

NEPTUNE HQ

USER MANUAL



Foreword

This user manual is briefly describing the operational aspects of the **Neptune HQ** 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 **Neptune HQ** 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
User Manual		1.1	Neptune HQ	June 2019

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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 Specifications

Machine Specifications are shown in the table below:

NEPTUNE HQ		
Printing Technology		Drop on demand, Piezo Electric Inkjet
Print Heads		Industrial Grade Jetting Assemblies
Media	Width	3300 mm (129 in)
	Thickness	Maximum 3.0mm (120 mil) with liner (Flexible)
	Roll Outer Diameter	Maximum 300 mm (12 in), 50.8 (2 in)
	Roll Weight	Maximum 90 kg
	Core Diameter	76.2 mm (3 in)
	Type	Sav, PVC Banner, Backlit Film, Window Film (Solvent Base)
Printing Width		Maximum 3200 mm (126 in)
Ink	Type	Eco Solvent Inks
	Colors	4 Colors (CMYK)
Printing Resolutions (DPI)		Maximum 1440 dpi
Media Heating		Pre-heater and post-heater, setting range for the preset temperature: 30 to 60 Degree Celsius. Dryer setting range for the preset temperature: 30 to 60 Degree Celsius
Connectivity		High Speed USB
Power Requirements		AC 220 V \pm 10%, 15 A, 50/60 Hz
Dimensions		4500 x 1000 x 1400 mm (LxWxH)
Weight (approx. with stand)		300 kg
Environmental	Power ON	Temperature: 18 to 28 Degree Celsius Humidity: 20 to 80 % RH (Non-Condensing)
	Power OFF	Temperature: 5 to 40 Degree Celsius Humidity: 20 to 80 % RH (Non-Condensing)

3. Operational Requirements

Hardware Requirements

Table 1: The Hardware Requirements are given as below:

Parts	Specifications
Operating System	Windows 7/10
Processor	Intel Dual core
RAM	2 GB or greater
HDD	Enhanced IDE 360 GB
Video Resolution	1024x768 16-bit Color
USB Port	USB 2 ports Minimum (2.0)
Internal PCI Slot	1 for Interface card
CD Drive	CD Rom R/W Drive

Supporting Software

Table 2: List of Supporting Software

Parts	Software
Operation system	Windows 7/10
Driver of print card	Provide by ColorJet CD
Operating Software of printer	Provide by ColorJet CD

Site Requirements

The site requirements are given as below:

- **Dimension of printer:** LxWxH 4500 x 1000 x 1400 MM
- **Minimum working area requirement:** LxWxH 5500 x 2500 x 3000 MM
- Avoid using carpet on floor as it can generate electrostatic charge and can accumulate dust.
- There should be ample space to load and unload the media as well as ink.
- The machine should be installed in a room which is air conditioned and is dust free and adequate ventilation is available in the room. It is also important that adequate space should be available around the machine for easy operation and maintenance.

Power Requirements

The machine needs the following power connections.

- Uninterrupted Power supply of 220V (+ / - 10%), 50Hz (+ / - 2 %)
- The power requirement will be as follows:

Machine	700W
PC	500 W
Heater Pre	1000 W
Heater Post	1000 W

It is recommended that 5 KW UPS be installed for the machine, alternatively one may go in for a 2 KW UPS and let the Heaters run on RAW 220 Volts

Proper Earthing

The quality of printouts will depend on the earth connection provided to the machine. During printing, the media generates lot of static charge that can affect the placement of dots and also excessive charge may damage the print heads which would be a very expensive damage.

It is recommended that a separate earth connection should be provided to the machine and the earth resistance should be in the range of 4-5 ohms. The distance of the PC from the machine should not be more than 2 -3 feet.

Note: It should be ensured that the earth point for the Printer and the PC is same this is important for the safety of the interfaces.

The **Earth Connection** for the system should be shown in the drawing:

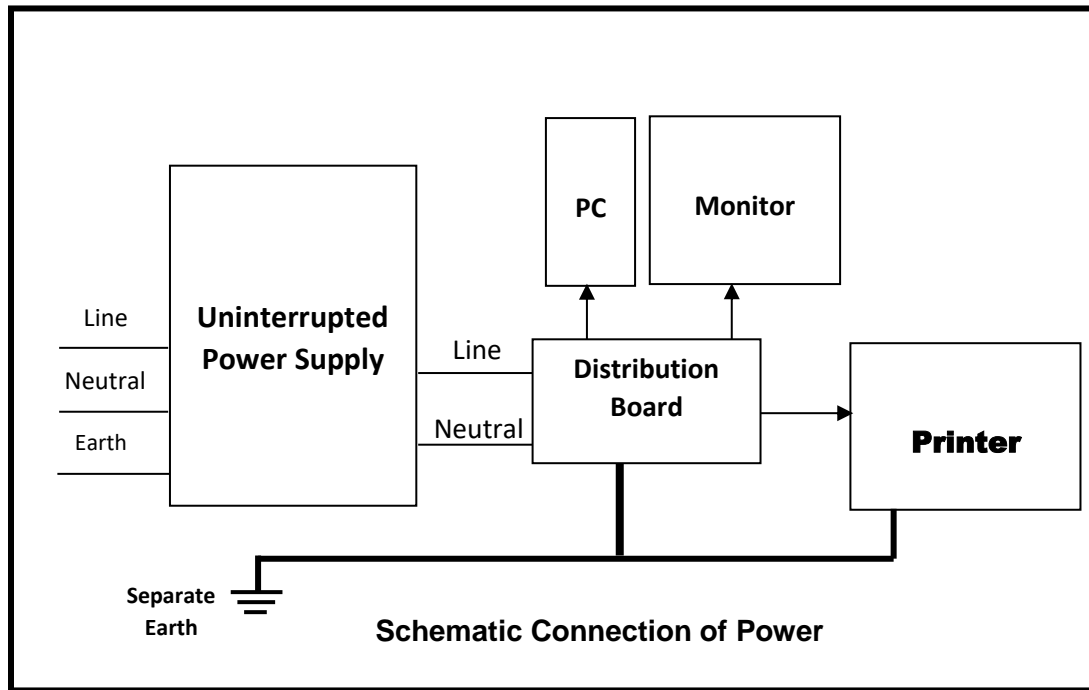


Fig 1: Displaying the Earth Connection

Front View

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

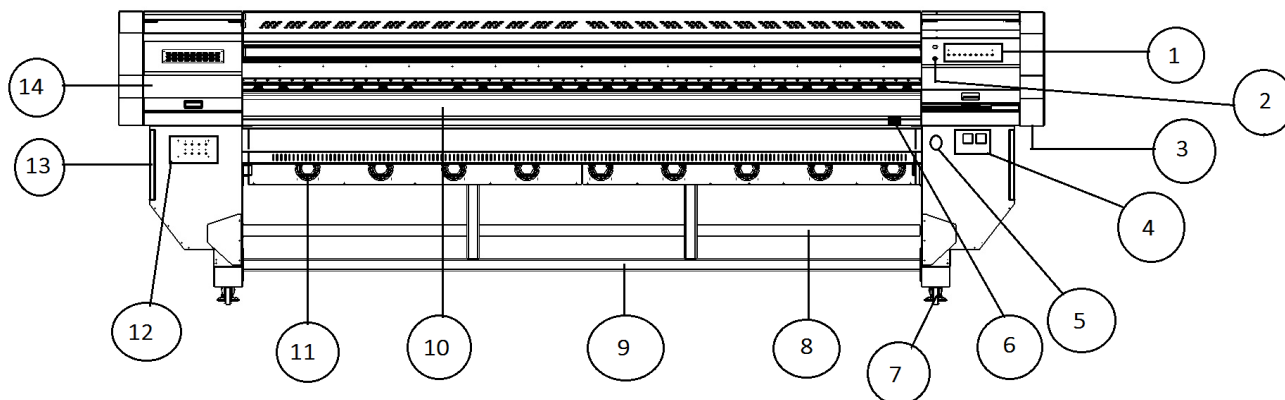


Fig 2: Displaying the Front View of Neptune HQ

Table 3: Different Parts of Neptune HQ

1. Switch Panel	2. Emergency Button
3. USB Port	4. Heater (Pre and Post) Panel
5. Bed Vacuum Regulator	6. Dryer Fan Switch (ON/OFF)
7. Wheel	8. Supply Roller
9. Media Sensor	10. Post Heater
11. Dryer Fan	12. Ink Refilling Switch
13. Main Ink Tank Section	14. Carriage and Purging Panel

Back View

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

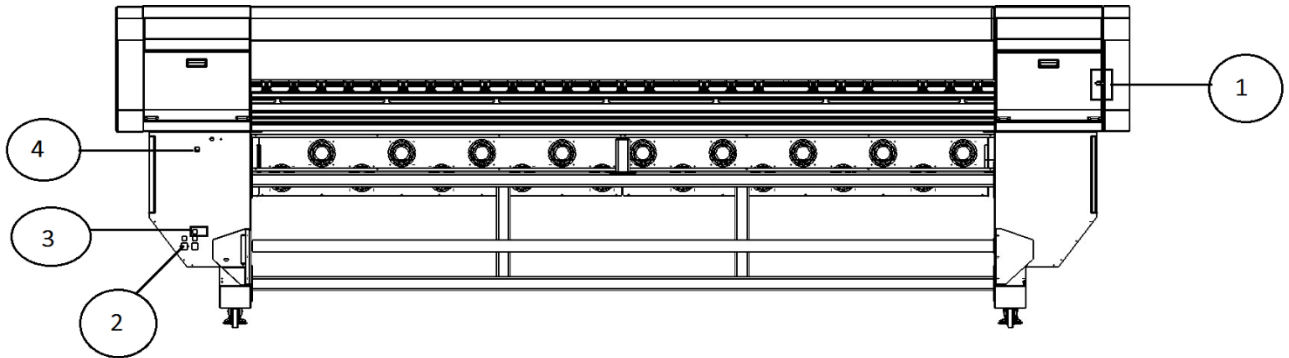


Fig 3: Displaying the Back View of Neptune HQ

Table 4: Different Parts of the Machine

1. Media Lever	2. Machine Switch
3. Heater Switch	4. Fwd/Rev Switch

Control Panel View

The **Control Panel** is shown in the image below:

