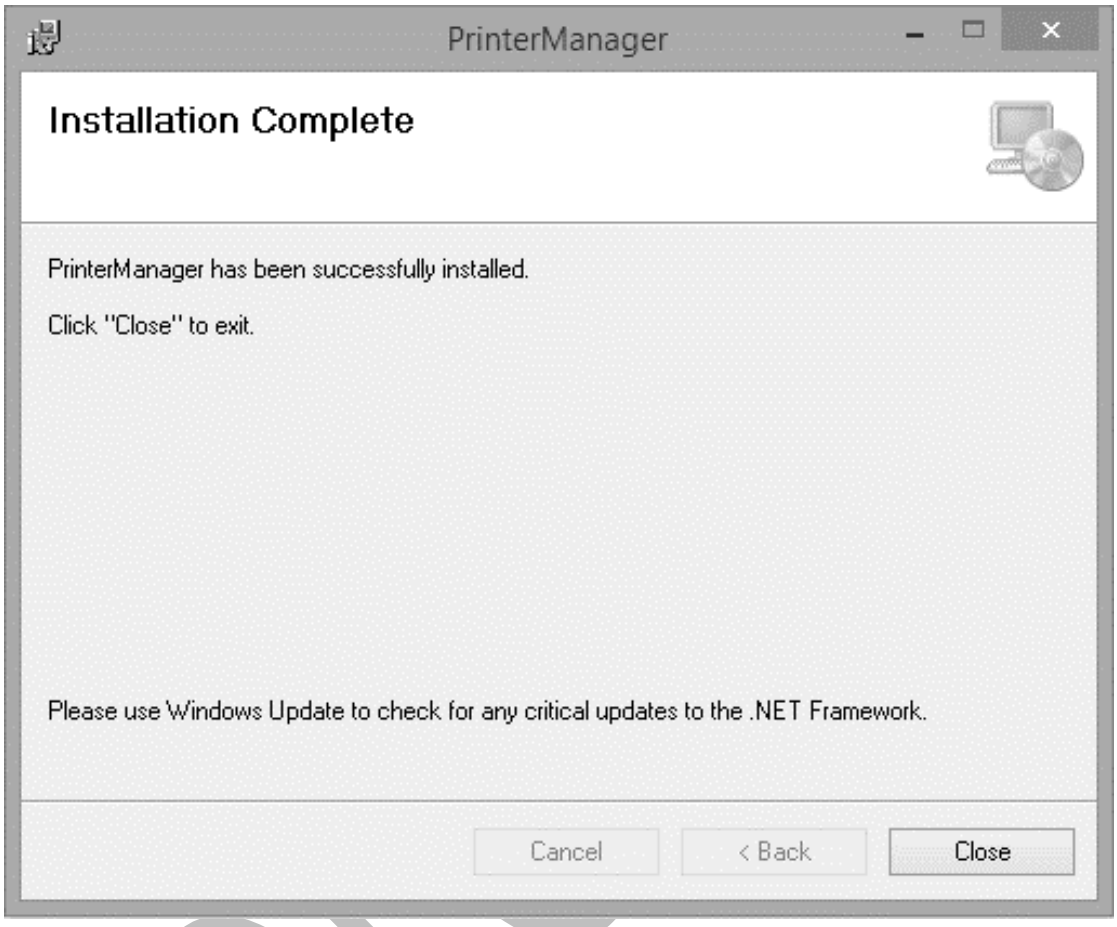


Fig 40: The Installation Complete Window

Step 7: *Click* on the **Close** button to close the window and complete the installation process (Refer to Fig 40).

Now, the Printer Manager software is installed on your system and a shortcut for the Printer Manager appears on the desktop. To open the Printer Manager screen, double-click on it.

The **Printer Manager** window appears as shown below:

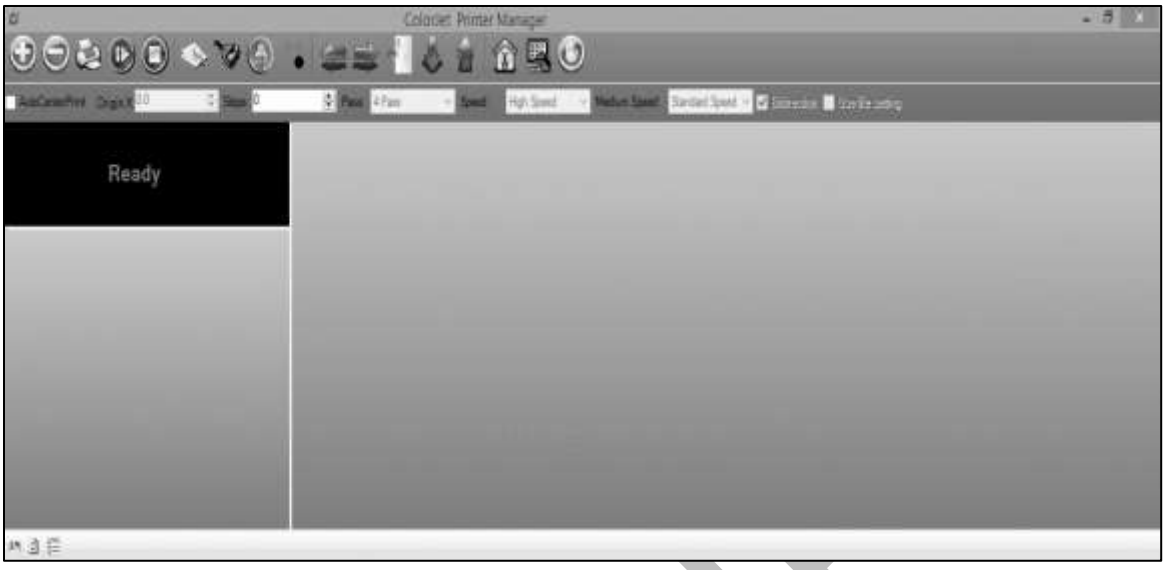


Fig 41: Displaying the User Interface of Printer Manager

Printer Manager Settings

This option enables users to update the default settings of the printer viz. Print, Move, Preference, and Calibration. To open the **Setting** window, click on the **Main Menu→Setting→Edit** path. The **Setting** window appears on the screen, as shown in the image below:

Fig 42: Displaying the Setting Window

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

- **Print setting**
  - **Auto skip white**: Enable to auto skip the white space in the image during printing.
  - **Step Time**: Set time interval of the feed motor during printing.
  - **Job Space**: Set space between multiple jobs.
  - **Feather**: Select the type of feather effect and intensity percentage of the feather.
  - **Multiple Ink**: Enable to select the color depth of an image according to the passes. The available options are Default, Double, and More.
- **Color Bar**
  - **Space**: Specify the distance of the color bar from the image.

