User's Manual

Diagraph Ink Delivery System

IDS/2000

Revision C
5802-760

Diagraph Corporation • 3401 Rider Trail South
Saint Louis / Earth City, MO • 63045 • © 2000

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IDS/2000 TABLE OF CONTENTS

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1 - IDS/2000 Specifications

Size

Height:	17.75 inches (451 mm)
Width:	8.25 inches (210 mm)
Depth:	17.75 inches (451 mm)

Weight 18 pounds

Electrical Connections 115 VAC at 60 Hz or 230 VAC at 50 Hz input power

Fluid Connections
1/8 inch female coupling for ink inlet
1/4 inch female coupling for ink outlet

Manual Controls

Control	Location	Function
Power Switch	Front Panel	On/Off
Voltage/Fuse Selector	Front Panel	Voltage Selection
Pump Prime Button	Front Panel	Over-ride auto-shutoff
Air Purge Button	Front Panel	Evacuates system of air.

Enclosure Industrial Grade Stainless Steel

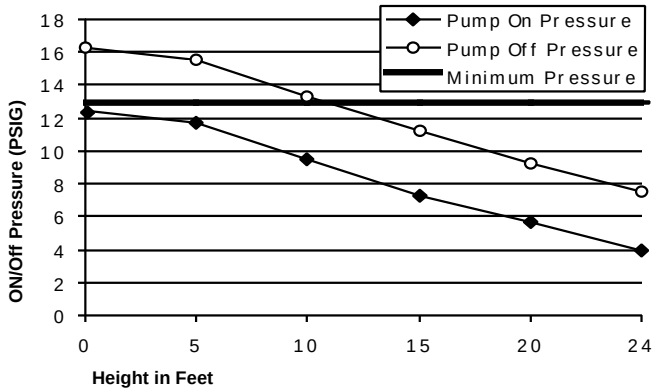
Ink Accumulator Capacity 1.4 oz (40ml) ink available for printing

Operating Temperature Between 40°F to 100°F (4.4°C to 37.8°C)

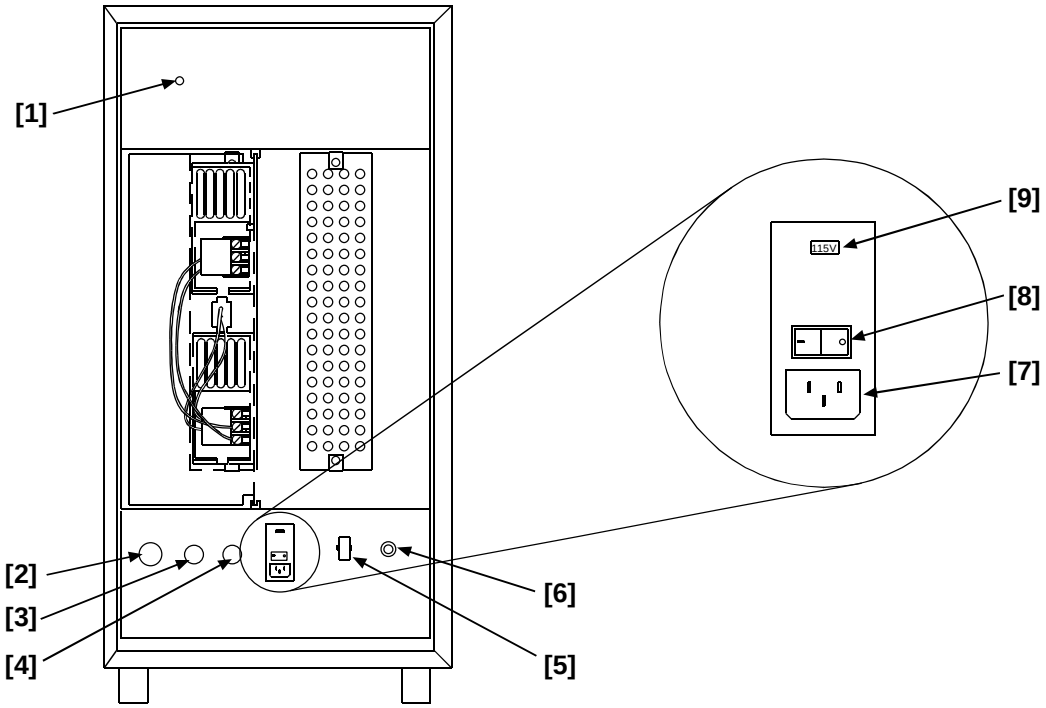
Fuses
System: 2 MDL-2 250V, 2A
Fan: 1 125V, 315 mA

Diagraph Printhead Supply Capacities

IV Printhead Size	Max No.Printheads
1/2”	12
7/8”	8
2”	4



Inside View of the IDS/2000



[1] Status
[2] ¼" Ink Out
[3] 1/8" Ink In
[4] Purge
[5] Low Ink Output Signal
[6] Prime
[7] AC Power Inlet
[8] On/Off Switch
[9] Voltage Selection