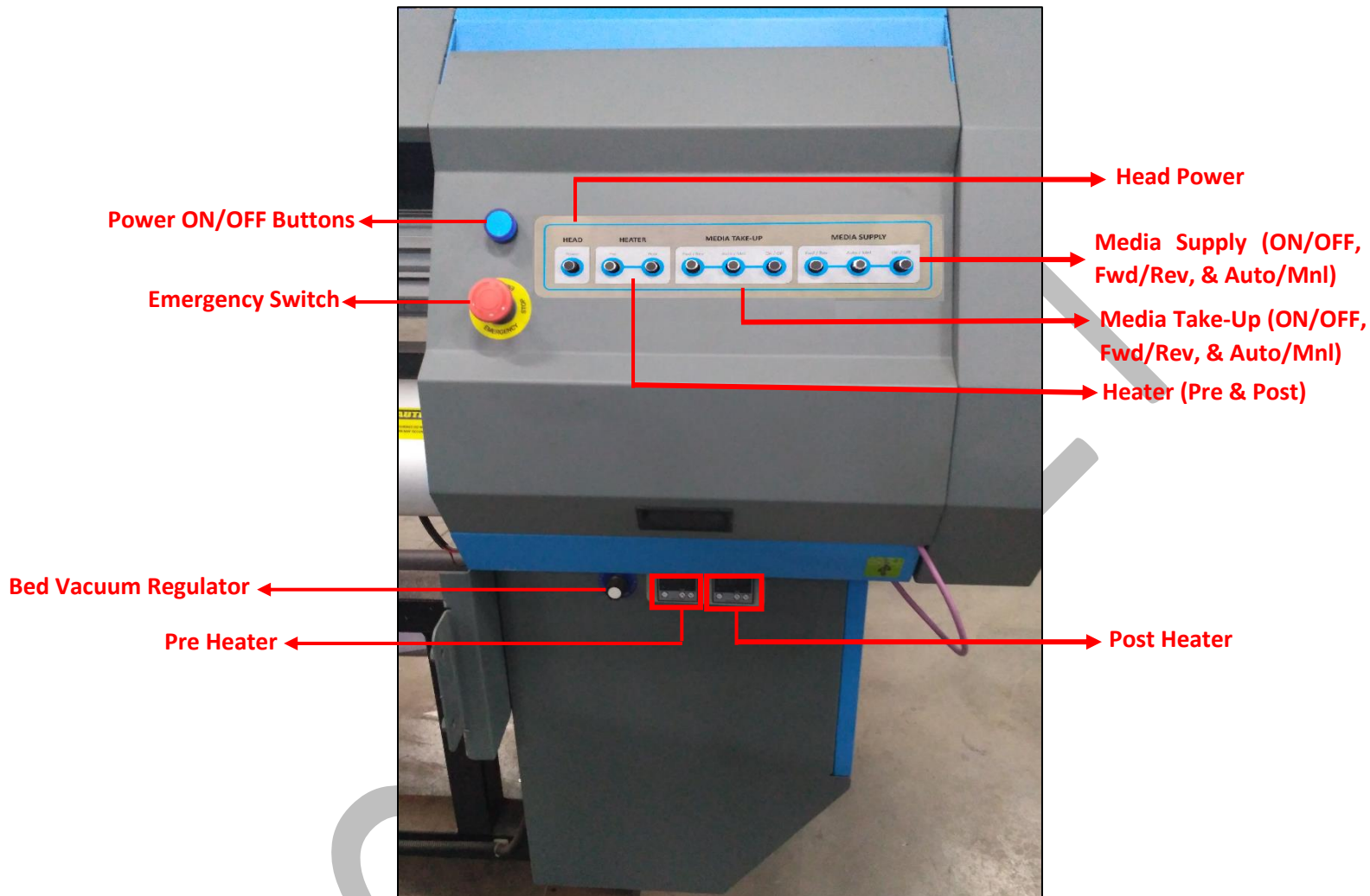


Fig 4: Displaying the Control Panel

The description of different parts of the machine is given as below:

- **Emergency Switch:** Enable to Switch OFF the printer in any emergency situation.
- **Power ON/OFF:** Switch ON/OFF the printer.
- **Head Power:** Switch ON/OFF print head power.
- **Heater:** Switch ON/OFF the Pre and Post heaters.
- **Media Supply**
 - **Auto/Manual:** Enable to set the Media Supply controlling modes viz. Auto or Manual.
 - **Rev/Fwd:** Control the power and direction of the Supply motor.
- **Pre-Heater:** Display and control the pre heater temperature.
- **Post Heater:** Display and control the post heater temperature.
- **Bed Vacuum:** Control the bed vacuum blower speed to hold media firmly over the printing bed.

4. Getting Familiar with Printer Manager Interface

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

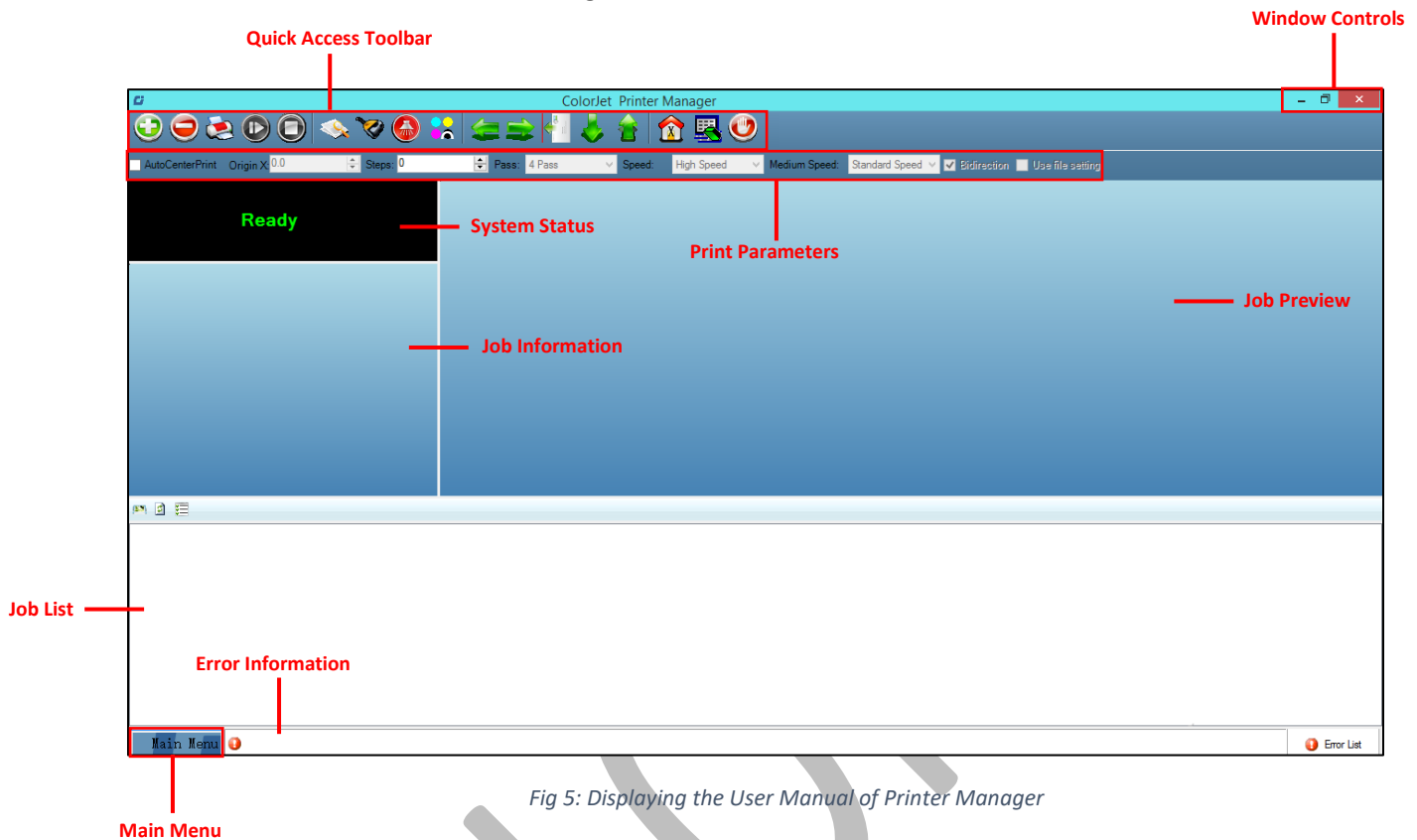


Fig 5: Displaying the User Manual of Printer Manager

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

- **Window Control:** Use to minimize, resize or close the Printer Manager window.
- **Main Menu:** Consist of several sub menu options viz. Settings, Tools, and also provide variety of functions in well-organized manner.
- **Quick Access Toolbar:** Display frequently performed actions like Add Job, Delete Job, Print Job, Pause or resume, Abort job, Check nozzle, Auto clean, Move left, Move right, Set print origin, Move forward, Move backward, Move carriage to origin, and Edit job 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.

