



Pro 24f Wide Format Hybrid Printer



Operations Guide

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5,109,241, 5,150,454, 5,170,182, 5,212,546, 5,260,878, 5,276,490, 5,278,599, 5,335,040, 5,343,311, 5,398,107, 5,424,754, 5,442,429, 5,459,560, 5,467,446, 5,506,946, 5,517,334, 5,537,516, 5,543,940, 5,553,200, 5,563,689, 5,565,960, 5,583,623, 5,596,416, 5,615,314, 5,619,624, 5,625,712, 5,640,228, 5,666,436, 5,682,421, 5,729,665, 5,745,657, 5,760,913, 5,799,232, 5,818,645, 5,835,788, 5,859,711, 5,867,179, 5,937,153, 5,940,186, 5,959,867, 5,970,174, 5,982,937, 5,995,724, 6,002,795, 6,025,922, 6,035,103, 6,041,200, 6,065,041, 6,081,281, 6,112,665, 6,116,707, 6,122,407, 6,134,018, 6,141,120, 6,166,821, 6,173,286, 6,185,335, 6,201,614, 6,209,010, 6,215,562, 6,219,155, 6,219,659, 6,222,641, 6,224,048, 6,225,974, 6,226,419, 6,238,105, 6,239,895, 6,256,108, 6,269,190, 6,271,937, 6,278,901, 6,279,009, 6,289,122, 6,292,270, 6,299,063, 6,310,697, 6,321,133, 6,327,047, 6,327,050, 6,327,052, 6,330,071, 6,330,363, 6,331,899, 6,337,746, 6,340,975, 6,341,017, 6,341,018, 6,341,307, 6,347,256, 6,348,978, 6,356,359, 6,366,918, 6,369,895, 6,381,036, 6,400,443, 6,429,949, 6,449,393, 6,457,823, 6,476,927, 6,487,568, 6,490,696, 6,501,565, 6,519,053, 6,539,323, 6,543,871, 6,546,364, 6,549,294, 6,549,300, 6,550,991, 6,552,815, 6,559,958, 6,572,293, 6,590,676, 6,599,325, 6,606,165, 6,616,355, 6,618,157, 6,633,396, 6,636,326, 6,637,958, 6,643,317, 6,647,149, 6,657,741, 6,660,103, 6,662,199, 6,678,068, 6,679,640, 6,687,016, 6,707,563, 6,741,262, 6,748,471, 6,753,845, 6,757,436, 6,757,440, 6,778,700, 6,781,596, 6,786,578, 6,816,276, 6,825,943, 6,832,865, 6,836,342, 6,850,335, 6,856,428, 6,857,803, 6,859,832, 6,866,434, 6,874,860, 6,879,409, 6,885,477, 6,888,644, 6,905,189, 6,930,795, 6,950,110, 6,956,966, 6,962,449, 6,967,728, 6,974,269, 6,977,752, 6,978,299, 6,992,792, 7,002,700, 7,023,570, 7,027,187, 7,027,655, 7,031,015, 7,046,391, 7,054,015, 7,058,231, 7,064,153, 7,073,901, 7,081,969, 7,090,327, 7,093,046, 7,095,518, 7,095,528, 7,097,369, 7,099,027, 7,105,585, 7,116,444, 7,177,045, 7,177,049, 7,177,472, 7,204,484, 7,206,082, 7,212,312, 7,229,225, 7,233,397, 7,233,409, 7,239,403, 7,245,400, 7,248,752, 7,259,768, 7,259,893, 7,280,090, 7,296,157, 7,301,665, 7,301,667, 7,301,671, 7,302,095, 7,302,103, 7,304,753, 7,307,761, 7,342,686, 7,343,438, 7,349,124, 7,365,105, 7,367,060, 7,367,559, 7,389,452, 7,396,119, 7,396,864, 7,397,583, 7,397,961, 7,426,033, 7,431,436, 7,433,078, 7,453,596, 7,460,265, 7,460,721, 7,461,377, 7,463,374, 7,466,441, RE36,947, RE38,732, D341,131, D406,117, D416,550, D417,864, D419,185, D426,206, D426,206, D439,851, D444,793.

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1.0 Introduction

The EFI Pro 24f Operations Guide provides an overview of the features and functions of EFI's Pro 24f Wide Format Hybrid printer, an advanced digital printer designed to provide wide-format, full-color printing. The EFI Pro 24f uses environmentally-friendly UV-curable inks to ensure higher volume production and improved resolution over traditional silkscreen printing.

The EFI Pro 24f can print using rigid and flexible media types, including but not limited to foam core, PVC, styrene, corrugated plastic, plywood, MDO, MDF, aluminum, plastic composite, cardboard, paper, acrylic and Plexiglas. The maximum allowable thickness for rigid media is 2 inches [4.6 cm], and maximum rigid media weight is 397 lbs [45.4 kg], evenly distributed. The maximum print size for the Pro 24f is 100 inches [254 cm] x 50 inches [127 cm].

The EFI Pro 24f has Ricoh Gen5 print heads, updated electronics, and usability upgrades.

- **Ricoh Gen5 Print heads:** These are variable drop print heads able to produce 0,7,14,21 picoliter drop sizes. These heads are not dependent on water or water pumps for heating and cooling. The higher nozzle count heads are more forgiving if there is nozzle loss during higher pass-count mode prints.
- **Ink:** There are six 1-liter ink bottles: CMYK plus 2 white. The white bottles constantly recirculate. When changing white ink, recirculation must be turned off in the Parameters window. This printer provides level readings for each bottle.

1.1 About This Guide

This guide assists trained printer operators in completing daily tasks, including printing, start up/shut down, and operating the printer software. This guide focuses on fundamental skills and concepts vital to successful daily printer operation. It does not cover more advanced operation levels and modes, file ripping, or custom profiles.

1.2 Objectives

This guide has several objectives:

- **Learn printer components** - Users are given a physical printer description, including component locations.
- **Manage printer power options** - Users learn basic steps for powering the printer on and off, for putting the printer into sleep modes, and for managing lamp life and lamp power options.
- **Teach safe printer operation** - Users are taught basic safety principles to protect themselves from injury and to protect the printer from damage due to improper use while loading media and conducting other standard tasks.
- **Learn printer control software** - Users are taught fundamentals of the printer's control software and how to complete actions using the EFI Pro 24f Control window.
- **Printing BCO File** - Users learn basic printing procedures, including loading media, importing files, setting print options and printing BCO files using the Print Control Utility. RIP to print is discussed in the Fiery Manual.
- **Perform daily maintenance** - Users learn basic maintenance tasks, including ink loading and care, print head cleaning and maintenance, and general printer maintenance and care.

1.3 Customer Resources

EFI Inkjet Solutions provides additional resources to help personnel operate and maintain printer.

- **Customer Support Web Site** - <http://inkjet.support.efi.com/index.php> - Contains **Operations** and **Maintenance Guides**, technical supplements, advisory bulletins, and resources such as software updates and drivers.
- **Printer Safety Guide** - <http://inkjet.support.efi.com/doc.php?doc=683> - The **Printer Safety Guide** contains information critical to safe printer operation for all customers.
- **Training** - <http://inkjet.support.efi.com/training/index.php> - Operator training is an essential part of printer installation and operation. EFI Inkjet Solutions provides an educational support system assisting new and experienced operators to develop and maintain skills.

1.4 Additional Support

If you have any questions about your printer or other EFI Inkjet Solutions products, see <http://inkjet.support.efi.com/index.php> for contact information.

2.0 General Safety

This chapter explains how to safely use your EFI Pro 24f printer, including the access panels, shields, and warning labels, as well as how to properly handle printer inks and fluids. Before operating the printer, all personnel must:

- Be a certified EFI Pro 24f operator.
- Read and understand the **EFI Inkjet Printer Safety Guide**, <http://inkjet.support.efi.com/doc.php?doc=683>, and adhere to all safety precautions therein.
- Read and sign the UV Safety Acknowledgement Form.

2.1 Emergency Stop Button(s)

*In case of an emergency, immediately press any **Emergency Stop** button to stop the printer.*

Identify locations and understand operation of emergency stop buttons before operating the EFI Pro 24f printer. Emergency stop buttons are located on both the right and left sides of the front and rear print areas. When pressed, an emergency stop button does the following:

- Shuts off UV lamps
- Stops all printer mechanical movement
- Stops unwinder and rewinder

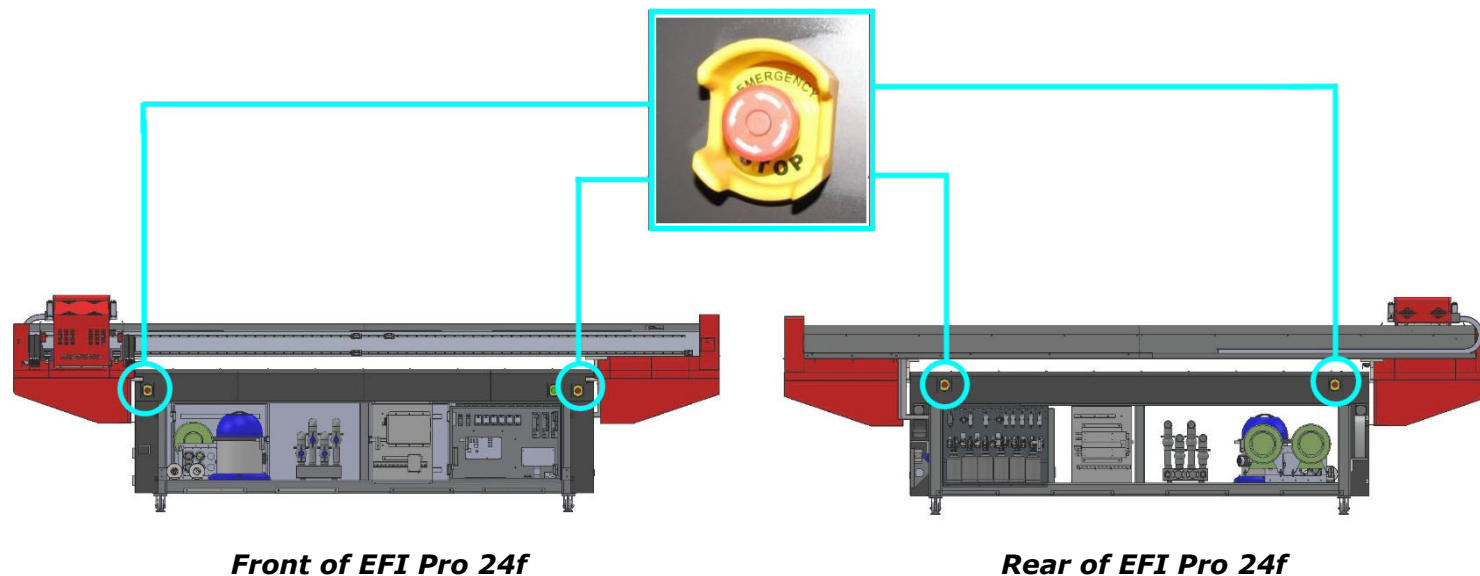


Figure 2-1: Emergency Stop Button Locations

Danger! Pressing an emergency stop button does not disconnect power from the printer or its electronics. Never use emergency stop buttons as an alternative to powering down the printer. The emergency stop buttons are for personal safety and to avoid printer damage during extraordinary circumstances.

2.2 Hazards and Precautions

Hazards and Precautions are outlined in the following paragraphs.

2.2.1 UV Ink and Solvent Precautions

Observe the following precautions regarding the printer, ink, and related solvents.

- Uncured UV inks and cleaning solvents are flammable.
- Uncured UV inks and cleaning solvents can cause severe eye damage.
- Operator should **not** wear contact lenses when operating the printer with insufficient ventilation.
- Operator should wear safety glasses or a face shield.
- Operator should wear Nitrile gloves when flushing print heads, ink tubes, or when working with ink containers.
- UV Inks and solvent vapor can irritate the eyes, throat, and skin.
- The yellow triangle caution symbol represents potential for personnel injury or damage to the printer.

2.2.2 UV Light Hazards

UV light exposure is hazardous to eyes and skin. Please observe all safety precautions when operating printer.

- Wear UV protective glasses when operating the printer.
- Avoid being too close to the UV lamps during printer operation.
- UV lamps must be off while completing maintenance tasks, especially when working in close proximity to the lamps.
- The printer's front door contains special glass and door flaps that filter out UV light during printing. All doors should be closed when printing to prevent operator exposure to harmful UV light.

2.2.3 Ventilation

Proper ventilation - as described in the Site Preparation Specification - is required in the printer work area. Printer operators must monitor printer settings to ensure that UV inks cure completely. Operators risk exposure to uncured UV ink and related vapors if cure times are not accurately maintained. Follow these precautions:

- The ventilation system must be on in the printer work area to ensure adequate air circulation.
- Store inks and solvent in a proper cabinet designed for flammable liquid storage.
- Keep ink and solvent containers tightly closed at all times. If a container shows signs of damage or leakage repair or replace the container immediately.
- Clean ink or solvent spillages as soon as possible.
- Only use dry powder or carbon dioxide types of fire extinguishers.

2.2.4 Storage of Combustible Materials

Inks and solvents should be clearly labeled and stored in an area designated for flammable liquids IAW local safety regulations.

- Ensure that one or more approved fire extinguishers are available near the storage area which are filled, and fully operational.
- Personnel should be trained in using fire extinguishers and techniques for extinguishing chemical fires. .

2.2.5 Fire or Explosion Risks and Precautions

Open flame, heat energy, or sparks around the printer can trigger a fire or an explosion when excessive fumes are present. Follow the precautions listed below:

- Do not smoke near the printer or ink storage area.
- Do not allow open flame near the printer or ink storage area.
- Do not use heaters or halogen lights within five meters of the printer or ink storage area.
- Do not use spark producing equipment, including devices capable of static electrical discharge, within five meters of the printer or ink storage area.
- Ensure proper use of fire extinguishers.

2.2.6 Risk of Eye and Skin Irritation

Follow these precautions:

- When ink or solvent comes in contact with your skin, thoroughly wash at once with cold water and designated soap(s).
- When ink or solvent comes in contact your eyes, thoroughly wash at once with cold water.
- Do not drink or swallow solvent, ink, or waste ink.
- Only authorized operators are allowed to handle inks and solvents.
- Keep inks, solvents, waste inks, cloths, paper, media, and other operating materials in covered fireproof containers.
- Place covered fireproof containers at least five meters away from the printer work area.
- Dispose of waste materials in accordance with local, state, province, or/and country government regulations.
- The presence of children or pets is forbidden at all times in or near the printer area.

2.2.7 Printing Media Handling and Precautions

The EFI Pro 24f printer is capable of using a wide variety of rigid media. Follow these precautions:

- Wear hand and foot safety protection gear when loading, unloading and handling media to avoid bodily injury.
- Use proper heavy-duty handling equipment if available.

2.2.8 High Voltage Dangers and Precautions

*The EFI Pro 24f is safe to operate in its normal operating configuration. However, with key protective covers opened or removed, electrical components carrying high voltage are exposed. The EFI Pro 24f carries high voltages that could cause serious injury or death from electrocution. Only **qualified service technicians** may service the EFI Pro 24f Electrical Systems. Follow these precautions:*

- Verify provisions for emergency power off before connecting the printer to main power supply.
- When printer power is on, do not open any cover panel or touch any electrical components.
- All printer systems should be grounded in accordance with local electrical safety regulations per State, Province, Region, or Country codes. Ground voltage should be less than 3V.
- Set the printer on smooth tile or cement floor.

3.0 EFI Pro 24f Printer Overview

In this chapter we describe the major assemblies and sub-assemblies of the EFI Pro 24f Wide Format printer, to familiarize you with its most important components.

3.1 Front Access

This section illustrates the access panels and shields located on the front of the printer.

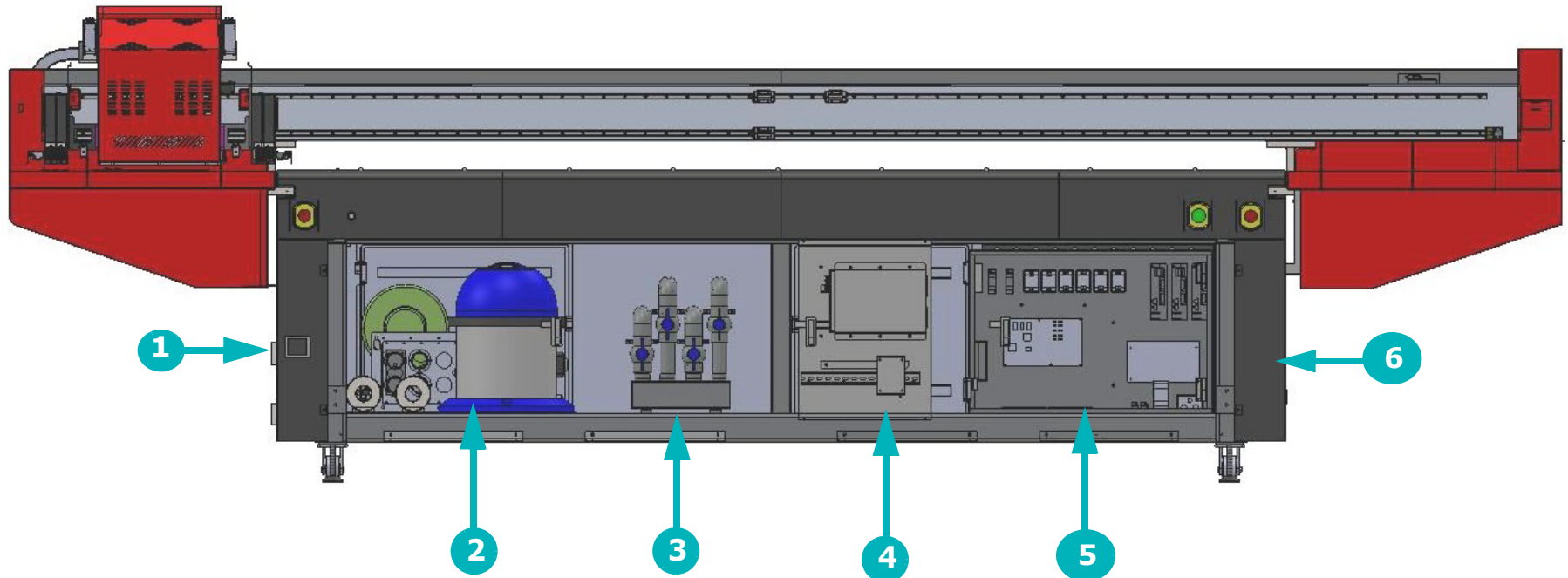


Figure 3-1: Printer Front Access

Caution! Keep all safety interlocks, covers, and guards in place and in working order. Do not operate the printer with covers or guards removed or malfunctioning interlocks.

- 1 Access to the ink waste tank (left side)
- 2 Waste vacuum (rear)
- 3 Table vacuum adjustment valves
- 4 Access to LED lamp system
- 5 Access to electronics box
- 6 Electrical breakers (right side)

The Sweep Tray and Vacuum Knife system operate as follows:



Figure 3-2: Sweep Tray and Vacuum Knife Detail

1. The sweep tray collects all ink drops that accumulate during purging operations. The ink is drained into the ink waste container.
2. The sweep tray also contains a trough to collect ink released from the bleed valves. This ink is also drained into the ink waste container.
3. The vacuum knife uses suction to extract excess ink from the bottom of the print heads during the sweep cycle either automatically via the EFI Pro 24f Control window or manually via the sweep button on the purge button panel. The ink is drawn into the cyclonic vacuum system.

3.1.1 Carriage Assembly

The carriage assembly contains many critical components required for Inkjet printing. These components include print heads and the electronics to control them, ink tanks for the print heads, lamps for curing the ink, and a negative pressure system that controls ink flow. Each system is described in the paragraphs and figures included in this section.

Front Carriage Assembly

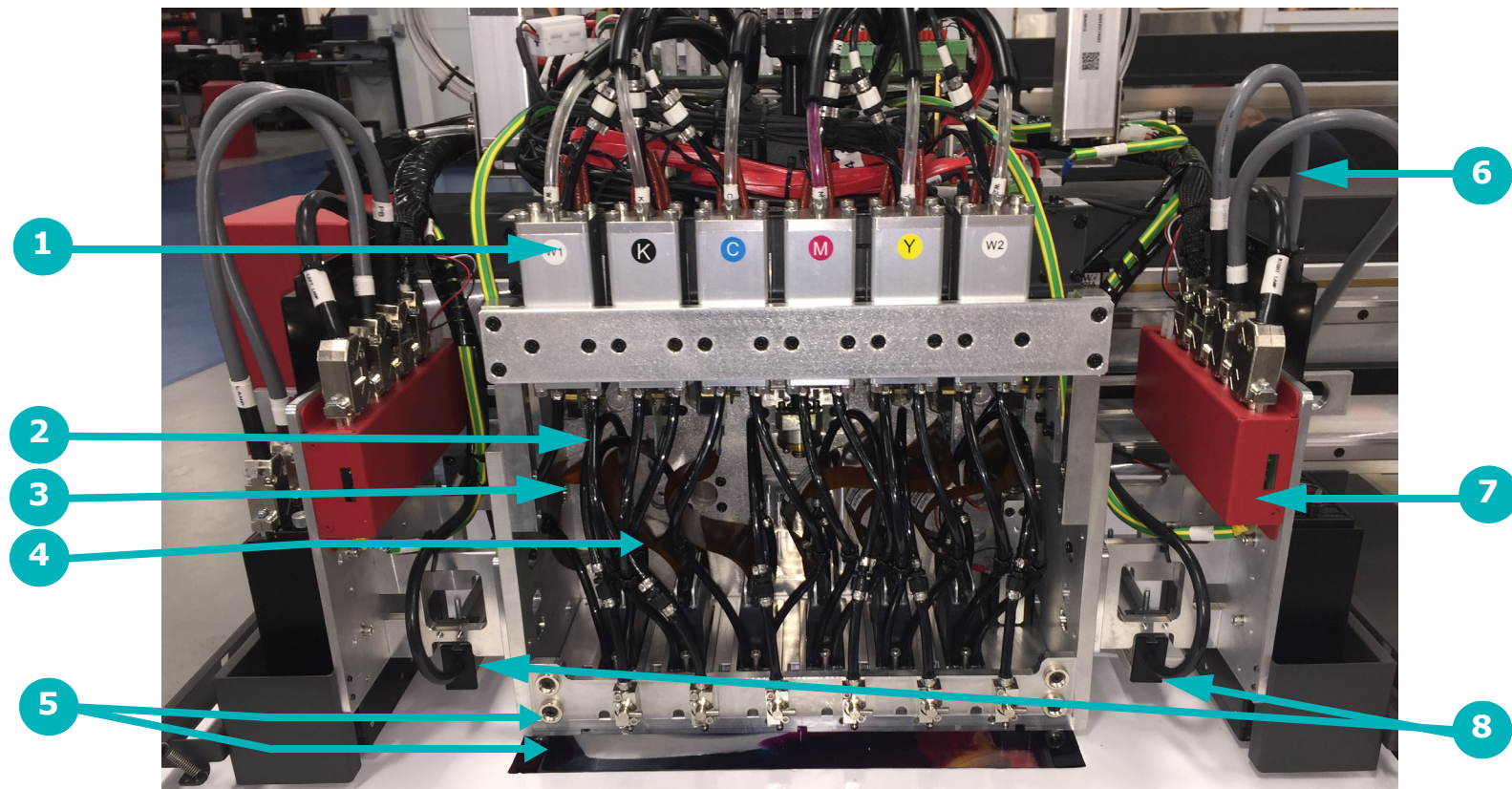


Figure 3-3: Carriage Front View (No Covers Shown)

- | | | | | | |
|---|---------------------|---|-----------------------------------|---|-----------------|
| 1 | Secondary Ink Tanks | 2 | Ink Filters | 3 | Ink Bleed Tubes |
| 4 | Ink Supply Tubes | 5 | Ink Bleed Valves and Drain Trough | 6 | Lamp Cables |
| 7 | LED Lamps | 8 | Antistatic Bars | | |

Rear Carriage Assembly

The Rear of the Carriage Assembly contains the following items:

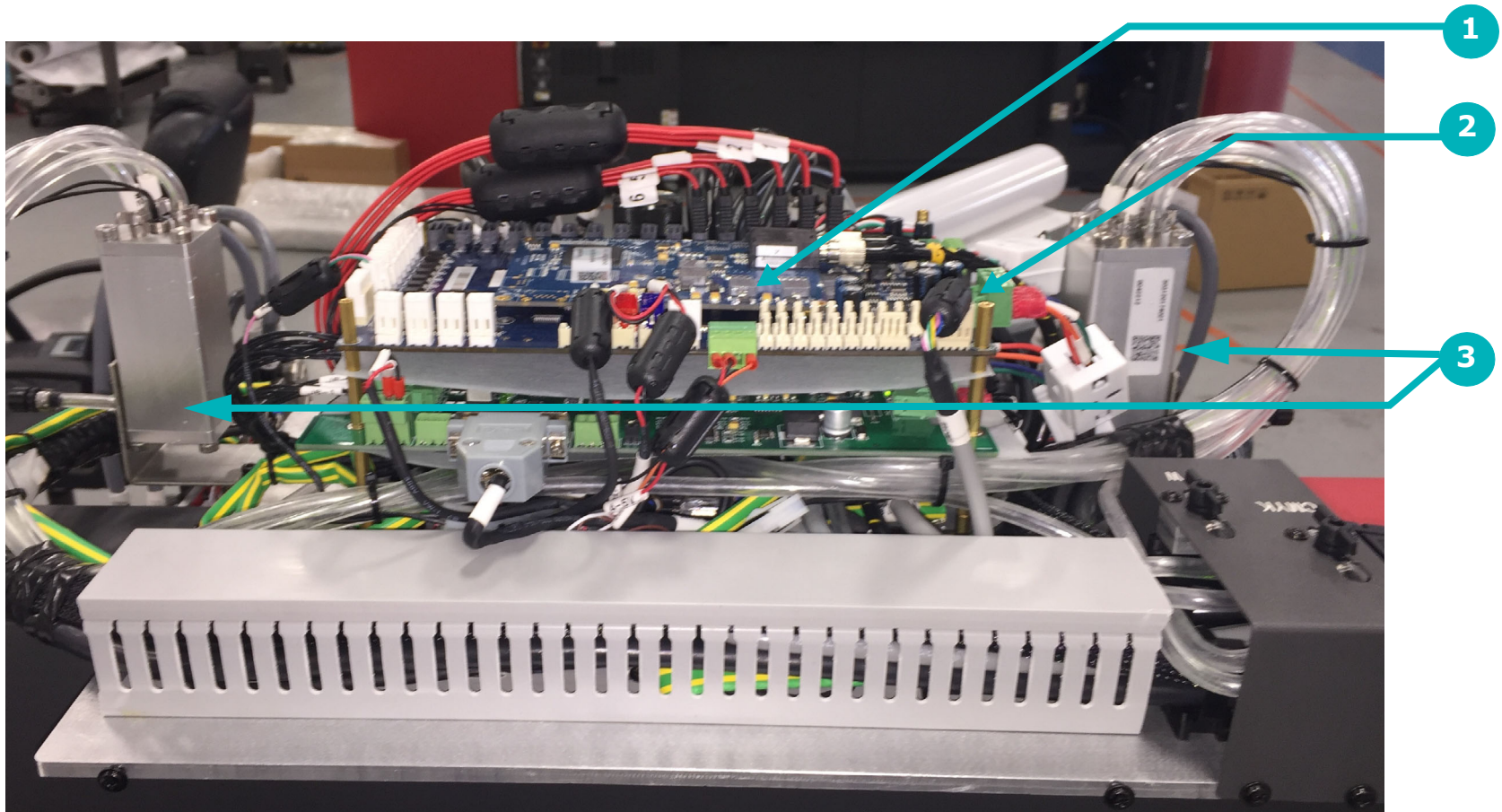


Figure 3-4: Carriage Rear View (No Covers Shown)

1 Print Head Control Board

2 Voltage Control Board

3 Overflow Tanks

3.1.2 EFI Pro 24f UV Lamps

The EFI Pro 24f is equipped with UV Lamps which provide a superior technology for ink curing.

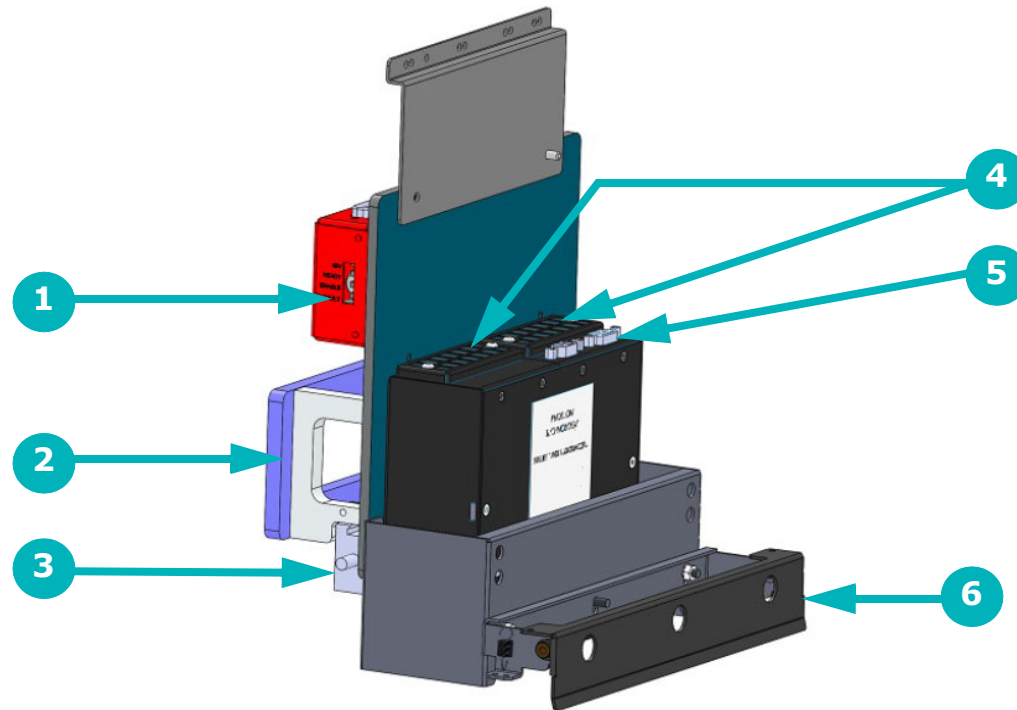


Figure 3-5: LED Lamp Detail (Right Lamp Shown)

1	Lamp Interface Board Housing	2	Lamp Mounting Bracket Assembly	3	Anti-static Bar Assembly
4	Fans & Filter Assemblies	5	Electrical/Communications Connection Point	6	Carriage Safety Stop Assembly

3.2 Rear Access

This section illustrates the access panels and shields located on the rear of the printer.

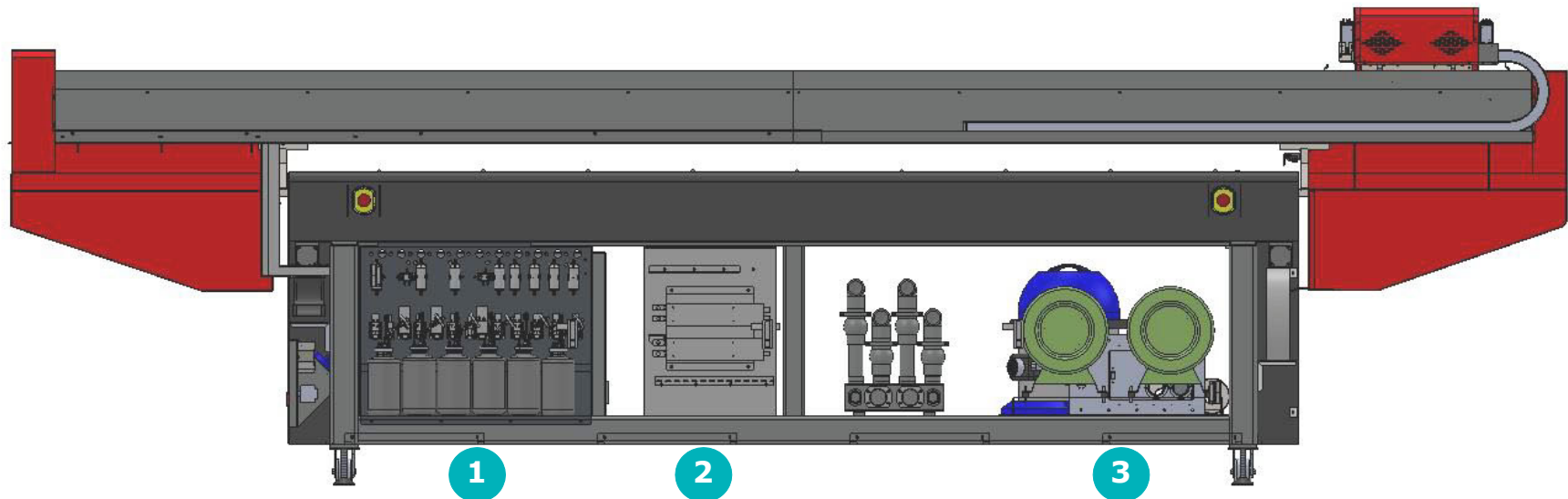


Figure 3-6: Printer Rear Access

Caution! Keep all safety interlocks, covers, and guards in place and functional. Never operate printer with covers, doors, or guards removed or with malfunctioning interlocks.

- 1 Access to Ink Tanks
- 2 Access to Computer Compartment
- 3 Access to Waste vacuum

The Ink Purge control panel provides the following manual purge functions:



Figure 3-7: Ink Purge Panel

1. The left purge button controls the CYMK color ink manual purging.
2. The right purge button controls the manual purge for white.
3. The Liquid Separator button controls the cyclonic vacuum pump. Pressing this button drains the contents of the cyclonic vacuum system into the waste container

3.3 Operator Station Components

The Pro 24f operator's computer components are attached to the printer's computer compartment. Those components are:

1. A 22" flat-panel display a full-size keyboard, and a two-button wheel-mouse (Not Shown).
2. The Keyboard Tray is used to support the keyboard and mouse used for printer operation.

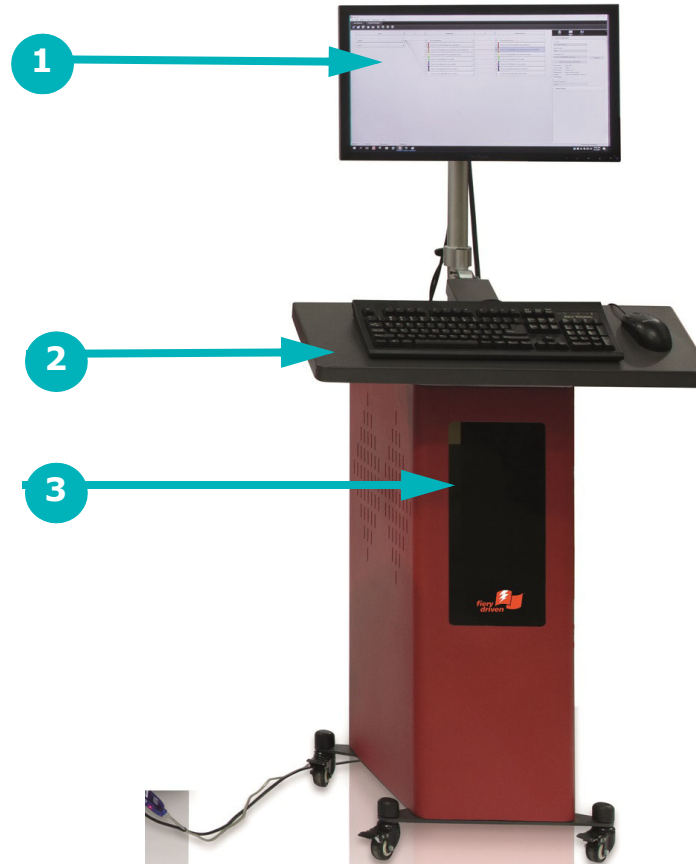


Figure 3-8: Operator Station

- | | |
|---|---------------|
| 1 | Monitor |
| 2 | Keyboard Tray |
| 3 | CPU Cover |

Note: CPU is provided by end user.

3.3.1 Vacuum Control

A detail of the control valve layout is provided in [Figure 3-9](#), below.

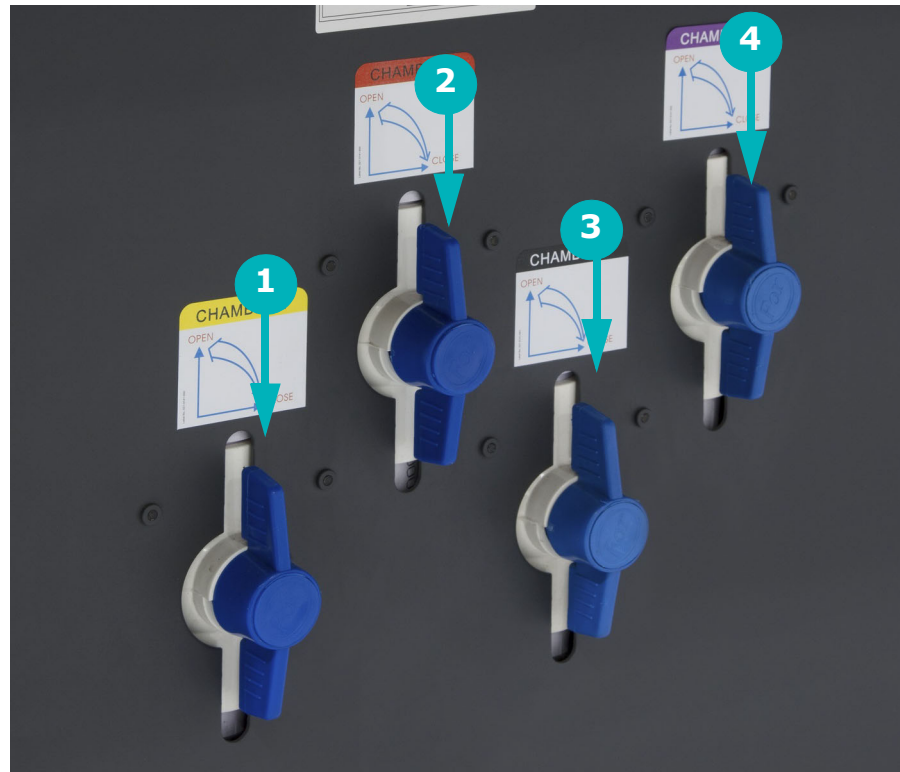


Figure 3-9: Platen Vacuum Control Knob Layout

1 Valve 1

2 Valve 2

3 Valve 3

4 Valve 4

3.3.2 Cyclonic Vacuum System

The cyclonic vacuum system is located in the waste compartment (behind the carriage rear access panel). This compartment contains the cyclonic vacuum container, vacuum canister, and ink waste container as shown in [Figure 3-10](#). The design allows for the removal of most of the ink from the vacuum system before it enters the vacuum canister. This function greatly decreases or eliminates the need for excessive cleaning and replacing of filters in the vacuum canister.

The cyclonic vacuum system allows the operator to empty the ink vacuum canister without having to remove the canister from the printer. This system operates so that the cyclonic vacuum container can be emptied into the ink waste container by means of the Liquid Separator button located in the carriage Home compartment. The waste container can then be removed from the ink compartment and emptied.



Figure 3-10: Ink Waste Container)

- | | | | | | |
|---|---------------------------|---|-----------------|---|---------------------|
| 1 | Cyclonic Vacuum Container | 2 | Vacuum Canister | 3 | Ink Waste Container |
|---|---------------------------|---|-----------------|---|---------------------|



Figure 3-11: Liquid Separator - Empties Cyclonic Container



Figure 3-12: Head Sweep Button

Warning: Do NOT attempt to drain the cyclonic system (using the Liquid Separator button) and an automatic head sweep (using Head Sweep icon on the EFI Pro 24f Control window) simultaneously as this may seriously damage the printer.

3.4 Printer Rear Components

This section illustrates the major components located on the rear of the printer.

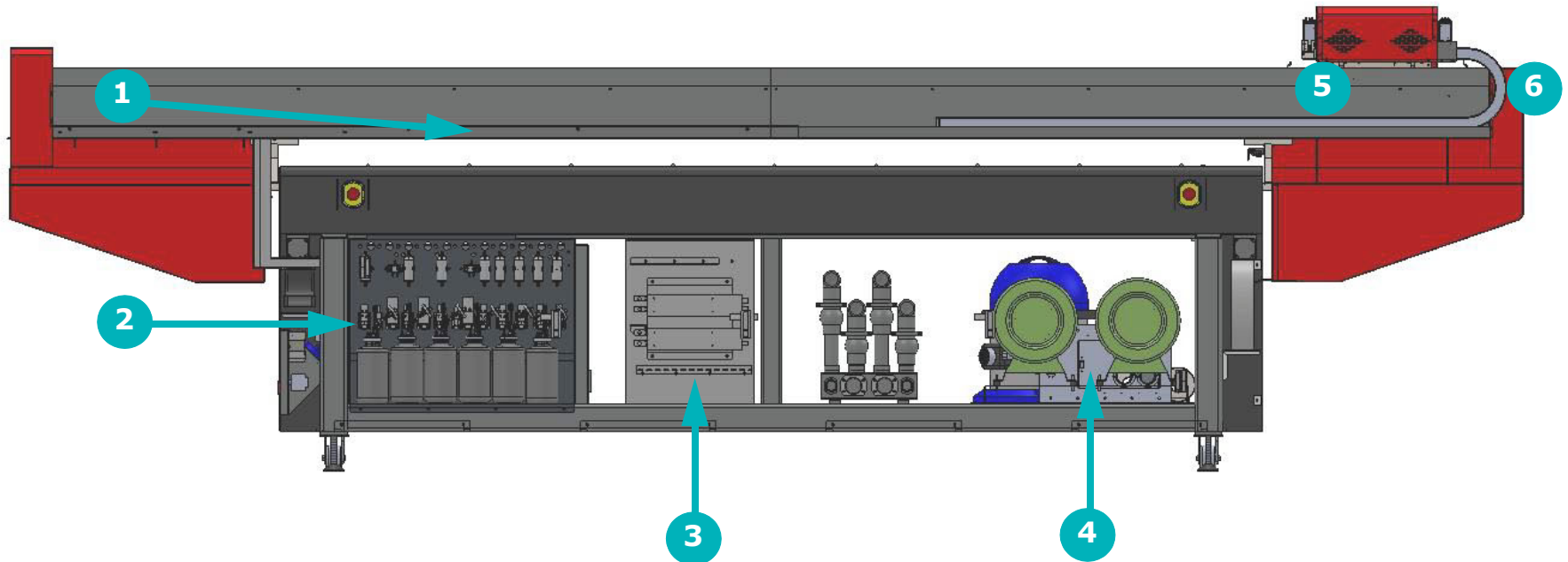


Figure 3-13: Printer Rear (Feed Side)

Caution! Keep all safety interlocks, covers, and guards in place and functional. Never operate printer with covers, doors, or guards removed or with malfunctioning interlocks.

- 1 IGUS track
- 2 Ink Cabinet
- 3 Access to Power Supplies and Relays*
- 4 Access to Vacuum Motor Compartment
- 5 Main Beam (Carriage Beam)
- 6 Energy chain

* Field Service ONLY

3.4.1 Carriage X-Axis Drive Motor Access Panel

The Carriage X-Axis drive motor provides the power to move the carriage via the carriage belt. This motor is located at the left end of the carriage beam (when viewing printer from the rear) and is accessed by lifting the rear door behind the operator station.

Note: Belt tension adjustments and motor servicing should be done by qualified Field Service Engineers ONLY.

3.4.2 Ink Supply and Pump Compartment

The Ink Supply and Pump Compartment contains the following components.

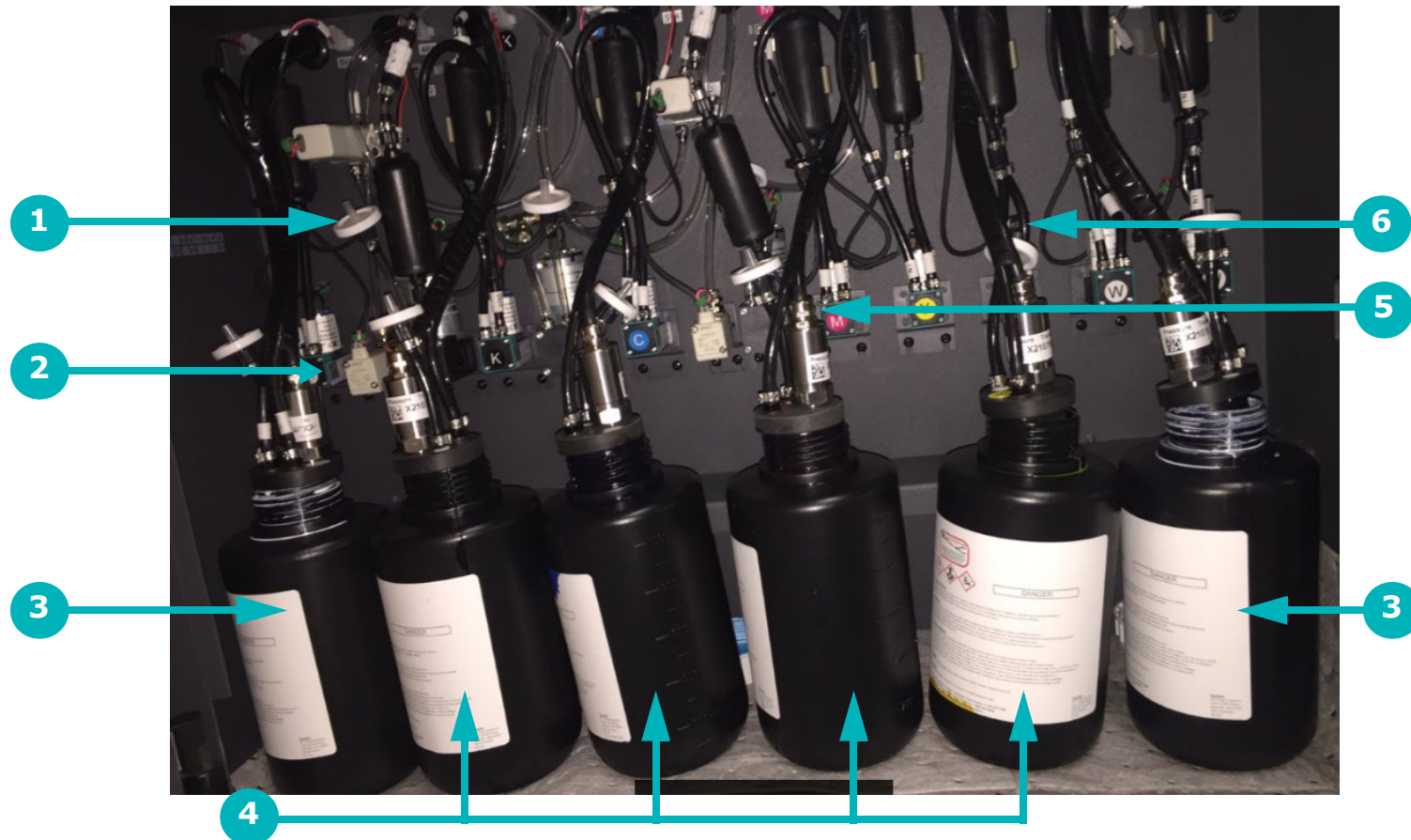


Figure 3-14: Ink Supply and Pump Compartment

- | | | |
|--------------------|---------------------|---------------------|
| 1 Ink Filters | 2 Ink Pumps | 3 White Ink Bottles |
| 4 CYMK Ink Bottles | 5 Air Relief Filter | 6 Ink Tubes |

3.4.3 Energy Chain

The Energy Chain (E-Chain) is attached to the back side of the carriage and moves with the carriage when it is in motion during printing operations. The E-Chain continuously supplies the moving carriage with the following:

- White Ink
- CMYK Ink
- Electrical Power
- Positive and Negative Pressure
- Communication Signals
- Printing Data

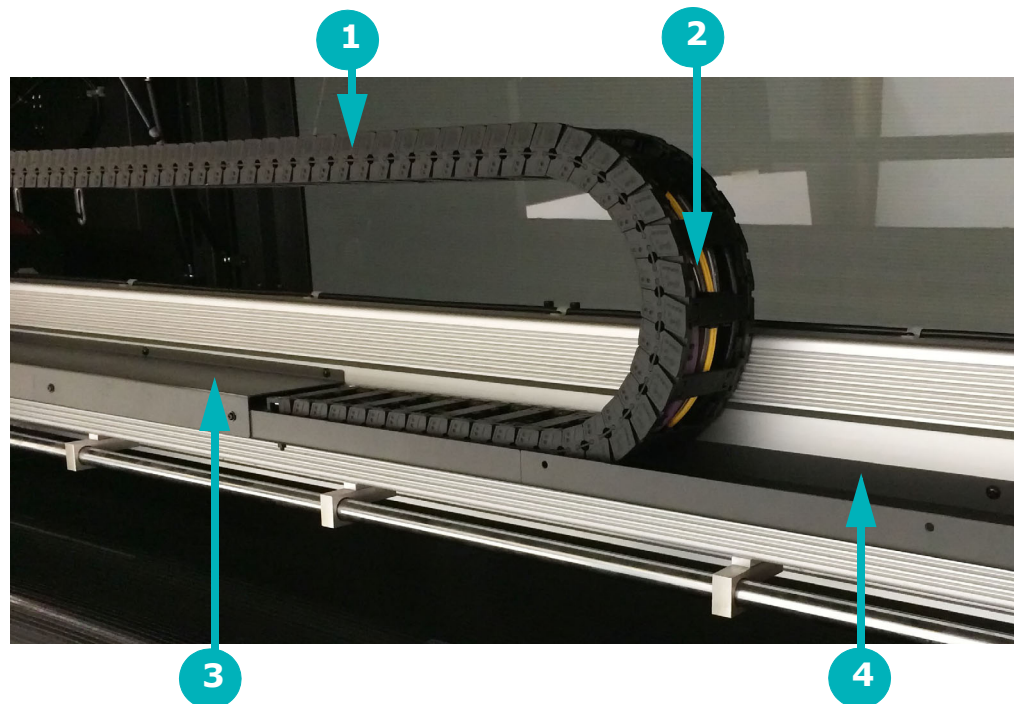


Figure 3-15: Energy Chain (E-Chain)

- | | |
|---|---------------------------|
| 1 | E-Chain |
| 2 | Internal Tubes and Wiring |
| 3 | E-Chain Trough Cover |
| 4 | E-Chain Trough |

3.4.4 Main Carriage Beam Assembly

The main carriage beam assembly supports the carriage. The carriage travels across the media via a rail and bearing system. The carriage contains a set of bearings that ride along the rails attached to the main beam. Information about carriage position is supplied via the linear encoder strip attached to the beam. The main components are shown in [Figure 3-16](#).