- **Width**: Set width of the color bar.
- **Placement**: Enable or disable the color bar and its placement viz. left, right, or both.
- **Height same with image**: If enabled, the height of the color bar is same as the image height.

- **Spray setting**
  - **Auto Spray**: Set the duration (number of passes) for auto spraying.
  - **Spray Period**: Define the duration for spraying (set as 10000). If the duration increased, spray frequency gets decreased.
  - **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.
  - **Idle Spray**: Spray during carriage at home position. This option must be enabled.
  - **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.

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

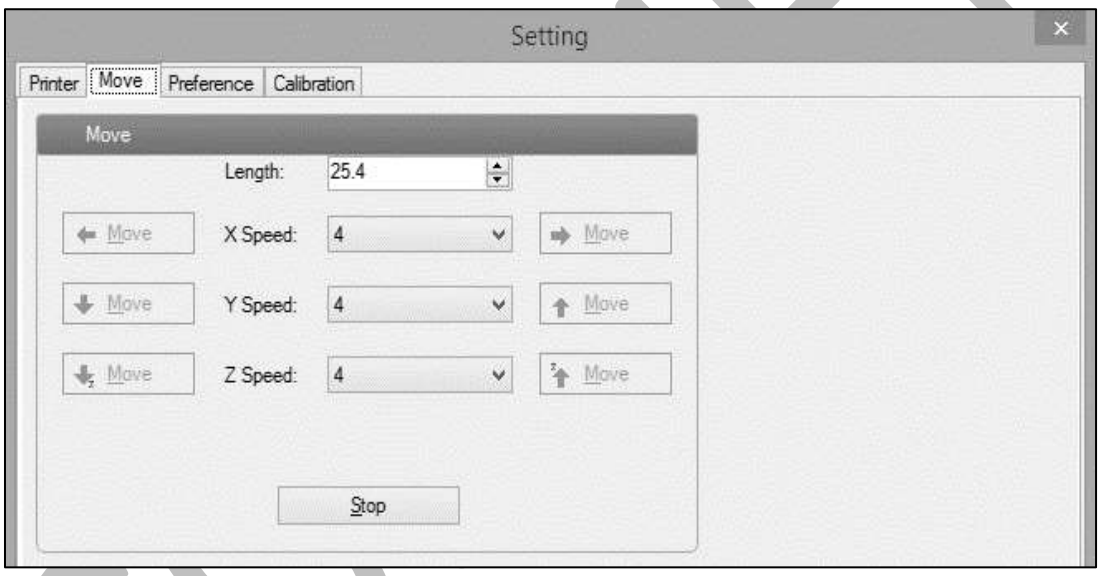


Fig 43: Displaying the Move Tab

Using the **Move** tab, the Y Speed can be updated as per the requirements.

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

Fig 44: Displaying the Preference Tab

Using the **Preference** tab, the measuring unit can be set or changed.

Head Temperature Settings

Follow these steps to update the head voltage:

Step 1: Click on the **Main Menu→Tools→Real Setting** path, as shown in the image below:

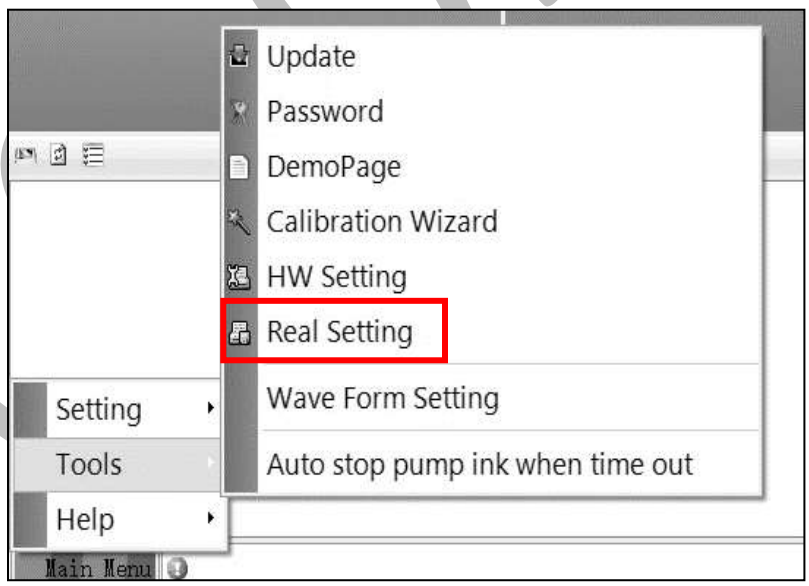


Fig 45: Selecting the Real Setting Option

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

Step 2: Enter the head and nozzle temperture values of each color Print Head under the **Temperature and Voltage** section, as shown below:

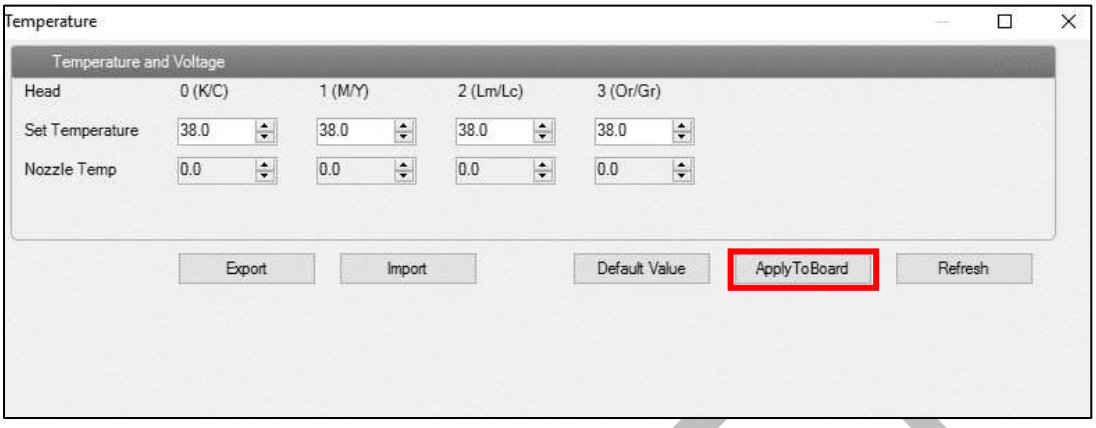


Fig 46: Setting the Base Voltage Value

Step 3: After specifying the head voltage, click on the **Apply To Board** button and then, on the Ok button to apply the settings (Refer to Fig 46).

Now, the head and nozzle temperature values get set.

