

FLEXIBLE INKJET TRANSPORT 36" FIT BASE: FIT-36 OPERATION AND MAINTENANCE MANUAL



12050 49th STREET NORTH - CLEARWATER, FL. 33762-4301 PHONE: 727.571.3330 - FAX: 727.571.3443 - TOLL FREE: 1.800.INSERTER

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VERSION HISTORY

The table below summarizes the history of this document <u>as it is published</u> onto the company website(s). It identifies the version, date of issue and revisions and changes.

VERSION	DATE	CHANGES
FIT-36opsrev0	04-21-09	ORIGINAL RELEASE
FIT-36opsrev0_1	08-19-09	Logo change
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REVISION CONVENTIONS-DOCUMENT

<u>VERSION:</u> name of document with revision_level of entire documentlevel designates minor changes that do not require revision change

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Table of Contents

Section I: Installation

Definitions	4
FIT 36 Base Orentation	5
Floor Plan and Machine Requirements	7
Environment	8

Section II: Safety Features and Warnings

Safety Features and Warnings	9
Safety Locks and Warning Stickers	10
Safety Recommendations	11
Special Advisement	12
Lock Out Procedure	13
Suggested Lockout Devices	14

Section III: General Setup

General Set Up	16
FIT 36 Set Up	17
Paper Sensor Adjustment	19
Control Panel and Switch Operation	23
Principles of Operation	28
Operating the FIT 36	28
Setting and Adjusting Run Speed	29

Section IV: General Mainenance

General Maintanence	_30
Fit 36 Base Maintanence	31
FIT 36 Base General Cleaning	31
Cleaning Vacuum Transport Belts	32

SPECIAL NOTES, DEFINITIONS AND DISCLAIMERS

Special Note:

Some pictures and illustrations may have color, hue and contrast graphically altered for clarity when printing in black and white and may not necessarily reflect the actual color of the product when viewed on compact disk.

1	ON
0	OFF
Ø	PHASE
~	VAC (volts alterant current)
	VDC (volts direct current)
!	WARNING or CAUTION
4	HAZARDOUS

DEFINITIONS

Section I

Orientation of the FLEXIBLE INKJET TRANSPORT 36" FIT BASE: FIT-36

Section - I

Orientation







Environment:

The installation of the FIT 36 base is intended for operation in a specific environment. See Operating Environment Table below for details.

	Operating Environment Table		
	ITEM	SPECIFICATION	
	Ambient Operating	0 to 35° C	
	Temperature		
	Storage Temperature	-25 to 85° C	
	Ambient Operating	30% to 95% RH (with no condensation)	
	Humidity		
Environmental	Ambient Storage	5% to 95% RH (with no condensation)	
Conditions	Humidity		
		Pollution level 2 (conforming to UL/EN60950-	
	Pollution Level	1)	
		There must be no combustible or corrosive	
	Corrosion Gas	gas.	
	Operating Altitude	2,000 m above sea level or lower,	
		Air Pressure 86 kPa to 106 kPa	
	Radiation	Should not exceed tolerable levels other	
		than associated with UV dryer lamps	
	Vibration	Not Applicable	
	ITEM	SPECIFICATION	
Installation			

	ITEM	SPECIFICATION
Installation		
Requirements	Ground	Ground (earth) connection required
	Cooling Method	Natural cooling

Section II

Safety Features & Warnings

Section-II

Safety Locks and Warnings:

All covers (panels) to cabinets containing moving parts and electrical components are attached with Allen head screws that require the use of an Allen wrench to open.

All FIT 36 bases are provided with caution or warning labels or stickers to safeguard persons operating and or working on or around this equipment. These are as follows:



Figure II-4

Note: This symbol appears as a visual alert in the text of this manual next to written warnings regarding possible safety issues and or possible machine damage that may occur as a direct result of failure to follow specific instructions as written.