5. Main Menu Options

The **Main Menu** options are shown in the image below:

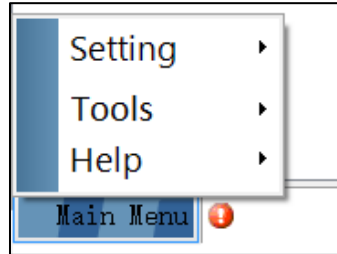


Fig 6: The Main Menu Options

Setting Menu

The **Setting** menu options are shown in the image below:

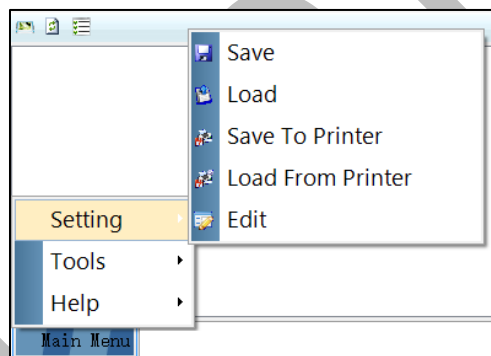


Fig 7: The Setting Menu Options

- **Save:** Using this option, you can save the default settings of the machine. When you save the settings, an xml file will be created for further references.
- **Load:** Using this option, you can load the previously saved machine's settings.
- **Save To Printer:** When you click on this option, all the current settings get saved in the Main Board of the machine.
- **Load From Printer:** When you click on this option, the printer settings get saved from Main Board to Printer Manager software.
- **Edit:** Using this option, you can edit the previously made settings of Printer. On clicking the Edit option, the Setting window with Printer, Move, Preference, and Calibration tabs appears on the screen.

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

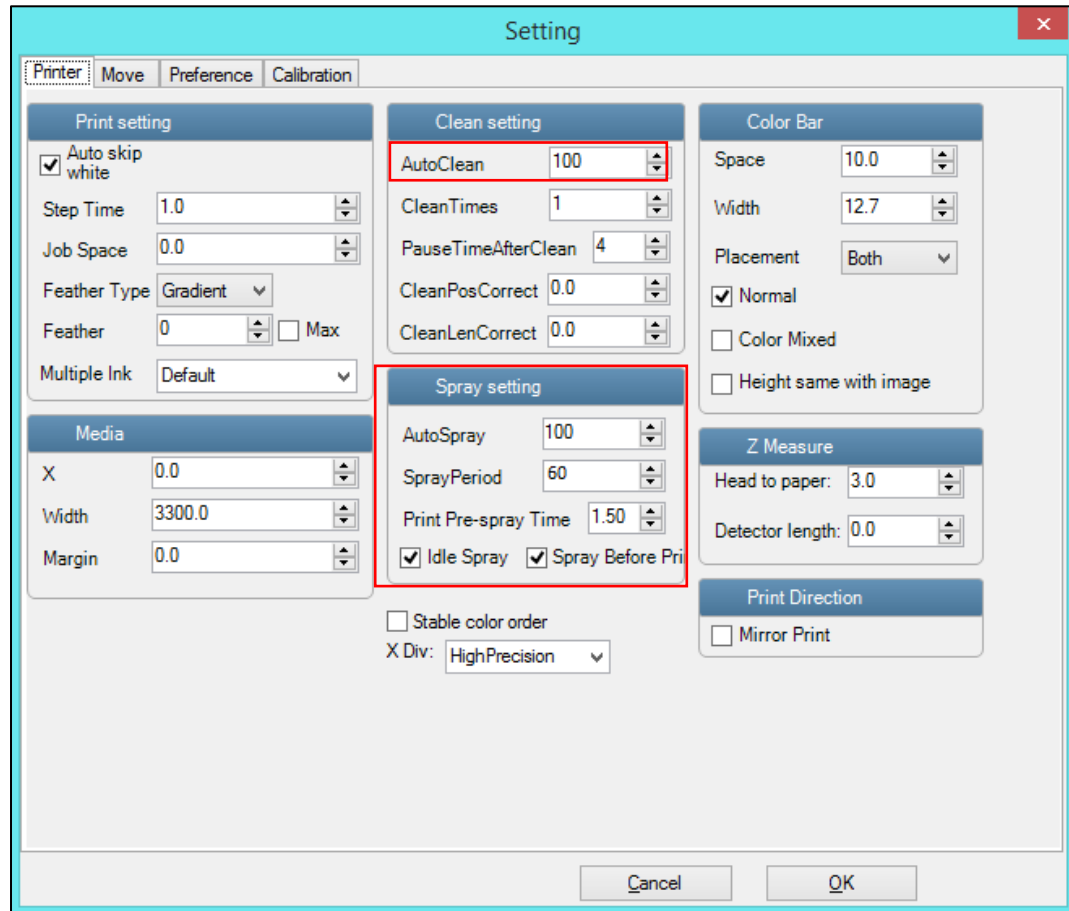


Fig 8: Displaying the Setting Window

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 180). If the duration increased, spray frequency gets decreased.
 - **Print Pre-spray Time:** This is the duration of spray before start of print.
 - **Idle Spray:** Spray during carriage at home position. This option must be enabled.
 - **Spray Before Print:** This option enables spray before start of print.

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

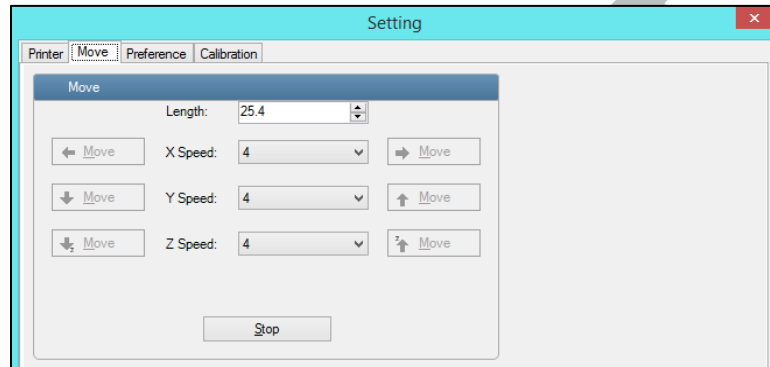


Fig 9: Displaying the Move Tab

Note: X and Y manual moving speed can be selected using the Move tab.

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

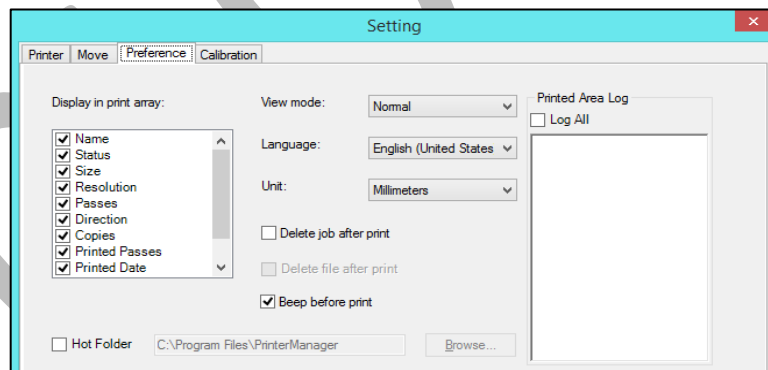


Fig 10: Displaying the Preference Tab

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

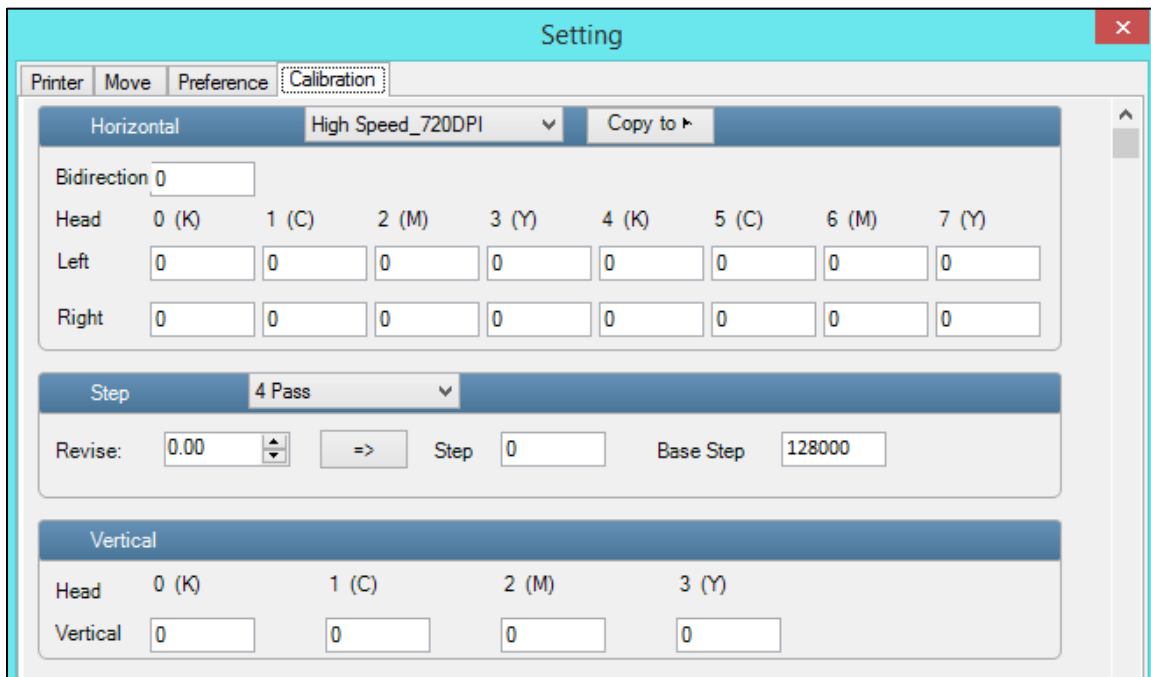


Fig 11: Displaying the Calibration Wizard

Tools Menu

The **Tools** menu options are shown in the image below:

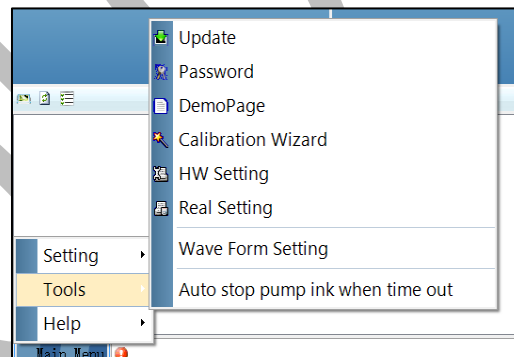


Fig 12: The Tools Menu Option

- **Password:** This option enables to feed the time and language passwords of the printer.
- **Calibration Wizard:** Using this option, you can perform different types of calibration viz. Angle Check, Vertical Check, Nozzle Check, and more. For more details, please read the “**Calibration Wizard**” section carefully.
- **Auto stop pump ink when time out:** Enable or disable the pump automatically when time out occurs.