Save to Printer

After making the desire changes in the printer settings, save these settings into the printer for future usage. To save the settings to the printer, click on the **Main Menu→Setting→Save To Printer** path, as shown below:

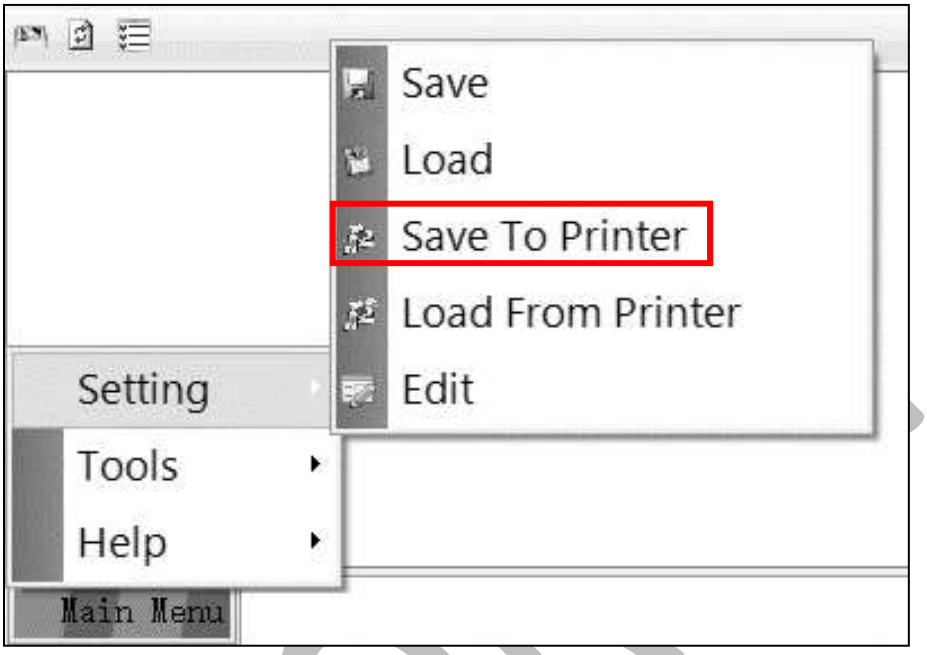


Fig 47: Selecting the Save To Printer Option

On clicking the Save To Printer option, all the previously made settings get saved on the Main Board. In case, printer manager needs to reinstall, then you can retrieve all the settings using the Load From Printer option.

Note: In Setting, the Save option is used for saving the previously made settings and created an .xml file of further use.

9. Head Alignment

Calibration 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:

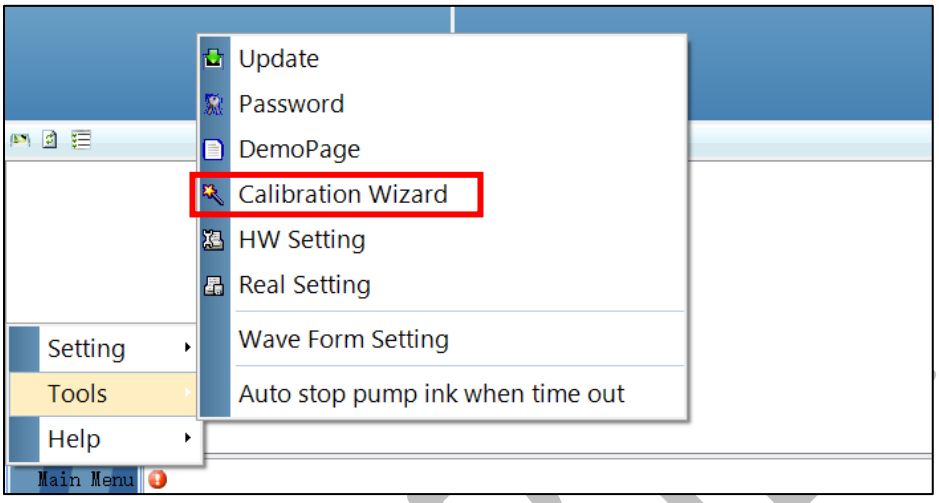


Fig 48: Selecting the Calibration Wizard Option

This should bring up the Calibration Wizard, as shown below:

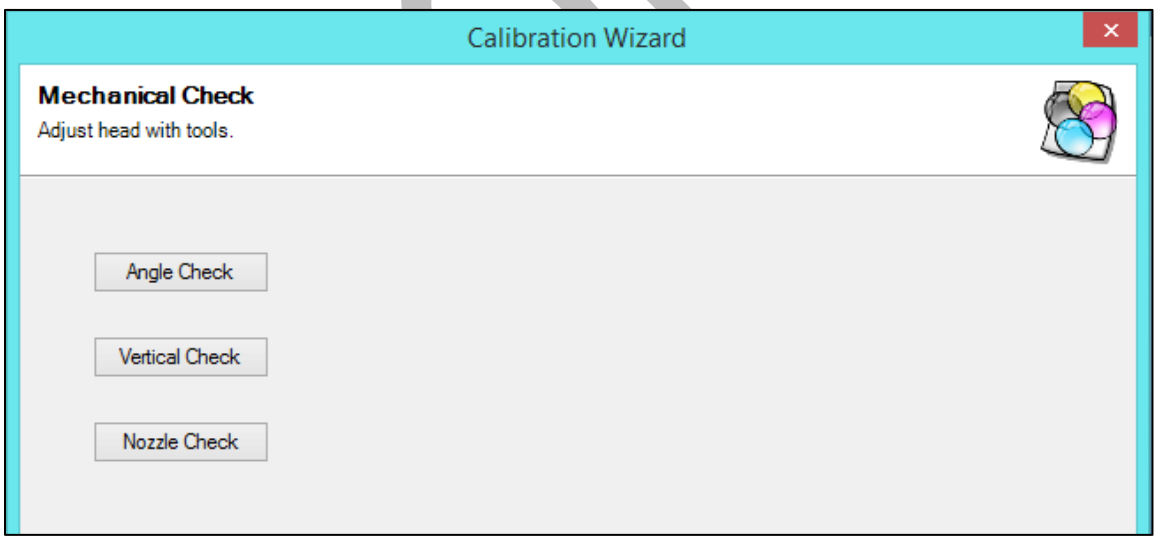


Fig 49: Displaying the Calibration Wizard

Based on the above figure, the list of mechanical checks appears and as per these checks, Print Heads need to be adjusted with the help of tools provided. The list of mechanical checks is given as below:

- Angle Check
- Vertical Check

When you press the **Next** button, you are redirected to the Calibration Wizard, as shown in the below image:

Fig 50: Displaying the Printer Calibration Options

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

Mechanical Checks

Accurate mechanical alignment is the key for achieving good print quality. In case of misalignment, the Print Heads have to be adjusted manually using the provided tools and alignment should be re-verified iteratively until the Print Heads are perfectly aligned.