2 - Configuring the IDS/2000

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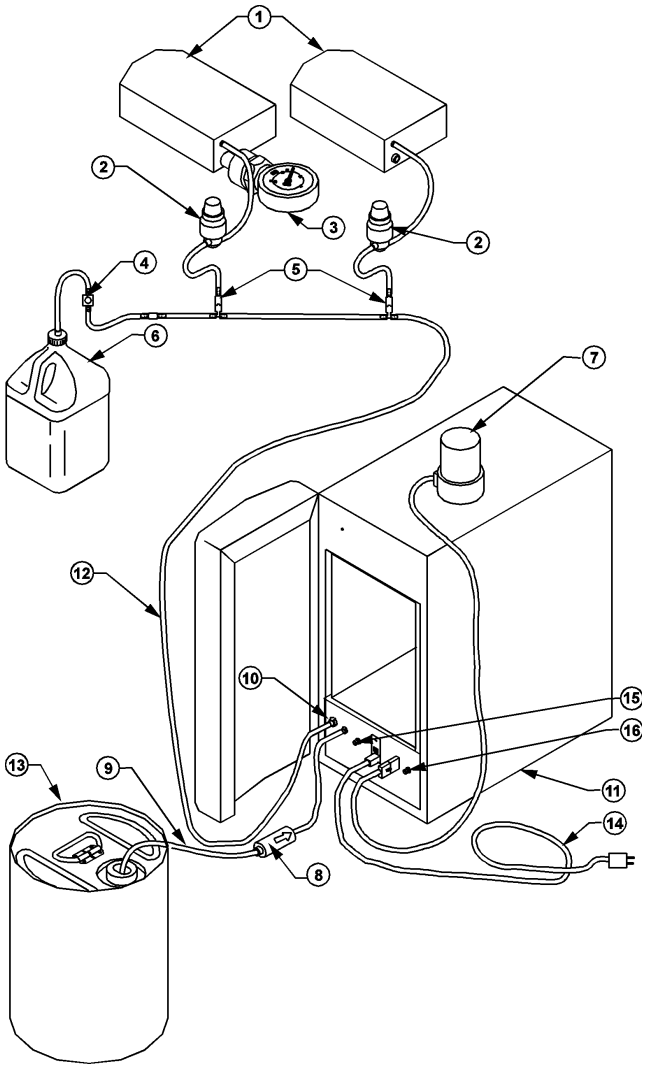
Plumbing of a Multiple Printhead System



1	Printhead	9	1/8” Ink Line
2	Ink Regulator	10	Elbow Fitting
3	Pressure Gauge	11	IDS/2000
4	Shutoff Valve	12	¼” Ink Line
5	T Connector	13	Ink Container
6	Effluent Bottle	14	Power Cord
7	Beacon	15	Air Purge Valve
8	Ink Filter	16	Prime Switch

Ink Line Connections to the IDS/2000

Follow these instructions after carefully installing the printheads, bracketry and ink regulators.

REQUISITE PARTS OF A NEW SYSTEM

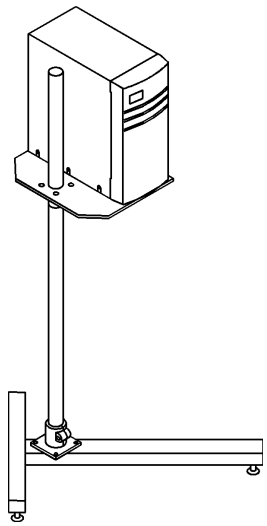
The IDS / 2000 ships with:

- 20 feet of 1 / 4 inch tubing with a male elbow in one end (the IDS / 2000 connection) and a 1 / 4 inch male coupling in the other
- An ink filter assembly comprised of 1 / 8 inch tubing, a filter and a 1 / 8 inch male coupling in each end;
- A beacon
- A power cord
- Spare parts kit
- Documentation

Even a single printhead system will need all of these items plus a pressure gauge and an effluent bottle.

The previous illustration shows these items in a normal two printhead plumbing configuration.

Plumbing the system



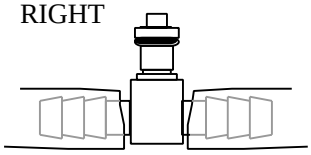
SETTING UP THE PRIMARY INK LINE

Before starting, get a pair of diagonal cutters to cut the cable ties on the packaging and the tubing itself.

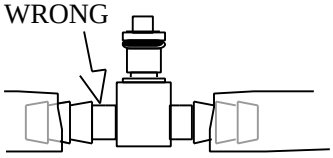
1. Place the IDS / 2000 on a shelf.

2. Construct a spine from the 1 / 4-inch tubing and the T connectors, one connector for each regulator. Plan to position each regulator conveniently close to the printhead it will be supplying.

RIGHT



WRONG



Be sure to slide the tubing over all of the exposed barbs to prevent it from coming off under pressure.

3. Starting at the end of the tubing fitted with the elbow connector, play out enough tubing to reach from the IDS/2000 to the first printhead. Cut the tubing and insert the barbed end of a T connector.

