



**WARNING:** Do not turn on until all plumbing and electrical connections have been made.



**WARNING:** The flushing system contains hazardous voltage. Disconnect power during installation.



**Wear eye protection and use appropriate safety equipment when working with ink.**



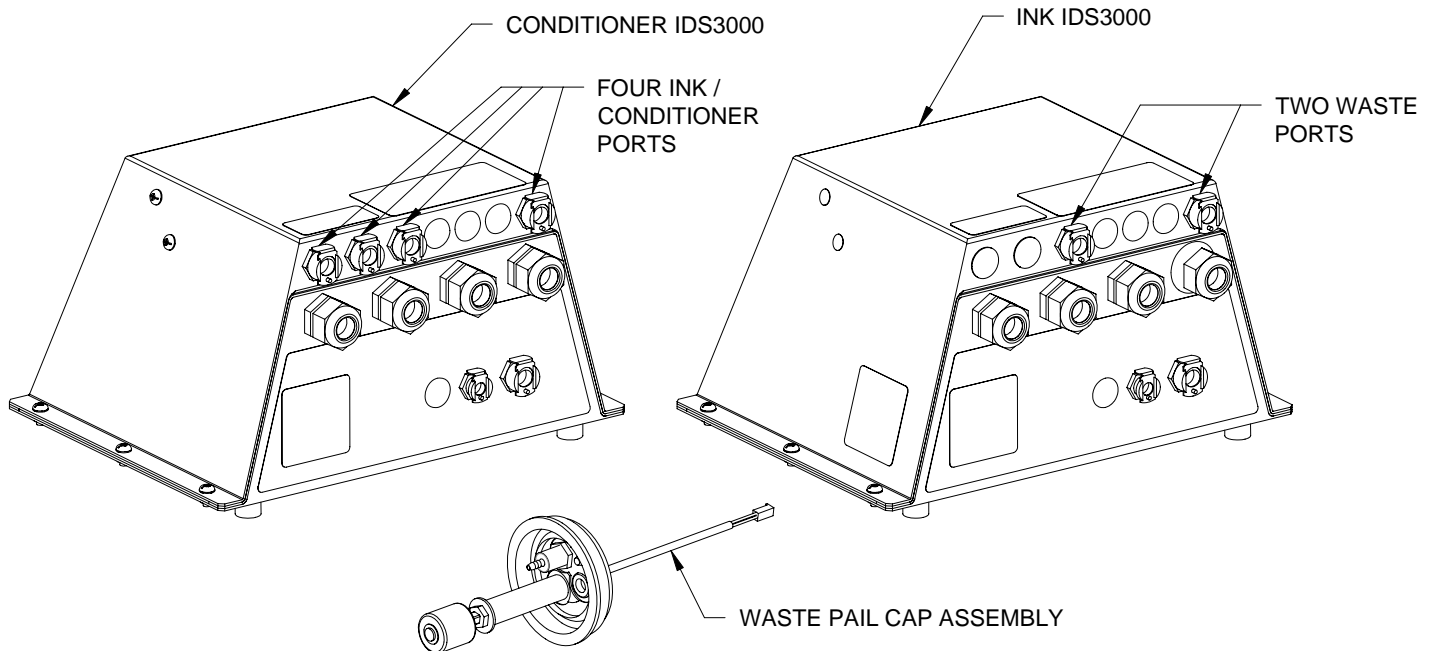
**CAUTION:** Porous ink must be used with a porous flushing system. Non-porous ink must be used with a non-porous flushing system. The flushing system can not be converted to use a different ink type.