Angle Check

This test checks the mounting angle of all the Print Heads. Print Heads should be mounted at exactly 90 degrees to the carriage scan direction. In the figure below, when the Print Heads are mounted correctly at 90 degrees, then an unbroken vertical straight-line pattern is formed, as shown below:

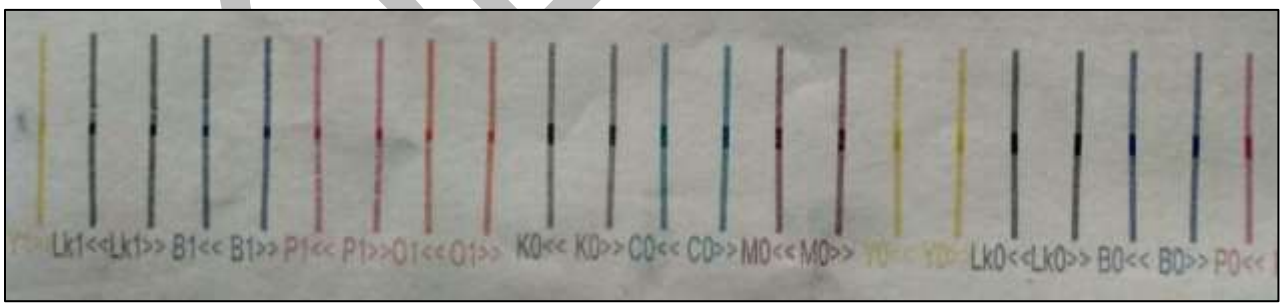


Fig 51: The Good Quality Angle Test

When there is angular error in a head's placement, the line formed by a particular Print Head will appear broken, as shown in the image below:

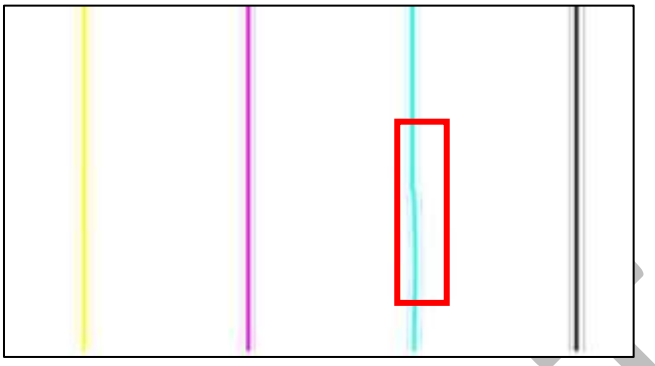


Fig 52: Defect in Angle Check

Let's discus the next vertical check.

Vertical Check

The vertical alignment test is performed to check the vertical alignment of all heads with reference to the Magenta head. To execute vertical alignment test, click on the **Vertical Check** button on the **Calibration Wizard**. The **Vertical Check** is shown in the image below:

Fig 53: Displaying the Vertical Check Result

Samples of Good and Bad Vertical Alignment Test Result is shown in the below figure:

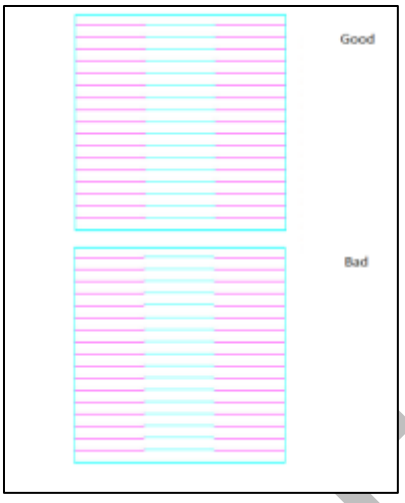


Fig 54: The Good and Bad Vertical Alignment Test Result

When a Print Head is aligned with the reference Print Head (Magenta), then in the test print this would be evident by perfectly aligned vertical nozzle lines. In case of vertically misaligned Print Head, its nozzle lines would be either above or below the reference head's nozzle lines. Similarly, check for other colors (Black, Magenta, and Yellow) with the reference color (Magenta).

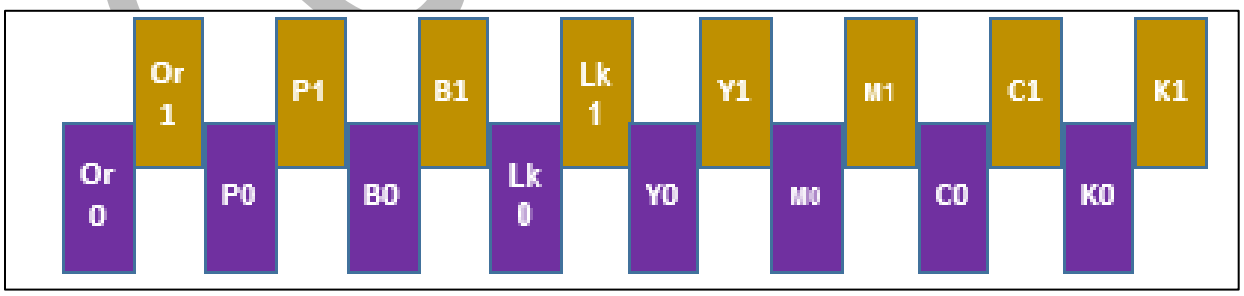
Note: During the mechanical checks, it may possible that it will disturb the angle check or vertical check. Thus, repeat the mechanical check until the perfect alignment condition is achieved.

After performing the above mechanical checks, please verify the results of bi-direction calibration, left & right alignment, and step calibration mentioned as below.

Follow these steps to perform the vertical alignment:

Step 1: Perform the feed calibration of the machine.

Step 2: First perform the vertical alignment of the H0 Heads by issuing the Vertical Check command. The Print Head sequence is shown as below:



Step 3: Correct the vertical alignment by slightly moving the head in the Up or Down direction.

Step 4: After correcting the vertical alignment, issue the Angle Check command for the H0 Heads. If Angle Check is OK, move to the next step.

Step 5: Before check the vertical alignment for the H1 Heads, check and verify the vertical alignment of the H1 Magenta (base color) with respect to H0 Magenta.

Step 6: If Step 5 is OK then perform vertical alignment for H1 Heads.

Step 7: Now, perform **Step 3 – 4** for the H1 Heads and ensure all alignments (Vertical and Angle) are OK.

