



Field Engineer Installation Guide

T1000



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T1000 Installation Requirements

The T1000 Ink Jet Printer is a flatbed printer requiring a methodical installation process.

Installation Requirements

Please follow these guidelines for a successful printer installation.

1. Review the T1000 Printer Specifications.
<http://inkjet.support.efi.com/doc.php?doc=1789>
2. Print a copy of the most recent [Equipment Safety Checklist](#) and complete it along with the customer.
3. Obtain the customer's signature at the bottom of the checklist.

Site Preparation

- ___ Check AC input power with multi-meter, but **DO NOT CONNECT TO PRINTER UNTIL LATER.**
- ___ Verify AC Voltage matches printer specifications.
- ___ Verify ventilation system is installed, if required.
- ___ Record site temperature ___ °C / °F (Temperature must be between 68° F - 86° F [20° C - 30° C]).
- ___ Record site relative humidity (RH) ___ % (RH must be between 30% and 80%, non-condensing).

Delivery

- ___ Verify rigging equipment is available, if required.
- ___ Inspect crate for visible damage.
- ___ Pick up crate at one end and drag crate off the delivery truck.
- ___ Place crate close to final installation location.

Unpacking

- ___ Remove crate top and disassemble crate sides.
- ___ Place ramp on end of crate and secure; screw ramp wedge onto floor end of ramp.
- ___ Remove gantry support beams and frame brackets.
- ___ Remove rear panel; remove all boxes and cartons from beneath printer.
- ___ Remove frame blocks.
- ___ Unbolt and remove vacuum pump from pallet.
- ___ Remove remaining items from pallet.
- ___ Roll printer off pallet and place in final location.

Assembly and Positioning

- ___ Lower printer feet until wheels are off the floor, ensuring the feet contact the floor directly.
- ___ Level printer front to back and then side to side.
- ___ Unpackage computer, monitor, keyboard and mouse, and then assemble computer components.
- ___ Install waste tray in waste tray compartment under carriage.
- ___ Plug in vacuum foot pedal at base of front, left printer leg.
- ___ Remove all tie downs and brackets for carriage and gantry; remove carriage retainer.
- ___ Position Vacuum Pump under rear of printer and plug into printer receptacle.
- ___ Plug dedicated auxiliary strip in to printer.
- ___ Connect computer power cords into auxiliary power strip
- ___ Connect PVC tubing from vacuum pump to vacuum table.
- ___ Add thermal stabilization fluid to coolant system.
- ___ Verify all electrical connections in electronics box.
- ___ Verify and record incoming power values at the main electrical connection.
- ___ Replace all covers and guards removed during installation.
- ___ Connect main power cable to facility power system.
- ___ Raise carriage and remove wiper from beneath print heads.
- ___ Set carriage gap.
- ___ Lubricate carriage rails with lithium grease.
- ___ Power on printer and verify Print Control program, the GUI, displays.
- ___ Power off printer.
- ___ Install white ink bottles, then install color ink bottles; retain ink bottle covers.
- ___ Verify all tubing connectors are tight.
- ___ Power on printer.
- ___ Turn on table vacuum system to test functionality.
- ___ Install test media.
- ___ Purge inks through print heads.
- ___ Vacuum print heads to clean.
- ___ Test Gantry and Carriage movement, then Home Gantry and Carriage.
- ___ Print the Jet ID Test Print.
- ___ Set system time zone, time and date.
- ___ Inspect coolant and ink lines for leaks.
- ___ Verify carriage vacuum is set correctly.
- ___ Verify UV lamp operation in all modes.
- ___ Perform all print head alignment tests to verify alignment.
- ___ Correct print head alignments as necessary.

Acceptance

- ____ Verify minimum carriage gap with power off.
- ____ Print acceptance images at all modes and speeds.
- ____ Compare factory and site printed images (ACTARGs).
- ____ Observe eight hours satisfactory production in all modes and speeds.
- ____ Obtain signature on Customer Acceptance Certificate,
<http://inkjet.support.efi.com/doc.php?doc=1032>.
- ____ Complete on-site service; note any issues.