### System components

- Ink IDS3000 (identified by its two waste ports in the back of the cover)
- Conditioner IDS3000 (identified by the four conditioner / ink ports in the back of the cover)
- 5-gallon waste cap assembly (5760-829)
- Tubing and fitting kit, flushing system to four print heads (5760-830)
- Ethernet hub (5760-158)
- Empty 5-gallon waste pail (1301-017)

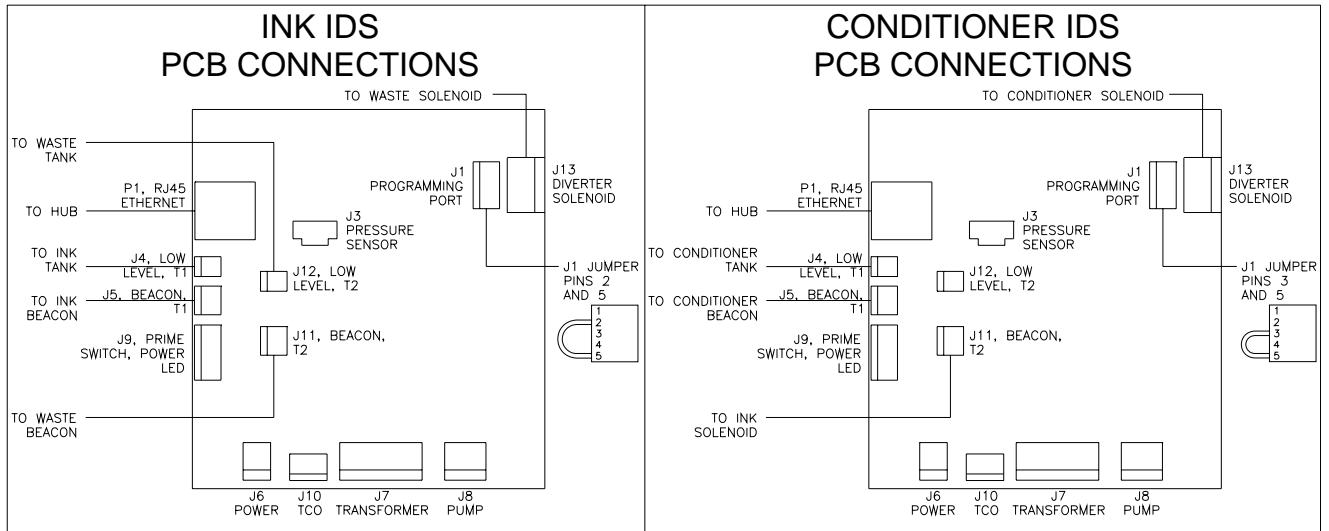
### Optional kits

- Tubing and fitting kit, flushing system to four additional print heads (5760-831)
- Mounting Kit, required if mounting to standard 80/20 bracketry (5760-368).

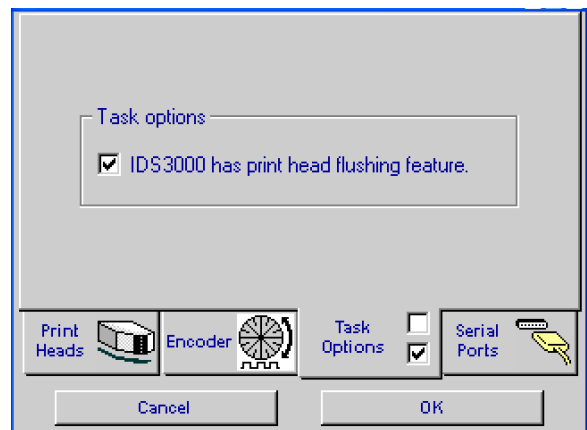
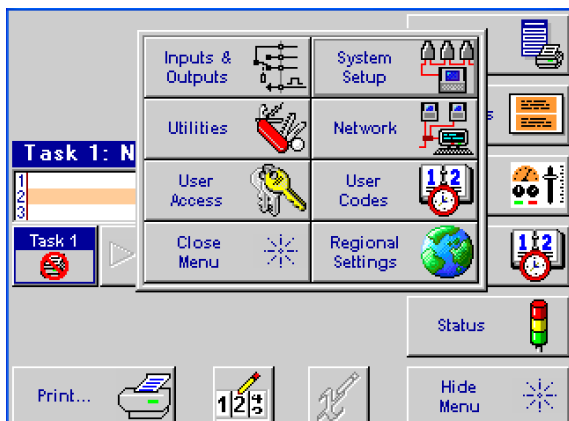


**Installation**

1. Mount the IJ3000 controller, “ink” IDS, “conditioner” IDS, and print heads to bracketry (see manual 5760-107).
2. Remove the cover of both the “ink” and “conditioner” IDS’s.
3. Install cables through their respective bulkhead fittings.
4. In the “ink” IDS make the following connections to the PCB: ink beacon to J5, waste beacon to J11, ink level detect to J4, and the waste level detect to J12 (see diagram below).
5. In the “conditioner” IDS make the following connections: conditioner beacon to J5, conditioner level detect to J4 (see diagram below).