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:

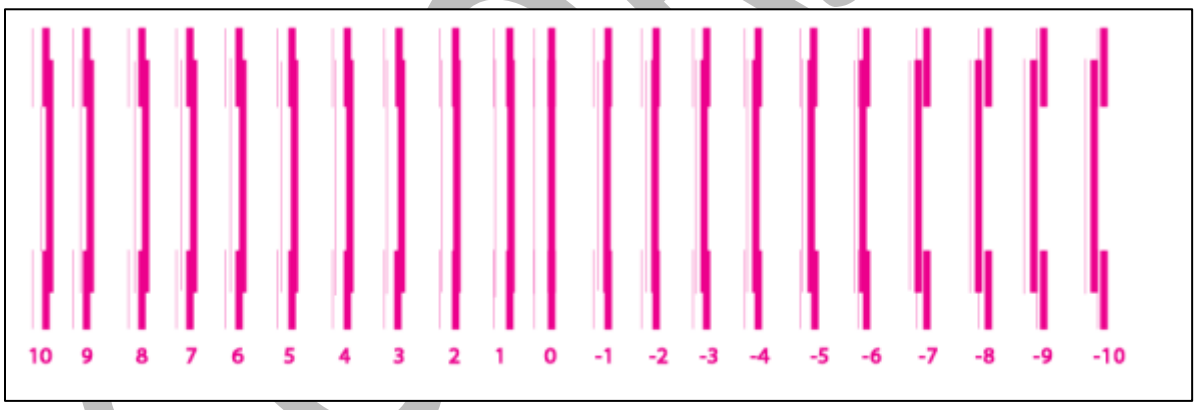


Fig 55: The Bi-Direction Calibration Output

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 (Black, Cyan, and Yellow) with respect to Magenta 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 **Left Calibration** and Right Calibration Results are shown in the image below:

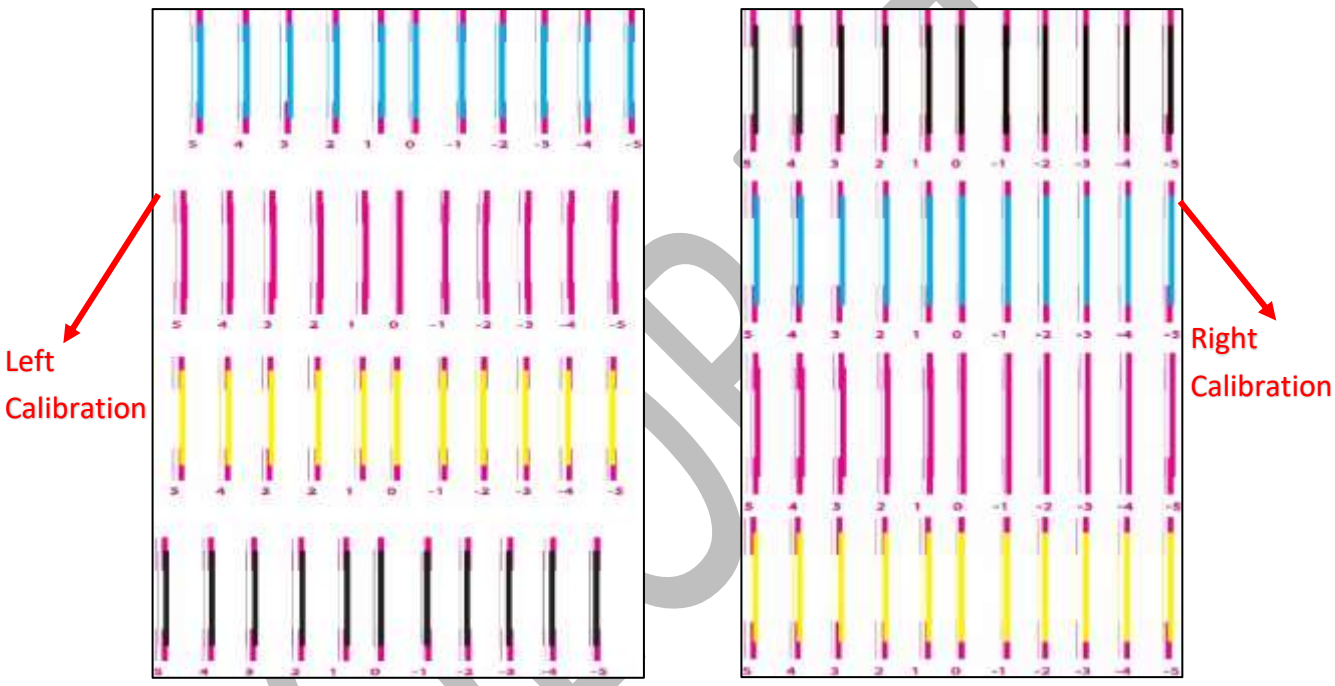


Fig 56: The Horizontal Left and Right Calibration Checks

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:

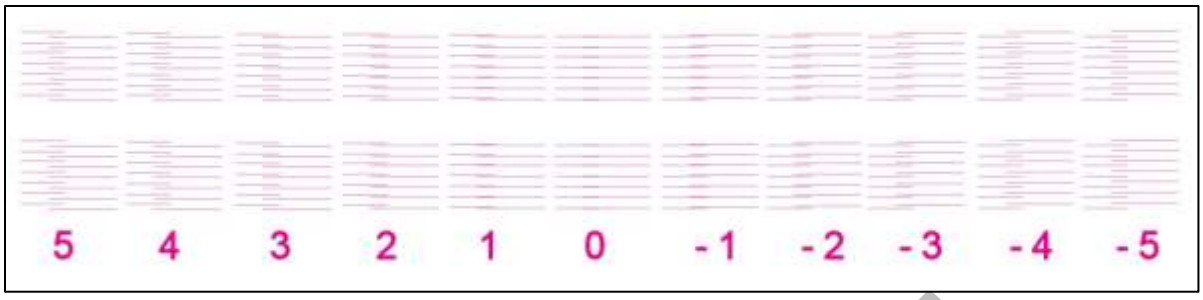


Fig 57: Displaying the Output of the Step Calibration

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 58: The Step Calibration Parameters

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 58).

Step 2: Feed the correction value in the **Revise** field (the correction value up to two decimal places) (Refer to Fig 58).

Step 3: Click on the **=>** icon (Refer to Fig 58) on the Step Calibration window. The correction value result will be reflected in the **Step** field (Refer to Fig 58). The same step value will also be displayed in the **Steps** field on the **Quick Access Toolbar**.