Help Menu

The **Help** menu option is shown in the image below:

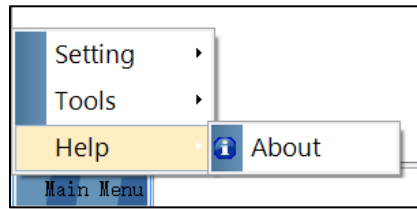


Fig 13: The Help Menu Option

- **About:** Enable to view the details about Printer Manager software viz. software version and copyrights.

6. Getting Ready for Printing

Switch ON Procedure

Follow these steps to switch ON the printer:

Step 1: Check the Waste Bottle

Step 2: Check Ink Level

Step 3: Maintain the room temperature

Step 4: Move the carriage manually away from the home position

Step 5: Switch ON the printer from the main power or board

Step 6: Load the media

Step 7: Perform purging and then, nozzle test

Now, the printer is ready for printing.

Loading Media

Follow these steps to load the media:

Step 1: Lift up the Media Lever, as shown below:

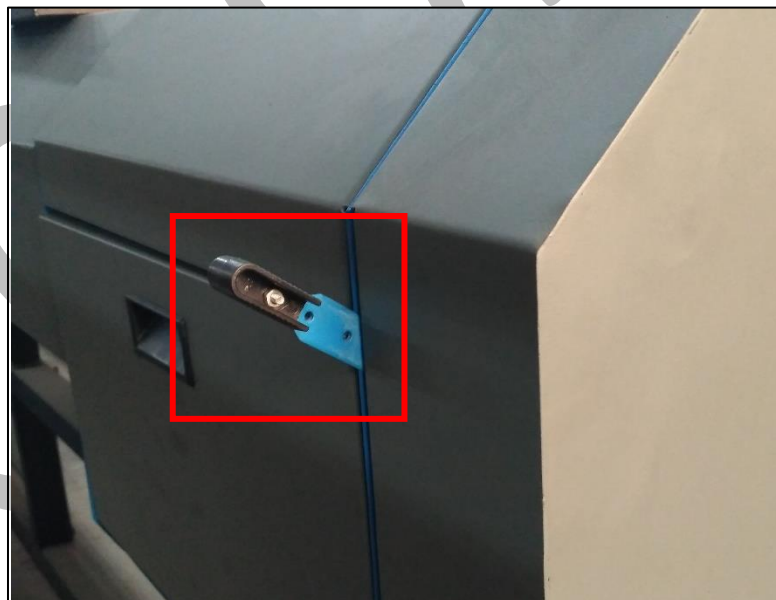


Fig 14: Lifting Up the Media Lever

Step 2: Unwind the media roll to reach near the platen and hold it.

Step 3: Insert the taken-out media between the platform and the pinch roller.

Step 4: Pull the media out in front of the machine.

Step 5: Holding the media firmly and push down the Media Lever.

Step 6: Turn on the Supply Auto/Supply switch in auto mode and carefully observe the direction of media either reverse or forward.

Step 7: Install the media clamps from both ends.

Step 8: Pull the enough media so that it reaches to the Take Up roller (or let the media down by issuing the Print command).

Step 9: Paste the front edge of the media on the Core.

Step 10: Turn on the Take Up System and observe the media direction (either reverse or forward).

Step 11: Move the media forward so that it rolls easily over the Core.

Now, the media gets loaded.

Note: Before issuing the Print command, verify the following things:

- Check the Waste Bottle and empty it, if required.
- Check the ink level in main tanks and refill it, if required.

The **Media Loading Path** of the machine is shown with help of line diagram:

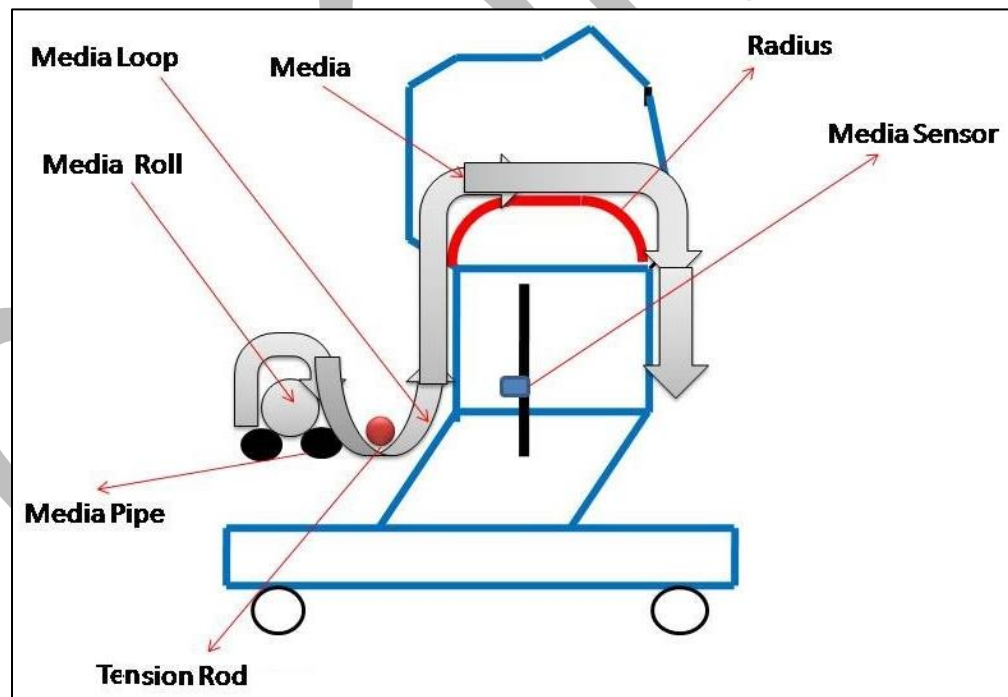


Fig 15: Displaying the Media Path

Ink Filling

Please use the recommended ink in the printer for high printing quality and long life of print and Print Head.

Follow these steps to fill ink in the printer

Step 1: Open the left door of the printer to find out main tanks.

Step 2: Fill recommended ink in main ink tank (as per the color sticker) as per the requirement, as shown below:



Fig 16: Filling Ink in Main Ink Tank

Ink gets filled in the Sub tanks shown below:

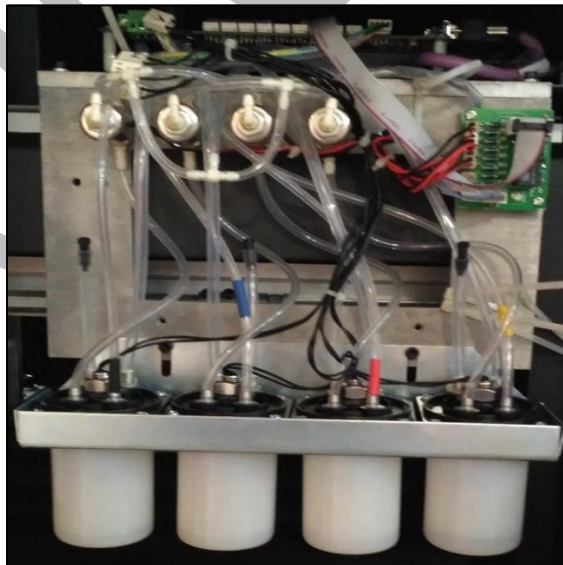


Fig 17: Refilling Ink in Sub Tanks

Feeding Password

The Password option enables operator to feed or update 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:

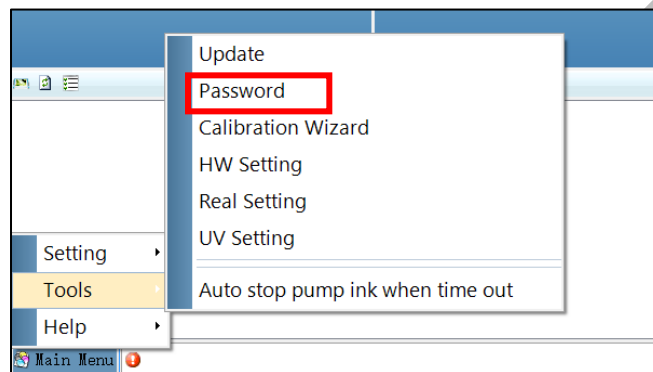


Fig 18: Selecting the Password Option

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

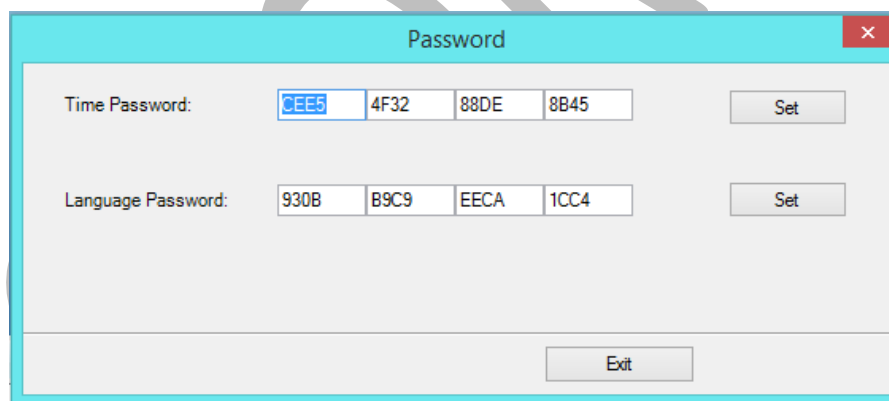


Fig 19: The Password Window

Step 2: Set values in the **Time Password** field as per the requirements (Refer to Fig 19).