Safety Recommendations

(Note: The safety devices, warning labels and stickers are installed by the manufacturer to safeguard all persons operating and or working on or around the FIT 36. Removing, altering or disabling any of these items will void any and all warranties, either real or implied, purchased or offered with the (FIT 36). All companies connected with the manufacturing, promotion and sale of the (FIT 36) shall be held harmless for any and all injuries and damage in the event the safety devices, door locks, warning labels and stickers are removed, altered or disabled)

In addition to the safety devices and warnings installed on the (FIT 36) by the manufacturer, the following recommendations for safe operation and maintenance of the (FIT 36) are as follows:

- Any persons designated to operate, work on or near the (FIT 36) must be fully trained by a factory-authorized representative.
- Do not operate or perform any type of maintenance on the (FIT 36) while under the influence of drugs or alcohol.
- Do not operate or perform any type of maintenance on the (FIT 36) in or around freestanding water.
- Do not wear loose fitting shirts, shirts with bellowing sleeves, bracelets, rings, necklaces, neckties or other loose apparel that may come into close proximity with moving parts of the machine.
- Do not place any items near or over the "Emergency Stop Switches" that might inhibit or obstruct line of sight or access to the Emergency Stop Switches. The "Emergency Stop Switches" must be clearly visible and accessible at all times.
- Wear protective safety eyeglasses or goggles and use a particle mask or similar device when cleaning off the (FIT 36) with compressed air. Alert all other persons in the area to stand a minimum of thirty (30) feet from the area where compressed air is put to such use.
- Hearing protection is not required for safe operation of the (FIT 36). Typically, decibel levels have been found to be less than 85 decibels in machines properly maintained and in good operating condition.
- All persons having hair greater than shoulder length who operate, work on or near the (FIT 36) should keep their hair pulled back in ponytail fashion then pinned up or otherwise contained to the top of their head or confined under the back of their shirt.
- Turn off the main power to the (FIT 36) before opening any of the service panels for general cleaning and or general maintenance. Follow the "Lock Out Procedures" as stated on page 16 for extensive repairs involving disassembly of the machine either in whole or in part or replacing any of the electrical components.
- Any persons working near any of the electrical motors or pump motors of the (FIT 36) should use caution. Electrical motors give off heat, contact with or exposure to bare skin may result in burns.
- The (FIT 36) was designed to feed and transport paper only. Do not attempt to feed and / or run materials made of or containing glass, metal, wood, liquids, foods, powders, gasses, explosives or toxic and hazardous chemicals on the (FIT 36). (Note: The manufacturer and other companies connected with the promotion and sale of the (FIT 36) do not assume any responsibility for any damage to the (FIT 36) or product and shall be held harmless for any damages and or injuries resulting in this practice.)

Special Advisement:

The manufacturer and other companies connected with the promotion and sale of the (FIT 36) shall be held harmless for any and all injuries sustained to any person or persons as a result of failure to comply with the recommendations for safe operation and maintenance of the (FIT 36) as shown and / or described herein.

The Lithium batteries used in our products may contain Perchlorate Material --- special handling may apply.

See www.disc.ca.gov/hazardouswaste/perchlorate.

If any equipment is provided with a replaceable battery and if replacement by an incorrect type could result in an explosion (for example, with some lithium batteries), the following applies:

- If the battery is placed in an 'operator access area', there shall be a marking close to the battery or a statement in both the operating and servicing instructions;
- If the battery is placed elsewhere in the equipment, there shall be a marking close to the battery or a statement in the servicing instructions.

This marking or statement shall include the following or similar text:

CAUTION

RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE

DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS

Lock Out Procedure

Before beginning extensive repairs involving disassembly of the machine either in whole or in part, performing general maintenance or replacing any of the electrical components, the machine must be locked out of service to ensure that power will not be restored to the machine while the work is being performed. To lock a machine out of service, perform the following:

Warning: The following procedure is published herein for the expressed purpose of providing a safe work environment conducive to persons performing repairs and or maintenance and or general cleaning of the (FIT 36) and or any other components connected to or associated with the (FIT 36). This procedure must be followed without exception to ensure the safety of any person or persons performing the previous stated task.

The manufacturer and other companies connected with the promotion and sale of the (FIT 36) shall be held harmless for any and all injuries sustained to any person or persons and or damage to the (FIT 36) and or any other components connected to or associated with the (FIT 36) as a result of failure to comply with the "Lock Out Procedure".

- 1. Turn the main power switch to the off position.
- 2. Disconnect the power cable from its source by performing the following:
 - a. Follow the main power line from the machine back to the receptacle or source of supplied power and disconnect it at the source.
 - b. Place the plug connecter close to the machine in such a position that will remain in your field of vision while repairs or maintenance is being performed.
- 3. Notify all other persons in the area where the work is being performed that the machine will be out of service, especially if the work you are performing requires you to be crouched behind or beside the machine or in some other way obscured from the sight of other persons in the area.
- 4. When the work has been completed reconnect the plug to the power source and then test cycle the machine to ensure that power has properly restored and the machine is fully functional.
- 5. Notify all other persons in the area that the machine is fully operational and that the drive motors will become enabled when the power switch is placed in the on position.