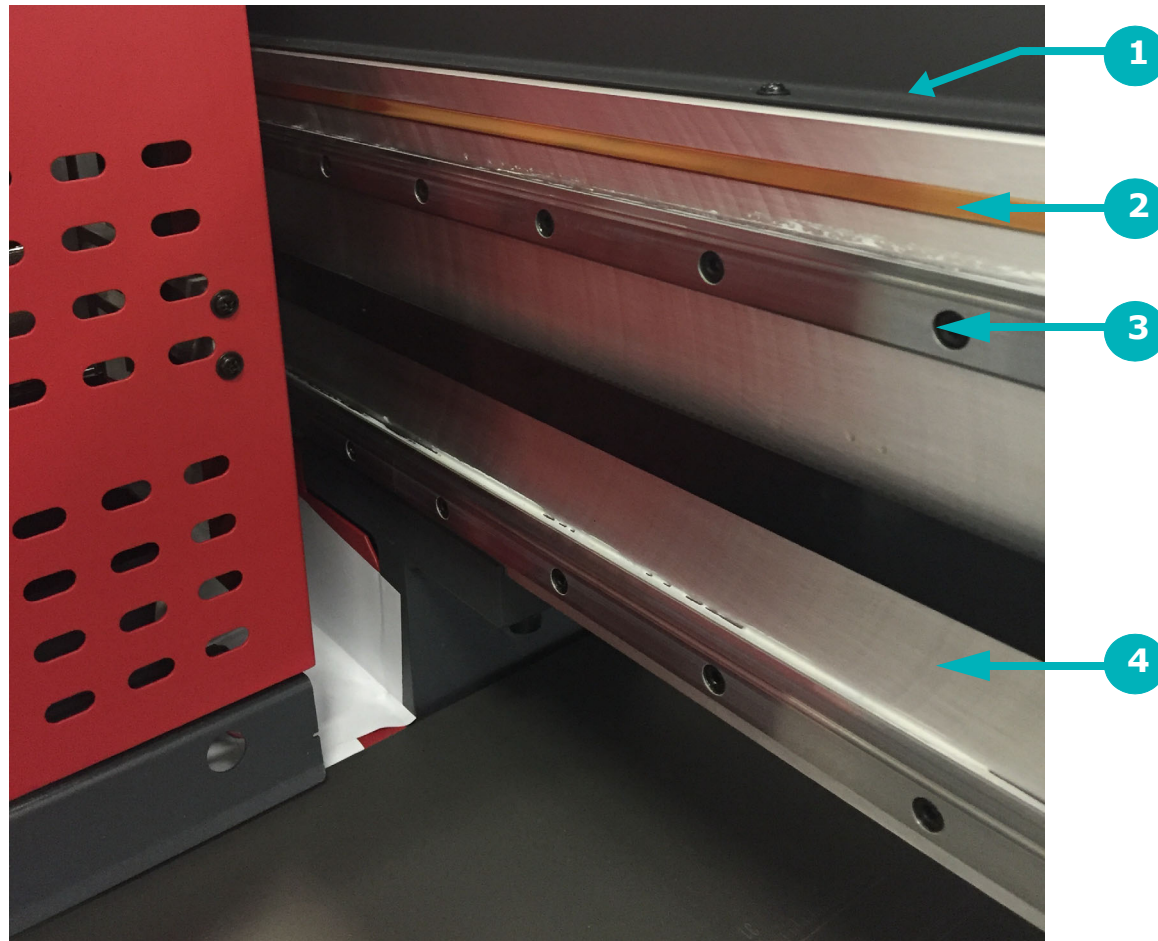


Figure 3-16: Main Beam

- 1 Carriage Main Beam
- 2 Linear Encoder Strip
- 3 Top Rail
- 4 Bottom Rail

Note: The encoder strip and rails require periodic maintenance. Refer to the Maintenance Guide (*OMM-00149, EFI Pro 24f Maintenance Guide* at <https://inkjet.support.efi.com/doc.php?doc=4137>) for details.

3.4.5 Media Vacuum Foot Pedal

The media vacuum foot pedal controls the media belt vacuum. With the main vacuum breaker in the on position and the vacuum control valves open, stepping on this pedal turns the vacuum motors on and creates the vacuum in the platen that holds media in place when printing.



Figure 3-17: Media Belt Vacuum Foot Pedal

4.0 EFI Print Control Utility and EFI Pro 24f Control Window

This chapter covers the EFI Print Control Utility and the EFI Pro 24f Control window.

4.1 EFI Pro 24f Software Operational Overview

This section provides a general overview of the EFI Pro 24f's Print Control Utility software and how to use it when printing.

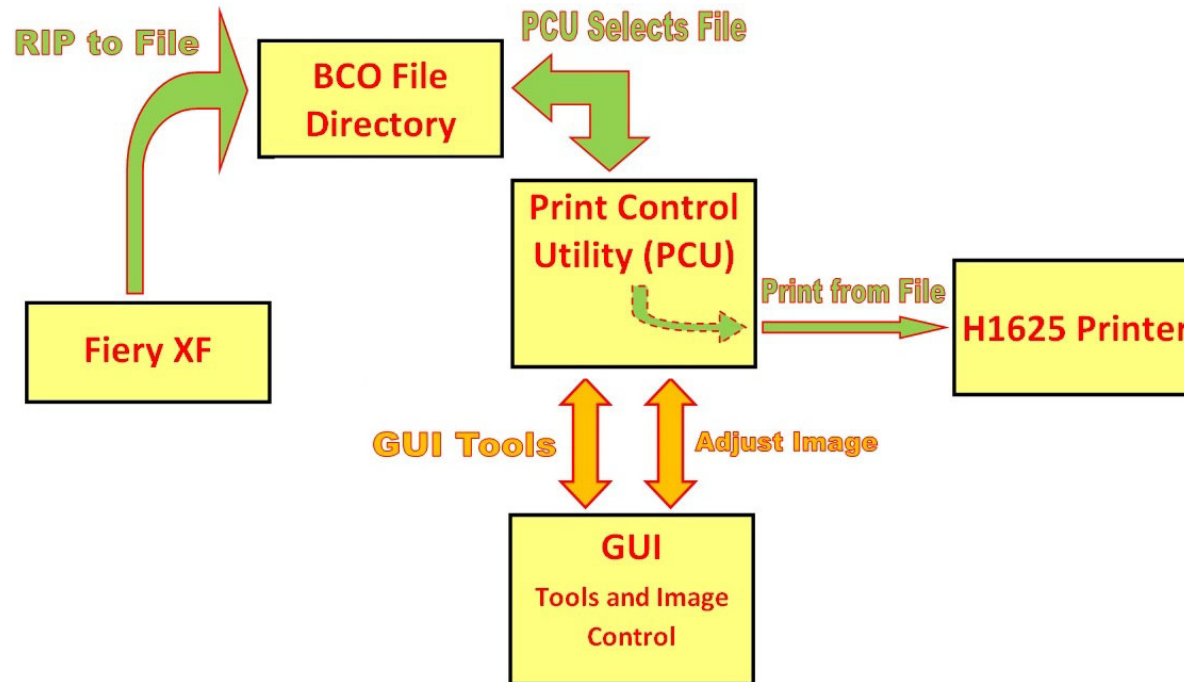


Figure 4-1: EFI Pro 24f Printing Data Flow

The EFI Pro 24f printer is operated directly using the EFI Pro 24f Print Control Utility. The system data flows as follows:

1. Fiery XF is used to rip images to a .bco file. This file contains all the printing information and is stored on the EFI Pro 24f computer.
2. The Print Control Utility is used to select and open pre-ripped .bco files and to print the files.
3. The Print Control Utility is also used to open the EFI Pro 24f Control window to use tools, adjust parameters, or adjust image information.

4.2 EFI Print Control Utility

The EFI Pro 24f printer is operated by using the EFI Pro 24f Print Control Utility. The printer operator imports the image source files to be printed to the EFI Pro 24f printer via a network connection in the appropriate file format (pdf, eps, etc.). Fiery XF RIP software is then used to process the source file and create the required bco file to be printed. The Print Control Utility is used to select the appropriate bco file, select the number of copies and initiate the printing process. Additionally, the Print Control Utility can open the Control window which can be used to access more advanced printer settings and controls.

- Click the EFI Print Control Utility icon.

The Print Control Utility (see [Figure 4-2](#)), allows the user to select, adjust, and print existing RIP (.bco) files. The EFI Pro 24f Control window is launched from the PCU.

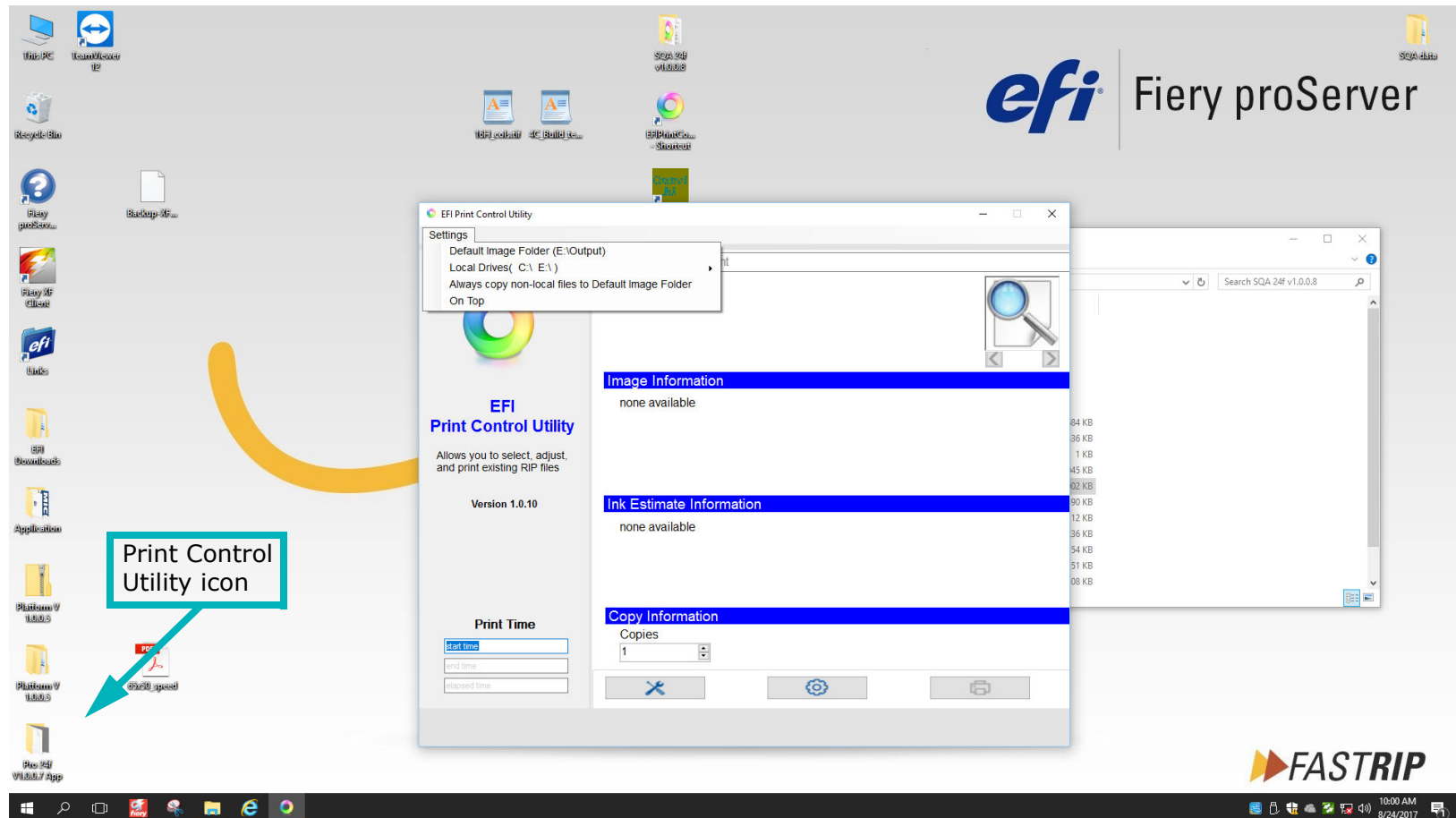


Figure 4-2: EFI Print Control Utility

4.2.1 Print Control Utility Overview

Open and run the Print Control Utility as described in this section.

1. Click on the Print Control Utility (PCU) icon located on the desktop.
The PCU window opens.

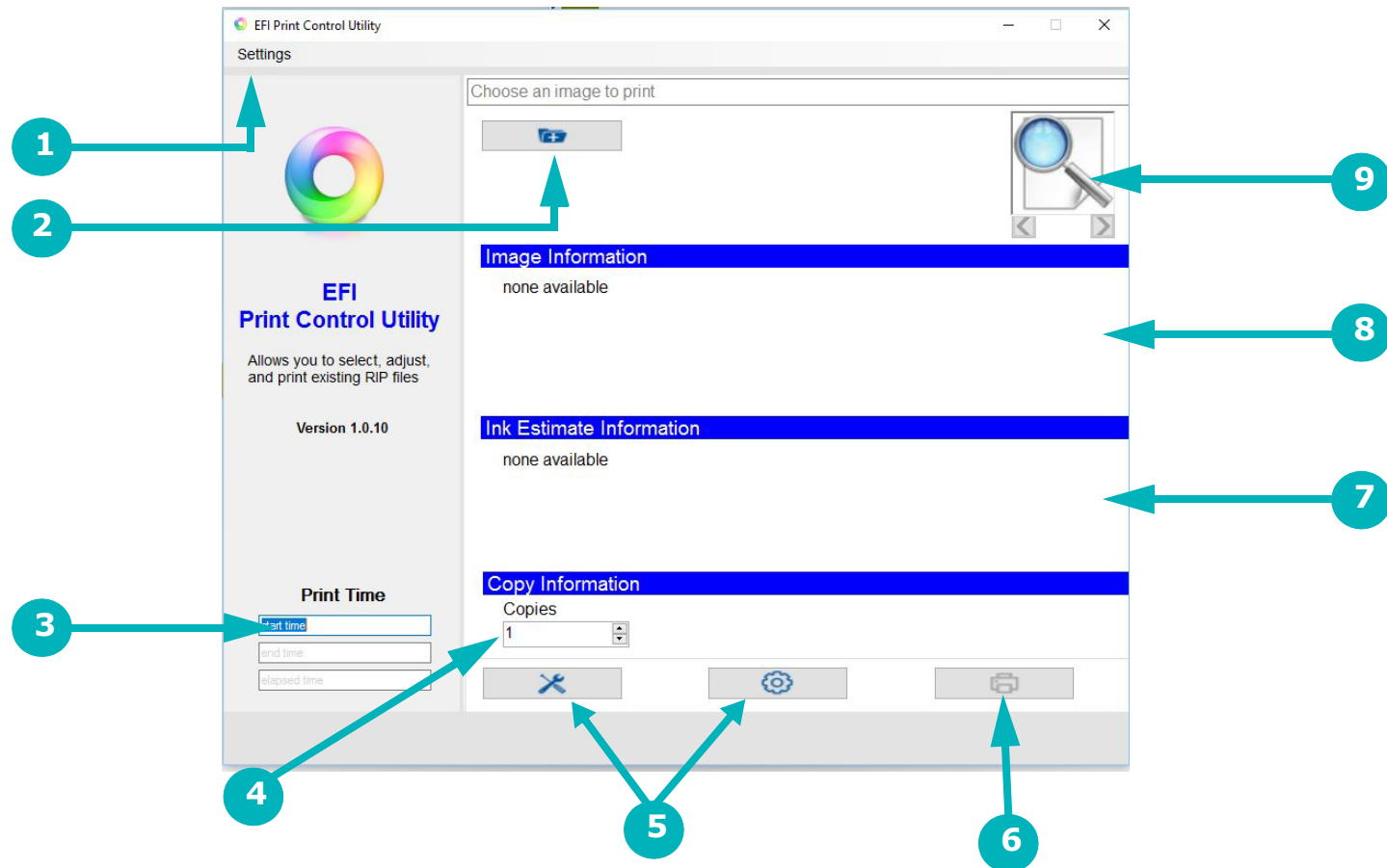


Figure 4-3: EFI Print Control Utility Overview

- | | | | | | |
|---|-----------------------------|---|----------------------------|---|---|
| 1 | Settings Menu | 2 | Select File to Print | 3 | Print Time calculates time from when Print button is clicked to homing of carriage after printing |
| 4 | Number of Copies | 5 | Opens Control window | 6 | Print Button prints selected file. |
| 7 | Display Ink Usage Estimates | 8 | Displays Image Information | 9 | Image Preview Thumbnail |

2. Select the Settings menu in the upper left corner of the window and select the default image folder. This opens the folder containing the pre-ripped .bco files.
3. From the default image folder, select the desired file. The PCU window displays the following (if the information is contained in the file):
 - Image information
 - Ink estimate information
4. Use the Copies Control on the PCU window to adjust the number of copies to be printed.
5. Click the Print button in the lower right hand corner of the PCU window to print the selected image.
6. The Load Media prompt appears, instructing the operator to load the media. This prompt appears for every copy of the print. The operator must acknowledge the prompt each time, signaling that the media has been loaded

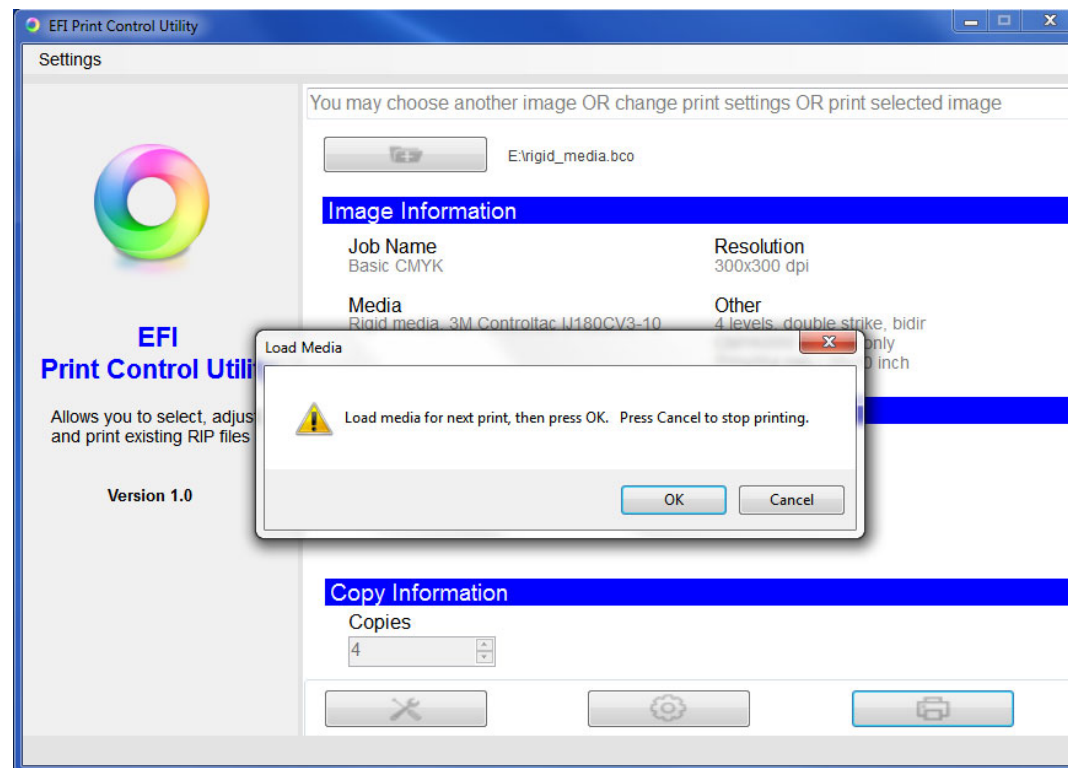


Figure 4-4: "Load Media" Window

4.2.2 Settings Menu

The Print Control Utility Settings menu has the following options:

1. **Default Image Folder** - Allows the operator to set/change the default image folder. When the user presses the "Select Files to Print" button, the default image folder is opened. The default image folder should be set to "F:\XF Output".
2. **Local Drives (C:\)** - Adds or Removes other local Drives. (Image shown below)
3. **Always Copy Non-local Files To Default Image Folder (F\XF Output)** - Sets the Utility to always copy non-local files to the default image folder (without prompting the operator) before printing.
4. **On Top** - Keeps the Print Control Utility window on top of other windows.