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 19).

Step 4: Click on the **Exit** button to close the **Password** window (Refer to Fig 19).

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

- Password Screen (Refer to Fig 19)
- About Screen

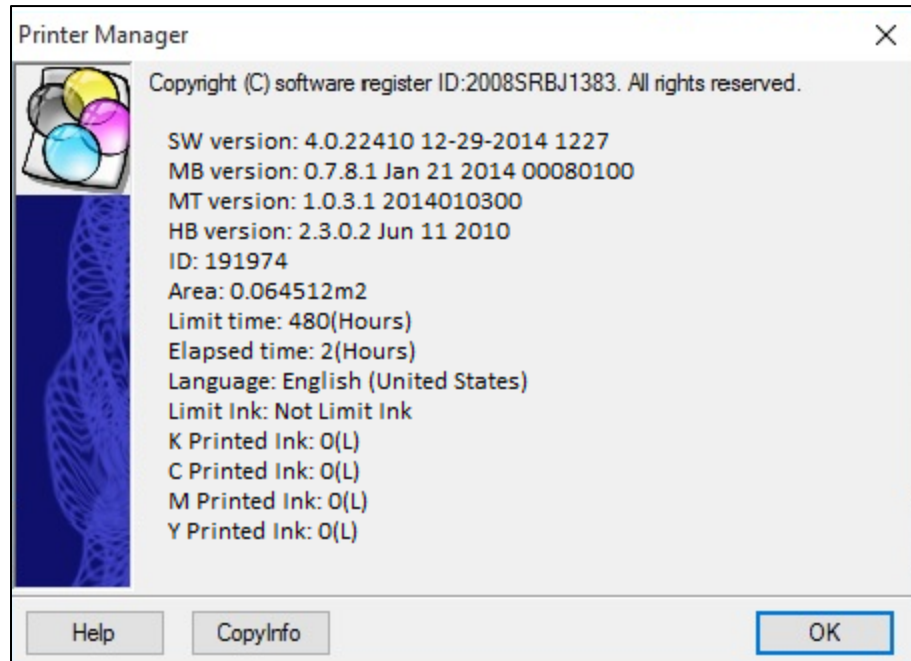


Fig 20: Displaying the About Us Screen

7. Printer Manager Operations

Nozzle Testing

Before starting with calibration tests, the Print Heads should be checked for blockage. Each Print Head has multiple tiny nozzles through which ink drops emerge and get deposited onto the print medium. Any nozzle blockage can compromise the print quality by forming discolored horizontal streaks or bands.

The good and bad nozzle test results are shown in the image below:

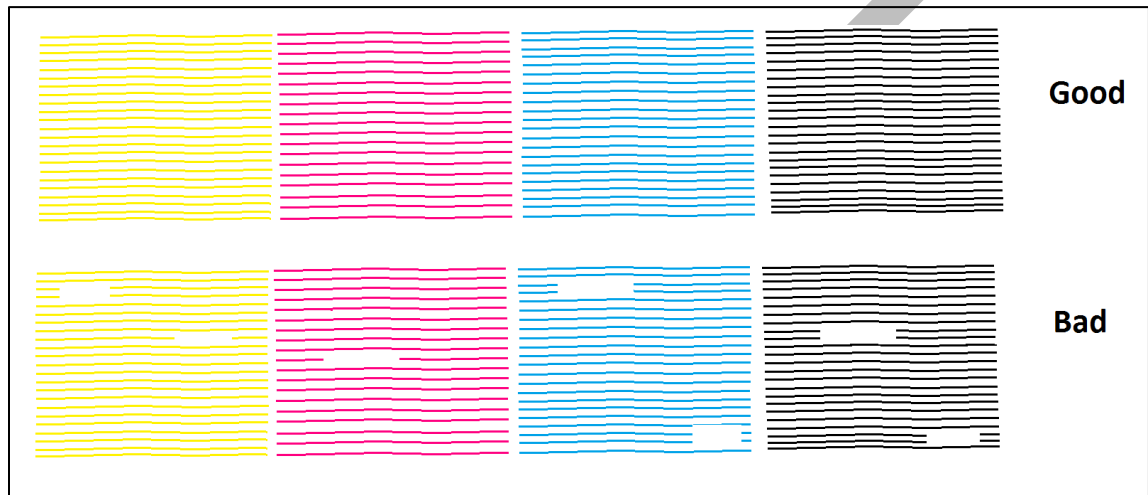


Fig 21: Good and Bad Nozzle Test Result

To check the nozzle, click on the **Check Nozzle** icon available on the **Quick Access Toolbar**, as shown below:



Fig 22: Clicking the Check Nozzle Icon

In case of blockages, refer to the Head Cleaning section to perform head cleaning before proceeding to other calibration steps.

Print Head Calibration

The Print Head calibration is categorized into the following types:

- **Mechanical Check:** Includes Vertical Check and Angle Check
- **Software Calibration:** Includes Horizontal Calibration and Step Calibration

Note: Mechanical checks are only performed by the Service Engineer.

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:

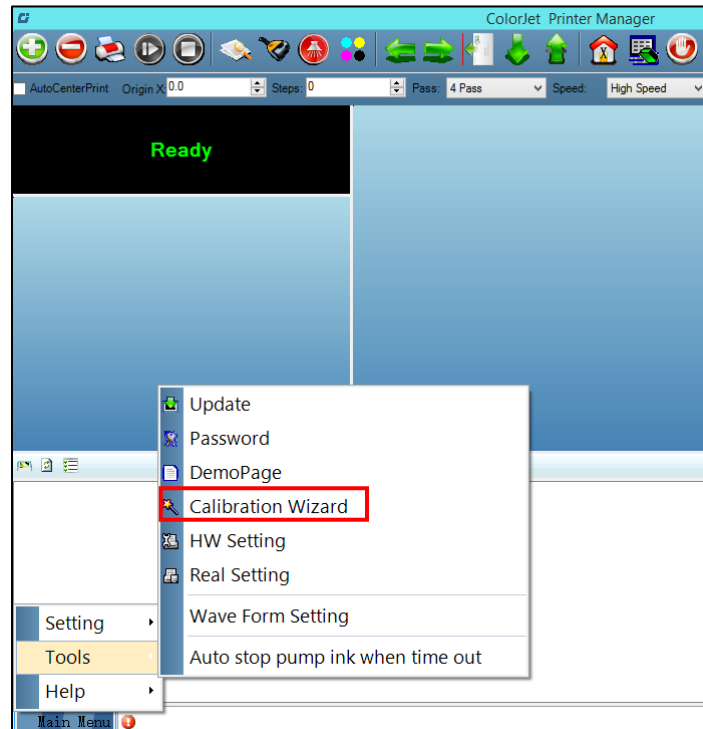


Fig 23: Selecting the Calibration Wizard Option

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

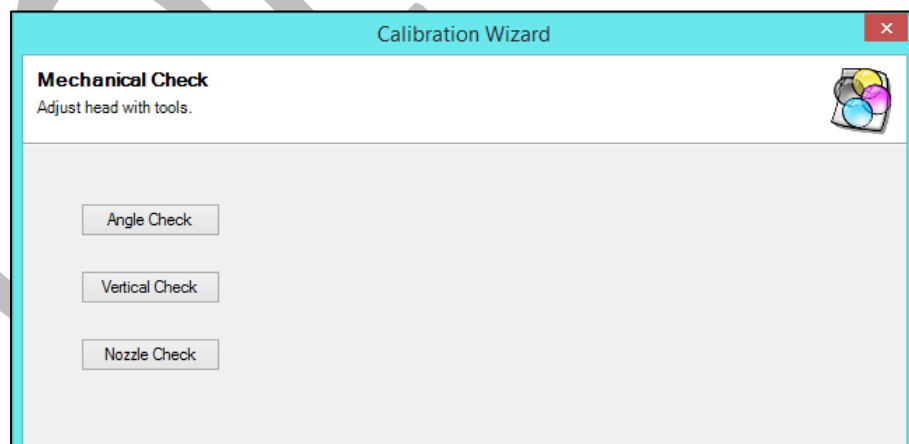


Fig 24: Displaying the Calibration Wizard

Click on the **Next** button to redirect to the software calibration screen, as shown in the below images:

Calibration Wizard: Bidirection Calibration

Horizontal High Speed_720DPI Copy to ▶

Bidirection 0

Head 0 (K) 1 (C) 2 (M) 3 (Y) 4 (K) 5 (C) 6 (M) 7 (Y)

Left 0 0 0 0 0 0 0 0

Right 0 0 0 0 0 0 0 0

Step 4 Pass

Revise: 0.00 => Step 0 Base Step 128000

Vertical

Head 0 (K) 1 (C) 2 (M) 3 (Y)

Vertical 0 0 0 0

Print < Back Next > Finished

Fig 25: Displaying the Printer Calibration Options

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:

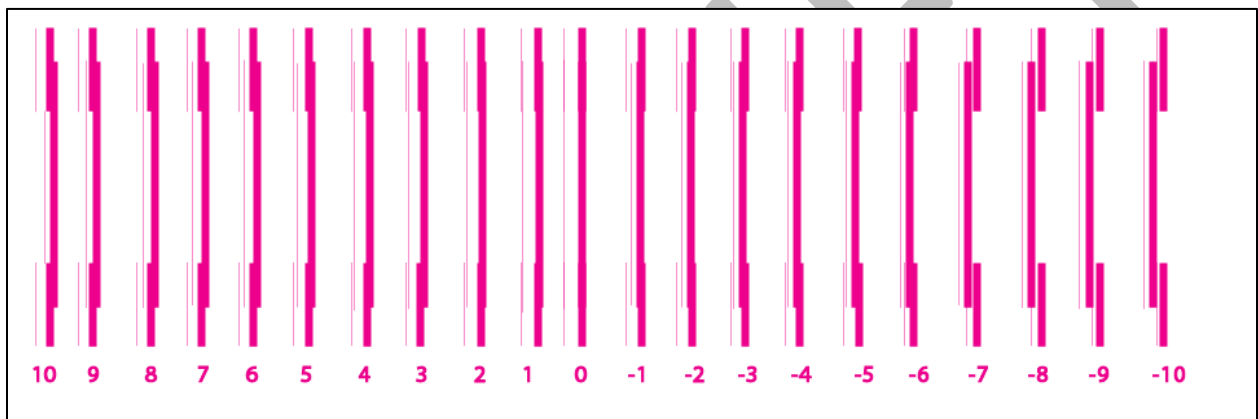


Fig 26: The Bi-Direction Calibration Output

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 be 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** Result is shown in the image below:

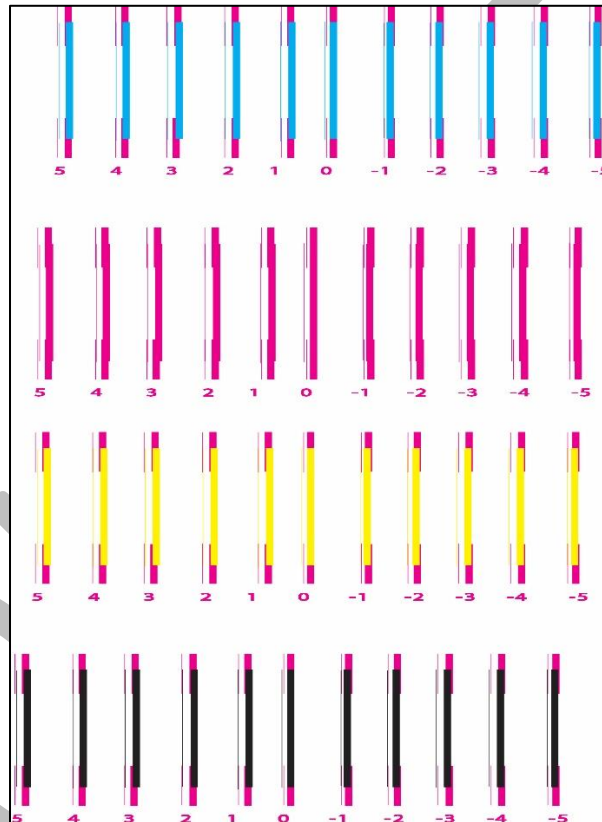


Fig 27: The Horizontal Left Check

The **Right Calibration** Result is shown in the image below:

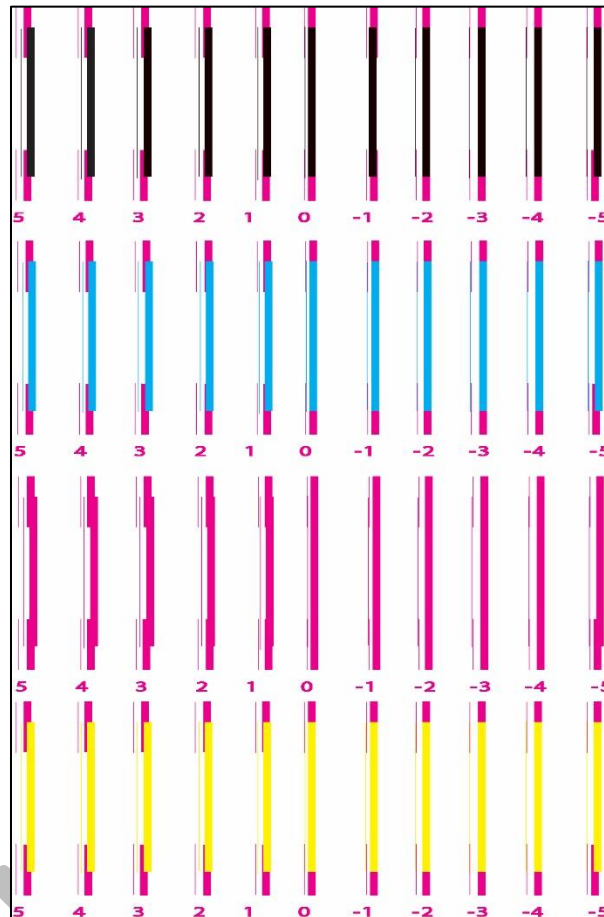
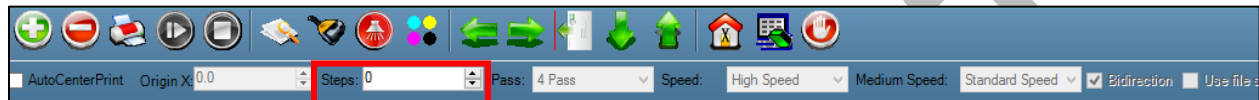


Fig 28: The Horizontal Right Check

Step Calibration

The printer step calibration is performed to verify and correct media feeding. The printer prints a complete image pass by pass. A pass is the horizontal carriage sweep perpendicular to the media movement. After each pass the printer moves the media forward for the next pass. This movement of media is called a step. The distance by which the media 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 media etc. Step calibration should be used to fine adjust the step size and has to be done for each desired pass. Step value can be adjusted using the Steps field, as shown below:



To view the Step Calibration result, click on the **Next** button (Refer to Fig 25) until the Step Calibration screen appears and then click on the **Print** button. The Step Calibration result image is shown as below:

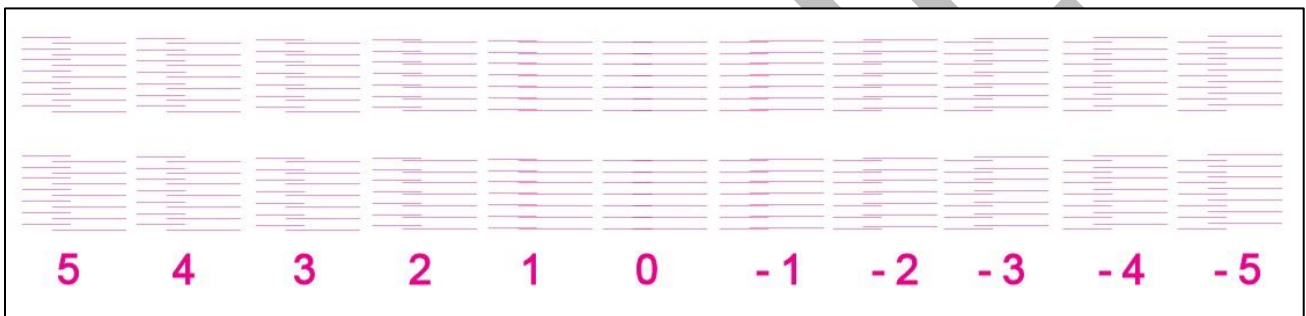


Fig 29: Displaying the Output of the Step Calibration

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 it's parameters are shown in the image below:

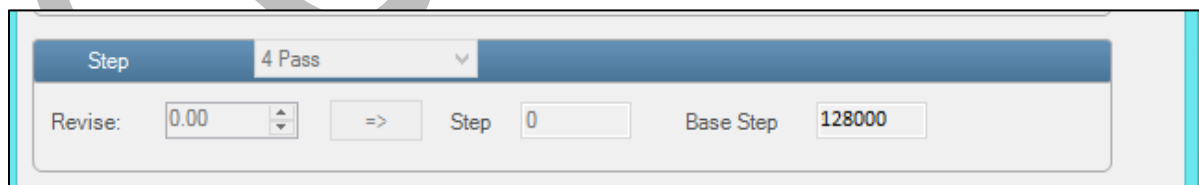


Fig 30: The Step Calibration Parameters

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 30).

Step 2: Feed the correction value in the **Revise** field (the correction value up to two decimal places) (Refer to Fig 30).

Step 3: Click on the => icon (Refer to Fig 30) on the Step Calibration window. The correction value result will be reflected in the **Step** field (Refer to Fig 30). The same step value will also be displayed in the **Steps** field on the **Quick Access Toolbar**.

Setting Print Origin

Print origin sets the print starting point with right most print head position 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:

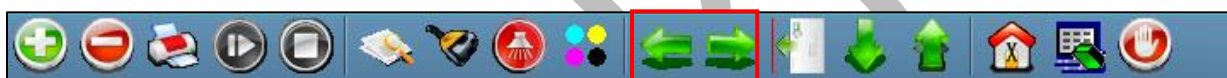


Fig 31: Adjusting the Carriage Position

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



Fig 32: 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:

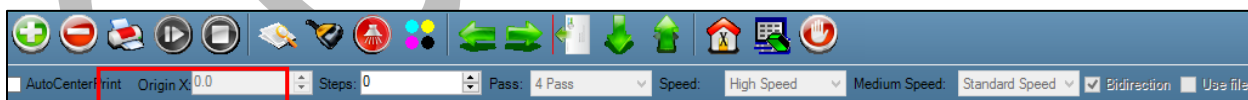


Fig 33: Displaying the Origin Value

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.