Service Engineer Sign-Off

Print FSE Name: _____

Customer: _____

Company: _____

Printer Model: _____

Serial Number: _____

Date: _____

Out of Box Quality Checklist

Complete the Out of Box Quality Checklist Excel spreadsheet and return it to your manager. The document is online at the following location:

<http://inkjet.support.efi.com/doc.php?doc=1028>

T1000 Installation

If you require replacement parts during the installation process, please specify that the part order is for an installation. If you do not know the replacement part number, please notify Product Support that the part being ordered is for an installation. The part will be ordered for next day shipment and charged to the installation process, and not warranty. This process allows accounting to correctly track warranty costs for each printer.

Unpacking and Installation

1. Remove the crate from the truck. You may lift the end of the crate with a fork lift truck or drag the pallet out of the truck.

Caution! If lifting the end of the pallet with the fork lift, do not allow the pallet to slide off the ends of the forks and drop to the ground.

Note: Reference the T1000 specifications document for dimensions and weights to ensure the fork lift truck has the capacity to lift the printer.

Figure 4-1: End view of crate



2. Inspect the crate for any external damage. If any external damage is noted, notify the customer and shipping company. Take photos of the damage.

3. Remove cover retaining clips.

Figure 4-2: Retaining Clips



4. Remove cover.

Figure 4-3: Removing Cover



5. Remove side retaining clips and remove crate sides.

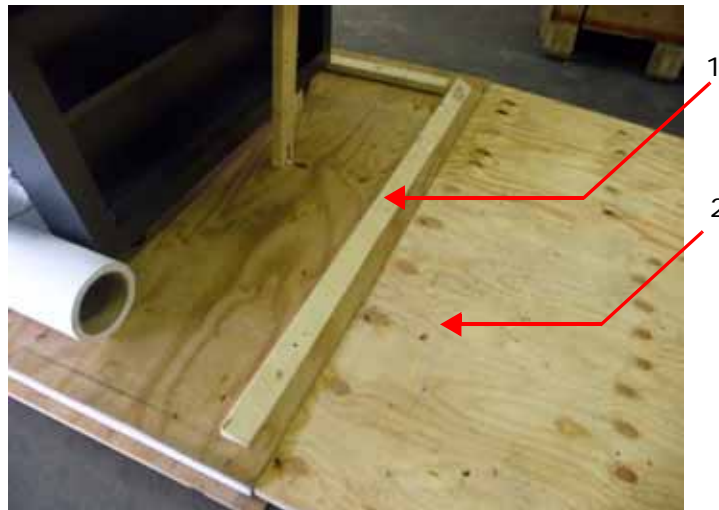
6. Place ramp at the crate end.

Figure 4-4: Crate ramp end



7. Remove the external shipping material and inspect the internal contents for damage. If there is any internal damage, notify the customer and shipping company. Take photos of the damage.
8. Screw ramp to pallet.

Figure 4-5: Crate Ramp and wedge



- 1 Ramp wedge
- 2 Ramp

9. Screw ramp wedge onto floor end of ramp.

Figure 4-6: Wedge at ramp end



10. Mark the locations on the pallet of all the supports, tie downs and brackets before removing using a permanent marker. This assists in printer repackaging.