Save to Printer

After making the desire changes in the printer settings, save these settings into the printer for future usage. To save the settings to the printer, click on the **Main Menu→Setting→Save To Printer** path, as shown below:

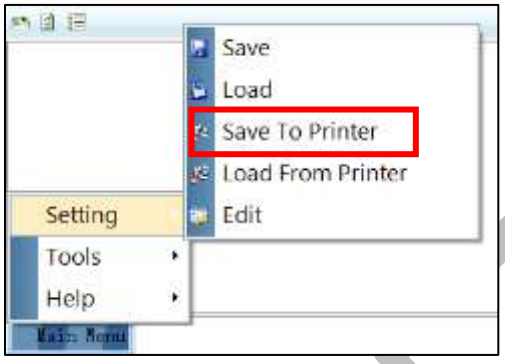


Fig 59: Selecting the Save To Printer Option

On clicking the **Save To Printer** option, all the previously made settings get saved on the Main Board. In case, printer manager needs to reinstall, then you can retrieve all the settings using the **Load From Printer** option.

10. 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 Blotting

Head blotting refers to the process in which the head surface area is cleaned for better printing result and quality. In Metro, auto wiping option is available to clean the head surface area.

The Auto Wiping option is shown in the image below:

Fig 60: Displaying the Auto Wiping Option

On clicking the **Auto Wiping** icon, the Manual Clean Form window appears on the screen, as shown below:

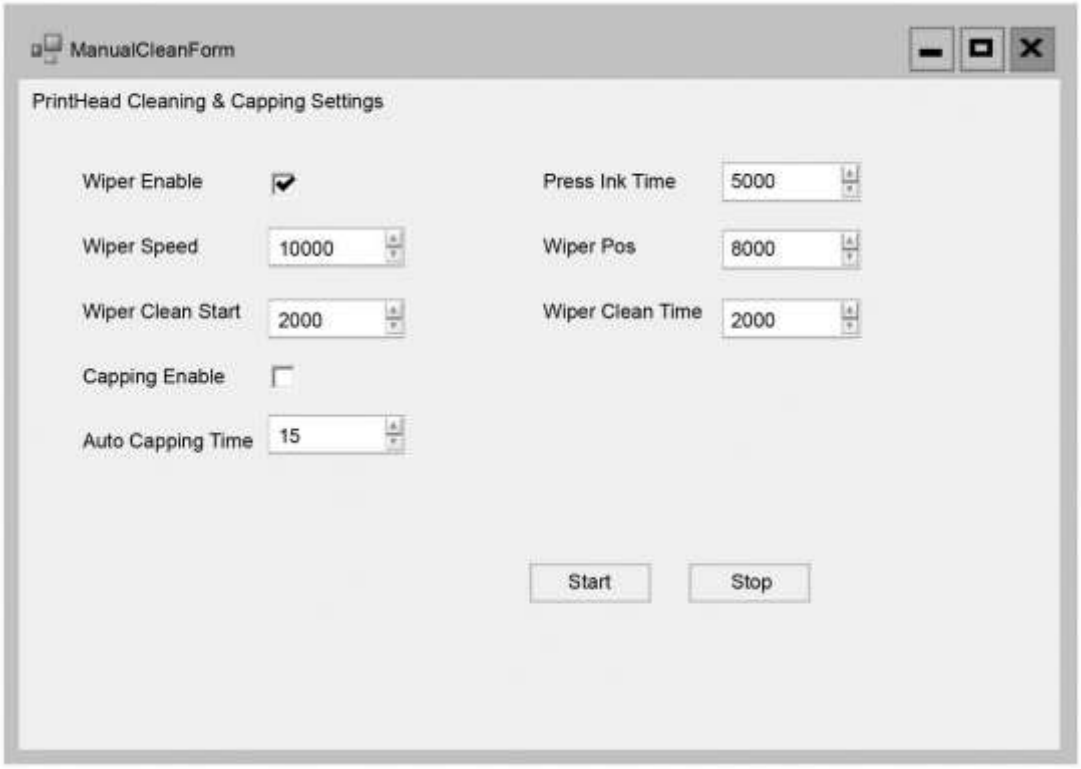


Fig 61: Displaying Auto Wiping and Auto Capping Settings

The list of Auto Wiping and Auto Capping options is defined as follow:

- **Wiper Enable:** Enable the auto wiper functionality.
- **Wiper Speed:** Help in defining the wiper speed.
- **Wiper Clean Start:** Define the wiper cleaning position.
- **Wiper Pos:** Define the wiper position.

- **Capping Enable:** Enable the auto capping functionality.
- **Auto Capping Time:** Define the auto capping time. When the printer is ideal for the define time then auto capping process gets started and capped the capping station with the head plate.

Setting Wiping and Capping Height

Using the Setting window, user can set the wipping and capping height by updating values in the Z Clean Pos and Z Wet Pos list boxes, as shown below:

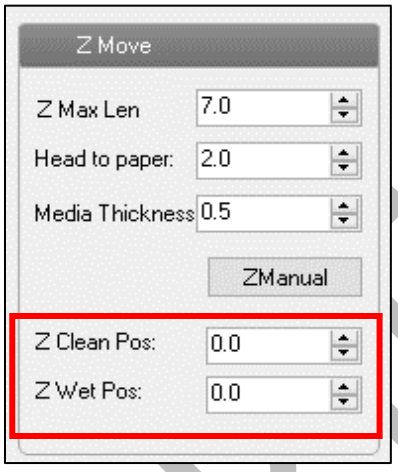


Fig 62: Setting Wiping and Capping Height

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.

Note: Please note that purging button should be pressed only for a second (until few drops of ink come out).

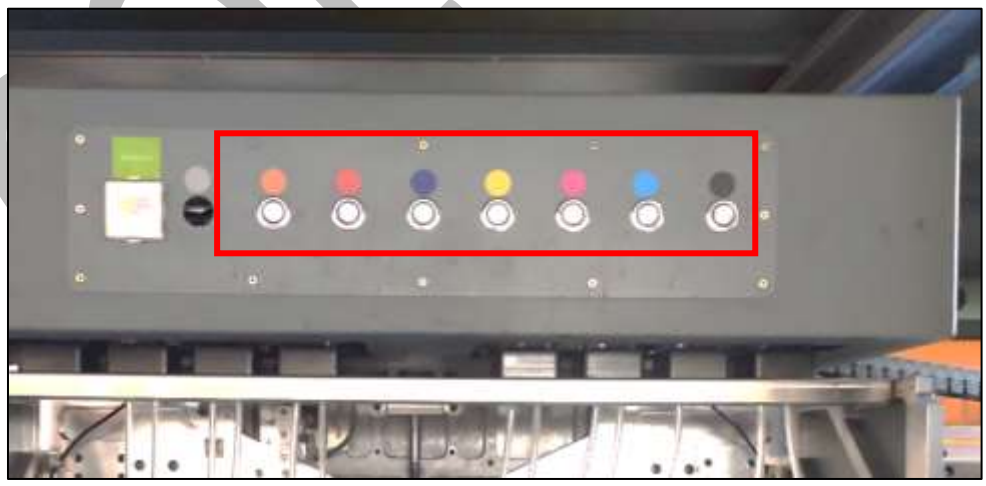


Fig 63: Displaying the Purging Buttons

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 64: Displaying the Spray Button