4. Reconnect the tubing to the other hose barb on the T connector and route the tubing to the next regulator.

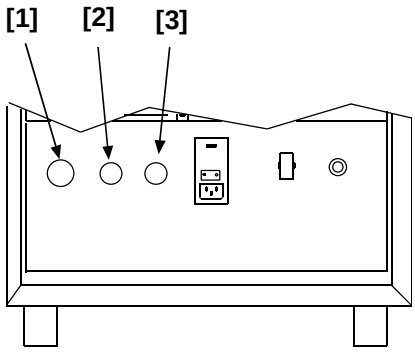
5. Cut the tubing and insert the barbed end of a T connector for the second regulator.

6. Repeat the previous steps until you have one T connector in the supply line for each regulator.

7. Attach the cut end of the remaining ¼ inch tubing to the last printhead T connector.

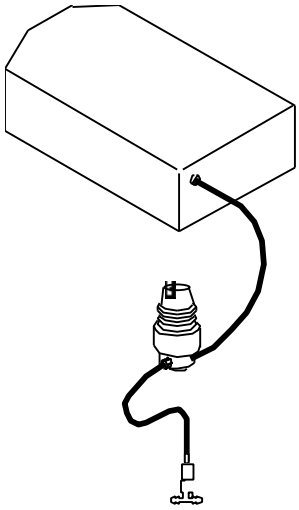
8. Cut the tubing off about 6 inches beyond the last T connector and insert the male coupling. Connect the male coupling to the female coupling on the tube from the effluent bottle.

9. Connect the elbow coupling in the 1/4 inch tubing to the female coupling located at the far left front of the unit.



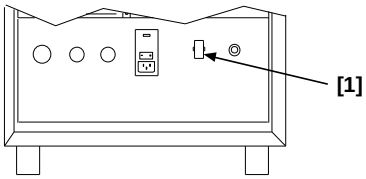
[1] 1/4” Ink Out
[2] 1/8” Ink In
[3] Air Purge Switch

CONNECTING THE PRINTHEADS



Connect the ink line with the male quick disconnect from each regulator to the female coupling on its printhead. Listen for a click when you push the connector into the fitting. The thumb tab on the coupling will be in its out position when successfully attached. You can test its security by gently tugging on the ink line to assure connection.

Connecting the Beacon to the IDS/2000



1. Set the Low Ink Beacon where it can be seen by floor personnel and within 10 feet of the IDS/2000.

2. Open the front door of the IDS/2000.

3. Connect the beacon's attached cable with the two-pin connector to the low ink output connector **[1]** on the IDS/2000 front panel. The beacon will flash when an ink pail is empty or will illuminate when an error condition exists.

Connecting to the Ink Pail

Wear safety goggles whenever working with ink or ink supply lines. Check with your supervisor for additional safety directives.

Remember that the IDS/2000 works only with porous and non-porous Diagraph ink. DO NOT USE PIGMENTED INK.

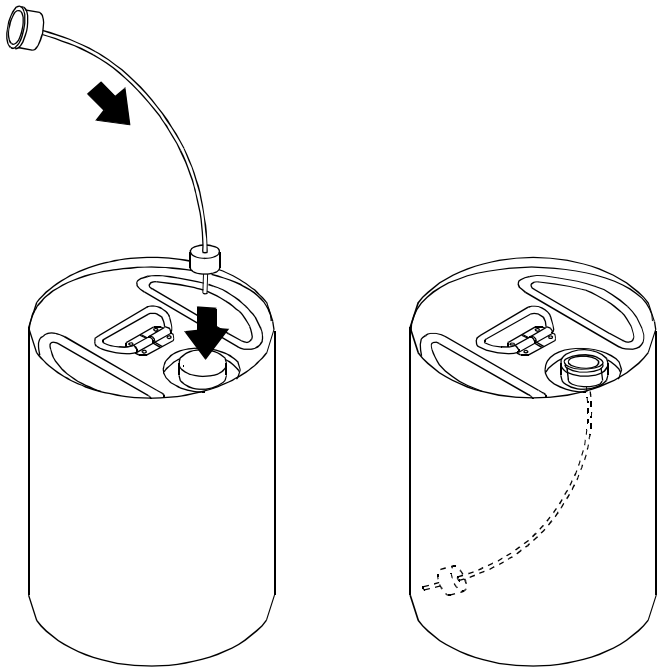
The following instructions cover the installation of a pail of non-porous ink. The porous ink instructions are in the next section.

1. Place a pail of Diagraph ink on the floor near the IDS/2000.

2. Remove the plastic cap and tube assembly attached to the side of the pail.

The cap has been designed to remove the maximum amount of ink from the pail. DO NOT cut the ink feed tube or reposition the weight attached to the end.

3. Unscrew the metal cap and pry out the cap cover with a screwdriver. Take care not to splash ink while prying off the cover.



4. Insert the tube into the pail and orient toward the handle.

Setting the container down hard on the floor will squirt ink. Handle the container carefully to AVOID SQUIRTING INK.

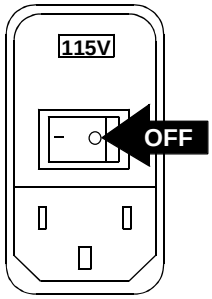
5. Set the bung in the opening and press down firmly with the heel of your hand. Press until it snaps into place. DO NOT HAMMER. Hammering can damage the lid and the container and prevent a good connection between the ink supply and the IDS/2000.