Suggested Lockout Devices

The following are some suggested devices specifically designed to provide a greater degree of safety when locking out the power supply to a machine. These devices can be purchased from most safety equipment suppliers and vendors.







Warning Alert tags, commonly used in combination with all lock out devices.

Section III

General Set-Up

FLEXIBLE INKJET TRANSPORT 36" FIT BASE: FIT-36

Section - III

This (FIT 36) is designed to run off line or in line with most feeders, FlowMaster inserters, FIT bases, FIT diverters and numerous conveyors. These manuals can be obtained through your local Sales Representative or Dealer.

(FIT 36) Setup

1. Fold one (1) piece of material in half to establish a center crease. (Note: The crease needs to be made in the direction of travel that the material is to be run, see figure III-1.)



- 2. Align the center crease of the set up piece with the center of the vacuum transport belt (belt with holes), see figure III-2.
- 3. Set the width of the material guides located on the transport deck by turning the retaining knobs in a counter clock-wise direction to loosen, clock-wise direction to tighten. Adjust the material guides to center the material being run onto the vacuum belts, see figure III-2. (Note: Arrange the guides approximately 1/16" from the top and bottom edge of the material to prevent restricting the material on the transport belt.)



- 4. Setting the width of the material guides located on the transport deck for narrow products. If the product is narrower than the existing overall belt set width, it will be necessary to move the standard material guides to the outermost position on the crossbar and use optional product side guides. See figure III-3.
 - a. Turning the retaining knobs in both material guides in a counter clock-wise direction to loosen and slide material guides to each end of the crossbar.
 - Place new product side guides onto top plate and attach each using a hand knob.
 NOTE: A machined relief is on each product side guide to provide clearance for outer non-vacuum belts. See figure III-3.





Optional product side guides

Figure III-3

Paper Sensor Adjustment: Reflective and Diffuse

The paper sensor is located at the "In-Feed" end of the FIT 36's vacuum base, over the center vacuum belt. This sensor is set to detect and confirm the presence of paper before passing under various attached components (ie ink jet heads). This sensor does not normally need to be adjusted for each job, once the setting has been made, it should remain set unless otherwise disrupted. In the event the settings have been disrupted, perform the following:

REFLECTIVE

- 1. Position the sensor directly over the center of the reflective tape (located on conveyor top plate) and attach the sensor to the sensor support bar using the two (2) outermost tapped holes.
- 2 Place a blank piece of white paper on the vacuum belt directly under the paper sensor.
- 3 Using a small flat blade screwdriver, remove the pan head screw in the plastic cover located on the sensor next to the electronic cable connection, see figure III-4 (Note: This sensor will have a detachable screw type cable connection.)
- 4 Set the "Light / Dark" pot setting; using a small flat blade screw driver, slowly and very carefully turn the pot setting, located next to the electronic cable connection, in a counter clock-wise direction until full range of motion is felt, see figure III-5. (Note: If this adjustment is performed correctly, the screw driver slot in the pot setting should be pointing towards the "DO" in the range scale next to the pot setting.)

(Caution: The stop point of this pot setting can be damaged if excessive force is applied.)

- 5 Set the "Gain" pot setting by performing the following;
 - A. Using a small flat blade screw driver, slowly and carefully turn the pot setting located furthest from the electronic cable connection, in a counter clock-wise direction until full range of motion is felt, see figure III-5. (The red LED indicator light should be off at this point.)
 - B. Using a small flat blade screw driver, slowly and carefully turn the pot setting located furthest from the electronic cable connection, in a clock-wise direction until the red LED light comes on, continue turning the pot setting in a clock-wise direction another half turn.
- 6 Return the plastic cover, removed in step (3) to its original position.

DIFFUSE

- 1. Position the sensor directly over the center of the middle vacuum belt and attach the sensor to the sensor support bar using the two (2) center tapped holes.
- 2. Place a blank piece of white paper on the vacuum belt directly under the paper sensor.
- 3. Using a small flat blade screwdriver, remove the pan head screw in the plastic cover located on the sensor next to the electronic cable connection, see figure III-4 (Note: This sensor will have a detachable screw type cable connection.)
- 4. Set the "Light / Dark" pot setting; using a small flat blade screw driver, slowly and very carefully turn the pot setting, located next to the electronic cable connection, in a counter clock-wise direction until full range of motion is felt, see figure III-6. (Note: If this adjustment is performed correctly, the screw driver slot in the pot setting should be pointing towards the "LO" in the range scale next to the pot setting.)