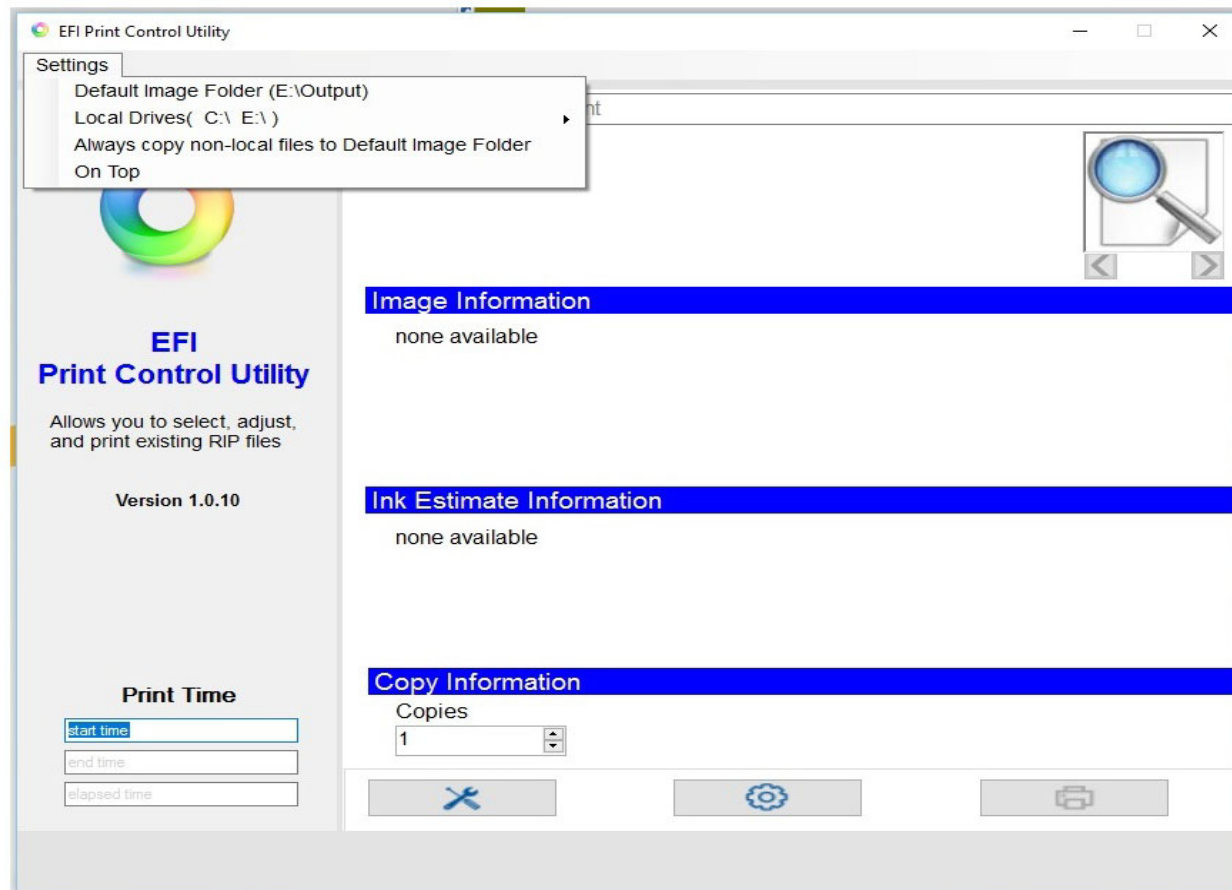


Figure 4-5: Print Control Utility Settings Menu

4.2.3 Adding Drives

The Print Control Utility “Add Drives” function operates as follows:

1. Click on the Local Drive button.
2. Navigate to the desired drive. and select it.

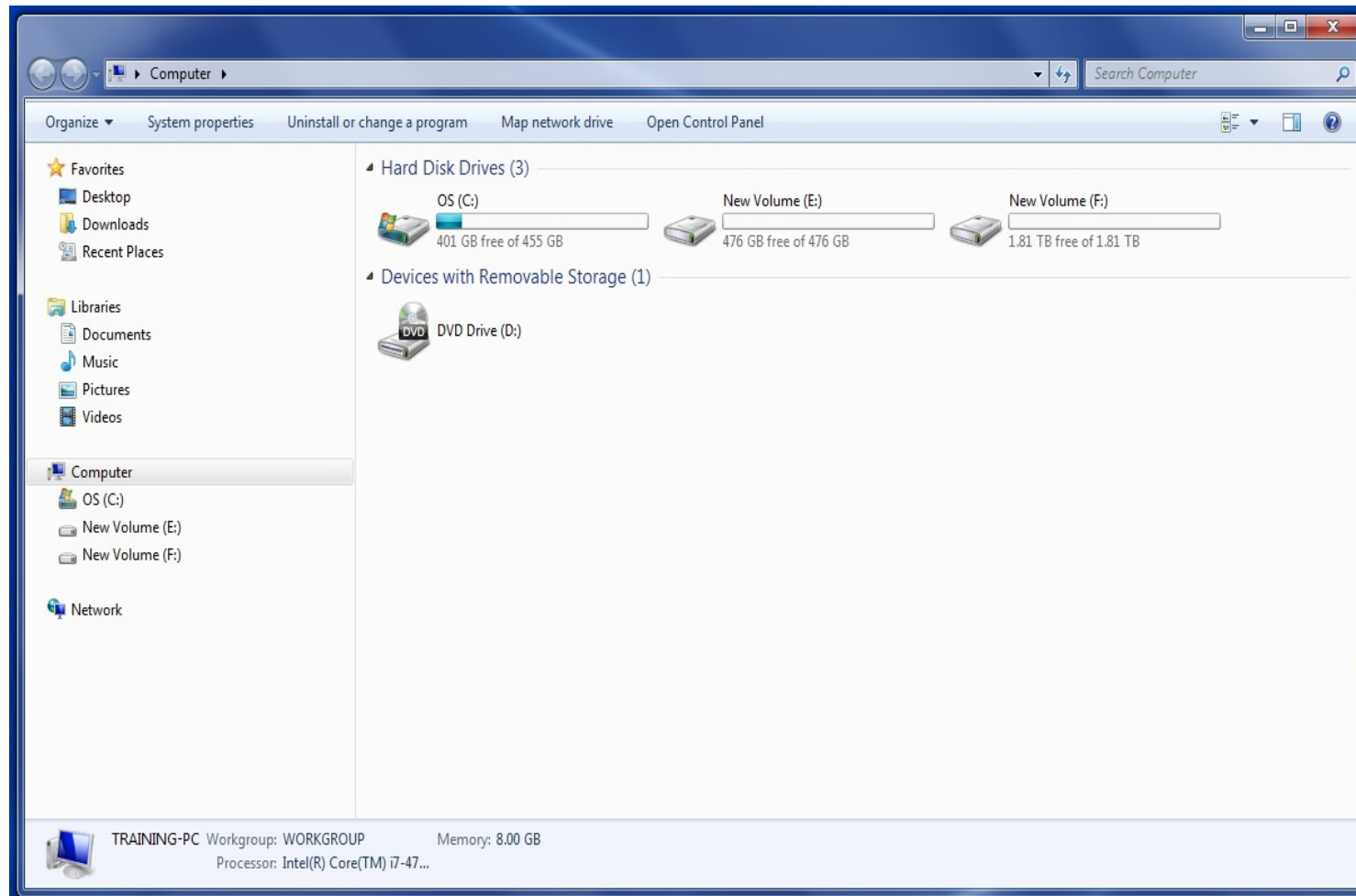


Figure 4-6: Print Control Utility Select Drive

4.2.4 Select Files to Print Button

The Print Control Utility Select File to Print menu operates as follows:

1. Click on the button to open the file folders.
2. Navigate to the desired file.
3. Select the file to print.

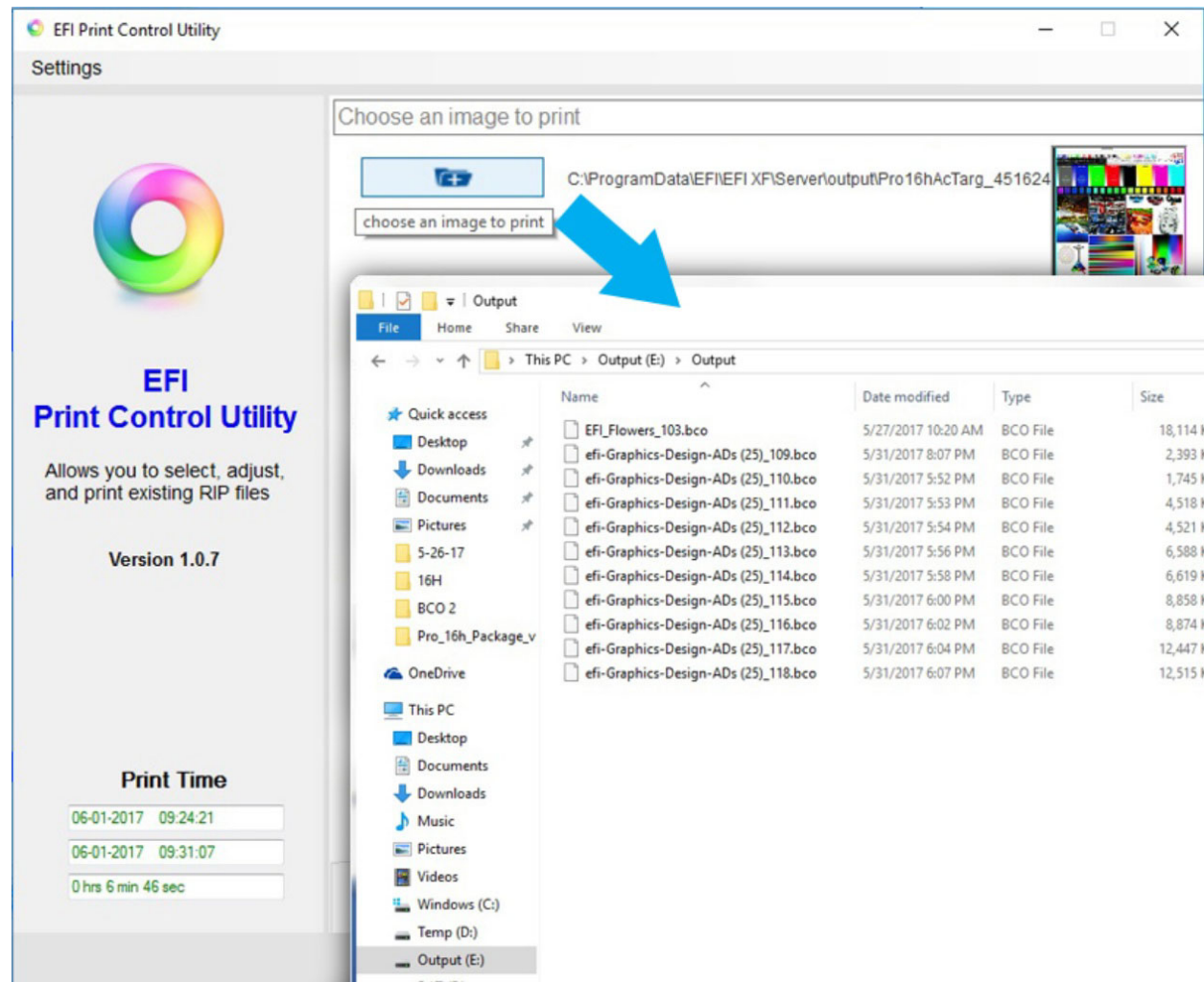


Figure 4-7: Print Control Utility Select File to Print Button

Move Selected BCO Option

If the BCO is not in route directory, for example because you are using a USB flash drive import, the system displays a prompt asking, “Would you like to copy this file to the default image folder now?”

- Select **Yes** to move the file.

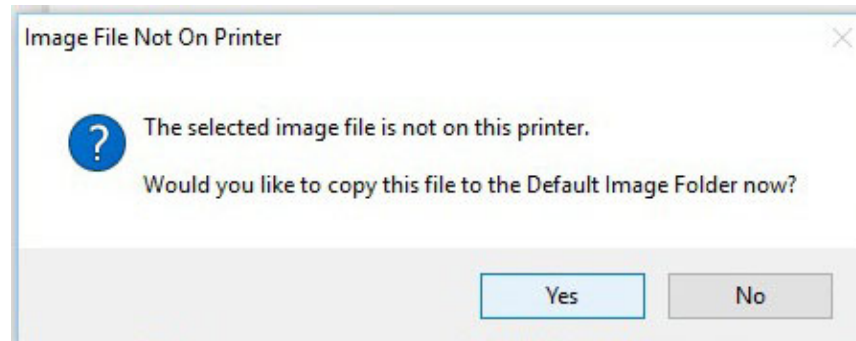


Figure 4-8 “Image File Not On Printer” Prompt

4.2.5 Image Information and Ink Use Estimates Panes

The Print Control image Information and Ink Usage Estimates panes display data as follows:

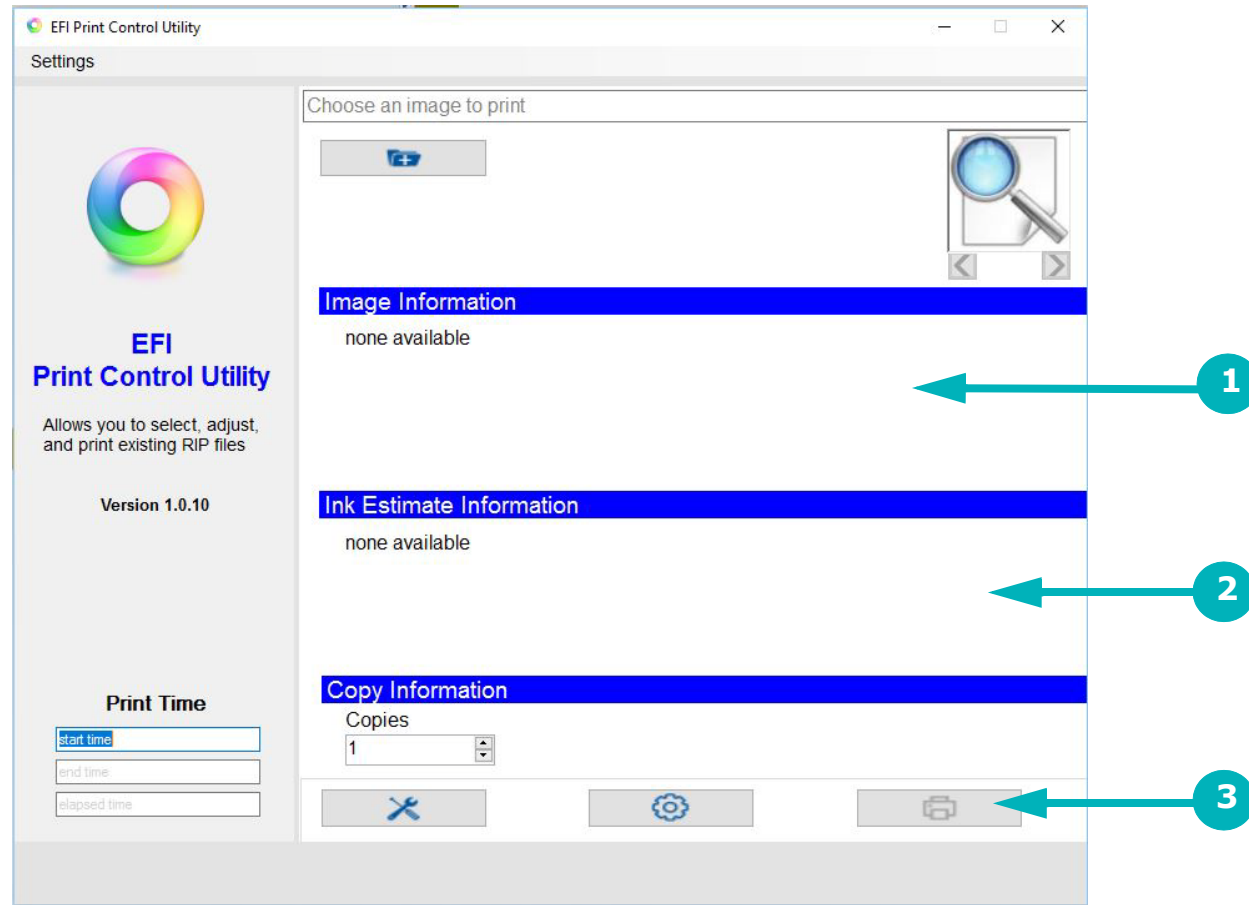


Figure 4-9: Print Control Utility Image Information and Ink Use Estimates

1. Displays Image information to include:
 - Job Name
 - Resolution
 - Media Type and Profile
 - Other (Printing Selections including 4 level/8 level, smoothing or non-, unidirectional or bidirectional, colors used from the file, and file print dimensions.)
2. Displays Ink Usage Estimates for the job selected.
3. When finished, the "Print Completed" message will appear in the "Copy Information" section

Conflict Message

The previous Print Control and the Print Control Utility (PCU) cannot run together. If the previous Print Control is running, the error shown below appears when you start the PCU. If the error occurs, shut down the previous Print Control and reopen the PCU.

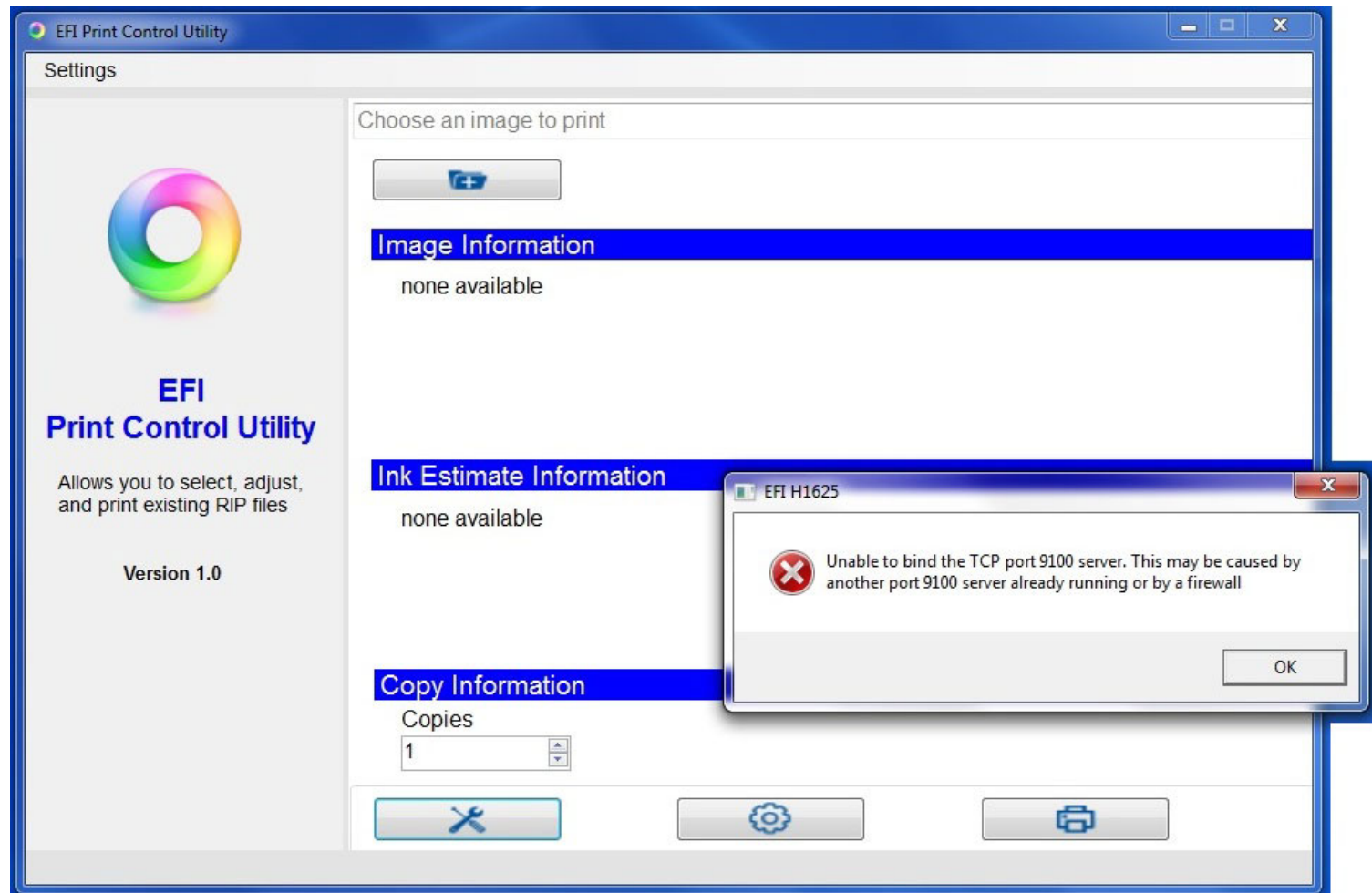


Figure 4-10: PCU / Print Control Error Message

4.3 EFI Pro 24f Control Window

The Print Control Utility launches the EFI Pro 24f Control window by clicking on the **Tools** button or the **Adjust Image Settings** button. The EFI Pro 24f Control window defines printing parameters, print options, and printer status information.

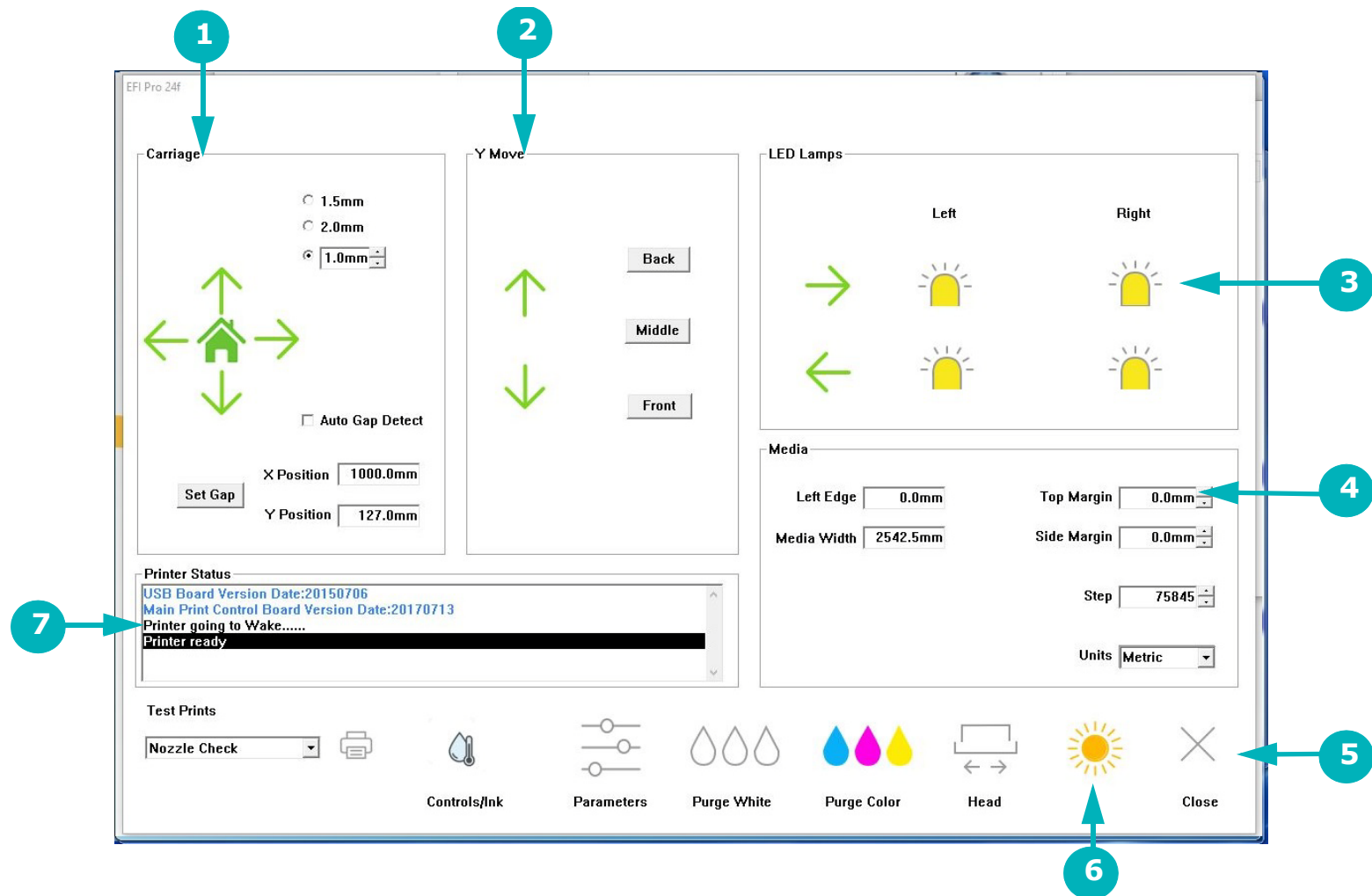


Figure 4-11: EFI Pro 24f Control Window

- | | | | | | |
|---|-----------------------|---|-------------------|---|---------------------------|
| 1 | Carriage Controls | 2 | Movement Controls | 3 | Lamp Controls |
| 4 | Media Controls | 5 | Printer Tools Bar | 6 | "Awake" or "Sleep" button |
| 7 | Print Status messages | | | | |

4.3.1 Carriage Controls

The Carriage controls perform the following functions:

1. Moves carriage up on the Z-Axis to the upper limit.
2. Moves carriage down on the Z-Axis to the lower limit.
3. Selectable carriage height settings.
4. Allows the carriage to automatically set the Gap.
5. Sets the carriage gap measurement positive distance from the Media Positive Value.
6. Sets Measurement Position.