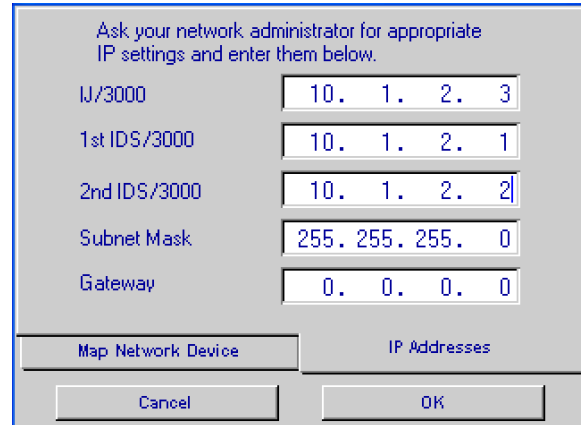
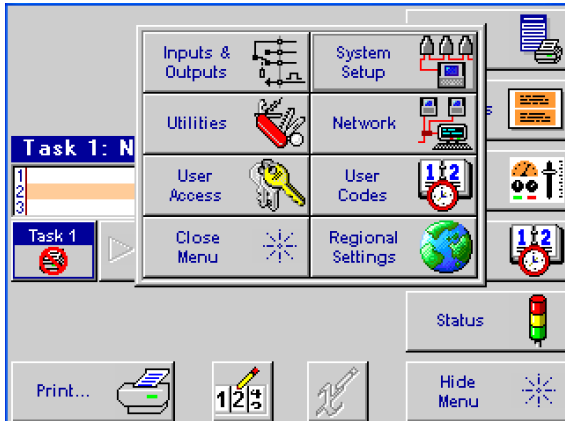
6. Tighten the bulkhead fittings by hand plus a ½ turn with wrench and replace the IDS covers.
7. Place the status beacons where they can be seen by plant personnel. Beacons are labeled for easy identification.
8. Connect the Ethernet cables from the IJ3000 controller, “ink” IDS, and “conditioner” IDS to the Ethernet hub.
9. Make remaining electrical connections to the IJ3000 controller (see manual 5760-107).
10. Turn on the IJ3000 controller (do not turn on the IDS’s at this time).
11. On the IJ3000 controller at the home screen, touch the **Control Panel** button, the **System Setup** button, and then the **Task Options** tab. Check the **IDS3000 has print head flushing feature** box to allow access to the flushing system screen. The IJ3000 firmware must be at revision 3.15 or newer.



12. At the IJ3000 controller set the IP address of the 1<sup>st</sup> and 2<sup>nd</sup> IDS3000. Do this by touching the **Control Panel** button, the **Network** button, and then the **IP Addresses** tab. The IP from the factory are:

- “ink” IDS: 10.1.2.1
- “conditioner” IDS: 10.1.2.2

(If required, see manual 5760-121 for changing the IP address of the IDS3000)



**NOTE:** The IJ3000 controller communicates with the flushing system through an Ethernet connection. Ethernet communication must be correctly connected and IP addresses set for the system to operate.