6. Position the ink pail at a height that is approximately the same as the IDS/2000. This placement will ensure that the pump in the IDS/2000 will successfully pull ink into the system at initial startup.

7. Connect the 1/8 inch ink supply line from the IDS/2000 to the female coupling in the ink pail bung. Make sure the couplings snap into place.

If the system runs out of ink completely, flush the printheads when the next ink pail is set up. This will enable the system to prime itself before printing resumes. Instructions for flushing appear later in this section.

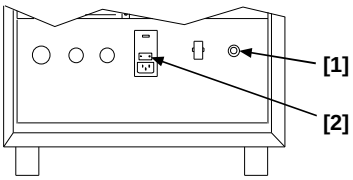
Powering Up the IDS/2000



Press down the OFF side of the rocker switch in the power module before connecting the power cord.

Then press the rocker switch to the ON position.

Priming



When all ink lines are in place, you need to fill the system with ink in order to print a message. This is called **priming [1]** and is necessary for all new installations.

Before starting, make sure that the IDS / 2000 is OFF:

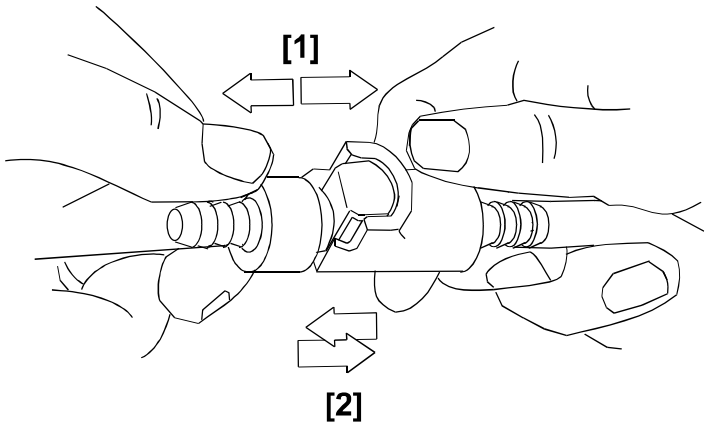
- Fan off
- Panel LED OFF
- Beacon OFF
- Rocker switch **[2]** OFF (zero depressed)

Check all ink line fittings again to ensure that all are intact and no ink will leak.

1. Depress rocker switch **[2]** ON (the 1 side of the switch). The LED lights to a steady glow, the beacon flashes and the fan starts.

2. Open the shutoff valve in the ink tubing to the effluent bottle.

   For the next three steps, position yourself so that you can reach both the Prime button and the in-line shutoff valve while keeping an eye on the low-ink beacon.



[1] Press down and pull apart to close (Stops Flow)
[2] Push together to open (Starts Flow)

3. Push and hold the silver Prime button until ink squirts into the effluent bottle.
4. Continue to hold the Prime button and close the shutoff valve.

5. Continue to hold the Prime button until the low-ink beacon stops flashing then release it. The system will continue to pressurize after releasing the Prime button. The total time for holding the Prime button should not exceed 30 seconds. If you hold it more than 30 seconds, the pump will automatically shut off and an error condition will exist.

6. Listen for the pump to stop running and check for air in the ink lines. If you see no bubbles, skip steps 7 and 8 and start the "Flushing the Printhead" directions.

7. *Optional:* Common problem areas for air are at loops and where the tubing drapes over bracketry. If you spot air in the line, manipulate the tubing so that the trapped air moves toward the effluent bottle.

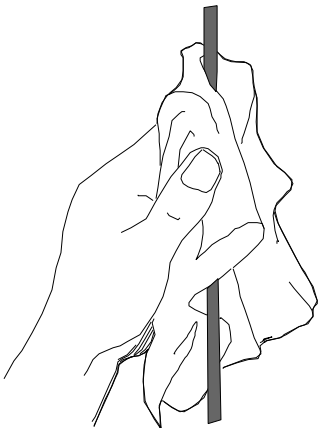
8. *Optional:* If you have air in the ink lines at the effluent bottle, exhaust by quickly opening and closing the shutoff valve.

If the system failed to prime, check Troubleshooting.

Warning: If the beacon continues to flash, check immediately for an ink leak. If you discover a leak, press the rocker switch OFF and fix the leak.

If there is no ink leak but the system continues to register low ink (flashing beacon), then turn to the Troubleshooting Section.

Flushing the Printheads



Diagraph IV printheads ship with conditioner inside and printheads already in service has either conditioner or ink inside. In either case, before they can print successfully, fresh ink must flow through them to flush out air bubbles. This section explains how to flush the printheads with fresh ink.

When flushing the printheads, start with the last printhead in the system, the one just before the effluent bottle. Have a clean cloth ready to wipe up any conditioner or ink that may escape when connecting and disconnecting ink line couplings.

Prevent ink drips by enclosing the couplings in a rag when changing connections.

1. Disconnect the effluent bottle from the male coupling that terminates the ink-feed line to the printheads.

2. Move the bottle to the last printhead in the system and connect it to the Ink Out port (male coupling) on the back of the printhead.

   Wipe up any drops that might leak out when making the connection.

3. Open the effluent bottle's shutoff valve: conditioner or ink will start to flow into the bottle.

4. Watch the bottle until you see the conditioner changeover to ink or ink move in a good flow, then close the shutoff valve.