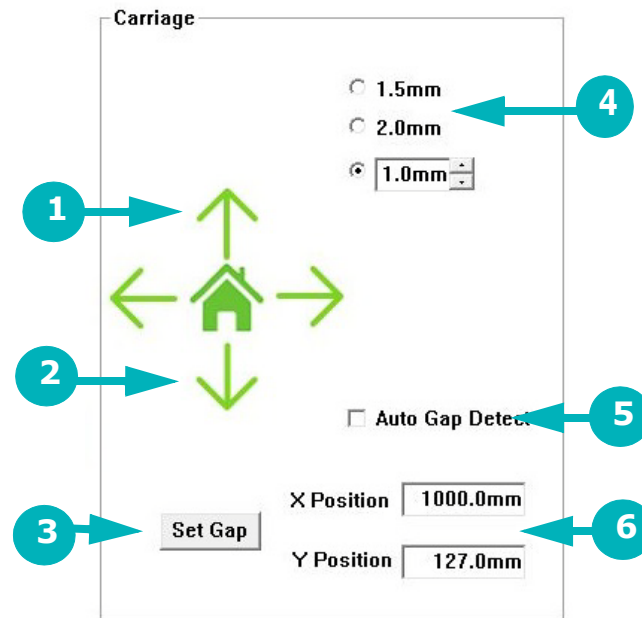


Figure 4-12: Carriage Controls

- | | | | | | |
|---|-------------|---|-----------------|---|---------------------------|
| 1 | Carriage UP | 2 | Carriage DOWN | 3 | Click to Set Print Gap |
| 4 | Gap Setting | 5 | Auto Gap Detect | 6 | Sets Measurement Position |

4.3.2 Movement Controls

The Movement controls the following functions:

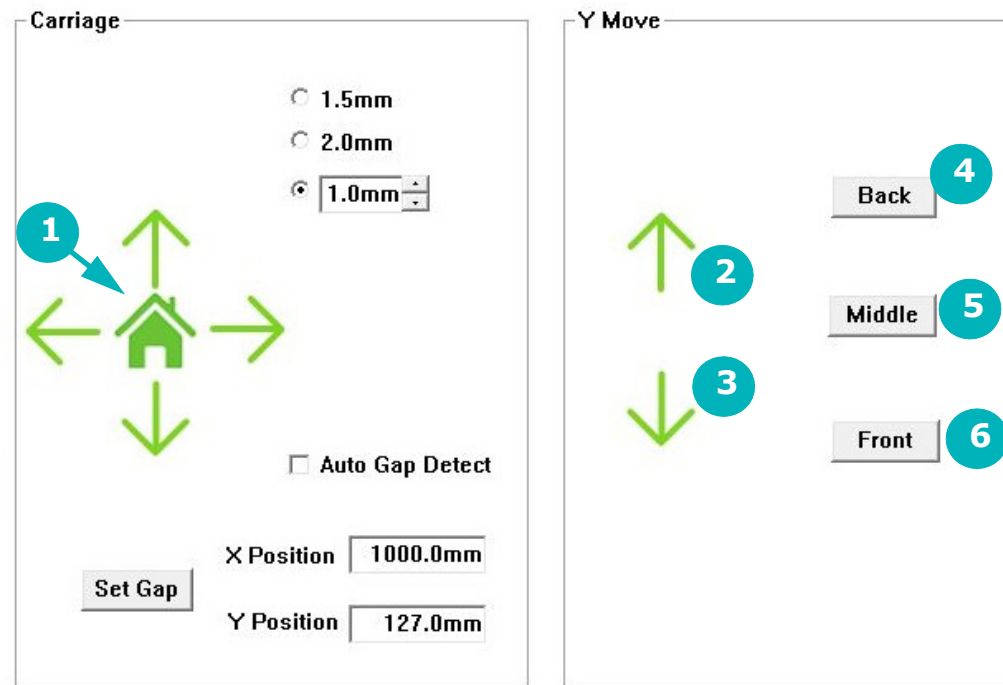


Figure 4-13: Movement Controls

- | | | | | | |
|---|--------------------------|---|----------------------------|---|---------------------------|
| 1 | Moves Carriage HOME | 2 | Jogs Gantry Forward | 3 | Jogs Gantry Backward |
| 4 | Moves Gantry to the Back | 5 | Moves Gantry to the Middle | 6 | Moves Gantry to the Front |

4.3.3 Lamp Controls

The Lamp Controls provide the following functions:

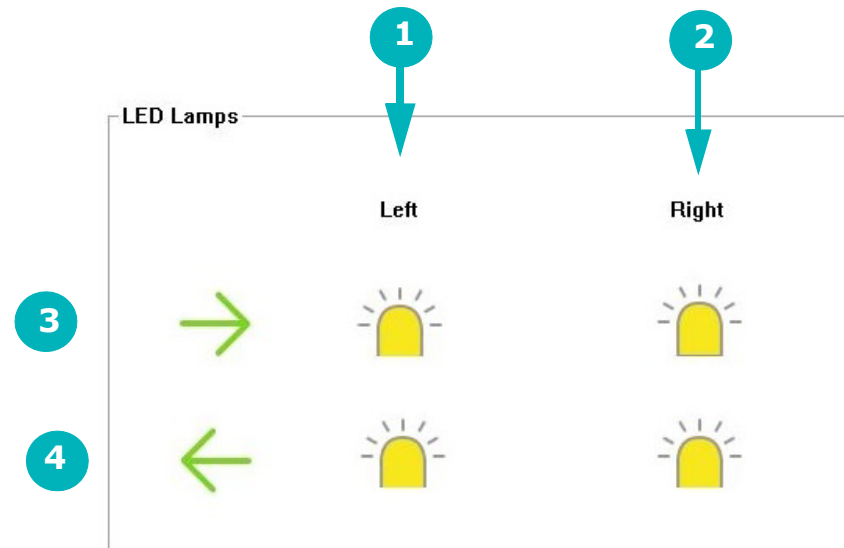


Figure 4-14: X-Y Lamp Controls

- | | | | |
|---|---|---|---|
| 1 | Left Lamp Control (ON/OFF) | 2 | Right Lamp Control (ON/OFF) |
| 3 | Indicates LED Lamp is curing from left to right | 4 | Indicates LED Lamp is curing from right to left |

Note: Normally all 4 bulbs should be turned on in order to optimize curing in both directions.

4.3.4 Media Controls

Media Controls provide the following functions:



Figure 4-15: X-Y Media Controls

- | | | | | | |
|---|----------------------|---|--------------------|---|-------------------------------------|
| 1 | Sets Media Left Edge | 2 | Sets Media Width | 3 | Sets Top Margin |
| 4 | Sets Side Margin | 5 | Sets Step Distance | 6 | Define unit for margin measurements |

4.3.5 Printer Status Bar

The printer status bar displays one-line messages that detail printer status. The messages indicate what the printer is doing at any given point in time. Some examples are provided in [4.3.6](#).

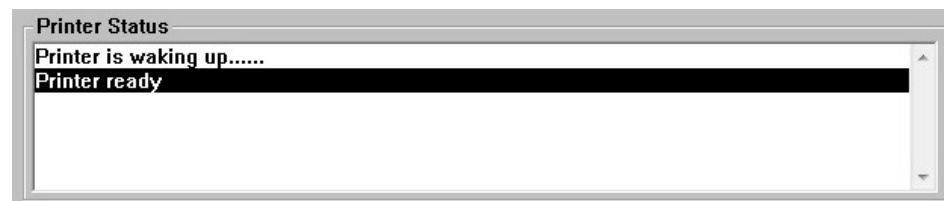


Figure 4-16: Printer Status Bar

4.3.6 Printer Tools Bar

The printer tools bar contains the following tools. Description, function, and location of the tools are described below. .

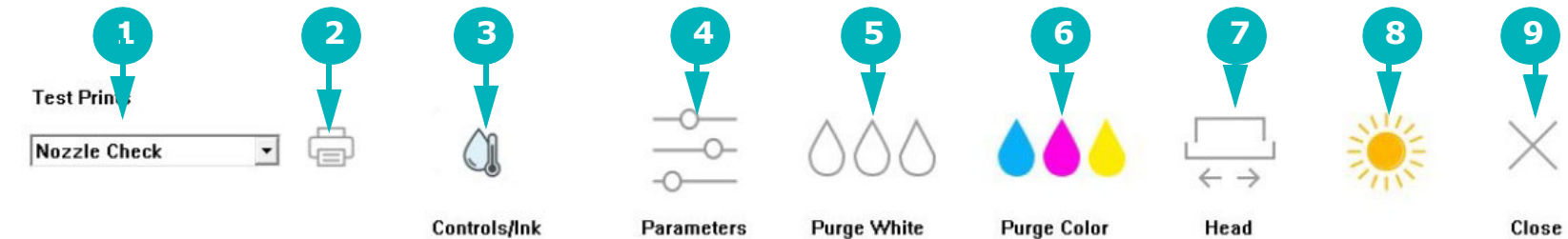


Figure 4-17: Printer Tools Bar

1. **Test Prints** - Provides a list of all the test print types. Descriptions of operator-used test print types are provided in Section [4.3.12](#).
2. **Print** - Prints the test print selected in the Test Prints list.
3. **Controls/Ink** - Opens the EFI PLC Control window described in Section [4.3.10](#)
4. **Parameters** - Opens the Parameters window described in Section [4.3.9](#).
5. **Purge White** - Purges the white print heads and conducts a head sweep.
6. **Purge Color** - Purges the CYMK color print heads and conducts a head sweep.
7. **Head Sweep** - Sends the carriage Home to perform a head sweep of all print heads.
8. **Awake/Sleep** - Indicates the printer's current sleep/wake mode.
9. **Close** - Shuts down the Control window

Note: After clicking the Media Belt Continuous Movement button, stop the belt movement by clicking either the STOP button from [Figure 4-13](#) or clicking the Media Belt Continuous Movement button again.

4.3.7 Printer Tests

To run printer tests, open the *EFI Pro 24fControl* window and select a test print from the menu and choose the *Print* icon to conduct that test print.

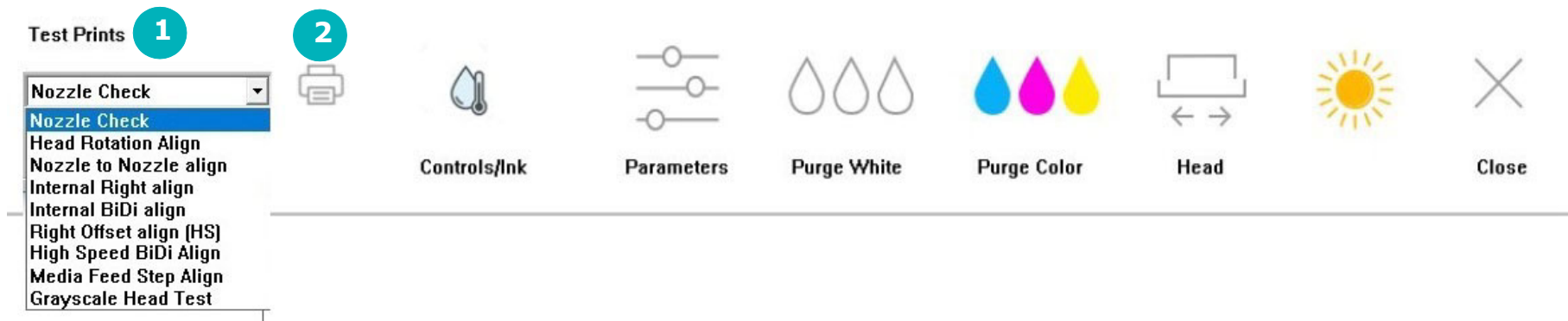


Figure 4-18: Print Icon

1 Select test in list

2 Choose Print icon to print selected test

4.3.8 Printer Test List and Test Description

A list of tests and the related description of each test is provided below. Operators only use the *Nozzle Check* test. Other *Print Tests* are used by *Field Service Engineers*.

TEST NAME

TEST DESCRIPTION

Nozzle Check	The Nozzle Check test provides a test print that shows whether all print heads are working properly
Head Rotation Align	Head Rotation Alignment checks if print heads are perpendicular with the X-Axis
Nozzle to Nozzle Align	Nozzle to Nozzle Alignment checks if print heads are aligned with each other
Internal Right Align	Internal Right Align checks whether printed lines intersect at the zero position
Internal BiDi align	Internal BIDI Alignment (<i>BIDI = Bi-Directional</i>) checks whether printed lines intersect at the zero position
Right Offset Alignment (HS)	Right Offset Alignment HS (<i>High Speed</i>) checks if print heads are aligned with each other. This check also determines whether color and white print heads are aligning with black print head in a high speed mode.
High Speed Bi-Directional Alignment	High Speed BIDI Alignment (<i>BIDI = Bi-Directional</i>) checks if print heads are aligned with each other
Media Feed Step Alignment	Allows the operator to check Step Alignment checks whether the media feed is constant for lines printed at Y

4.3.9 Parameters Window

Click the **Parameters** button in the *EFI Pro 24f Control* window's tool bar to open the *Parameter Settings* window, including the [System Tab](#), [Page Settings Tab](#), [Offset Tab](#), [Head Voltage Tab](#), and [Head Temperatures Tab](#).



Figure 4-19: Parameters Button on Tool Bar

System Tab

The Systems Tab contains the following items:

1. Micro Drop Interval and drop times for the "misting" of print heads during sleep mode. This is not required for UV inks, so Interval and Drop Times can be set to zero.
2. Ink System Control. Check White Ink Bottle Recirculation to activate a cycle of the W1 and W2 ink pumps. Recirculating white ink reduces its viscosity, thus avoiding ink clogging on the system. Clear the check box to deactivate recirculation system.
3. Auto Clean: sets the number of passes until printer operation pauses for automatic purge and sweep, then resumes printing. This number only resets when the printer is powered down.
4. Resets Cleaner Case (Vacuum Canister)
5. If checked, printer advances media through blank/white space. See [6.7 Skip Blank Space During Prints](#).
6. Sets Sleep Mode Timer
7. Mists the print heads before printing. Should be set to 1.
8. Sets speed of media advancement when "Skip at blank space" is checked. Should be set to 40000 Pulse/Second.
9. **OK** to save and exit. **Cancel** to exit without saving.

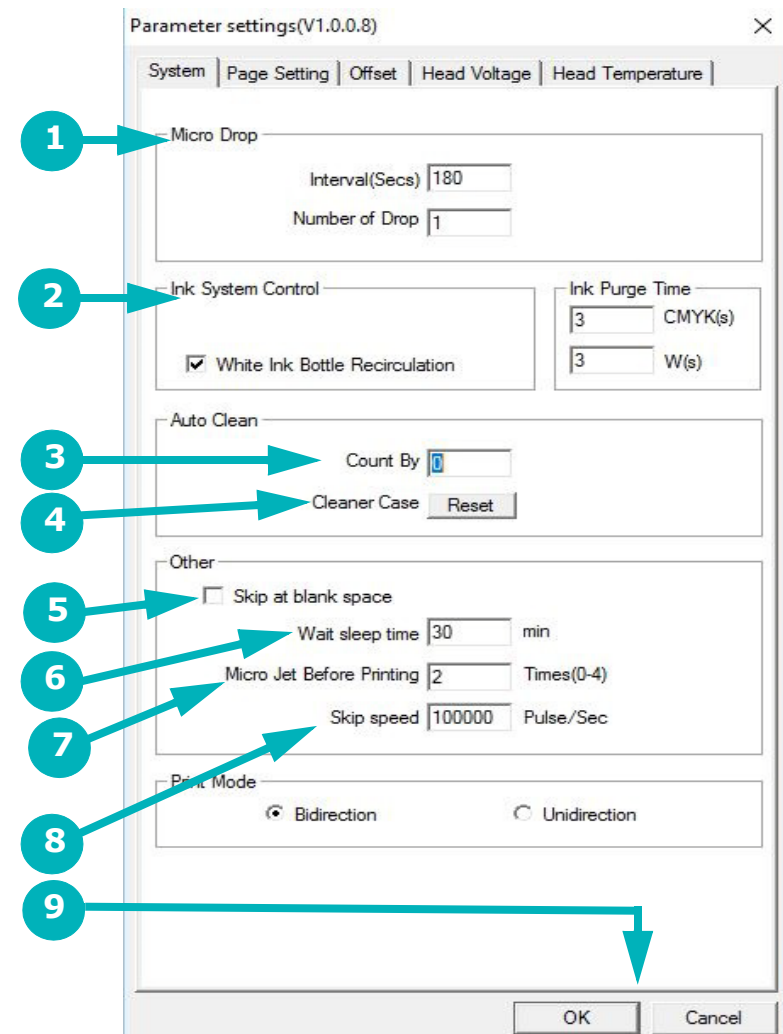


Figure 4-20: Parameters System Tab

Page Settings Tab

The Page Settings tab is generally used only during printer set up. Operators are likely to use only the Carriage Height Calibration Tool (item 2). The full tab contains the following items:

1. Modifies Media Axis.
2. Identifies Media Position.
3. Identifies Platform Origin.
4. Identifies Media Width.
5. Identifies Y Position Board Adjustment
6. Carriage Height Slide Bar Adjustment
7. Sets Value in mm.
8. Adjust and Save buttons
9. Save it as home height. Click OK to save the home height as the printing height.
10. Choose **OK** to save or **Cancel** to exit.



Figure 4-21Page Settings Tab

Offset Tab

The Offset tab is generally used only by Field Service Engineers and contains the following items:

1. Determines the type of calibration to be executed. Each selection shows different values below.
2. Displays Print Head X Alignment Values.
3. Displays print head R offset values.
4. **OK** to save or **Cancel** to exit.

Note: This tab is used only by Field Service Engineers.

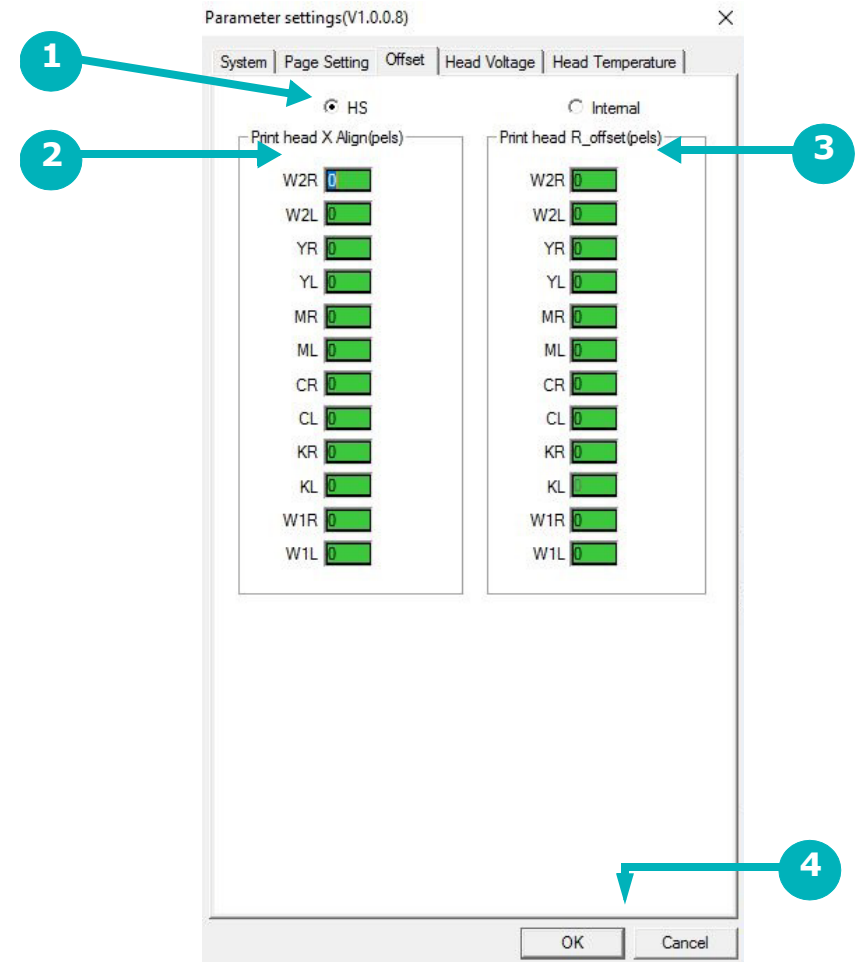


Figure 4-22Parameters Offset Tab

Head Voltage Tab

The Head Voltages tab is used only by Field Service Engineers and displays the following:.

1. Displays and sets print head voltage for each white and CYMK print head.
2. Read button - Checks the actual voltage of the print heads and displays in the **Voltage Settings** fields.
3. Write button - Saves the values that were input in the **Voltage Settings** fields.
4. **OK** to save or **Cancel** to exit.

Note: This tab is used only by Field Service Engineers.

Parameter settings(V1.0.0.8)

System | Page Setting | Offset | Head Voltage | Head Temperature

Voltage settings

W1:1	W1:2	W1:3	W1:4
19.30	19.50	19.00	19.10
19.2	19.4	18.8	19.0
K:1	K:2	K:3	K:4
19.20	18.60	18.70	18.70
19.1	18.5	18.6	18.6
C:1	C:2	C:3	C:4
19.50	19.20	19.20	19.40
19.4	19.1	19.1	19.3
M:1	M:2	M:3	M:4
18.60	18.80	19.00	19.20
18.5	18.6	18.9	19.2
Y:1	Y:2	Y:3	Y:4
19.10	19.10	19.20	19.20
19.0	19.0	19.1	19.2
W2:1	W2:2	W2:3	W2:4
19.50	19.10	19.20	19.20
19.4	19.0	19.1	19.1

Read

Write

OK Cancel

Figure 4-23: Head Voltage Tab

Head Temperatures Tab

The Head Temperatures tab is generally used only by Field Service Engineers and contains the following items:

1. Sets head temperatures. Set the values and choose the **Set** button at the bottom of the column to save the values.
2. Displays current temperatures. Choose the **Read** button at the bottom of the column to update the temperature readings.
3. **OK** to save or **Cancel** to exit.

Note: This tab is used only by Field Service Engineers.

Parameter settings(V1.0.0.8)

System | Page Setting | Offset | Head Voltage | Head Temperature

Temperature(C)

	Set	Current
W1	45.00	44.84
K	45.00	44.65
C	45.00	44.71
M	45.00	44.78
Y	45.00	44.65
W2	45.00	44.84

Set Read

Temperature Warning(C)

☒ Head Temperature Range

Alarm +/- 2.00

OK Cancel

Figure 4-24Head Temperatures Tab

4.3.10 Control/Ink window

Choose the Controls/Ink button on the tool bar at the bottom of the EFI Pro 24f Control window to open the Control/Ink window.