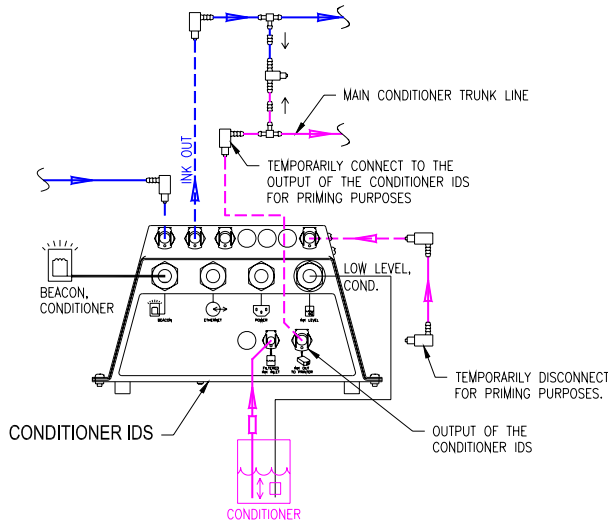
### Plumbing the system

All ink line connections should be as short as possible. The flushing system comes with enough tubing and fittings to connect four print heads. When connecting to more than four heads an additional tubing kit will need to be purchased (5760-831). This tubing kit contains enough tubing and fittings for four additional print heads.

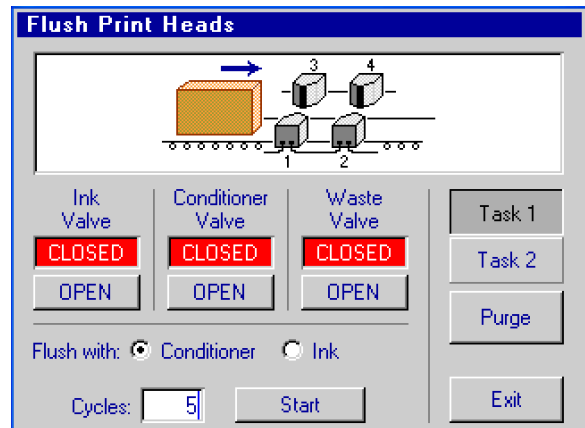
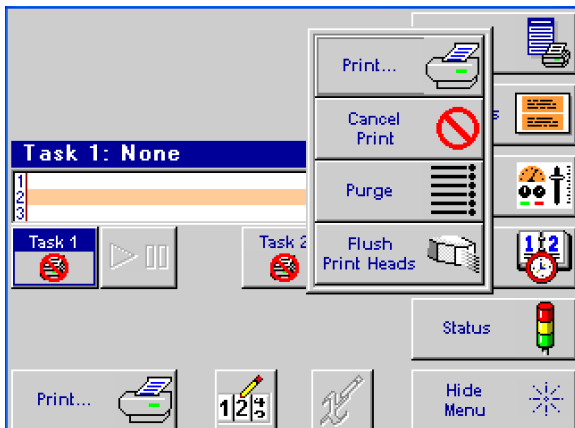
1. Create all supply line and waste line tubing (see Diagram A). Do not connect the print head regulator to the tee valve in the main trunk line. Air needs to be purged out of the main trunk lines before connecting the print head regulator. If air is forced through the regulator then the regulator pressure can change causing printing and flushing issues.
2. Place a pail of ink, a pail of conditioner, and a waste pail within eight feet of the flushing system.
3. Unscrew the shipping cap from the pails. Insert the appropriate cap assemblies into the ink, conditioner, and waste containers (see diagram A). Note that the waste cap assembly has a shorter float sensor extension rod than the ink and conditioner cap assemblies.
4. Connect the filtered ink supply line between the ink cap assembly and the rear of the “ink” IDS (note the direction of flow through the filter).
5. Connect the filtered conditioner supply line between the conditioner cap assembly and the rear of the “conditioner” IDS (note the direction of flow through the filter).
6. Connect the waste line between the waste cap assembly and the rear of the “ink” IDS.

**Priming the system**

1. Connect the effluent bottle to the conditioner service port (see diagram A), make sure the effluent bottle shutoff valve is off at this time.
2. For priming purposes, disconnect the small length of tubing between the conditioner IDS and the “Conditioner in from IDS” port. Then connect the main conditioner trunk line (normally connected to the “Conditioner out to print heads” port) to the output of the conditioner ids (see diagram below).