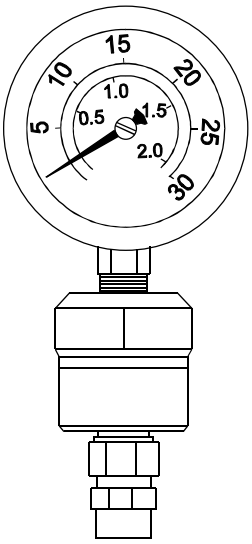
5. Disconnect the effluent bottle's female coupling from the printhead and wipe up any ink drops.

6. Move the effluent bottle assembly to the next printhead and repeat the process.

Be sure to use the conditioner and ink in the effluent bottle. Store the bottle where it cannot be knocked over, punctured or damaged.

When the effluent bottle is full, dispose of the waste in accordance with local, state and federal regulations.

Checking Ink Pressure



PRECAUTIONS

Observe the following precautions while using and cleaning the Diagraph ink pressure gauge.

- Do not probe into the isolator with objects during cleaning. Use the appropriate conditioner in a wash bottle and an ink acid brush (1619-080).
- Remember that pressure measurements are relative to the height from which they are taken. When you measure printhead pressure, keep the gauge at the same level as the printhead. Read the gauge either horizontally or vertically as long as the height does not change.
- Do not leave the gauge hanging from the printhead fluid exit very long. Its weight will fatigue the fitting, eventually breaking it off, which will allow pressurized ink to flow freely from the printhead and the system will lose its prime.
- Check your gauge for accuracy at least once a year. Do this whenever you question its readings or after dropping it.

USING THE GAUGE

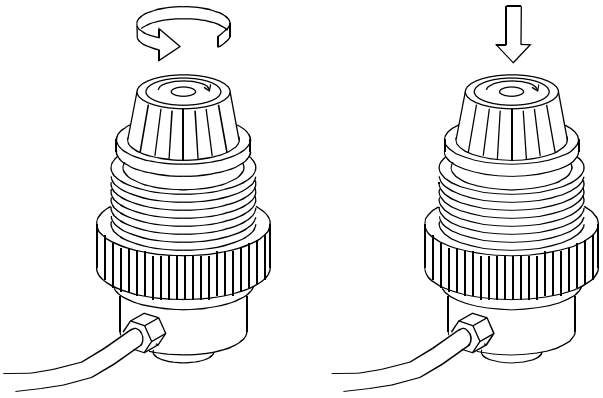
1. Connect the ink pressure gauge to the fluid export fitting on the printhead.

2. Observe the pressure gauge and SLOWLY turn the ink regulator knob clockwise to pressurize the ink line. Refer to the table and increase the pressure until it reaches the proper specification.

   Variations in pressure produce different dot sizes: the higher the pressure, the larger the dot. Over-pressurizing a printhead however can cause leaks.

If the gauge indicates pressure higher than specification, FULLY CLOSE THE INK REGULATOR. Do not start pressurizing again until you have purged the head and the pressure reading is zero. (When purging, be sure to hold a cloth in front of the printhead.)

PRINTHEAD	PRESSURE (PSI)
1/2 inch	5 ± 1
7/8 inch	6 ± 1
1 inch	8 ± 1
1-1/2 inch	7 ± 1
2 inch	8 ± 1
Bar Code	9 ± 1



3. When the pressure reaches specification and holds steady, snap down the red lock ring on the regulator to hold the knob in place.

4. Check for ink leaks at the printhead orifices.

If you find ink leaks, contact Diagraph at 1-800-526-2531 before proceeding.

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3 - Maintaining the IDS/2000

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MAINTAINING THE IDS/2000

Once in operation, the IDS/2000 requires little maintenance. Normal operation requires only ink pail replacements, ink regulator maintenance and ink filter replacement.

Changing Ink Containers

The IDS/2000 delivers ink over long distances to multiple printheads (up to 300 feet in a horizontal run) and provides a reservoir of ink for continuous printing even when the ink pail is empty. The following procedure explains how to change ink while the system continues to print. Two sets of instructions for changing ink follow because Diagraph ink ships in different containers. Determine if your ink is porous or non-porous and REPLACE WITH THE SAME KIND OF INK. Changing ink types from any one kind to another without first flushing the system with conditioner can damage the ink jet system.

NEVER USE PIGMENTED INK IN THE IDS/2000.
The IDS/2000 was not designed to operate with pigment particles and will permanently clog the IDS/2000.

You do not need to stop printing to change the ink if you start the changeover process when the low-ink beacon starts to flash. When the flashing starts, you have anywhere between 5 and 30 minutes of print time remaining. The amount of time depends on the number of printheads in the system—few printheads means an unhurried ink changeover while many heads means swift action. A system printing without a container will produce dots that diminish in size until they disappear completely.

Allowing the system to run when the beacon is flashing without swapping in a new pail of ink will not pump more ink out of the old pail. When the beacon starts to flash, the IDS/2000 has stopped pumping ink from the pail because it is empty.