Figure 4-25: Ink System Information

- 1 Restores Ink Tank Temp Factory Settings (Cyan, Magenta to 41° C; 42° C for White, Black, and Yellow)
- 2 Secondary Ink Tank Current Temperatures - View Only
- 3 Secondary Ink Tank Temperatures to be Set
- 4 Negative Pressure - CMYK and White
- 5 Ink Tank Status. Green = OK; Gray = Low/Empty
- 6 Level Indicator for Each Ink Tank and the Waste Bottle
- 7 Supply: Fills All Secondary Ink Tanks
- 8 Click Apply after every adjustment. System displays modification confirmation messages.
- 9 During initial set up, select PLC connection port.
- 10 Displays status and alarm messages. Alarm buzzer sounds until you choose Reset.
- 11 LED Lamp Power Adjustment

4.3.11 Printer Status Messages

During printing operations, the EFI Pro 24f displays Printing In Progress status updates. These messages provide data on the following:

- Job Status
- Lamp Status
- Temperature and Vacuum Status
- Printer Status
- Printer Control

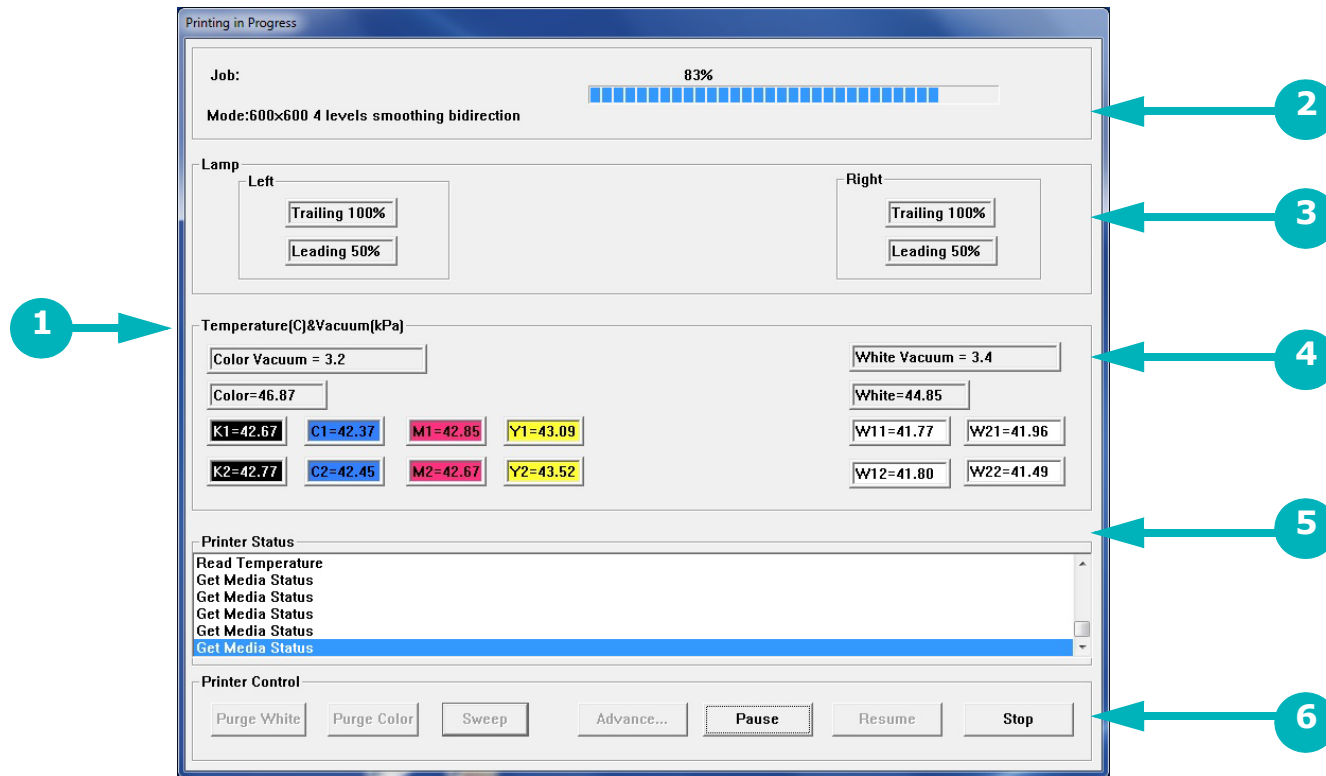


Figure 4-26: Printing in Progress Window

- | | | | | | |
|---|--------------------|---|----------------|---|------------------|
| 1 | Temperature Status | 2 | Job Status | 3 | Lamp Status |
| 4 | Vacuum Status | 5 | Printer Status | 6 | Printer Controls |

4.3.12 EFI Pro 24f Control Window “Asleep”

When the printer is put into sleep mode, the EFI Pro 24f Control window becomes grayed-out. A moon icon appears in place of the normal sun icon, and the window does not operate until placed back into the “awake” mode. This is accomplished by clicking the moon icon to wake the system.

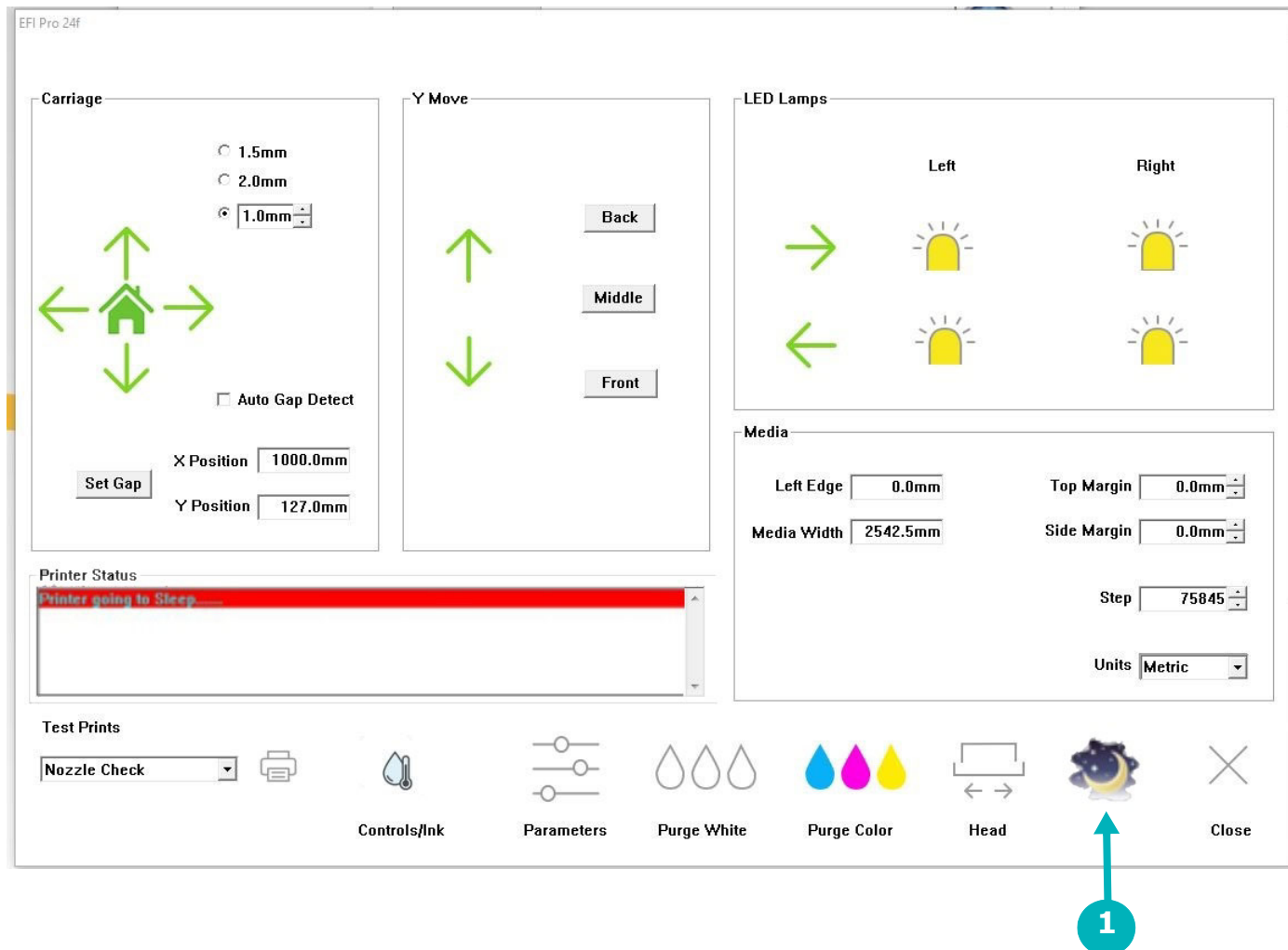


Figure 4-27: Control Window “Asleep”

1 “Moon” icon

5.0 EFI Pro 24f Printer Setup

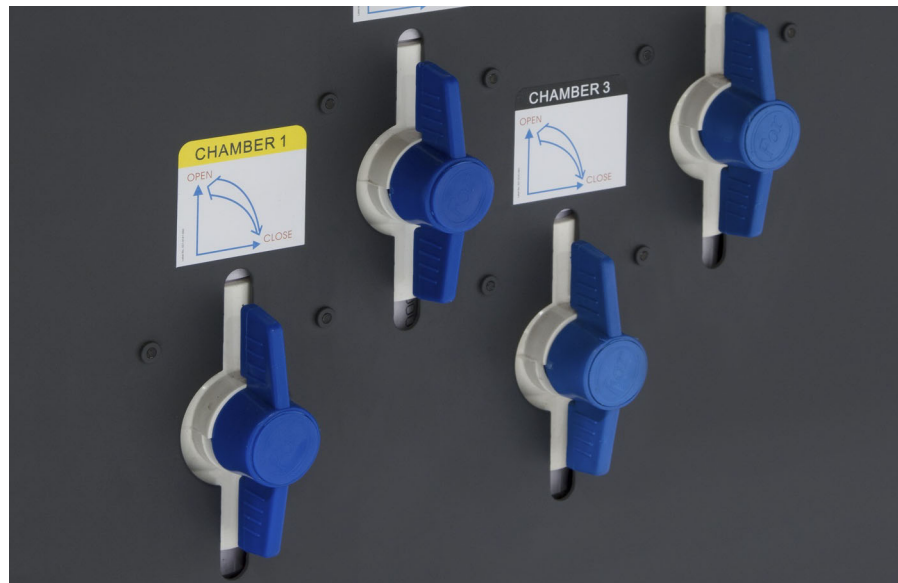
This chapter describes set-up procedures for the EFI Pro 24f Wide Format Printer. Perform the tasks in this chapter when setting up the EFI Pro 24f Wide Format printer for operation.

5.1 Full Printer Startup From Power Down

After a period when the printer has been completely shut down (see sections [9.2](#) and [9.3](#)), perform the startup procedure as described below.

Note: When the printer is in daily use, it is left in sleep mode rather than being powered down. Use section [Printer Startup from Sleep Mode](#) to wake the printer from sleep mode.

1. Ensure that all E-Stops are deactivated. The printer is in an alarm state until/unless the E-Stops are deactivated.
2. Ensure that negative pressure valves are open.



3. Ensure that main power to the printer is on and that the main power cable is properly connected.
 4. Turn on all main breakers.
 5. Turn on the printer's computer and monitor.
 6. Press the green start button on the operator station keyboard tray.
- The printer is now ready for normal startup steps. See section [Printer Startup from Sleep Mode](#).

5.2 Printer Startup from Sleep Mode

When the printer is in daily use, it is not shut down, but instead is left in sleep mode between shifts. To bring the printer out of sleep mode and back to a normal operational state, follow the procedure below.

1. Open the EFI Print Control Utility (PCU) on the printer's computer.
2. On the PCU window, launch the EFI Pro 24f Control window and click the "Moon" icon.

The EFI Pro 24f Control window lights up and the "Sun" replaces the moon icon. The printer is now in "Awake" mode. Allow 2-3 minutes for print heads to come to the required temperature and the ink pumps to fill the secondary tanks before printing.

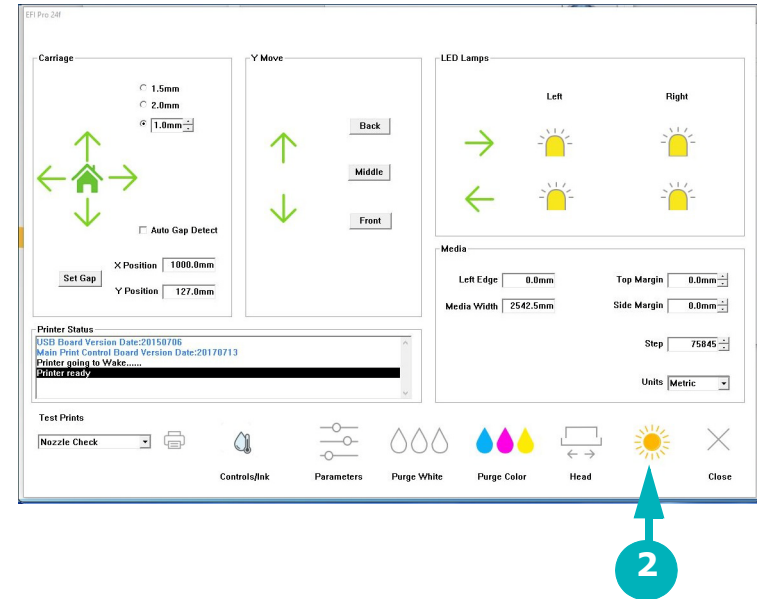
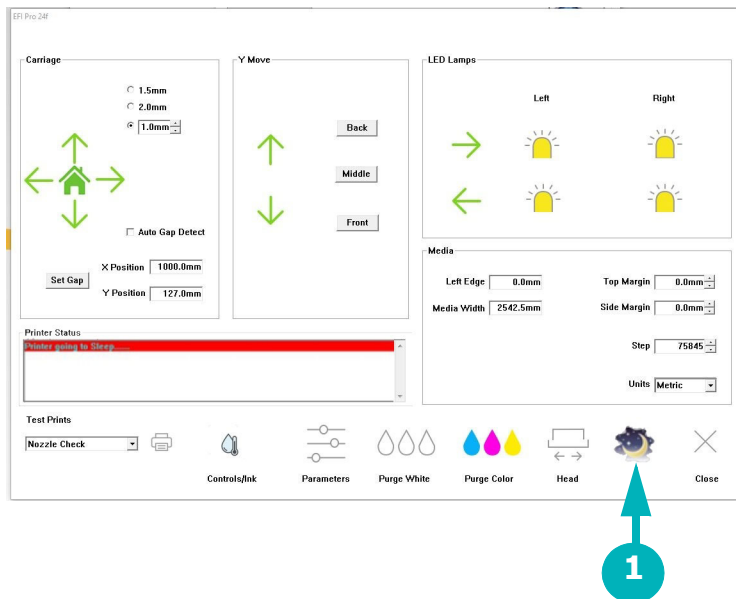


Figure 5-1: EFI Pro 24f Control Window Printer Mode (Asleep/Awake) Icon

1 "Moon" icon = Printer is Asleep

2 "Sun" icon = Printer is Awake

3. Perform daily maintenance tasks as outlined in the EFI Pro 24f Maintenance Guide.
 4. Clean print head plate and the print heads. (See section [Clean Print Heads.](#))
 5. Sweep print heads.
 6. Load rolled media in accordance with section [5.3](#) or load rigid media in accordance with section [5.3](#).
 7. Run a nozzle test (see section [Perform Nozzle Checks](#)).
- Printer is ready for setup and operation.

5.3 Set Media Vacuum Chamber Controls

Open the vacuum valves for the desired chambers. Use vacuum only for chambers covered by the media and close vacuum valves for all other chambers.

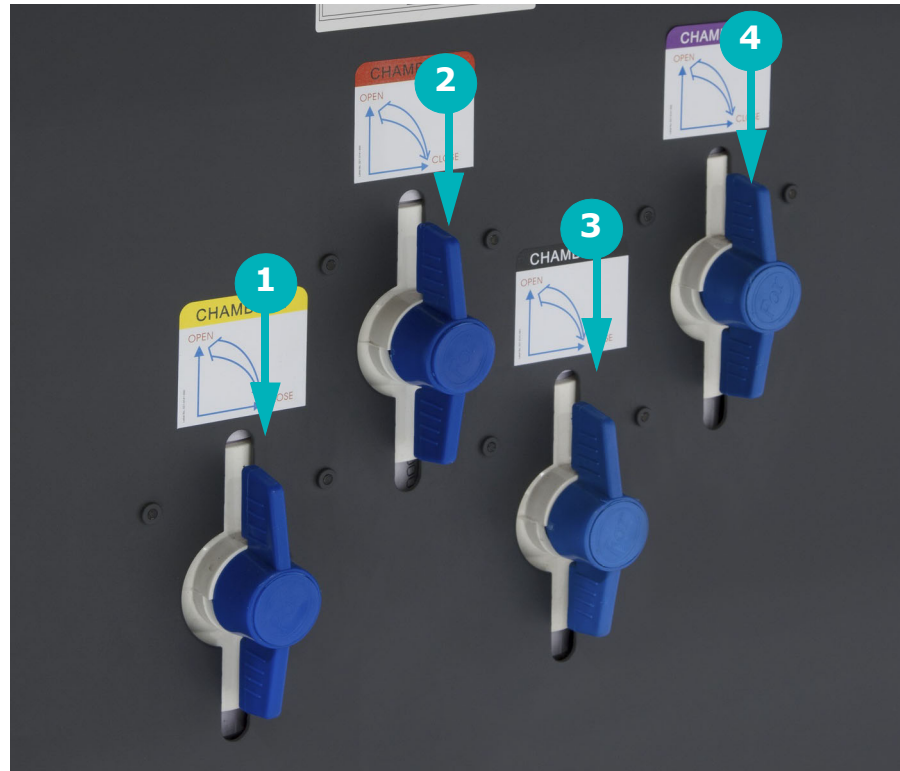


Figure 5-2: Platen Vacuum Control Knob Layout

1	Valve 1	2	Valve 2
3	Valve 3	4	Valve 4

Figure 5-3

6.0 Printing on the EFI Pro 24f

This chapter covers the process for printing on the EFI Pro 24f, including the steps for standard print jobs, conducting a daily white print, printer workflows, full-bleed printing, centering a print on the media, skipping blank space to increase print speeds, and methods for printing multiple rigid media boards.

6.1 Standard Printing Procedure

Use the following steps to conduct a standard print job on the EFI Pro 24f.

6.1.1 Start Up Printer

1. Load the media. (See section [5.3](#) or [5.3](#).)
2. Launch the EFI Print Control Utility.

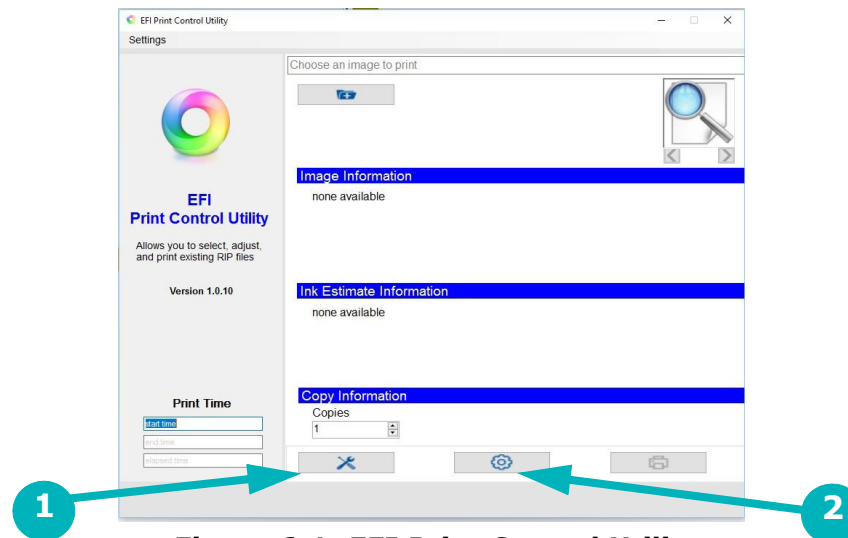


Figure 6-1: EFI Print Control Utility

- 1 Tools: Perform maintenance 2 Gear: Adjust print settings

3. Click the “Tools” or “Gear” button.

Note: Either button opens the **EFI Pro 24f Control** window.

4. Click the “Moon” icon on the EFI Pro 24f Control window to bring the printer out of sleep mode.



6.1.2 Verify Lamp Settings

1. On the EFI PLC Control window (see Section [4.3.10](#)), in the **LED Lamps** box, verify that the cure lamps are on by checking that the light bulb icons are yellow.

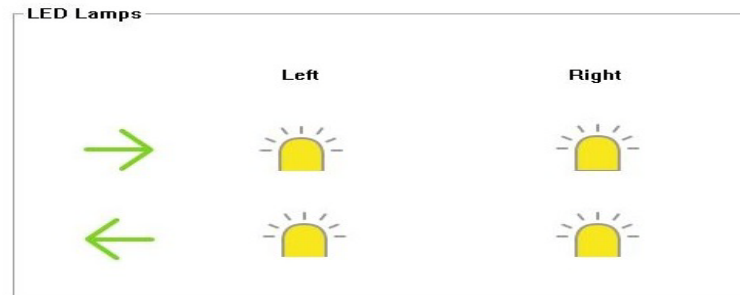


Figure 6-2: EFI PLC Control Window - LED Lamps Box

2. Click any light bulb that isn't yellow, to toggle it to yellow/on.
3. In the toolbar at the bottom of the EFI Pro 24f Control window, choose the **Controls/Ink** button to open the EFI PLC Control window.

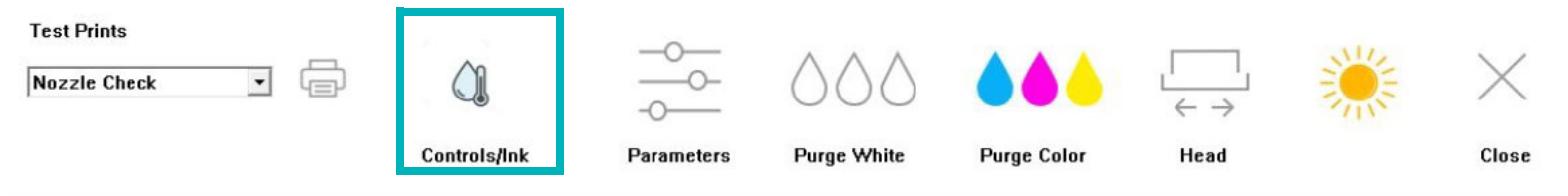


Figure 6-3: EFI Pro 24f Control Window - Controls/Ink Button

4. On the EFI PLC Control window, in the **Light Power** box, verify or set the lamp intensity at 100%.

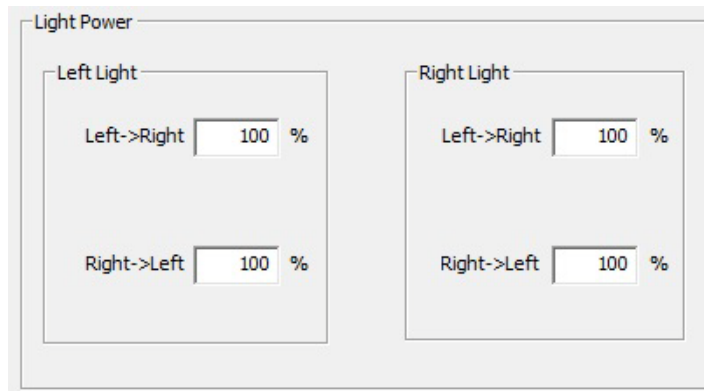


Figure 6-4: Light Power Settings

6.1.3 Set the Carriage Gap

1. In the EFI Pro 24f Control window's Carriage box, click the Set Gap button.

The printer carriage raises in home zone, advances over the media, lowers to measure the media thickness, and then returns to the home zone.

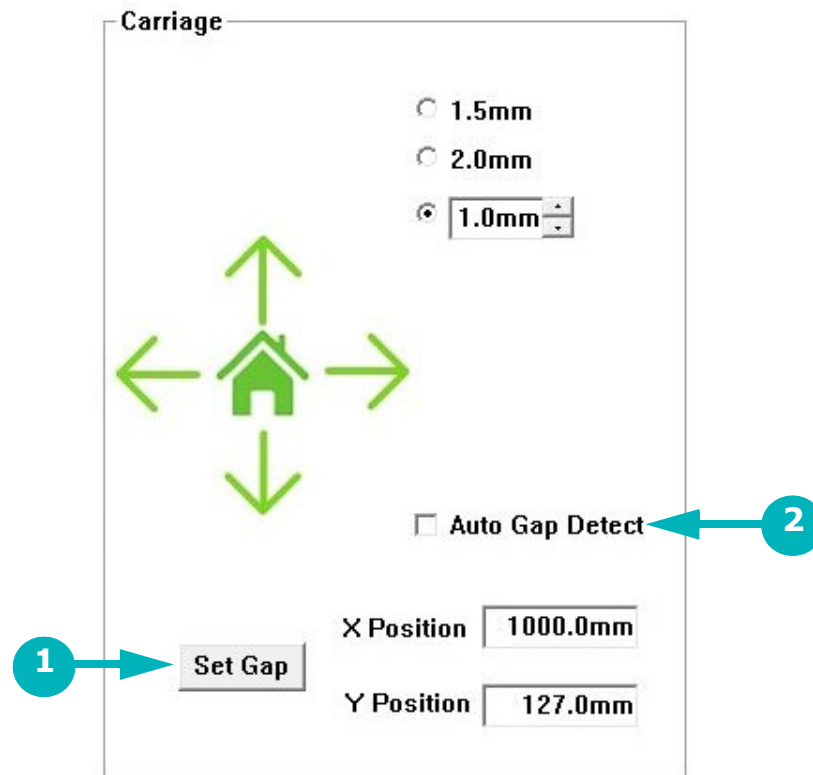


Figure 6-5: Carriage Box

1 Set Gap button

2 Auto Gap Detect check box

2. Check the Auto Gap Detect box to measure media thickness with every print

6.1.4 Purge and Sweep Print Heads

To ensure the best print quality, EFI recommends that operators purge and clean print heads prior to each print run. At minimum, a purge and sweep should be run at start-up and every 8 hours of operation. The print heads should be purged and a head sweep should be performed in one of two ways:

1. From the EFI Pro 24f Control screen, choose the Purge White icon to white print heads. The system automatically follows this up with a head sweep.
2. b. From the EFI Pro 24f Control screen, choose the Purge Color icon to purge the CMYK print heads. The system automatically follows this up with a head sweep.