3. To prime the flushing system for the first time after installation, hold the prime button and simultaneously depress the power button on the “conditioner” and “ink” IDS’s. The pump will automatically start, and will run for up to 20 cycles, pushing conditioner into the lines. The pump will turn off when the accumulator reaches its normal operating pressure. If there is excessive air in the lines, the process may need to be repeated, as the pump will turn off automatically after 20 cycles.
4. A small amount of conditioner / ink will now be visible in their respective trunk lines. Revert the plumbing at the back of the conditioner IDS back to its normal operation state per Diagram A.
5. It will still be necessary to bleed the air from the lines. At the IJ3000 controller open the **Print Menu** and touch the **Flush Print Heads** button, this will display the “Flush Print Heads” screen. Open the conditioner valve by touching the **OPEN** button below the “Conditioner Valve” notation. Do not exit the “Flush Print Heads” screen, doing so will close the conditioner valve and open the ink valve.

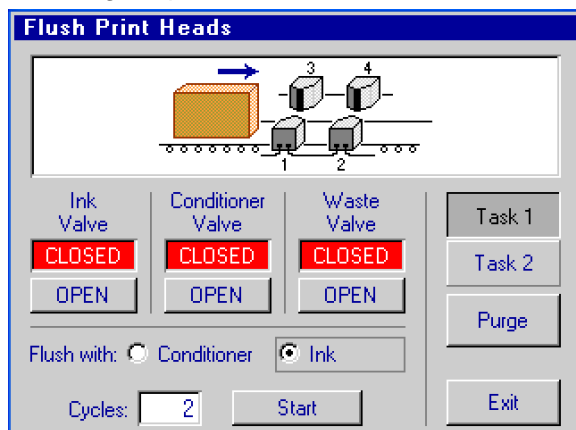


6. Open the shutoff valve at the effluent bottle assembly by pushing together until the connections snap into place; this will allow air to flow out of the conditioner trunk line. As soon as conditioner begins flowing into the effluent bottle, close the shutoff valve and disconnect the assembly.
7. Move the effluent bottle assembly to the first tee valve (5700-509) in the trunk line and connect it. Open the shutoff valve at the effluent bottle assembly allowing the air to flow out. As soon as

- conditioner begins flowing into the effluent bottle, close the shutoff valve and disconnect the assembly. Repeat this step for all of the tee valves.
8. Connect the effluent bottle to the ink service port (see diagram A), make sure the effluent bottle shutoff valve is off at this time.
9. At the IJ3000 controller, close the conditioner valve and open the ink valve.
10. Open the shutoff valve at the effluent bottle assembly, this will allow air to flow out of the ink trunk line. As soon as ink begins flowing into the effluent bottle, close the shutoff valve and disconnect the assembly.
11. Move the effluent bottle assembly to the first tee valve (5700-509) in the trunk line and connect it. Open the shutoff valve at the effluent bottle assembly allowing the air to flow out. As soon as ink begins flowing into the effluent bottle, close the shutoff valve and disconnect the assembly. Repeat this step for all of the tee valves.
12. Connect each print head regulator to its tee valve.
13. Go to the “Flush Print Heads” screen at the IJ3000 controller and Flush the print heads with ink (reference section “Flushing the system with ink”). This flushes the conditioner out of the regulator, regulator ink lines, and the print head.