Changing Non-Porous Ink (Labeled "TSO")

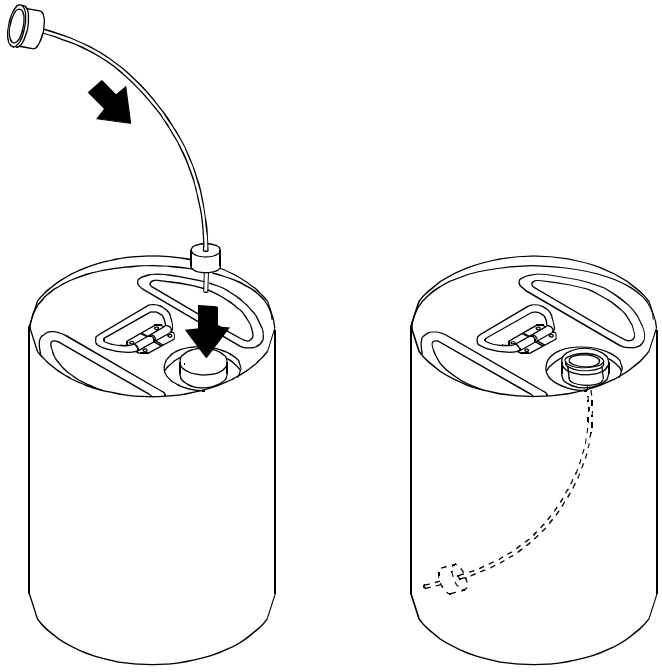
Wear eye protection and use appropriate safety equipment when changing pails of ink.

1. Disconnect the 1/8 inch ink supply line from the IDS/2000 to the female coupling in the ink pail bung. Dispose of the empty ink container in accordance with local, state and federal regulations.

2. Place a new pail of Diagraph ink on the floor near the IDS/2000.

3. Remove the plastic cap and tube assembly attached to the side of the pail. Note that the cap is designed to remove the maximum amount of ink from the pail. DO NOT cut it or reposition the weight on the end.

4. Unscrew the metal cap and pry out the cap cover with a screwdriver. Take care not to splash ink while prying off the cover.



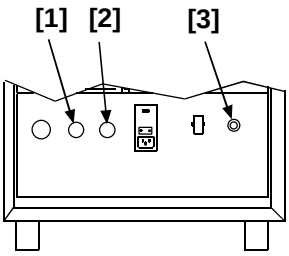
5. Insert the tube into the pail and orient toward the handle.

Setting the container down hard on the floor will squirt ink out of the cap. Handle the container carefully to AVOID SQUIRTING INK.

6. Set the bung in the opening and press down firmly with the heel of your hand. Make sure you completely cover the bung with your hand to prevent ink from squirting out.

7. Press the bung until it snaps into place. DO NOT HAMMER. Hammering can damage the lid and the container and prevent a good connection between the ink supply and the IDS/2000.

   Once the bung is in place, take care when moving the pail to prevent ink spurting.



8. Connect the 1/8 inch ink supply line **[1]** from the IDS/2000 to the female coupling in the ink pail bung. Make sure that the couplings snap into place.

9. If you can see air bubbles in the ink line from the pail to the IDS/2000, push the Air Purge button **[2]** for two to three seconds or until the air bubbles pass into the pail.

10. Push and hold the Prime button **[3]** until the Beacon goes off (30 seconds or less).

Printing is not interrupted during this process as long as you change the ink immediately after the low ink beacon comes on.

Changing Porous Ink (Labeled "TWP")

Wear eye protection and use appropriate safety equipment when changing pails of ink.

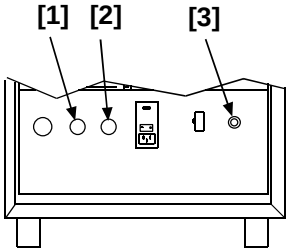
1. Disconnect the 1/8 inch ink supply line from the IDS/2000 to the female coupling in the ink pail cap. Dispose of the empty ink container in accordance with local, state and federal regulations.

2. Place a new five-gallon plastic pail of Diagraph ink on the floor near the IDS/2000.

3. Remove the plastic cap and tube assembly attached to the side of the pail. Note the cap's design, to remove the maximum amount of ink from the pail. DO NOT cut it or reposition the weight on the end.

4. Unscrew the plastic shipping cap and dispose of it.

5. Insert the tube from the cap and tube assembly into the pail and screw the cap on tightly.



6. Connect the 1/8 inch ink supply line **[1]** from the IDS/2000 to the female coupling in the ink cap. Make sure that the couplings snap into place.

7. If you can see air bubbles in the ink line from the pail to the IDS/2000, push the Air Purge button **[2]** for two to three seconds or until the air bubbles pass into the pail.

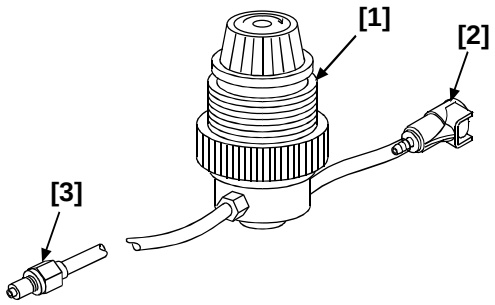
8. Push and hold the Prime button **[3]** until the Beacon goes off (30 seconds or less).