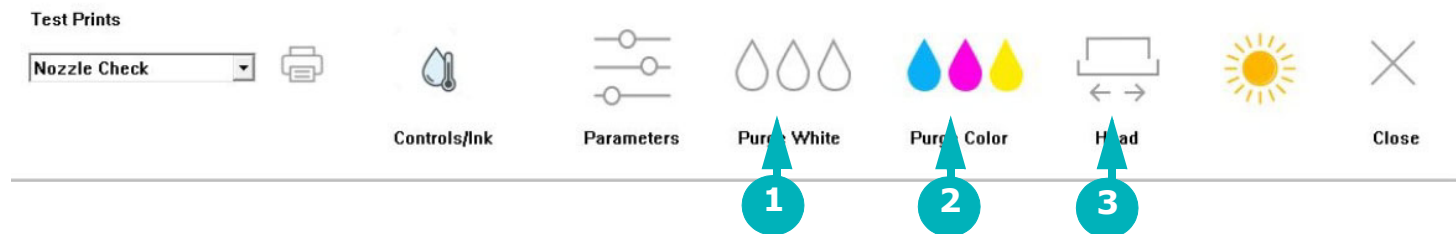


Figure 6-6: Purge and Sweep Icons on EFI Pro 24f Control Screen

- | | | | | | |
|---|--|---|---|---|---------------------|
| 1 | Purges white (or other non-CYMK) ink and conducts a head sweep | 2 | Purges CYMK ink and conducts a head sweep | 3 | Conducts head sweep |
|---|--|---|---|---|---------------------|
3. Use the manual Ink Purge buttons located in the carriage HOME compartment (See [Figure 6-7](#)). Then follow up with a head sweep performed from the EFI Pro 24f Control screen.

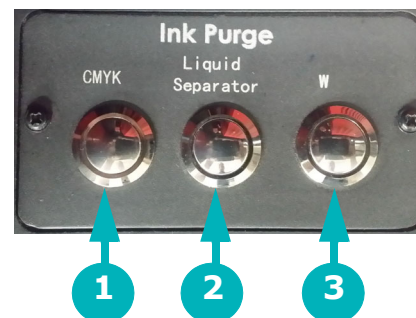


Figure 6-7: Manual Ink Purge Buttons

- | | | | | | |
|---|-----------------|---|--|---|---|
| 1 | Purges CYMK ink | 2 | Liquid Separator: empties the cyclonic vacuum system | 3 | Purges white (or other non-CYMK) ink. (Label changes for non-white ink printers.) |
|---|-----------------|---|--|---|---|

6.1.5 Perform Nozzle Checks

The Nozzle Check test provides a test print that shows whether all print heads are firing properly. Perform a Nozzle Check prior to commencing printer operations to ensure all print heads are firing properly.

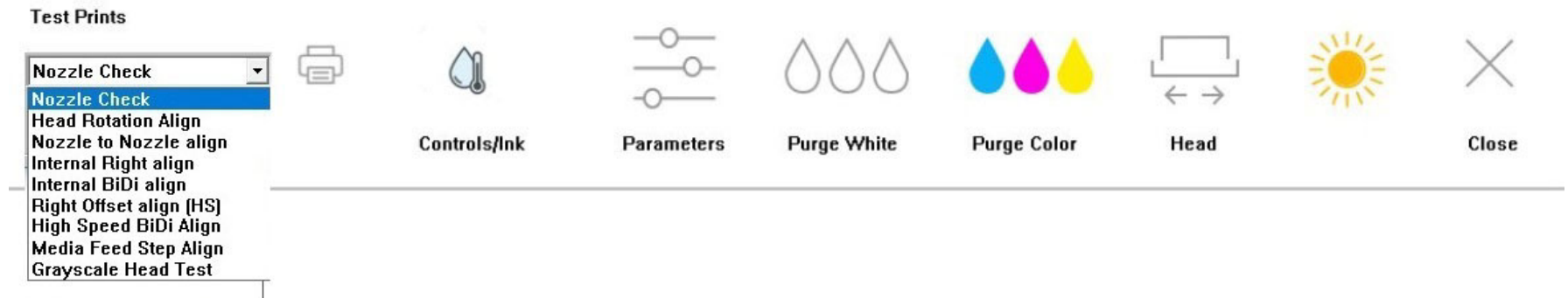


Figure 6-8: Nozzle Check Selection

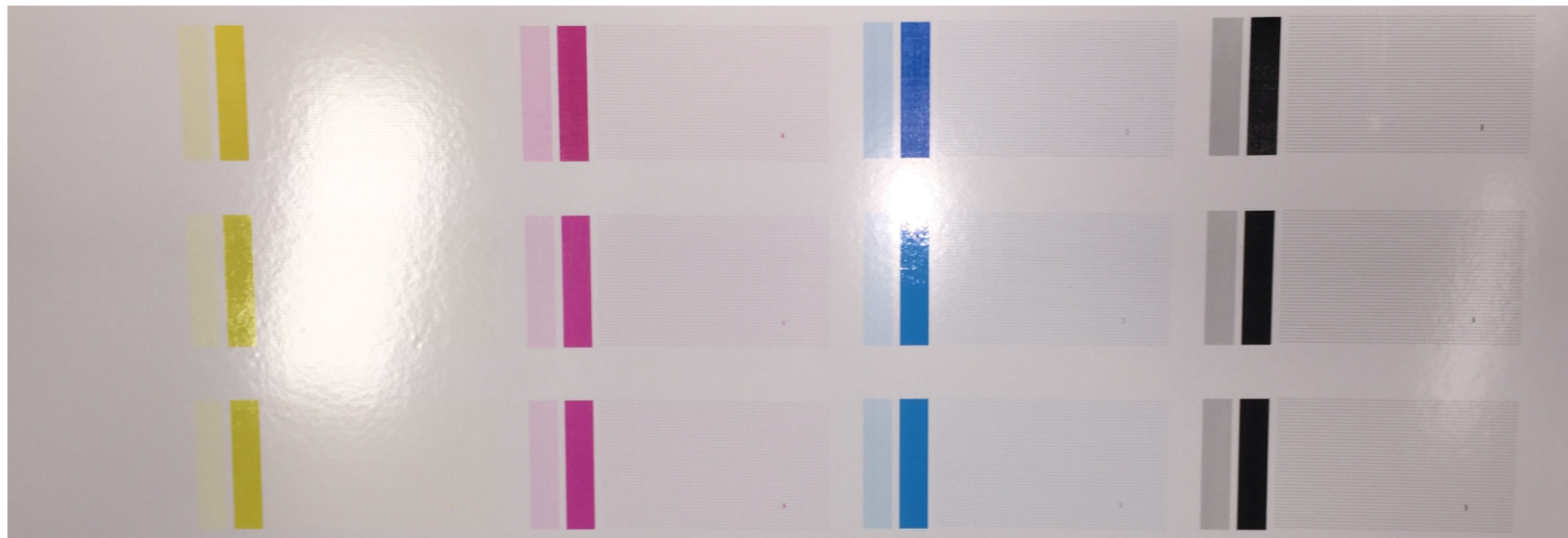


Figure 6-9: Nozzle Check Test Print

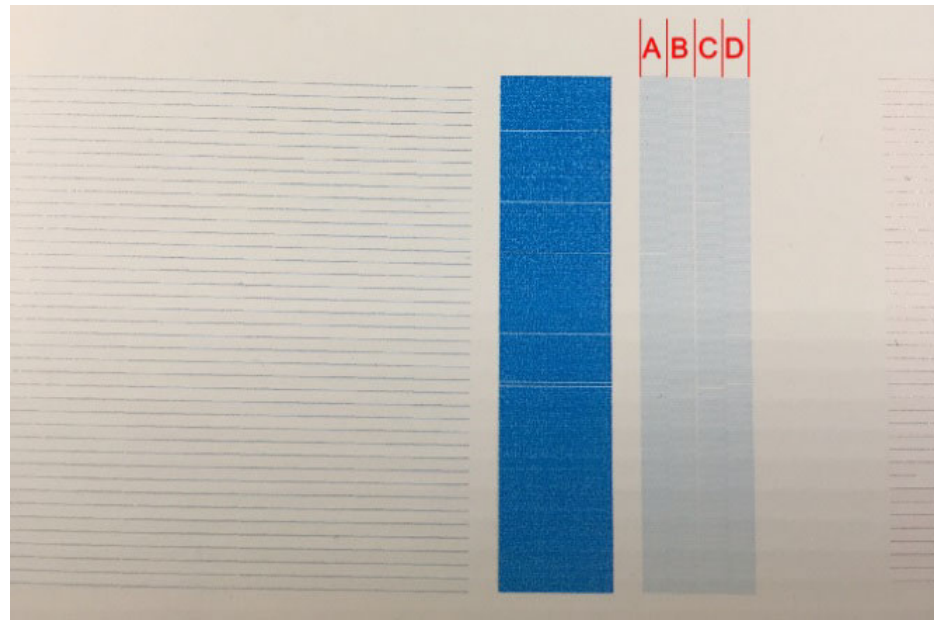
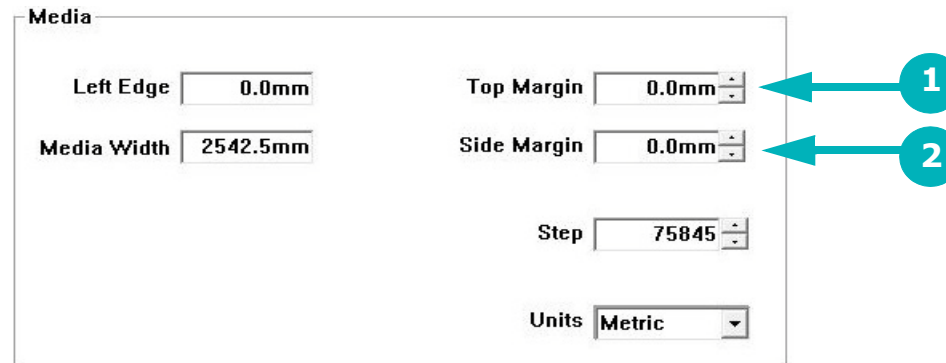


Figure 6-10: Nozzle Check Test Print Comparison

6.1.6 Set Margins

1. In the Media box (middle right), set the Top Margin and the Side Margin.

Note: Top Margin adds white space above print, advancing the media further before printing. Side Margin adds white space to the left of the print.



The image shows a 'Media' settings dialog box. It contains several input fields: 'Left Edge' (0.0mm), 'Media Width' (2542.5mm), 'Top Margin' (0.0mm), 'Side Margin' (0.0mm), 'Step' (75845), and 'Units' (Metric). Two blue callout circles with arrows point to the 'Top Margin' and 'Side Margin' fields. The first circle, labeled '1', points to the 'Top Margin' field. The second circle, labeled '2', points to the 'Side Margin' field.

Field	Value
Left Edge	0.0mm
Media Width	2542.5mm
Top Margin	0.0mm
Side Margin	0.0mm
Step	75845
Units	Metric

Figure 6-11: Test Prints List and Print Button

- 1 Top Margin Setting 2 Side Margin Setting

6.2 Print File from EFI Print Control Utility

1. Click the Close button on the EFI Pro 24f Control window to return to the EFI Print Control Utility
2. Click the "+" (plus) folder button to load the file to print. (See [Figure 6-12.](#))

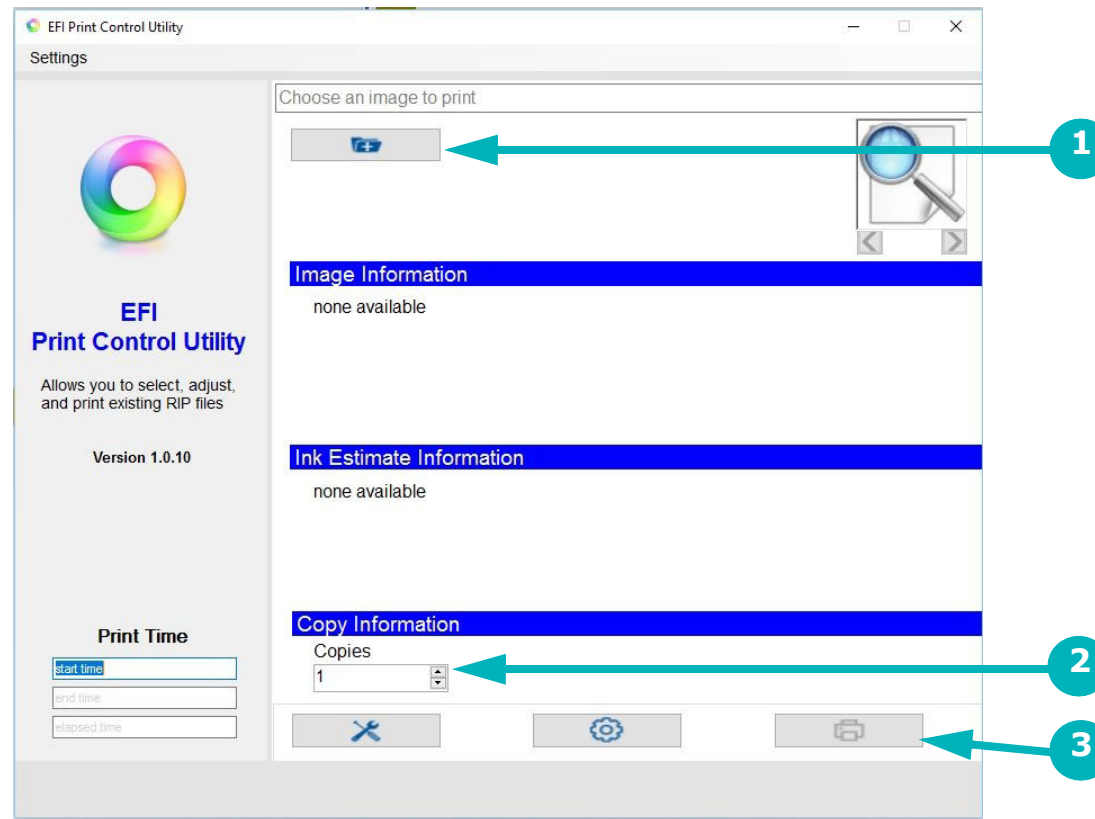


Figure 6-12: Print File from EFI Print Control Utility

- 1 Plus (+) Folder Button 2 Number of Copies 3 Print Button

3. Browse to and select the *.BCO file to be printed, then click OK.
4. Enter the number of copies. (See [Figure 6-12.](#))
5. Click "Printer" button to print. (See [Figure 6-12.](#))

6.3 Print Workflows

The EFI Pro 24f printer has many different resolutions and options for creating bco files for printing at different speeds and output qualities. With experience the selection of these options will become clearer. When selecting a work flow for file preparation in the Fiery XF software, be aware that different options result in different printer output speeds and can have different output qualities as well.

The charts below contain several work flows that EFI has found useful in day to day operation of the EFI Pro 24f printers.

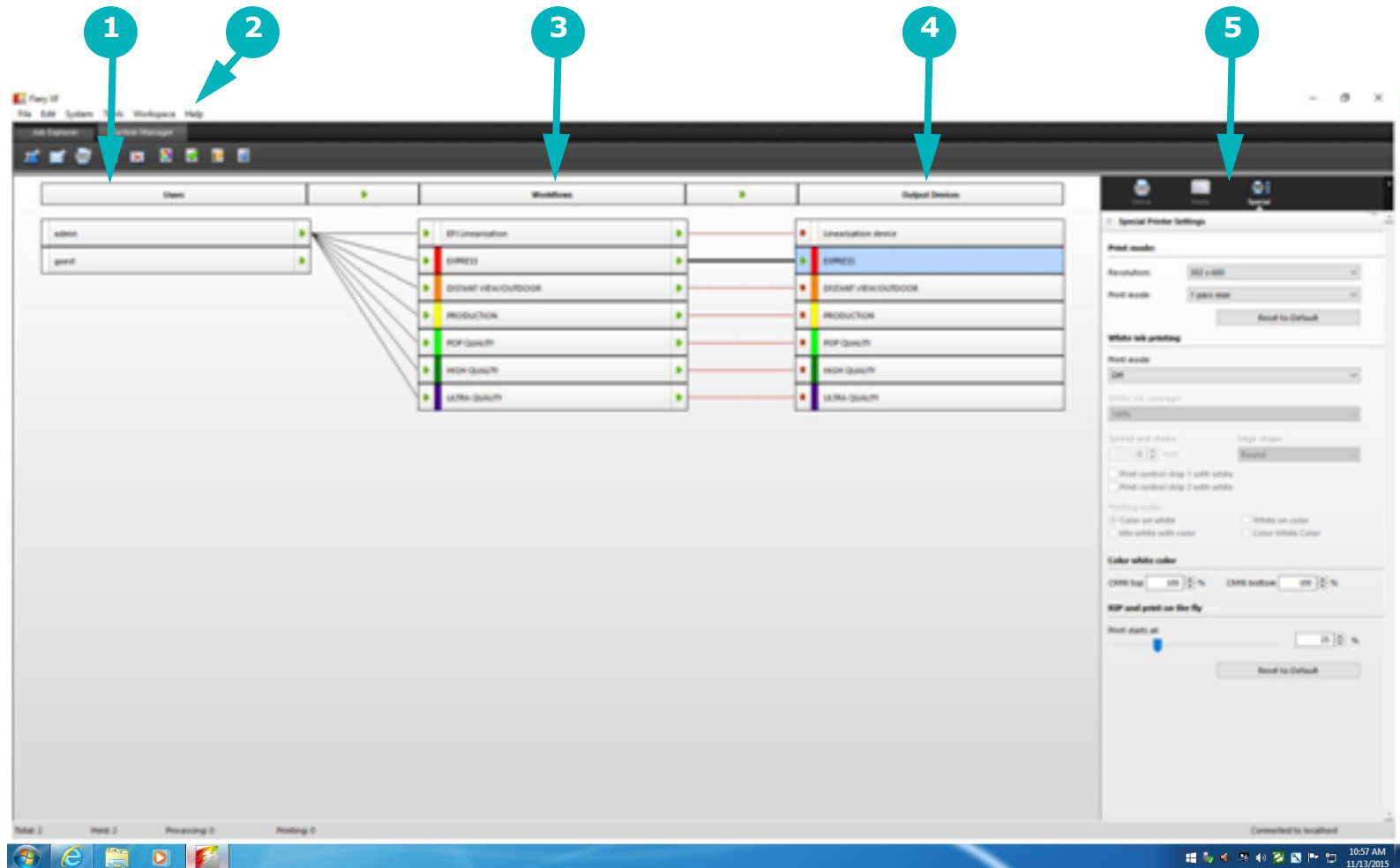
Note: Different printer modes have different intended viewing distances for the printed output. In general, the faster output speeds are intended to be used in creating prints that are viewed from larger distances.

Standard Workflows

Output Mode	Up to Sq. Ft (Sq.m)/Hr.	Printer Settings
Express	976 (91)	CMYK 300x600 1 pass
Distant View/Outdoor	569 (53)	CMYK 600x600 2 pass
Production	311 (29)	CMYK 600x600 4 pass
POP Quality	178 (17)	CMYK 600x600 8 pass
High Quality	119 (11)	CMYK 900x600 12 pass
Ultra Quality	60 (6)	CMYK 1200x600 24 pass

6.3.1 Workflows in Fiery XF

Workflows set up in the Fiery XF software appear as in the image below:



- | | | | |
|---|---|---|------------------------------|
| 1 | Users | 3 | Workflows |
| 2 | Help menu; Help docs and supplemental knowledge database can also be accessed at:
http://help.efi.com/fieryxf/
http://help.efi.com/fieryxf/KnowledgeBase/index.html | 4 | Output Devices |
| | | 5 | Output Configuration options |

6.4 Skip Blank Space During Prints

The Skip Blank Space feature enables the EFI Pro 24f printer to advance media quickly through blank spaces in an image or in a group of nested or step-and-repeat images. With Skip Blank Space enabled, the printer quickly advances the media through blank spaces, in order to provide faster printing.

In order for the Skip Blank Space feature to work, the printed files must:

- Include true blank Space sometimes referred as “white space,” as opposed to a white fill blank field
- Include blank space that runs all the way across the image(s)

To Enable Skip Blank Space

1. On the EFI Pro 24f Control Screen, use the Parameters icon to open the Set Parameter window, displaying the Systems Tab.
2. Ensure that the Skip at Blank Space check box is checked.

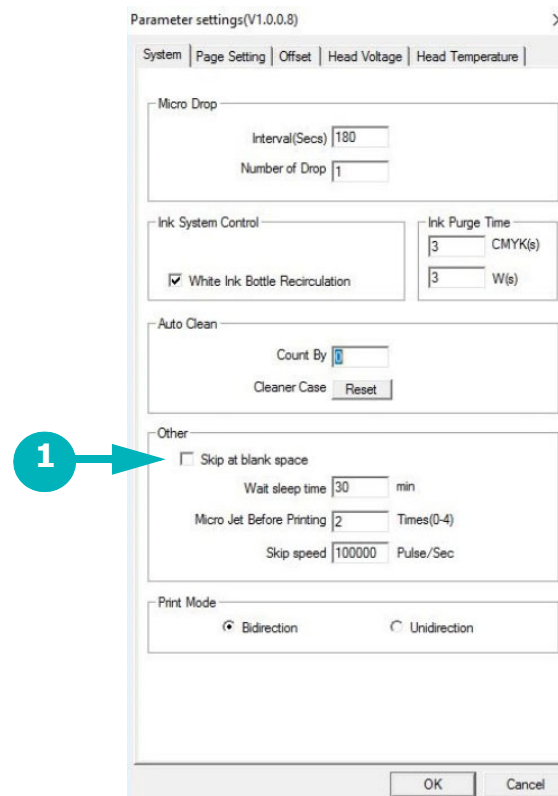


Figure 6-13: Set Parameter Window's System Tab

- 1 Skip at Blank Space check box

6.4.1 Sample Images

Note that the following images include one with a white fill background and one with true blank space (represented by check boxes) that runs the full width of the image.



Figure 6-14: Image With White Field/White Fill



Figure 6-15 Image With Blank Space/White Space

- 1 Rows of Blank Space Running the Width of the Image(s)
- 2 Checked Background Represents True Blank Space in Image

7.0 Procedures for Replenishing Ink

This chapter describes basic ink replenishing procedures for the EFI Pro 24f Wide Format Printer.

1. Carefully remove the ink container cap and ensure that no ink spills into the ink supply compartment.

Note: It may be necessary to clean the tubes and float connected to the cap.

Caution! Wear protective gloves and eye protection when replenishing ink.

Caution! When replenishing White Ink ensure that the "White Ink Bottle Recirculation" box is **UNCHECKED** on the Parameters system tab prior to removing the ink line from the ink container. Failure to do so will cause a quantity of white ink to spray from the recirculation line. Recheck the "White Ink Bottle Recirculation" box after replenishing white ink. (See [Figure 7-1](#))

2. Carefully remove the empty ink container from the compartment and dispose of it in the appropriate manner.

Note: If planning to transfer and use remainder ink in the future, tighten the cap on the old bottle and store it until there is space for the remainder ink in the newly installed ink bottle. (See [7.1 Use Remainder Ink.](#))

3. Open a new container and put it in place of the spent container.
4. Carefully reinstall the ink container cap and ensure it is properly secured.