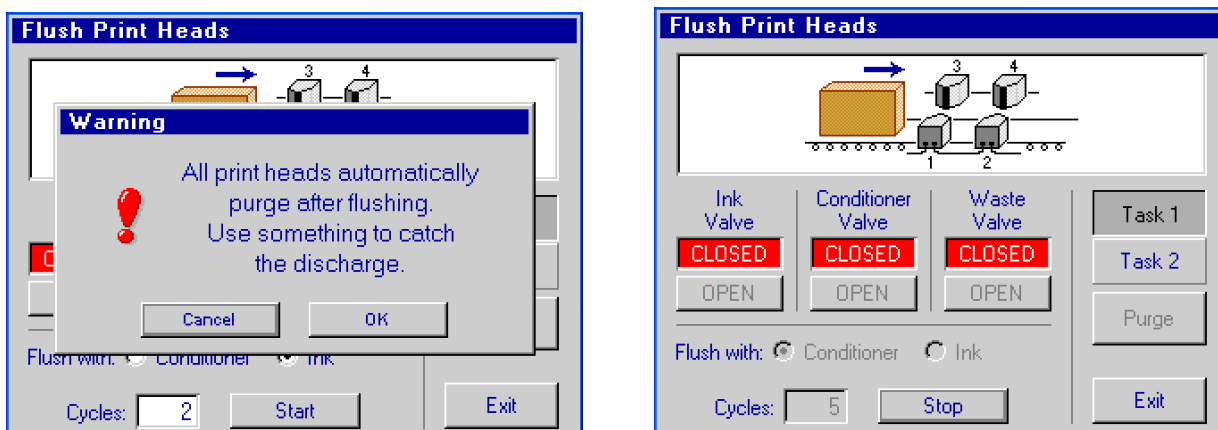
### Flushing the system with ink

1. Place an absorbent cloth (or some other means of capturing waste ink) in front of each print head (includes all print heads on both tasks). All print heads will automatically purge at the end of the flushing sequence.



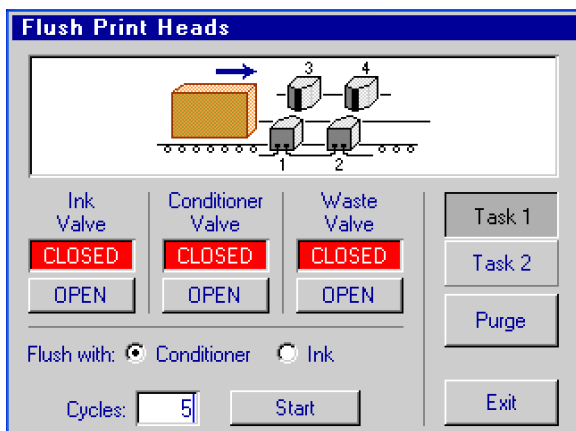
2. At the IJ3000 controller, go to the “Flush Print Heads” screen. Select the “Flush with ink” radio button.
3. Set the number of required cycles. The number of cycles will vary depending on how many print heads are connected. Each cycle adds twelve seconds to the total flushing operation. By default the number of cycles is set to 2 which should be sufficient to flush four 18-dot print heads. The IJ3000 controller will remember the last number of cycles entered.
4. Press the **Start** button. A warning dialog box will appear advising of the impending print head purge at the end of the flushing operation. After pressing **OK** the ink lines are automatically flushed with ink and all of the print heads are purged. The ink valve will remain open so that normal printing

functions may continue. The flushing operation may be stopped at any time by pressing the **Stop** button that is displayed during the flushing operation. Note that if the “Flush Print Heads” screen is exited before the flushing operation has been completed the flushing operation will be stopped.



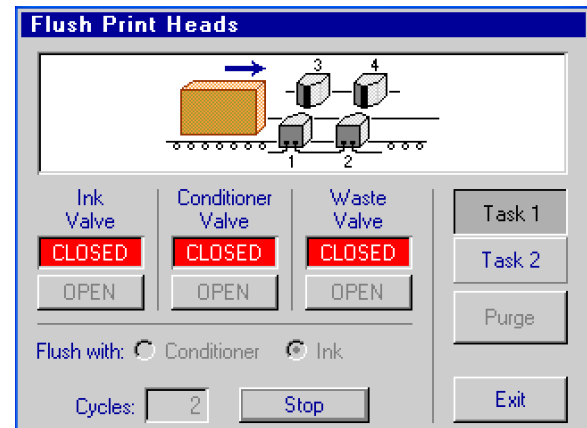
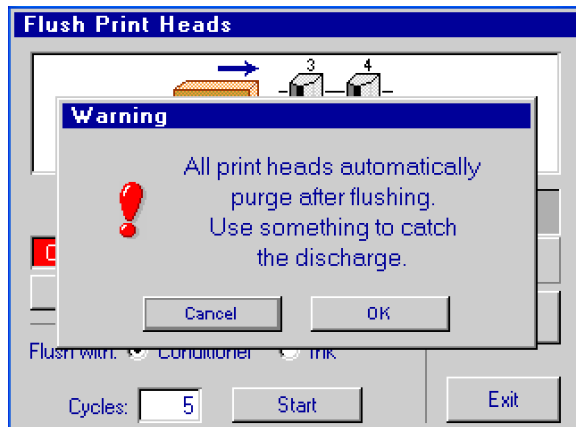
### Flushing the system with conditioner