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:

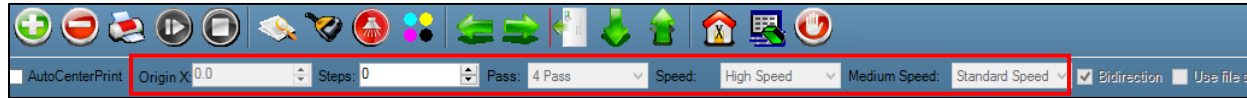


Fig 34: Setting Printing Parameters

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.

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 35: 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 36).

Step 3: Click on the **Open** button to add the file into the **Job List** area, as shown below:

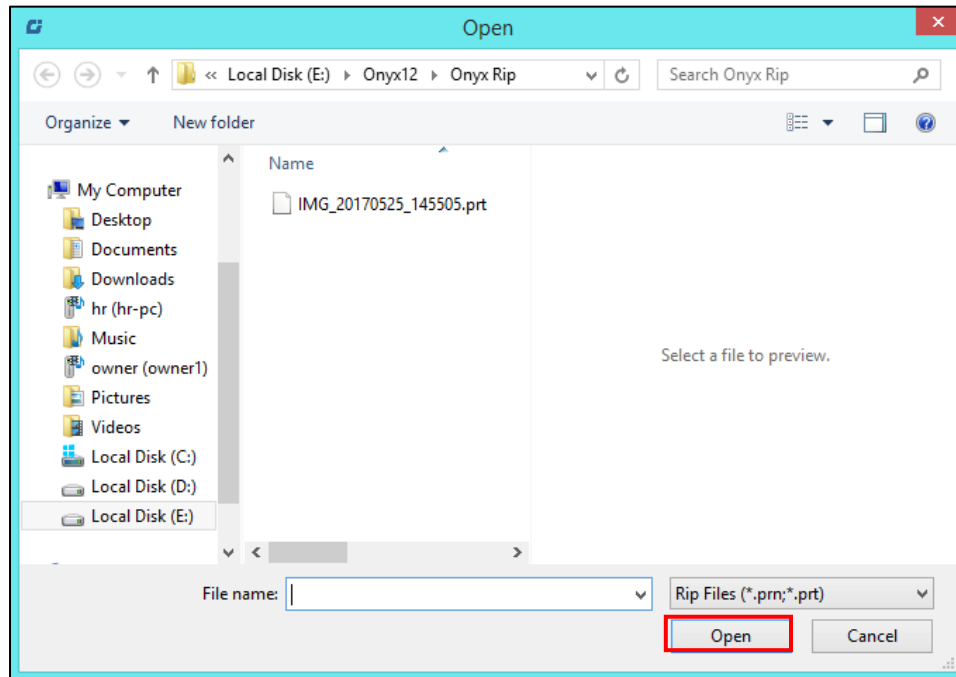


Fig 36: Adding the Job

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

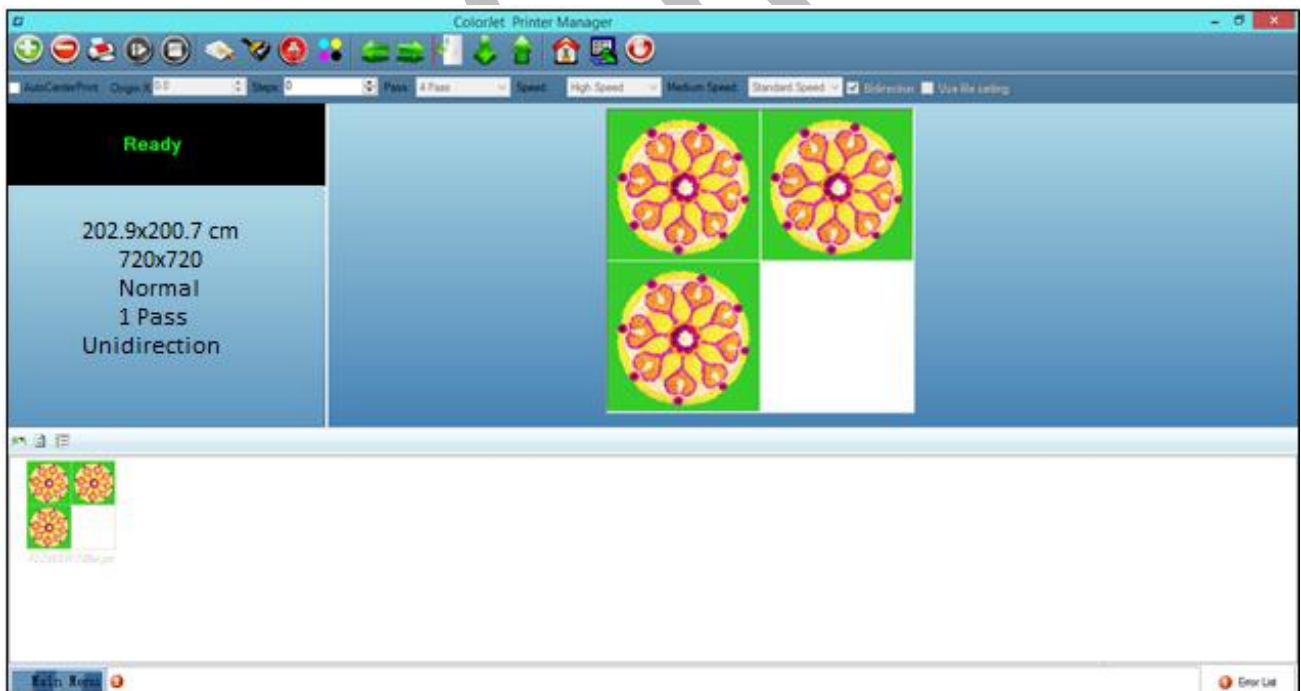


Fig 37: Displaying the Added Job and Their Details

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:

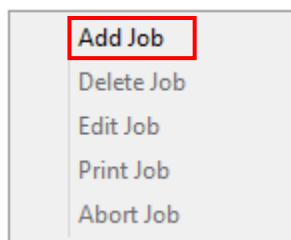


Fig 38: Displaying the Context Menu

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:

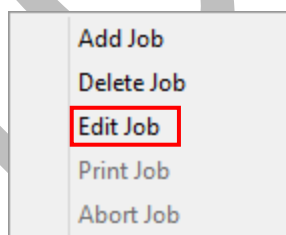


Fig 39: Selecting the Edit Job Option

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:

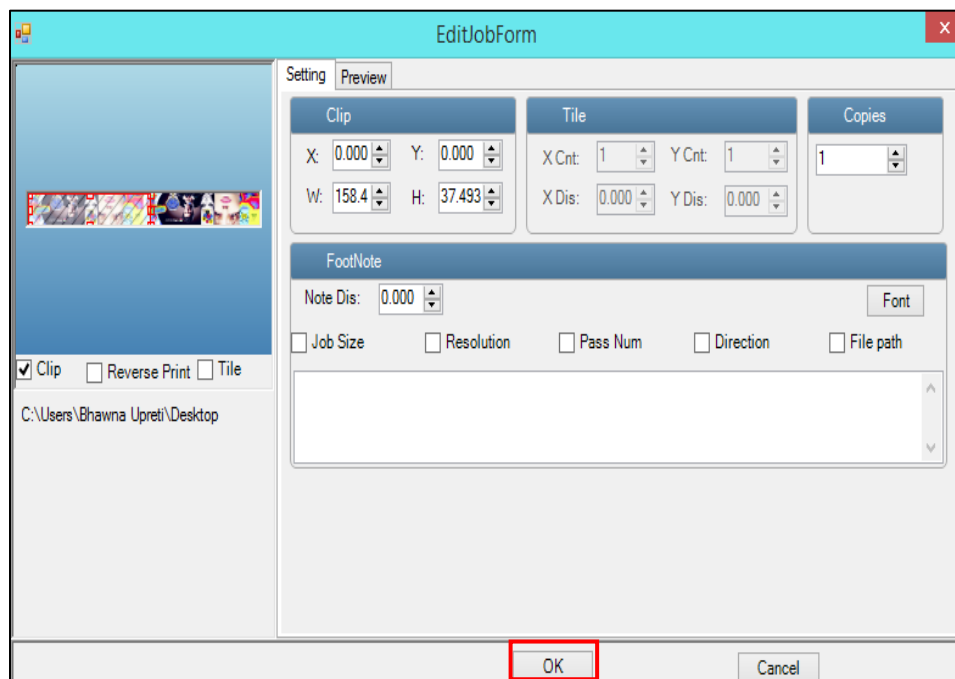


Fig 40: Displaying the Edit Job Form Window

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:

Modes	Print Passes	Print DPI
Mode 1	2	720X720
Mode 2	3	720X1080
Mode 3	4	720X1440

Printing

To print an image, click on the **Print Job** button available on the **Quick Access Toolbar**, as shown below:

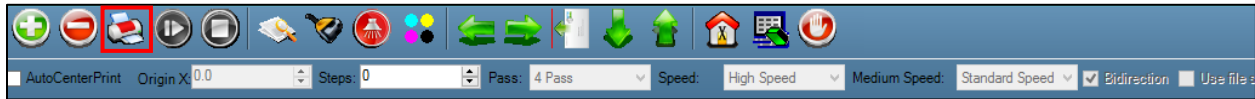


Fig 41: Issuing the Print Job Command

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

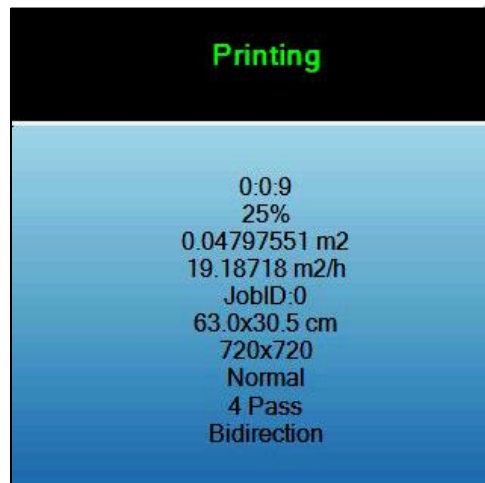


Fig 42: Displaying the Printing Details

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 43: 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.