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. Change RO water twice a day in Head Sponge Wiper water tray
11. Maintain the water level in the water tank and refresh water every 3-4 hours
12. Add 2 spoons of **Caustic Soda** in every water recycle in tank
13. 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
14. Water tank filter plates should be cleaned every hour to remove stuck threads and also to avoid overflow
15. If negative pressure is increasing/fluctuating automatically, clean the nozzles of regulator knob
16. Always use the clean and fresh RO water for washing system for longer life of related parts
17. 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
18. 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 the printer is running
15. Don't run the printing when glue layer is peeling OFF

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.
- Colorbar 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:

a) Wait for the completion of the current printing process. If the print command repeats, then immediately stop giving the next print command for printing.
b) Takeout the fabric, lower down the tub, and run glue cycle in reverse direction with the 70% speed.
c) 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

Follow the below given instructions to control the conveyor belt shifting:

- Belt shifting can be controlled 'on the fly' as well as when print is stopped.
- To control belt shifting, move the Shifting Control knob in the required direction.

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

Daily Maintenance

- Renewal of water is done every 4 hours in the Water tank.
- Add 2 spoons of caustic soda in every water recycle.
- 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 Waste ink bottle and empty it, if required.
- Clean the purging tray daily.
- Check ink level in Main ink tank and refill it, if empty.
- Maintain the recommended air pressure.
- 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
- Always pour distill water in the Capping tray to avoid germs

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:

- Remove the tub front covers.
- Lower down the tub using **HMI** and follow the below path:
  Main Menu→ Ready To Print→Washing System→ Tub Out.
- Loose Allen screws from both sides to remove the tub. Now, the tub comes out and clean it using fresh clean water.
- Pull out the trolley to start the maintenance work.
- After completing the cleaning, reversely follow the above given steps to fix the tub.

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.
- Clean the Jetting Pipe nozzles thoroughly to get rid from fabric threads.
- Clean the Water Tank filter plates with the hard brush to remove stuck threads.

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 Guide

Error Name	Reasons	Remedial Actions
Printer Not Initializing/Initialization Incomplete	1. No Power Supply to Head Board (beep can be heard)	**Case 1:** No Power Supply to Head Board a) Check 24 V power supply output and replace the Power Supply b) Check the 24 V Power Supply on Head Board connector, if there is no power, then check cable continuity and replace it, if required.
	2. Servo Driver not ON or faulty or programmed incorrectly	**Case 2:** Servo Driver not ON or faulty a) Check the Red LED on Servo Driver, if LED is not glow then check the power connection and trace the fault. b) In case, machine is not initialized correctly, then contact Head Office.
	3. Carriage Safety switch is activated	**Case 3:** Carriage Safety Switch is Activa-ted a) Remove the obstacles, if any and release the Safety Flaps, if pressed. b) Check the wire connectivity from switch to relay switch. c) Replace the Safety switch, if faulty.
	4. Encoder sensor not connected or faulty (Carriage will top at right)	**Case 4:** Encoder Sensor not Connected or Faulty
	5. Main Board is faulty or it's settings are incorrect	**Case 5:** Main Board is Faulty or it's Settings are Incorrect a) No power on Main Board b) Check power 24V and 5V on Main Board c) Replace the Main Board, if faulty
	6. Head Board is faulty	**Case 6:** Head Board is Faulty a) Check 24V power on the Head Board connector. b) Replace the Head Board, if required.
	7. Emergency Button is pressed	**Case 7:** Emergency Button is Pressed a) Release the Emergency Button, if pressed. b) Check 220V on emergency.
	8. Default Jumpers are not placed in Main Board	**Case 8**: Place Jumpers on the Main Board, if not available.
	9. LVDS is not connected properly	**Case 9:** Connect LVDS properly.
	10. Incorrect pulley is used	**Case 10:** Use compatible pulley by contacting Head Office.

Printer Manager Not Showing "Ready"	1. USB Cable is Loosely Connected to the Printer 2. USB Cable is Faulty 3. Printer not Initialized 4. USB driver is not Installed 5. Main Board and Head Connector Board (HCB) is not compatible (an error appears)	**Case 1**: Tighten the USB cable. **Case 2**: Replace the USB cable, if faulty. **Case 3**: Please refer to the **"PRINTER NOT INITIALIZING"** section. **Case 4:** Please refer to the "**Installing the Printer Manager**" section. **Case 5**: Kindly contact to the Head Office or CES.
Carriage Stops During Printing	1. USB cable is loose or faulty 2. Open heavy file that can slow down the data transfer 3. Ground wire is disconnected 4. Encoder Scale is having ink stains 5. Pulley teeth wear out or belt is slipping 6. Ripped file is having error 7. Check I/P and O/P voltage in 24V SMS (16.5 A) on full load. Voltage drop, if any.	**Case 1**: Tighten the USB cable or replace it, if required. **Case 2**: Use compatible and small size images for printing. **Case 3**: Connect the ground wire to the system. **Case 4:** Check and Replace Encoder Scale **Case 5**: Replace the Pulley or carriage Belt **Case 6**: Correct the ripped file error, if any. **Case 7:** Replace the power supply, if voltage drop is found and also check the power Inlet to the machine.
Print Is Shifting WRT Fabric Or Junk Printing	1. Encoder scale is having ink stains (print shows vertical color bands) 2. Encoder sensor is not clean	**Case 1:** Clean the Encoder scale, if stained, or replace it, if faulty. **Case 2:** Clean the Encoder Sensor or replace it, if faulty.
Print Is Blur (Not Sharp)	1. Improper Head height 2. Improper head alignment 3. Recommended ink not used	**Case 1**: Correct the head height by following the steps given in the **Head Height Adjustment** section. **Case 2**: Calibrate the printer again by referring the "**Head Alignment"** section. **Case 3 & 4**: Use only the recommended ink and stored it in favorable environment conditions.