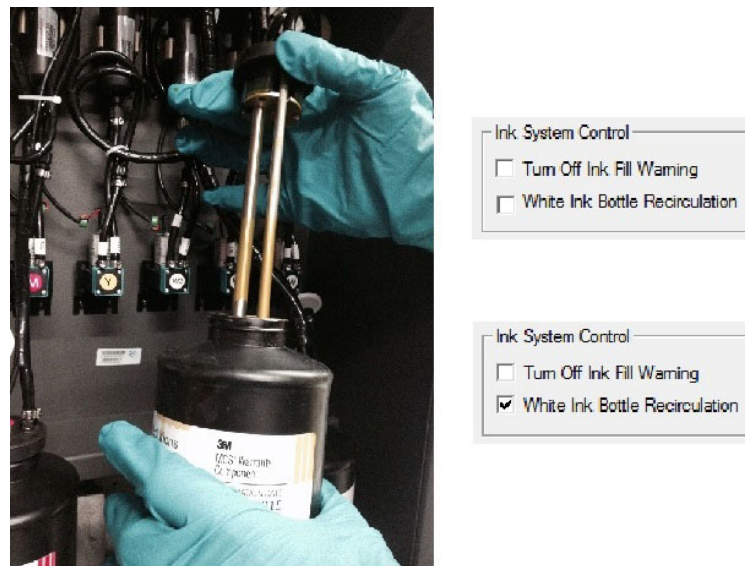


Figure 7-1: Replenishing Ink

7.1 Use Remainder Ink

When an installed ink bottle level gets to half full, you can transfer remainder ink from a carefully stored bottle to refill the installed bottle.

Important! Check the expiration date on the old bottle. Do not use if it is past the expiration date.

1. Agitate the old ink bottle.
2. Pour the remaining ink from the old bottle into the ink bottle currently installed on the machine.
3. Agitate the ink bottle installed on the printer.
4. Properly dispose of the empty bottle.

Note: Do not ever pour more than one remaining bottle into an operating bottle. Any bottle with a small amount of ink that is not used for two weeks or longer should be disposed of.

8.0 EFI Pro 24f Maintenance and Print Head Care

This chapter contains descriptions of some key maintenance procedures that operators are required to perform on the EFI Pro 24f Wide Format Printer. Complete descriptions of the maintenance items are provided in the Maintenance Guide (OMM-00149 24f Maintenance Guide).

8.1 Maintenance Documentation

The Maintenance Guide provides a comprehensive list and complete descriptions of the maintenance items required to properly maintain the printer.

8.1.1 Maintenance Guide

The maintenance guide contains maintenance procedures that are performed every 4 hours of operation, or are daily maintenance, weekly maintenance, monthly maintenance, quarterly maintenance, semi annual maintenance, and annual maintenance items.

8.1.2 Maintenance Log

The maintenance log provides a means for tracking the performance of each task. The log must be kept current. If a service visit is required, the field service engineer reviews the log to ensure proper maintenance has been conducted.

8.2 Print Head Care

Print head care for the EFI Pro 24f printer is limited. The print heads should function properly at all times if they are kept clean and properly bled of any air that might enter the print head. To ensure proper operation of print heads, follow the print head care procedure defined below:

8.2.1 Bleeding Print Heads

Bleed print heads only as needed.

1. Raise carriage, wipe carriage plate.
2. Wait approximately 10 minutes for heads to come to temperature.
3. Lower carriage and perform a “bleed” procedure.
4. Purge the print heads manually at the carriage home station or automatically using the printer software.
5. Run a nozzle check. If print heads function properly, bleed process is complete. If ink drop out appears in the test print, there may be air in the lines or print heads. Continue with steps 6-10, below.

Note: If printer has not been used for a day or longer, repeat above procedure, Run prints with lots of colors to exercise print heads. Repeat above process again. Print heads should then operate properly.

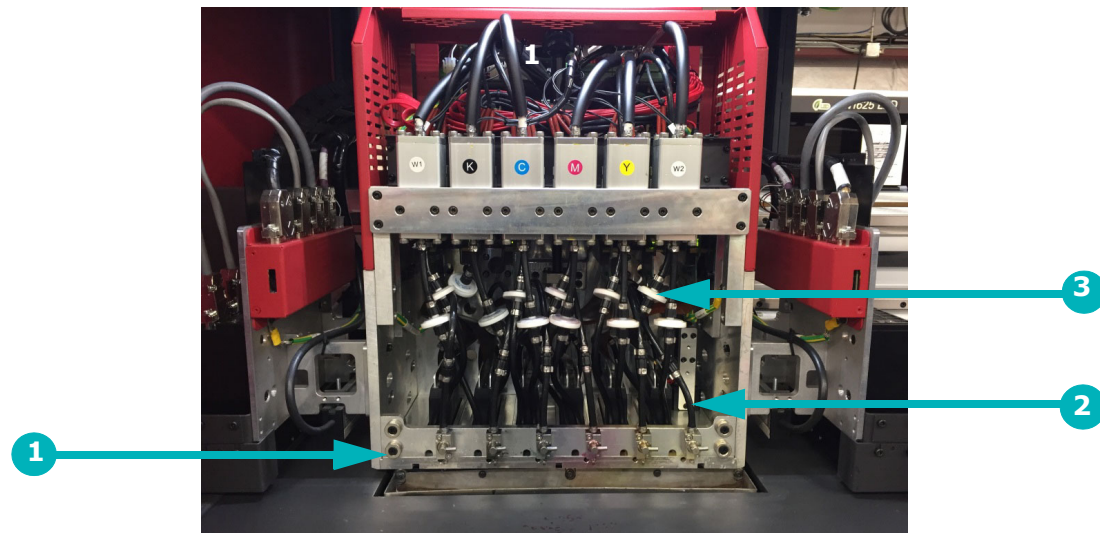


Figure 8-1: Typical Print Head Configuration

1 Ink Bleed Valves

2 Typical Print Head

3 Secondary Filter and Ink Feed

6. Using the special bleed valve tool (P/N 45117492), open the bleed valves, press the Purge button, and bleed print heads one at a time.
7. Allow the ink to run until it shows no sign of air bubbles. Ink runs into the trough and down into the cyclonic vacuum system.
8. After completion, ensure all valves are tightly closed.
9. Perform another purge and sweep the heads.
10. Re-run the Nozzle Check test print until satisfied that the print heads are firing properly.



Figure 8-2: Bleed Valve Tool (P/N 45117492)

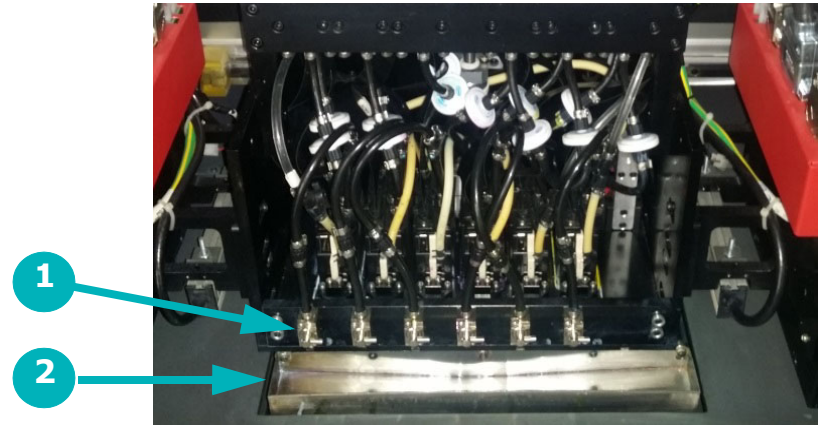


Figure 8-3: Bleed Valve and Trough

- | | |
|---|-------------|
| 1 | Bleed Valve |
| 2 | Trough |

8.2.2 Ink Purge Procedures

The print heads should be purged and a head sweep should be performed in one of two ways:

1. a. From the EFI Pro 24f Control screen, choose the Purge White icon to white print heads. The system automatically follows this up with a head sweep.
b. From the EFI Pro 24f Control screen, choose the Purge CMYK icon to purge the CMYK print heads. The system automatically follows this up with a head sweep.

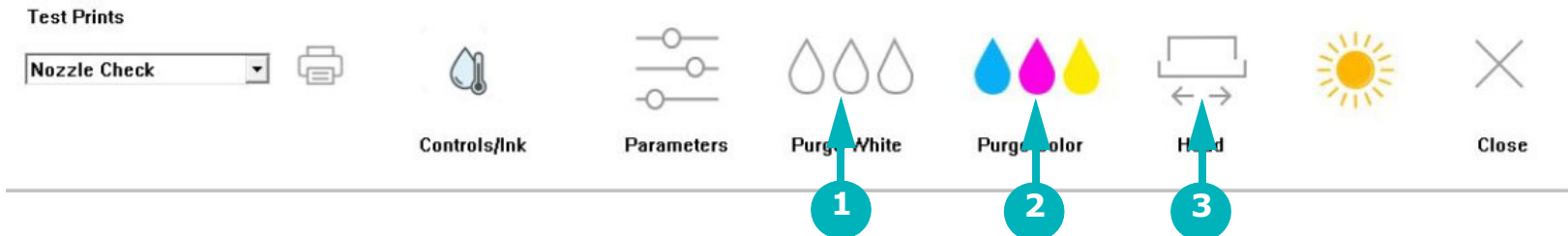


Figure 8-4: Purge and Sweep Icons on EFI Pro 24f Control Screen

- 1 Purges white ink. Sweeps the heads. 2 Purges CMYK ink. Sweeps the heads. 3 Sweeps all print heads.
2. Use the manual Ink Purge buttons located in the carriage HOME compartment (See [Figure 8-5](#)). Then follow up with a head sweep performed from the EFI Pro 24f Control screen.



Figure 8-5: Manual Ink Purge Buttons

- 1 Purges CMYK ink. Sweeps heads. 2 Empties the cyclonic vacuum system 3 Purges white ink. Sweeps heads.

8.2.3 Clean Print Heads

Print Heads should be cared for and cleaned at the end of each shift or after each 8 hours of printer operation, to remove any ink that is curing on the heads.

1. Use the Up arrow on the EFI Pro 24f Control screen to raise the carriage.

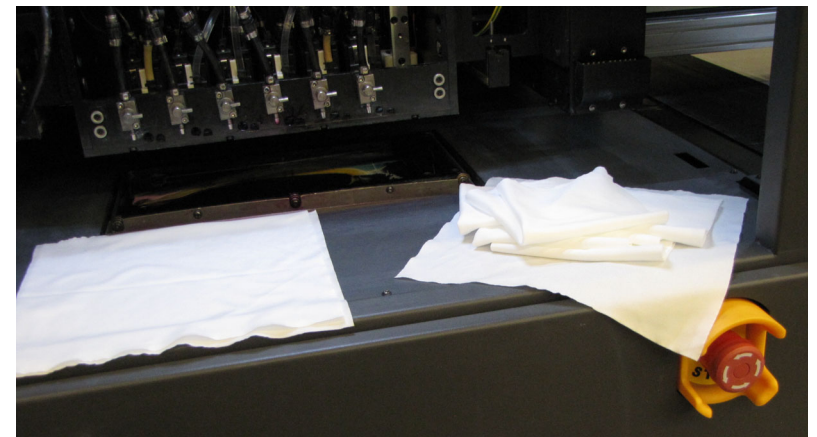
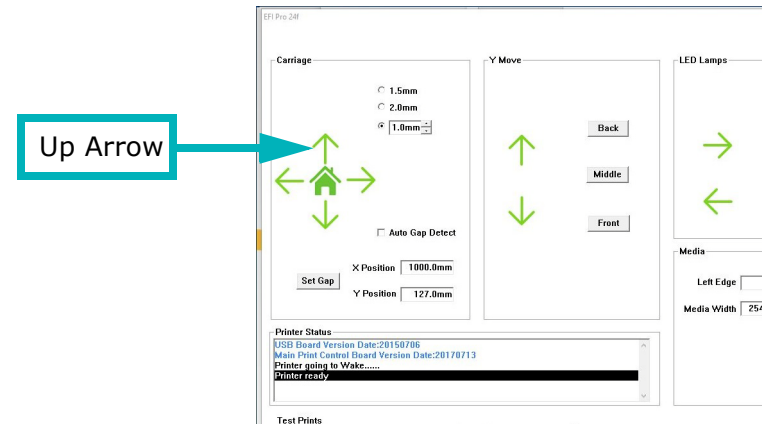
2. Put on nitrile protective gloves.

Note: Clean the print head plate prior to cleaning the print heads themselves, in order to avoid pulling ink from the plate onto the heads. Alcohol should not be applied anywhere in the vicinity of the print heads or plate as it immediately destroys heads.

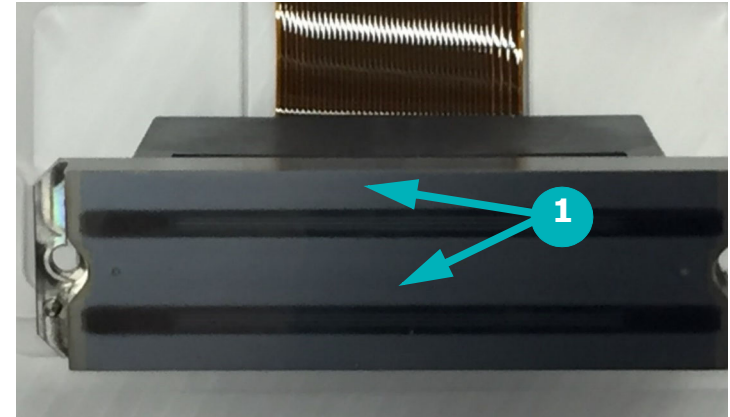
3. Prepare a set of 6 clean wipes (for 6 print heads) and uncontaminated flush to use for print head cleaning..

Caution! Any contamination of wipes or flush can damage your print heads. When cleaning print heads, be sure to:

- Use only wipes that have been double-bagged or sealed for cleanliness.
- Only use flush that is completely free of contaminants.
- Use a new wipe for each print head.



4. Fold a lint-free wipe in quarters and saturate with clean flush. Then reach under the carriage print head plate to locate the back of the print head to be cleaned.
5. Align two fingers with the bottom of the print head and press gently against the head.



1 Print Head Surfaces to Contact

6. Pull the wipe forward across the bottom of the print heads in ONE motion, cleaning the heads' surface.



Caution! Do NOT RUB the print heads. One smooth wipe forward should be all that is required. If a print head requires additional cleaning, use a new clean wipe, saturate it with flush, and repeat the single-wipe process. Rubbing damages print heads.

7. Discard each used wipe and pick up a new one before continuing to the next Print Head.
8. Repeat process for each print head.

Note: Clean the print head plate again after all print heads have been wiped, to remove any ink that may have transferred to the plate during head cleaning.

9.0 EFI Pro 24f Sleep Mode/Shutdown Procedures

This chapter describes EFI Pro 24f Wide Format Printer sleep and shutdown procedures for the overnight, short term (1 - 3 days), and long term (4+ days). Those procedures are described in the sections that follow:

9.1 Overnight Sleep Mode

EFI recommends that sleep mode be used for overnight shutdown. Set the printer into sleep mode as follows:

1. Shuttle the carriage twice so that it sits over the table.
2. Clean the bulk of the ink in the drip pan with a lint free wipe.
3. Use a lint free wipe with flush to finish cleaning the tray and wiper.
4. Return the carriage to the home position.
5. Raise the carriage.
6. Wipe each head with a clean section of dry lint free wipe.
7. Wipe the jet plate.
8. Lower the carriage.
9. Put the printer in sleep mode.



1 Up Arrow Raises Carriage

Note: When suspending print operations for the night or the weekend, perform daily maintenance procedures prior to shutdown. See the EFI Pro 24f Maintenance Guide (at <https://inkjet.support.efi.com/doc.php?doc=3753>) for daily maintenance procedures.

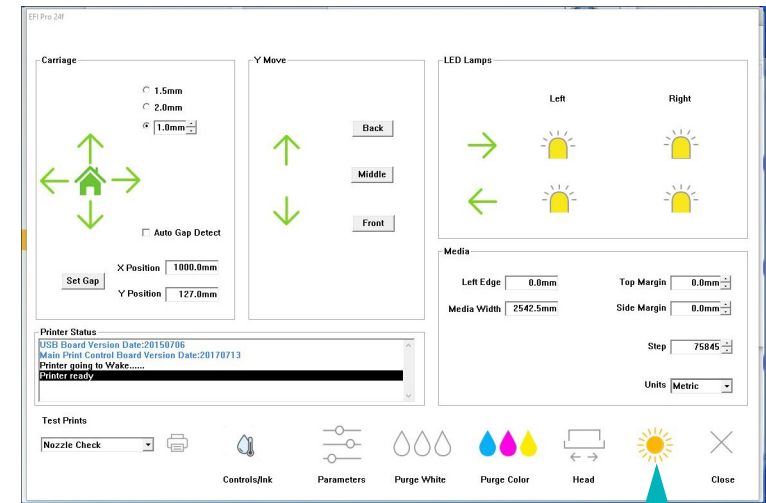


Figure 9-1: EFI Pro 24f Control Screen Printer Mode (Asleep/Awake) Icon

1 "Moon" icon = Printer is Asleep

2 "Sun" icon = Printer is Awake

9.1.1 Re-wake Printer

Use the following procedure to re-wake the printer after any shutdown:

1. Wake up printer
2. Raise carriage.
3. Manually purge all channels.
4. Wipe all heads with a clean section of dry lint free wipe.
5. Lower carriage.
6. Print a Nozzle check.

9.2 Short-Term Printer Shutdown

It may be necessary to power off the printer for short periods of time (1-3 days) to perform maintenance.

Caution! Power off the printer only when necessary.

1. Power off the media vacuum blower using the switch located in the computer compartment of the printer.
2. Ensure that the EFI Pro 24f Control screen has been closed.
3. Turn off both the CMYK and white negative pressure valves located on the top left side of the carriage. This prevents the ink from dripping from the heads while the power is off.

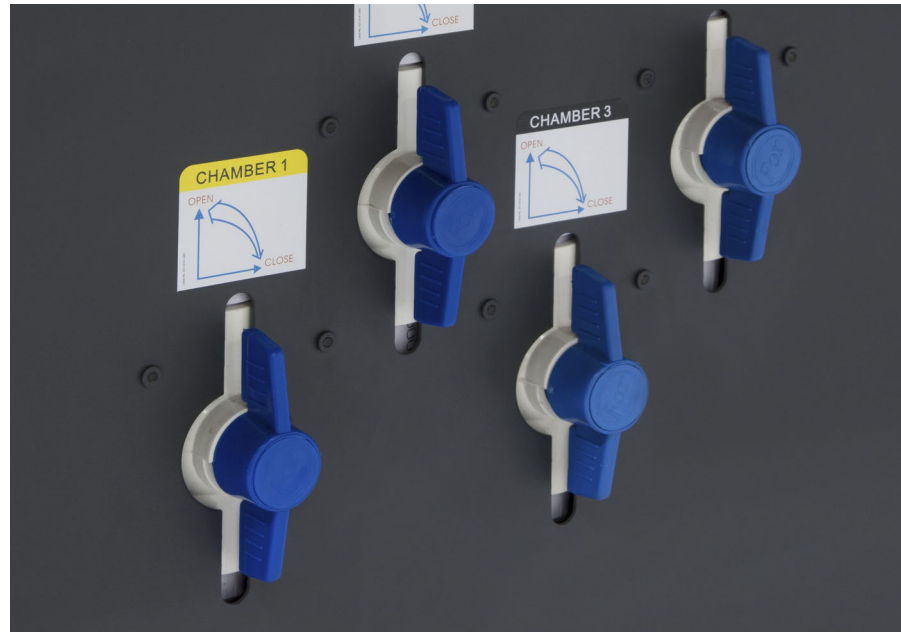


Figure 9-2: Negative Pressure Valves

Note: If power will be left off for longer time periods, additional startup steps will be required.

4. Power off the printer using the main breaker switch in the computer compartment of the printer.
5. Turn off the other breakers in the computer compartment of the printer.
6. The printer is now powered off.

Note: Optional- Turn off the computer and monitor or restart the computer as needed.

9.3 Long-Term Printer Shutdown

It may be necessary to power off the printer for longer periods of time when it won't be in use. Use the long-term shutdown procedure when shutting the printer down for 4 or more days. Power off the printer only when necessary.

1. Use the EFI Pro 24f Control screen to raise the carriage.

Negative Pressure

2. Shut down the printer leaving the negative pressure valves open.
3. Open the ink protect tank LUER fitting covers to release the negative pressure.
4. Allow the ink to drain completely from the secondary ink tanks.

Print Heads

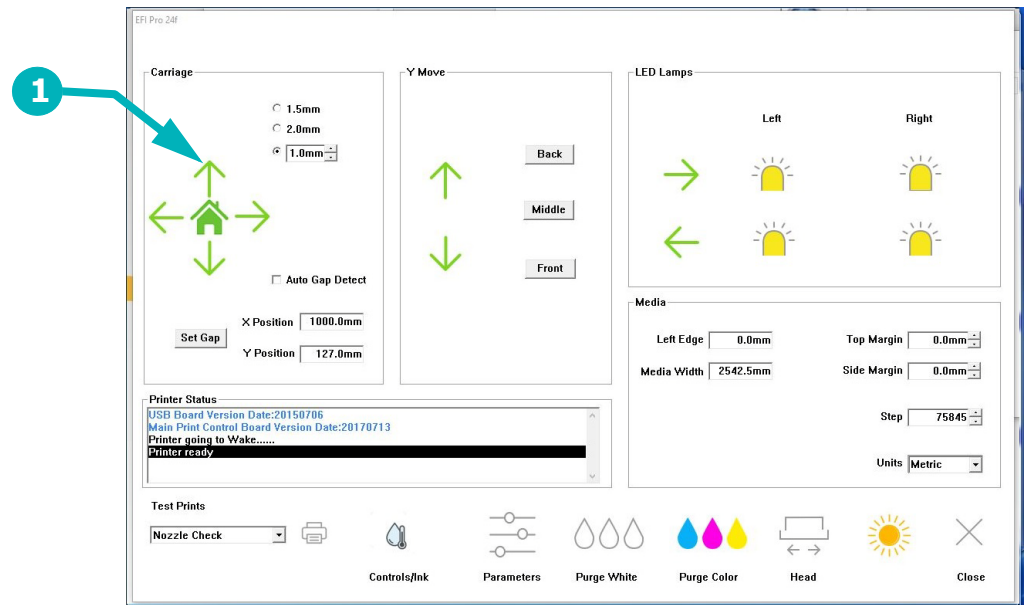
5. Flush the print heads.
6. Clean the carriage plate and print heads with flush and lint free wipes. (See [8.2.3](#) for the procedure.)

Coroplast

7. Cut a piece of coroplast to the size of the carriage plate.
8. Cover the piece of coroplast with lint free wipes at least 4 deep and soak with flush.
9. Place this piece under the carriage and use the manual knob to lower the carriage so the carriage contacts the wipes at all points.

Waste Container

10. Ensure that the waste bottle is empty.



1 Up Arrow Raises Carriage

9.4 E-Stop Conditions

Emergency stops are installed at each end of the EFI Pro 24f printer. These should be used **only** when there is an emergency condition. E-Stops should not be used to shut off the machine under normal conditions.



Figure 9-3: Typical E-Stop

9.4.1 Activating E-Stop

To activate an E-Stop, press any red E-Stop button ([Figure 9-3](#)). This shuts off power to all printer systems. Then do the following:

1. Resolve E-Stop condition.
2. Move carriage to the "Home" position.
3. Shut off main breaker.
4. Reset all E-Stops. (To reset an E-Stop, press down and rotate the knob counter-clockwise. Release the downward pressure and let the red knob spring up)
5. Turn main breaker back on.

9.4.2 Restarting After E-Stop

Perform the steps below to restart the printer after an E-Stop.

1. Ensure the condition that caused the emergency is resolved.
2. Manually return the carriage to the "Home" position if it is not there.
3. Reboot the computer and turn on the monitor.
4. Make sure the Printer Control Utility has restarted.
5. Check each E-Stop switch and release the knob if it is engaged.
6. Power on the printer main breaker.
7. Power on the system switch.

Warning: Ensure that there is no one in the way of the printer mechanics.

9.5 Power Outages

If power outages occur frequently at the printer site, it is advisable to install a UPS system. The UPS system must be installed on the main power to the printer and must conform to Printer Power Requirements.

9.5.1 Power Outage During Printing

1. Turn the CMYK and White air valves to the **OFF** position.
2. Reposition the carriage over the maintenance station, making sure that the carriage is positioned properly at the carriage home position.
3. Turn **OFF** the media vacuum switch, the system switch and the printer main breaker.

9.5.2 Power Outage While Printer is Idle and Attended

1. Turn **OFF** both the CMYK and White air valves.
2. Power **OFF** the media vacuum switch, the system power switch, and the printer main breaker.

9.5.3 Power Outage While Printer is Idle and Unattended

If a power outage occurs while the printer is idle and unattended, the printer may drip ink into the maintenance tray. If the power is restored while the printer is unattended, the printer reboots but remains in the idle position. Refer to Initial Startup Procedures for start-up instructions (section [5.1](#)).