Figure 4-7: Marking support locations



11. Remove gantry support beams and frame brackets.

12. Remove rear panel and remove all boxes and cartons from beneath printer.

Figure 4-8: Removing Rear Panel



13. Raise printer leveling feet, allowing wheels to touch the pallet and remove frame blocks.

Figure 4-9: Printer feet and frame blocks



14. Remove vacuum pump from pallet.

Figure 4-10: Vacuum pump



15. Roll printer off pallet and place in final location.

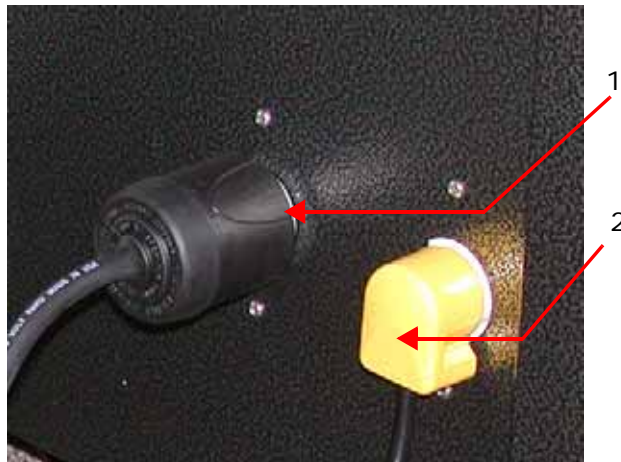
16. Lower printer feet until wheels are off the floor.
17. Level the printer front to back and then side to side.
18. Unpackage computer, monitor, keyboard and mouse, and then assemble computer components.
19. Install waste tray in waste tray compartment beneath carriage.
20. Plug in vacuum foot pedal at base of front, left printer leg.

Figure 4-11: Vacuum foot pedal



21. Remove all tie downs and brackets for carriage and gantry; remove carriage retainer.
22. Position Vacuum Pump under rear of printer and plug power cord into printer receptacle.
23. Plug dedicated auxiliary strip into printer receptacle.

Figure 4-12: Vacuum and auxiliary strip receptacles



- 1 Vacuum Pump plug
- 2 Auxiliary Power Strip Plug

24. Connect computer power cords into auxiliary power strip.

Caution! Never plug the vacuum pump or auxiliary power strip into any other outlet.

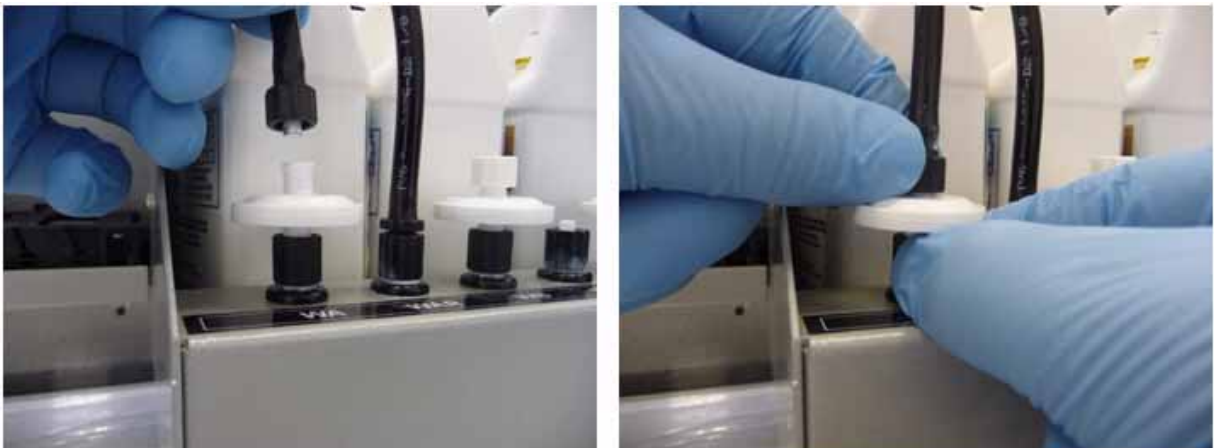
25. Connect PVC tubing from vacuum pump to vacuum table.
26. Add thermal stabilization fluid to coolant system.
27. Verify all electrical connections in electronics box, including cables, wires, and other connections, prior to connecting main facility power.

Figure 4-13: Electronics Box



28. Verify and record incoming power values at the main electrical connection.
29. Replace all covers and guards removed during installation.
30. Connect main power cable to facility power system.
31. Raise carriage and remove wipes from beneath print heads.
32. Set carriage gap using included gap tool.
33. Lubricate carriage rails with lithium grease.
34. Power on printer and computer; verify Print Control program, the GUI, displays.
35. Power off printer.
36. Install white ink bottles, then install color ink bottles; retain ink bottle covers.