Note: Keyboard shortcut for pausing and resuming is **Ctrl+TAB**.

8. 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 Neptune printer, head purging buttons for each color are available on the carriage, as shown in the below figure:



Fig 44: Head Purging Buttons

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

Head Blotting

Head blotting refers to the process in which the head surface area is cleaned with the help of tissue paper or cloth. Blotting removes ink drops adhering to the Print Head nozzle surface. Gently touch with a clean recommended head cleaning tissue on the head's nozzle plate. One should make sure that the tissue is clean, soft, and also does not have any chemicals on it.

Follow these steps to clean the Print Head:

Step 1: Press the Purging button of the desired color.

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

Step 2: Spread the cloth tissue on the open palms and insert hands below the print head position, without touching the Nozzle Plate.



Step 3: Gently touch the nozzle plate using the clean and fresh cloth tissue at two different positions.

Note: - Remember!! NOT TO WIPE

Step 4: After blotting, remove the tissue without touching the print head or head plate as shown below:



Now, print head is cleaned and blotted, give the test print command to verify the nozzle status.

Step 5: Repeat above steps, if required.

Note: Please strictly follow the below mentioned instructions:

- Avoid using the same tissue paper to wipe the Print Head.
- Blotting with dry and inferior quality tissue paper will damage the nozzle film by making scars (see image in next page).
- Strictly use recommended tissue paper (Contact your dealer for tissue paper).
- Always use wet tissue paper to absorb the residue ink.
- Don't wipe hard, just absorb the residue inks on nozzle plate.
- Softly touch with a lint free blotting tissue paper (duly wet by cleaning solvent) by changing the tissue paper position with respect to nozzle plate.
- Do not apply force while absorbing residue inks with tissue paper after purging.
- Leaving head plate uncapped while printer off, will block nozzles permanently due to ink solidification.
- Color bar should always be enabled while printing and idle spray should always be enabled for long life of the Print Head.

Note: Scratches created on nozzle surface will damage the head. Sometimes the damage is not visible to naked eye and nozzle check is clear, but nozzles gets blocked after printing for some time. Scratches changes the firing angle of drops and causes inks to pile up near nozzles during printing and it blocks the head firing after sometime.

Head Spraying

Head spraying clears the mixing of colors during blotting, may also clear few dry nozzles. When heads are sprayed, all the nozzles are actuated at a high rate which helps in opening up few dry nozzles of the printer. To perform head spraying, *click* on the **Spray** button available under the **Quick Access Toolbar**, as shown below:



Fig 45: Displaying the Spray Button

9. Shutdown & Capping the Print Head

Capping refers to the process of protecting the Print Head to become dry.

Perform the following steps to cap the Print Head:

Step 1: Check the carriage position. If the carriage is not at home position, then move it toward the home position.

Step 2: Clean the Print Head using different head cleaning methods viz. head blotting, head purging, and more.

Step 3: Switch OFF the printer from the main power button.

Step 4: Wet the tissue with the head cleaning solvent.

Step 5: Put the wet tissue on the Night Plate. The Night Plate has four magnetic points on the corners of it, as shown in the image below:

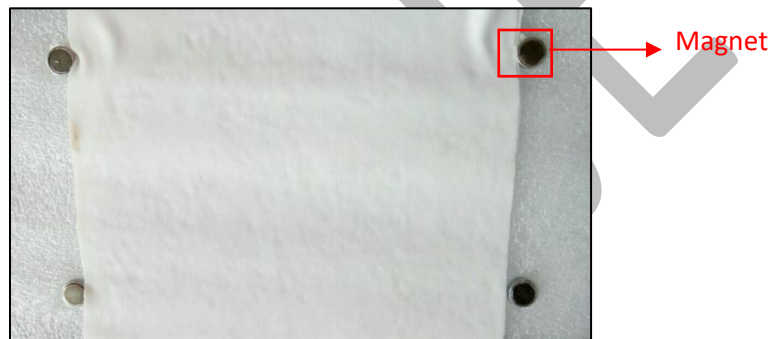


Fig 46: Putting the Wet Tissue on the Night Plate

Step 6: Engage the Night Plate with the Head plate by aligning the magnets below the head plate screws, as shown below:



Fig 47: Engaging the Night Plate with Head Plate

Now, Print Heads are capped properly and protected from being dried.

10. 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 machine. Pay attention to potential problems caused by environment, heat and moisture, collision, cleaning etc. 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.
- Use the print head in specified environmental conditions viz. Temperature 20-25 degree Celsius with humidity 55%, dust-free and exhaust condition.
- Avoid ink spilling on the print head and head cables and if there is ink in the print head, it must be wiped dry with clean cloth, and inform engineer
- Avoid head damage due to media and Print Head confliction.
- Color bar should be ON.
- Don't use expiry ink and store the ink at favorable environment.
- Prevent the object or human body with static contact to the print head.
- Print head nozzles should be kept clean, dust free, and also prevent from oxidation.

Maintenance of Machine Motion Parts

- Clean and lubricate guide rail at least once a month and lubricate if required.

Equipment Cleaning

- Turn OFF all power switches to machine while cleaning the machine equipment.
- Avoid splashing liquid and dropping on/in the circuit board or the power line.
- Careful while cleaning the sensitive devices, like sensors and raster.
- Use clean cloth to clean up the dust and residual oil on the tracks.
- Should keep water, ink, oil away from the Encoder scale.

Power System Maintenance

- Ground wire should always be checked whether loose or disconnection.

Control System Maintenance

Static discharge

- The operator must discharge his own electrostatic charge before touching the electronic components and parts.
- Don't touch the pin connectors and welded joints on circuit boards, integrated circuit boards.

Ink Supply System Maintenance

- Check for leakage between joint & ink tank and joint & valve settings.
- Check for damages on ink tubes.
- Check Ink impurities in the ink tanks as this will affect the ink supplying.

11. Troubleshooting

PRINTER NOT INITIALIZING

- Head power switch is OFF (Beep Sound)
- Emergency button is pressed

PRINTER MANAGER NOT SHOWING "READY"

- USB cable is not connected to the computer or loose
- USB cable is faulty

PRINT STOPS IN BETWEEN PRINTING

- USB cable is loose or faulty
- Open heavy file that can slow down the data transfer
- Ground wire is disconnected
- Ripped file is having error

PRINT IS BLUR (NOT SHARP)

- Improper printer calibration – bi-directional and step
- Selection of incorrect resolution (dpi)
- Recommended ink not used
- Selection of incorrect resolution
- Wrong speed selection instead of high precision

LINES IN PRINT

- Head nozzles are blocked
- Incorrect step calibration

Ink Drop on Media

- Dust particles stuck in head nozzle
- Media is not properly fixed over the bed
- No ink in dampers

Print Not Drying

- Dryer Fan switch is OFF

Media Touch Head Plate/Base

- Bed suction power is OFF/ Bed Vacuum Regulator settings not correct
- Media roll is not in proper shape

HEATERS NOT WORKING

- Check if inlet power cord is connected
- Check the set temperature in the controller

HEAD NOZZLES NOT FIRING

- Clean heads using head cleaning techniques and verify by performing nozzle test
- Check if any air lock or no ink in the ink pipes
- Check the ink and air pipe for any cuts or loose connection
- Check main ink tank for ink

MEDIA SUPPLY NOT WORKING

- Supply switch is not ON
- Media is not in sensor range

COLORJET

12. Do's and Don't

Do's

- Perform Nozzle test daily before using the machine
- Use only the recommended ink in the machine
- Check and refill the ink main tank regularly to avoid air lock
- Check the waste bottle regularly
- Keep the Night Plate cleaned
- Always put wet tissue on the Night Plate before engaging it with the Head Plate
- Feed Adjust value has to be adjusted in decimal format up-to two decimal places

Don't

- Avoid ink spilling on the Print Head and head cables
- Don't use expiry ink and store the ink at favorable environment
- Avoid printing without Colorbar
- Don't print without Media Clamp
- Don't handle Print Head without anti-static protection
- Don't leave the Print Head without Night Plate
- Don't apply much pressure on the Print Head during installation
- Don't carry out head alignment and calibration without using magnifying lens
- Avoid head damage due to media and Print Head confliction

13. Error Code Specifications

Error Code	Error Description	Remedial Action
<u>04020008</u>	Wrong input or forbidden character in the Time Limit Password field.	Re-input the Correct Time Limit Password Field
<u>04020009</u>	Illegal Time Limit Password.	Re-input the Correct Time Limit Password Field
<u>0402000A</u>	Time Limit Password and Manufacturer ID doesn't match.	Re-input the Correct Time Limit Password Field
<u>0402000B</u>	Time Limit Password and Board ID doesn't match.	Re-input the Correct Time Limit Password Field
<u>0402000C</u>	First Warning: 100 hours left in the completion of the current Time Limit Password.	Please request a new password from the dealer
<u>0402000D</u>	Second Warning: 50 hours left in the completion of the current Time Limit Password.	Please request a new password from the dealer
<u>0402000E</u>	Last Warning: 1 hours left in the completion of the current Time Limit Password. After 1 hour, the printing process gets stopped.	Please request a new password from the dealer



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For Any Query

Please Contact Us

www.colorjetgroup.com

Call us on +91-120-4548195

Email on info@colorjetgroup.com

For Ink Enquiry:- sales@colorjetgroup.com

For Support:- support@colorjetgroup.com