Printing is not interrupted during this process as long as you change the ink immediately when the low ink beacon comes on.

Ink Regular Maintenance

If you see dot sizes fluctuating from time-to-time that correlate to increases and decreases in the ink pressure (as measured with a Diagraph pressure gauge); your ink regulator may be in need of maintenance. Be sure always to supply at least 2.0 PSI more pressure to the ink regulator than you need for the printhead in use.

Obstructions in the valve seat of the ink regulator may cause an increase in dot size. Sometimes, obstructions in the valve seat can cause the pressure to creep up over a fifteen minute period of time. For example, you may set the pressure to 5.0 PSI only to find fifteen minutes later, that it has increased to 7.0 PSI.



[1] Ink Regulator
[2] Female Coupling From Ink Line
[3] Male Coupling Output to Printhead

In either case, the following maintenance procedure can remove obstacles from the valve seat area of the ink regulator, restoring normal operation:

1. Unplug the ink regulator from the printhead. (You may use ink, but conditioner is preferred for this procedure.)

2. Plug the ink regulator into an effluent bottle.

3. Rotate the regulator pressure adjustment clockwise until it stops, then counterclockwise until it stops. Repeat this six to twelve times.

Monitor the level of fluid in the effluent bottle to ensure it does not run over during this procedure.

4. Set the ink regulator off (completely counterclockwise), and then plug it back into the printhead.

5. Connect the Pressure Gauge to the printhead fluid exit.

6. Increase the ink flow until you reach the desired pressure.

7. Monitor the ink pressure while the printhead is printing. Note that the gauge drops as much as 0.75 PSI (usually less) during the print cycle.

8. While printing, center the nominal printhead pressure within the deflection of the gauge by increasing the ink pressure.

9. Check the pressure fifteen minutes after setting it. It should be within the same range ± 0.5 PSI. If it is not, repeat the procedure. If you have already repeated the procedure, replace the regulator.

4 - Troubleshooting the IDS/2000

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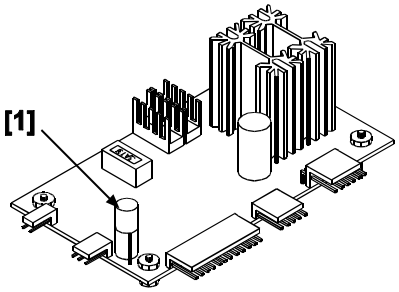
TROUBLESHOOTING THE IDS/2000

Be sure to wear the appropriate safety equipment as prescribed by your supervisor when troubleshooting or operating this equipment.



[1] Fuse

ERROR CONDITIONS

When the IDS/2000 encounters an error condition, it will respond by turning off the pump, flashing the status LED and illuminating the low ink beacon.

The following error conditions produce error reporting:

- The fuse for the fan has blown. Note its location in the illustration at left.
- The accumulator failed to reach the minimum pressure position within approximately 30 seconds after the PRIME button was pushed.
- The accumulator remains between the medium and maximum pressure points for approximately 40 seconds during a pump on condition.

For continued, satisfactory performance of the IDS/2000, take prompt action when you become aware of error reporting.

Note that you cannot eliminate the error without turning the unit OFF and then ON again. Prompt action will prolong the useful life of the pump

INDICATION SIGNALS

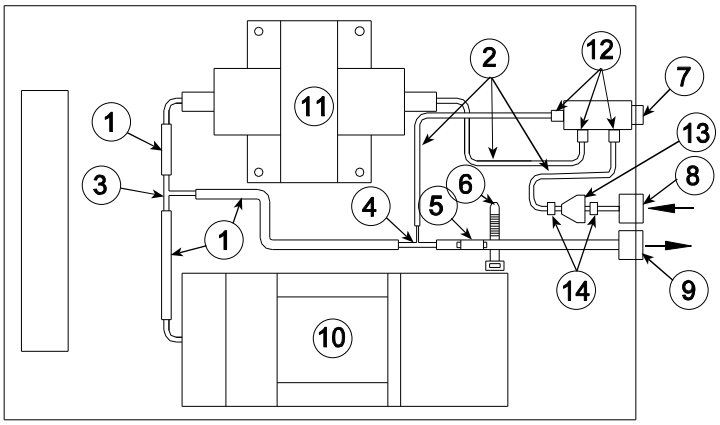
The chart below identifies the signal combinations for the status LED on the front panel and the low ink beacon and explains what these combined signals mean.

LED	BEACON	INDICATION	ACTION
OFF	OFF	Unit is OFF.	System is OFF. Power ON to begin operation.
ON	Flashing	IDS/2000 is ON and the ink is LOW.	Verify that the ink container is empty and replace it with a full one of the same kind of ink. See the Changing Ink Containers section.
ON	OFF	IDS/2000 is ON and the ink accumulator is pressurized	None. The IDS/2000 is working to its specifications.
Flashing	ON	Error Condition	Check Troubleshooting Section for diagnoses and remedies.