(Caution: The stop point of this pot setting can be damaged if excessive force is applied.)

- 5. Set the "Gain" pot setting by performing the following;
 - A Using a small flat blade screw driver, slowly and carefully turn the pot setting located furthest from the electronic cable connection, in a counter clock-wise direction until full range of motion is felt, see figure III-6. (The red LED indicator light should be off at this point.)
 - B Using a small flat blade screw driver, slowly and carefully turn the pot setting located furthest from the electronic cable connection, in a clock-wise direction until the red LED light comes on, continue turning the pot setting in a clock-wise direction another half turn.
- 6. Return the plastic cover, removed in step (3) to its original position.



REFLECTIVE



DIFFUSE



Control Panel and Switch Operation



Item	Description	Function
Α	Main Power Switch	Engages Power to the machine (electrical enclosure)
В	Start Switch	Initiates power to cycle base
С	Jog Button	Cycle all components of machine while pressed
D	Feeder Button	Engages Power to Feeder
Е	Gap Control Dial	Increases and decreases speed of Feeder
F	Bas Control Dial	Increases and decreases speed of base
G	Reset Button	Resets any Corrected Fault
Н	Emergency Stop Button	Interrupts power to all components of the machine
	Vacuum Power Switch	Engages power to the vacuum pump
		Indicates Status of Base
		Steady Light=No Fault, Slow Flashing = Photo-Eye Fault,
J	LED Indicator	Quick Flashing = Print Head Fault
κ	Stop Switch	Interrupts power to Base







Special Note: Pursuant to Community Legislation on Machinery, Comments on Directive 98/37/EC 1.2. Controls and 1.2.1 Safety and reliability of control systems

The "E-Stop" button / buttons found on the FIT 36 vacuum base are by design in compliance to meet and / or exceed the mandates and requirements as stated in the Community Legislation on Machinery, Comments on Directive 98/37/EC.

By manufacture design the E-Stop buttons are to be used in the event of an emergency, once the E-Stop button has been depressed, it must be physically re-set.

For a selective stop to interrupt normal machine operation, depress the "Red" control Stop button. The machine can be re-started without delay at the operator's discretion.







Print Heads

If print heads are included or are to be attached to the vacuum base, set up the print heads in accordance with the manufacturer specifications.

PRINCIPLES OF OPERATION

The manually operated switches and potentiometers are provided to co-ordinate the operation of various components. An example of a basic machine consists of a <u>feeder</u>, <u>the FIT 36 base</u> and a <u>collecting</u> <u>conveyor</u>.

1. The FEEDER ON/OFF switch only enables the feeder- other (start/stop, jog and reset) switches permit the feeder's operation in parallel with the base conveyor.

- a) STOP: Controls the stop circuits of VFD 1(leader) for the base conveyor motor & DC DRIVE (follower) for the feeder belt motor.
- b) JOG: A PLC programmed set speed of base conveyor motor and feeder belt conveyor control is used for product set-up.
- c) RESET: Returns the machine to operating condition after an E-STOP condition.
- BASE potentiometer- the "leader" speed control input for the base conveyor VFD. The VFD will output a signal to the feeder (or upstream component) to permit parallel operation (the feeder motor will "follow" the "leader" base conveyor motor). If any modification is needed to produce a different separation distance between conveyed product pieces, refer to GAP potentiometer.
- 3. GAP potentiometer- the "follower" speed control input for the feeder motor <u>only</u>. An increase in speed (higher potentiometer setting) produces a shorter separation distance (gap) between conveyed product pieces. Larger gaps occur when the potentiometer is set lower.
- 4. VACUUM switch-energizes the vacuum pump motor.

Operating the (FIT 36)

Power:

- 1. Turn power to the machine on by placing the white power switch, located on the electrical enclosure, in the up position. See figure III-7.
- 2. Check E-STOP, pull up to release. See figure III-9.
- 3. Press red RESET pushbutton to illuminate white led indicator on START-STOP pushbutton or to 'clear' E-STOP condition, see figure III-14.
- 4. Turn the vacuum pump motor on by depressing the upper half of the white switch until it lights up, see figure III-8.
- 5. Press white FEEDER pushbutton to operate feeder with conveyor, see figure III-11. Note: Feeder must have sufficient product.
- 6. Press and hold the yellow JOG pushbutton located on the control panel to jog the machine forward until one (1) piece of material has been fed from the feeder onto the material vacuum transport belts of the FIT 36 vacuum base, see figure III-13.
- 7. Press green START pushbutton to initiate feeder/conveyor operation. White led will be steady. Please note that operation will cease automatically (a time out condition) if product is not sensed at leading sensor and white led will produce a slow flash condition.