1. Place an absorbent cloth (or some other means of capturing waste ink) in front of each print head (includes all print heads on both tasks). All print heads will automatically purge at the end of the flushing sequence.
2. At the IJ3000 controller, go to the “Flush Print Heads” screen. Select the “Flush with conditioner” radio button.



3. Set the number of required cycles. The number of cycles will vary depending on how many print heads are connected, what type of print heads are connected (9 or 18-dot), and if all of the print heads are of the same type. Each cycle adds twelve seconds to the total flushing operation. By default the number of cycles is set to 5 which should be sufficient to flush four 18-dot print heads. The IJ3000 controller will remember the last number of cycles entered.
4. Press the **Start** button. A warning dialog box will appear advising of the impending print head purge at the end of the flushing operation. After pressing **OK** the ink lines are automatically flushed with conditioner and all of the print heads are purged. The conditioner valve will remain open for any additional print head purging that may be required. The flushing operation may be stopped at any time by pressing the **Stop** button that is displayed during the flushing operation. Note that if the

“Flush Print Heads” screen is exited before the flushing operation has been completed the flushing operation will be stopped.



### Manual control

It is also possible to manually open valves, close valves and purge print heads from the flushing system screen.

- The ink and conditioner valves can not be opened at the same time. There is firmware protection in place to prevent this from happening.
- When the waste valve is open, the broken line detection feature is over ridden.
- Individual print heads on task 1 or task 2 may be purged from the flushing system screen. This can be done as follows:
  - At the “Flush Print Heads” screen, select the task that the print head is on.
  - Touch the print head that needs to be purged, the print head will then be highlighted.
  - Touch the **Purge** button. Ink will be purged from the print head orifices for a few seconds.

### Functionality

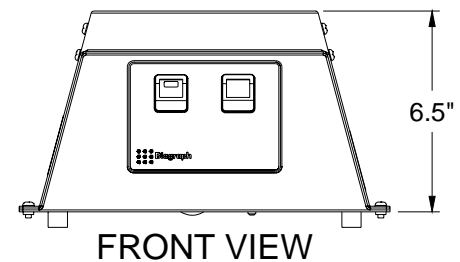
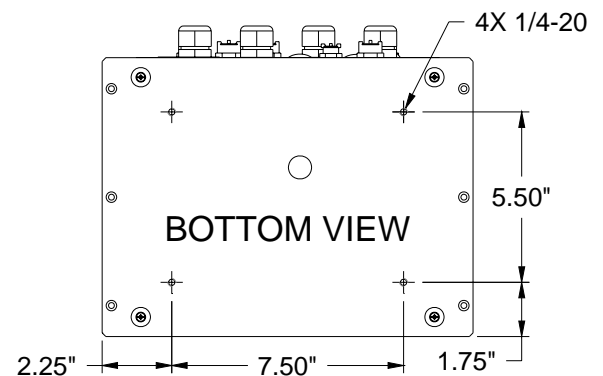
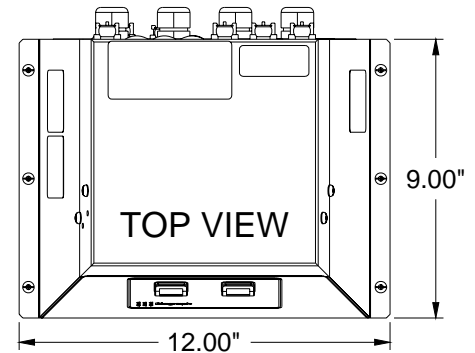
- Ink or conditioner low: When the float drops low in the supply tank, the appropriate beacon light will illuminate steady. This lets the operator know that is time to have a new supply tank ready.
- Ink or conditioner out: After the float has dropped low and the pump has turned on 60 times, the appropriate beacon will flash slowly (1 Hz). Depending on ink type and tank elevation relative to the ink system, some amount of ink/conditioner will remain in the tank. If this occurs during a flushing operation, the flushing operation will automatically be stopped. Once the supply tank has been replaced the flushing operation will need to be restarted.
- Waste Full: When the float goes high in the waste tank, the waste solenoid will close and the waste beacon will illuminate steady. The waste solenoid will not open again until the waste tank has been replaced. If this occurs during a flushing operation, the flushing operation will automatically be stopped. Once the waste tank has been replaced the flushing operation will need to be restarted.
- Power Switch or Prime Switch at ink low or ink out: If the power switch or prime switch is toggled during ink low or after ink out, the pump counter is reset to 50, and the pump will be allowed to pump 10 more times. If there is very little ink left in the tank, the pump will draw in air and pump it into the regulator(s) and print head(s). This can significantly affect the performance of the print head(s).