	4. Ink stored at unfavorable environment 5. Head voltage is not properly fed in Printer Manager 6. Improper step calibration 7. Vibration in movement: - o LM block is wear out o Incorrect pulley alignment	**Case 5:** Feed the Head Voltage value as mentioned in the Print Head. **Case 6:** Correct the step calibration using the Step Calibration section. **Case 7:** Perform the following actions as per the requirements: a) Replace the LM block b) Align the pulley with respect to Belt
Conveyor Belt Not Working	1. No signal to Conveyor Belt 2. Displayed error code in Servo driver 3. Conveyor Belt Coupling is loose	**Case 1:** Loose connection in Servo Driver, Relay, Main Board, & PLC. **Case 2:** Check error code in the **Error Code Handling** section and take an action to resolve the error. **Case 3:** Tighten the Conveyor Belt Coupling.
Washing Tub Not Engaging Properly	1. Sensor position is disturbed 2. Actuator not working 3. Washing tub fuse blown 4. No output from transformer/rectifier 5. PLC connection is loose or faulty 6. Relay or relay connection is faulty	**Case 1:** Correct the sensor position by moving the tub up or down. **Case 2:** Check 24 VDC near the actuator connector and also check the loose connection, if any. **Case 3:** Check actuator fuse and replace it, if required. **Case 4**: Check the transformer output (must be at 24 VAC) and rectifier output (must be at 24 VDC). **Case 5:** Check PLC connection. **Case 6:** Check input and output power at relay and relay connection.
Heater Not Working	1. Inlet power not connected or MCB trip 2. Heater coil/thermistor/thermo -stat circuit is open	**Case 1:** Check the Inlet power in connector near heater. Check for any fault in circuit and ON the MCB after correcting the fault. **Case 2:** Perform the following actions: 1. Check the continuity/resistance between heater wire and thermistor 2. Replace the defective part, if any

	3. 24 V Input is not getting supply to SSR	**Case 3:** Check 24VDC Voltage at SSR when PID shows replay ON. And at same time check 220VAC In Out terminal and replace SSR, if required.
	4. Improper settings in PID or faulty	**Case 4:** Perform the following actions as per the requirements: a) Correct the PID settings, if required. b) Check continuity in out terminal and replace it, if required.
Lines In Print	1. Nozzle blocked in heads (check nozzle test)	**Case 1:** Perform Test Print to check the blockage in nozzles. (Refer to **Issuing the TEST PRINT Command** section).
	2. Incorrect feed step (calibration required)	**Case 2:** Perform the step calibration and correct the step value. (Refer to **Feed Calibration** section).
	3. Conveyor Belt coupling is loose	**Case 3:** Tighten the Conveyor Belt coupling. (Refer to **Tightening the Conveyor Bel**t section).
Some Head Nozzles Not Firing	1. Head is not getting cleaned	**Case 1**: Perform the Nozzle Testing to clean the head nozzles (Refer to the **"Nozzle Testing"** section).
	2. No ink in ink sub tanks	**Case 2**: Check the ink level in the main tank and ink refill connections.
	3. Check if any air lock or no ink in the ink pipes	**Case 3**: Replace the Print Head or Head Board or Main Board, if not working or faulty.
	4. Check the ink and air pipe for any cuts or loose connection	**Case 4:** Check and refill the Ink sub tanks, if required.
	5. Ink sub tank level is not correct	**Case 5:** Replace the ink and air pipe, if required.
	6. Print Head or Head Board or Main Board is faulty	**Case 6**: Check the level of ink in the sub tanks and adjust with respect to head nozzle surface.
Take-Up Not Working	1. No signal to Take-Up Motor	**Case 1:** Loose connection in Servo Driver and PLC.
	2. Take-Up motor movement is jammed	**Case 2:** Remove the Take-Up roller and observe it's movement.

	3. Regulator is set at Low and Take-Up regulator not working	**Case 3:** Check the regulator settings and rotate the knob to ON it. Additionally, if regulator is not working, replace it.
Complete Head Not Firing	1. Head voltage is not fed in Printer Manager	**Case 1:** Fed Head Voltage in Printer Manager.
	2. Head cable is not properly connected with the Head Board	**Case 2:** Check the Head cable and connect it properly.
	3. Head Board connectors are not properly connected on the Print Head	**Case 3:** Check the connectors and connect them properly.
	4. Ink stains are visible on the Head connector	**Case 4:** Inform to the Head Office
	5. Head or Head Board or Main Board is faulty	**Case 5:** Replace the Head or Head Board or Main Board by contacting to the Head Office.
	6. Ink sub tanks are empty	**Case 6:** Refill the Ink Sub tanks, if empty.
Jetting Pump Not Working	1. Pump power supply not working	**Case 1:** Check the voltage (220 VAC) at the connector of the Jetting Pump Power supply cable. If the Voltage is OK, then check the following: 1. Pump is jammed. In such case, clean it. 2. Pump is not working. In such case, replace it.
	2. Tub sensor position disturbed	**Case 2:** Check if any of the tub sensor's light is ON. This means that: 1. Sensor is not in range with respect to the actuator shaft, correct it 2. Sensor is faulty, replace it.
	3. Jetting pump air lock /clogged by foreign materials	**Case 3:** Perform the following actions: 1. Tilt the tub to release the air 2. Check the water level in the tub and refill it, if required
	4. Pump fuse blown	**Case 4:** Check and replace it, if required.
	5. Pump failure or faulty	**Case 5:** Replace the pump, if required.
Water Seepage in Belt	1. Sponge roller shape is distorted	**Case 1:** Replace the Sponge roller or bearing, if faulty or distorted.
	2. Sponge roller or Squeeze roller movement is jammed	**Case 2:** Check Sponge or Squeeze roller movement manually, it should be free.

	3. Washing tub is not engaged properly	**Case 3:** Check the following: 1. Check Actuator proper elevation (refer to the Washing Tub Not Engaging Properly section) 2. Actuator blot is not aligned properly, align it.
	4. Glue dryer is not working	**Case 4:** Refer to the **Heater Not Working** section.
Belt Shifted Not Controlled	1. Shifting control process is not followed correcting	**Case 1:** Check the following: • Shifting is not controlled using the Shifting Control switch • Shifting control switch is rotated in wrong direction
	2. Shifting control unit is not working	**Case 2:** Check and change the direction of the Shifting Control unit, if required.
Negative Pressure Drop/Not Working	1. Meniscus vacuum switch is OFF	**Case 1:** Switch ON the meniscus vacuum switch.
	2. Negative Pressure switch program is disturbed	**Case 2:** Contact the head office.
	3. Vacuum is not generated by pump (pump failure)	**Case 3:** Replace the pump.
	4. Any ink/air tube is having leakage/cut/loose on fitting joints	**Case 4:** Replace the ink/air tub or tighten if loose.
	5. Vacuum pump connector is loose/open from MMCB	**Case 5:** Tighten the Vacuum Pump Conn-ector or close from MMCB.

For Any Query
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