NOTE: RED REST PUSHBUTTON MUST BE PRESSED TO 'CLEAR' E-STOP CONDITION !!

- 8. Press green START <u>AND</u> yellow JOG pushbuttons simultaneously to by-pass "feeder out of paper" condition (conveyor will operate continuously until first product is sensed at leading sensor-then step 7 conditions prevail).
- 9. If white led produces a fast flash condition then a paper jam has occurred at either leading or trailing sensor (a paper jam is normally caused when more than one product is being sensed, i.e. overlapping pieces). Clear jam and re-start.

Setting Run Speed

- Once the material is being transported by the vacuum transport belt (green START button is active and LED indicator is steady), adjust the speed of the FIT 36 base by turning the Base Speed Control Knob in a clock-wise to increase the speed or counter clock-wise to decrease the speed, see figures III-10 & -12. (Note: Set the speed to best accommodate the material and fonts being run.)
- 2. Set the FEEDER gap by adjusting the Gap Control knob in a clock-wise direction to shorten the gap between each piece of material as it feeds or counter clock-wise to increase the gap between each piece of material as it runs, see figure III-10.

Section IV

General Maintenance

FLEXIBLE INKJET TRANSPORT 36" FIT BASE: FIT-36

Section - IV

FIT 36 Base Maintenance:

The general maintenance of the FIT 36 base is limited due to the design and materials used in manufacturing. The frequency of general cleaning required for the FIT 36 is dependent on the amount of running time put on the machine.

General Cleaning:

Blowing off the machine using compressed air

- 1. Acquire and use eye protection, safety goggles or safety glasses with side guards. Also use respiratory protection, a simple disposable cloth or paper style particle mask is sufficient.
- 2. Alert all other people in the area to stand clear of the work area a minimum of 30 feet, (7.7 meters) where compressed air is being used to blow off machines.
- 3. Turn off the machine and disconnect the power line.



(**Warning:** To prevent accidental injury, refer to "The Lock Out / Tag Out Procedure" on page 13.)

- 4. Remove any loose items from the surfaces of the machine, i.e. Ballpoint pens, pencils, tape dispensers, paper clips rubber bands etc.
- 5. Open all service doors located on the front side of the machine and remove any loose items that might have been left inside, i.e.; spare parts, tools, personal effects such as purses car keys etc. (Note: After a complete visual inspection has been completed and loose items removed, leave the service doors open.)
- 6. Remove the keyboard and monitor from the stand or cover them with plastic to prevent air borne particles from getting into them. (**Note:** if the inkjet base cabinet is being used to house a computer, remove the computer from the cabinet.)
- 7. Remove all ink cartridges from the carriage. (**Note:** If a continuous feed ink system is in use, cover the spray orifices with plastic to prevent air borne particles from getting into them.)
- 8. Hold the air nozzle firmly at arm's length and blow off the machine beginning with the top surfaces then work your way down.



(Warning: Be sure to keep the direction of compressed air blowing away from you.)

(**Note:** High volume businesses running three (3) shifts five (5) days a week should plan this function once a week. Businesses producing light to moderate volume should plan this function once a month.)

Cleaning Vacuum Transport Belts:

- 1. Acquire and use eye protection, safety goggles or safety glasses with side guards.
- 2. Turn off the machine and disconnect the power line
- 3. Clean the following:
 - ✓ Transport Belts of the FIT 36 Base
 - ✓ Transport Belt Tracks and Vacuum Manifold

Apply a liberal amount of "Simple Green" general-purpose cleaner or ("Isopropyl Alcohol", 70% by volume see warning below) to a soft cloth and wipe down the belt you wish to clean. Advance the belt being cleaned by hand until the entire belt surface has been cleaned.



(Warning: Do not spray or pour Simple Green general-purpose cleaner or Isopropyl Alcohol directly onto the belts, free flowing liquids may seep into some electronic components and cause damage)

(Note: "Simple Green" general-purpose cleaner and / or "Isopropyl Alcohol" can be purchased at most local grocery stores and drug stores.)



(Warning: Isopropyl Alcohol is FLAMABLE, do not use near an open flame or any other source or device that gives off heat.)