Figure 4-14: Installing Ink bottles



37. Verify all tubing connectors are tight.
38. Power on printer.
39. Turn table vacuum system on and off to test functionality using the foot pedal.
40. Cover vacuum table with test media.

41. Purge inks through print heads.
42. Vacuum print heads to clean.
43. Test Gantry and Carriage movement. In the Control Program, click Home Carriage and Home Gantry to send carriage and gantry to Home position.
44. Print the Jet ID Test Print.
45. Set system time zone, time and date.
46. Inspect coolant and ink lines for leaks.
47. Verify carriage vacuum is set correctly.
48. Verify UV lamp operation in all modes.
49. Perform all print head alignment tests to verify alignment.
50. Correct print head alignments as necessary.

Note: For further instruction about leveling the printer, refer to [FTP-00362 T1000 Printer Critical Alignment Procedures](#), located at <http://inkjet.support.efi.com/doc.php?doc=1990&id=>

Printing the ACTARG

ACTARG is an acronym for Acceptance Target, a printer image file used to match outputs on a particular printer.

Once the machine is aligned properly, print a copy of the ACTARG and match it to the test prints shipped with the printer.

Equipment Safety Checklist

Use this section to verify operators are given adequate training regarding basic safety principles and an overview of printer components and features.

General Safety

Operators have reviewed the following:

- General Safety Information section in the EFI Printer Safety Guide, the Basic Operator's Guide, and the Basic Maintenance Guide.
- Safe working practices (power off before repair, solvent/ink handling) and Hazards (high voltage components, pinch points, etc.).
- Emergency Stop System operation and E-stop button locations.
- Main AC breaker and Auxiliary Power Switch location.

General Features

Operators have been given an overview of the following:

- Ink System: regulator functions, range settings and remaining component locations and functions.
- UV Lamp system.
- Servo Controllers and Motor location and functions.
- AC Power System components and Circuit Breaker functions.
- Electronics Cabinet location and component identification.
- Waste tray components and functions.
- Function of Graphical User Interface (GUI); item by item menu and button explanation.
- Carriage components and function of each component. Explain theory and importance of carriage vacuum.
- Negative pressure system for print heads.

Printer Start-up and Shutdown

Operators are proficient at the following procedures:

- Performing the printer power-up procedure.
- Preparing the print heads for printing.
- Preparing the print heads for shutdown and storage.
- Conducting the printer shutdown procedure.
- Long term storage/shutdown procedures.
- Vacuuming print heads.
- Running print tests.

Material Handling

Operators have been given instruction on how to perform the following:

- Loading and aligning printing substrate.
- Unloading and handling printed media.
- Explaining the offset values and how to set and adjust, if applicable.

Operation

Operators have been given instruction in the following:

- Utilizing the Graphical User Interface (GUI) and been given a detailed description of each menu item.
- Ripping image files for printing, image layout features, and printing duplicates.
- Verifying White Ink system functionality.

Adjustments

Operators have been given instruction on how to perform the following adjustments:

- Adjust UV Lamp Cure settings for various types of media.
- Adjust UV lamp height for various media types and cure options.
- Set Step Size settings for material being used.
- Set up Bi-directional settings for optimum print quality.
- Set Carriage height/gap for optimum print quality.
- Set Carriage vacuum level for proper print head operation.
- Explain the different print modes and speeds.
- Explain the different UV lamp settings and curing methods, if applicable.

Maintenance and Care

Operators have reviewed the following maintenance procedures:

- All tasks identified in the Basic Maintenance Guide.

RIP Software

Operators have reviewed the following functions of the RIP Software:

- Installation of FieryXF.
- The function and use of a Printer Setup File, including saving a custom Printer Setup file.
- Review Backup and Restore functions.
- Review of the Options drop-down menu, including:
 - General RIP setup functions contained in the Printer options, Multiple Page Options, Layout, and Output Options.
 - Introduce color management functions contained in the ICC Profile, Color Adjustments, Linearization, and Spot Color Definition menu tabs.