- When the “Flush Print Heads” screen is exited, regardless of valve state, the conditioner and waste valves will be closed and the ink valve will be opened. If a flushing operation is taking place then it will be stopped.
- Power switch:
  - When the ink IDS is powered up (or the power switch is toggled), the waste valve is closed.
  - When the conditioner IDS is powered up (or the power switch is toggled), the conditioner valve is closed and the ink valve is opened.
  - The solenoid valves in the flushing system are of the normally closed type. If the conditioner IDS is turned off then the ink and conditioner valves will be closed. If the ink ids is turned off the waste valve will be closed.
- Power outage: a power outage will behave exactly the same as toggling the power switch.
- Broken line protection: This feature prevents the ink system from emptying an entire ink tank on the floor after this type of incident. When the broken line has been repaired, toggling the power switch or prime switch will reset this fault. The broken line protection feature is overridden during flushing operations and when the waste valve is open.
- The conditioner flushing sequence consists of two programming loops that open and close the waste and conditioner valves. The first programming loop lasts two minutes and is not affected by the number of cycles entered by the user. The second loop lasts twelve seconds for each cycle entered by the user. At the end of the flushing cycle the print heads are purged, this takes about ten seconds. When the cycle count is set to five, it will take 3 min. 10 sec. to flush the system with conditioner.
- The ink flushing sequence consists of two programming loops that open and close the waste and ink valves. The first programming loop lasts fifty seconds and is not affected by the number of cycles entered by the user. The second loop lasts twelve seconds for each cycle entered by the user. At the end of the flushing cycle the print heads are purged, this takes about ten seconds. When the cycle count is set to one, it will take 1 min. 12 sec. to flush the system with conditioner.
- The amount of waste created will depend on the number of print heads being flushed and the number of flushing cycles being run. As a reference, flushing four 18-dot print heads with ink and the cycle count is set to one, 175ml of waste is produced. Flushing four 18-dot print heads with conditioner and the cycle count is set to five, 425 ml of waste is produced.



### Specifications

- **Size**
  - Height: 6.5"
  - Width: 12.0"
  - Depth: 10.1"
  - Cable clearance: 3" from the rear of the IDS
- **Enclosure**
  - Stainless steel
- **Electrical**
  - 103VAC-122VAC, 60Hz, 1.0 Amp max.
- **Normal Operating Pressure Range**
  - 20 psi to 25 psi (approximately)
- **Environment**
  - Ambient operating temperature: 40°F to 104°F
  - Operating humidity: 10-90%, non-condensing
- **Tubing Limitations**
  - Maximum horizontal tube length = 100 ft.
  - Maximum vertical tube length (bottom of IDS to bottom of highest print head) = 20ft.
- **Ink Supply Limitations**
  - Maximum height above IDS (top of ink supply to bottom of IDS) = 8 ft.
  - Maximum distance below IDS (bottom of ink supply to bottom of IDS) = 8 ft.
  - Maximum horizontal distance between IDS and supply = 8 ft
- **System Limitations**
  - Maximum number of print heads: 16
  - Not compatible with the Dual Tank Diverter system.



# DIAGRAM A