- Miscellaneous options including Tiling and Cut Mark adjustment.

Policies and Procedures

The following policies and procedures have been reviewed:

- I have been given instructions on how to handle and clean Print Heads as outlined in the Operator's and/or Maintenance guides.
- I have read, understand and agree to perform the maintenance procedures outlined in the Maintenance Guide. I understand that it is my company's responsibility to adhere to these procedures to guarantee continued warranty coverage by EFI.
- I have accessed the <http://inkjet.support.efi.com/> website and reviewed the location of the bulletins, guides, and all pertinent software.
- I understand the process for contacting the Product Support department and the information needed for support.
- I understand the requirement of static strap usage (ESD) when replacing electronic components.

UV Safety Acknowledgement Form

I, _____, hereby acknowledge that I am aware of the fact that the UltraViolet (UV) light and UV-curable ink used in EFI UV printers may have negative effects on human health. The following safety and health concerns have been individually and explicitly explained to me.

Safety Concern	Initials
1. Impermeable protective wear must be worn while handling UV-curable ink, including nitrile gloves, a protective apron, shoes, and safety glasses.	
2. UV light exposure can cause permanent eye damage.	
3. Never look at or in the direction of the UV curing lamp while it is on.	
4. If UV-curable ink contacts the eyes, immediately remove contact lenses and begin flushing the eyes with large amounts of cool water for at least 15 minutes; immediately contact a physician. Material Safety Data Sheets (MSDS) describing the ink should be taken to the doctor.	
5. Exposure to UV-curable ink in or around the eyes can cause permanent eye damage.	
6. Dermal exposure to UV-curable ink may cause skin irritation, dermatitis, and/or an allergic reaction (sensitization).	
7. The allergic reaction to UV-curable ink may worsen over time.	
8. Upon contact of skin with UV-curable ink, immediately flush the area with large amounts of cool water, wash with mild soap, and contact a physician if irritation persists. Never use solvent to remove UV ink from the skin.	
9. The UV curing process generates a by-product, ozone, that is a respiratory irritant. All UV printers shall be properly vented to limit exposure; use process enclosures, local exhaust ventilation, and/or other engineering controls to control exposure.	
10. Ingestion of ink is irritating to mouth, throat, and stomach; can cause abdominal discomfort, nausea, vomiting and diarrhea. Anyone who ingests UV-curable ink must consult with a physician immediately.	
11. I understand that even though all safety precautions have been taken, adverse reactions to UV ink and UV light may still occur in some people, which may include me.	
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Safety Concern	Initials
12. I understand that I should never disable or modify the UV safety features of my printer or handle UV-curable inks. I acknowledge that by disabling or modifying the UV Safety features of my printer, I may expose myself and others to unsafe levels of UV light and radiation and that by doing so, I am making these modifications at my own risk and will hold EFI harmless in case of any negative effects resulting therefrom.	
13. I have read and understand the applicable <i>Printer Safety Guide</i> , available by calling Technical Support, the Distributor, or visiting http://www.efi.com/support/ .	
14. I acknowledge that I have read and understand the applicable MSDS for each of the inks, solvents, and chemicals used in or in connection with the printer.	

I understand that the aforementioned precautions may not be exhaustive and may not prevent any injury. I was advised to consult with a physician immediately in case of over-exposure to the UV light and UV-curable ink. By signing below, I hereby acknowledge the above prescribed safety measures. I will hold EFI Inkjet Solutions harmless and accept all responsibility for medical or health conditions incurred resulting from my failure to adhere to the prescribed safety measures. I further agree that I will notify all operators, personnel, and any persons near or around the printer of the potential dangers of exposure to UV light and UV ink and that I will cause all operators, personnel, and any persons in the vicinity of the printer to read and sign this UV Safety Acknowledgement Form.

Signature	Date
Trainer, FSE, or Manager	Material Version
Printer Model	Serial Number

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