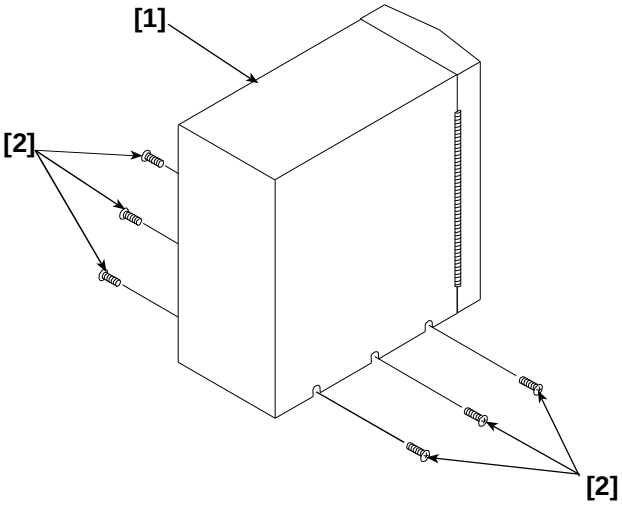
Problem Type	Problem	Possible Causes	Corrective Actions
Electrical	You receive a shock from the metal housing of the IDS/2000.	Incorrectly wired wall outlet.	Unplug the unit immediately and check the wall outlet with an outlet tester. If the tester indicates incorrect wiring, contact plant maintenance and request a wiring change.
	Frayed or damaged power cord.  *A frayed or damaged power cord can cause electrical shock*	Cord damaged by collision or mishandling.	Do not touch the damaged cord and notify your supervisor immediately. Do not leave the frayed or damaged power cord unattended.
Fan	The fan has stopped.	1 Unit is unplugged.	Check the power cord and make sure that the wall outlet is live. Plug the power cord into the wall and firmly press into the power module.
		2 The power module switch is OFF.	Set the power module switch to ON.
		3 A blown fuse in the power module.	Unplug the IDS/2000, remove the fuses in the power module and, using an ohmmeter, replace that entire read > 1.0 Ω (5700-748).
		4 A blown micro-fuse on the controller board.	Unplug the IDS/2000, remove the cover and replace the micro-fuse (5700-369) on the controller board, if it reads > 1.0 Ω on an ohmmeter.
		5 The fan motor has burned out.	Contact Diagraph at 1-800-526-2531 for a replacement fan assembly, Diagraph part number 5700-765.

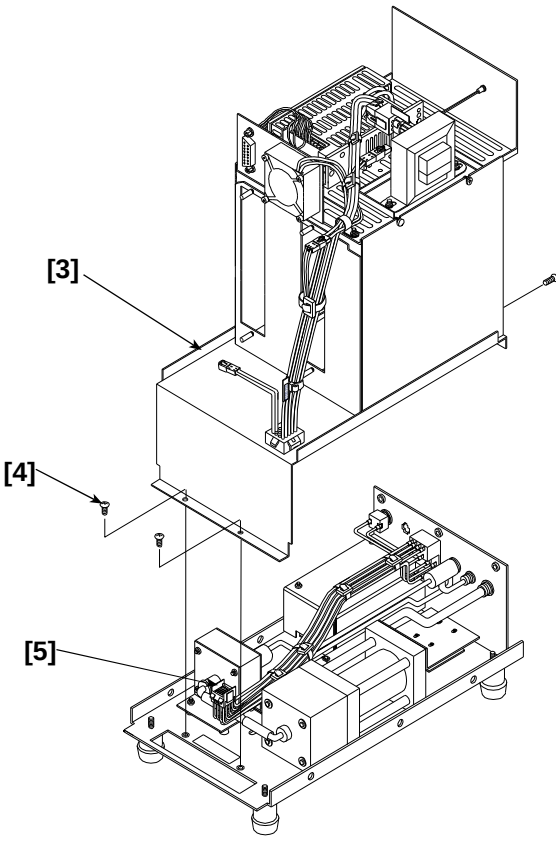
Problem Type	Problem	Possible Causes	Corrective Actions
Leak	Ink leaks from the couplings mounted in the IDS / 2000.  *It is unsafe to operate the IDS/2000 with ink leaking.*	Broken or worn fittings.	• Turn the unit OFF and unplug power cord. • Disconnect the ink inlet at the unit. • Connect the effluent bottle to the printhead ink line to depressurize the system. • Disconnect the effluent bottle when ink stops flowing. • Loosen the cover screws and remove the stainless cover from the unit. • If internal leakage is observed, see the following page on troubleshooting internal leaks. • If source of ink leakage is apparent, replace the affected components. • If source of ink leakage is not apparent, check to see if the couplings for ink input or output require replacement. • If the source of ink leakage is not apparent, contact Diagraph at 1-800-526-2531 for exchange or replacement.
Leak	Ink container is leaking.	Container has been punctured during shipping or handling.	Contain ink seepage using the appropriate spill hazard kit as prescribed. Review the ink's MSDS and dispose of in accordance with local, state, and federal regulations. Contact Diagraph for replacement ink.

Problem Type	Problem	Possible Causes	Corrective Actions
Leak	Ink is leaking from inside the IDS / 2000.	Internal damage.	• Turn the unit OFF and unplug it from the wall. • Disconnect the ink inlet at the unit. • Connect the effluent bottle to the printhead ink line to depressurize the system; disconnect the effluent bottle Disconnect the ink output to the printheads from the • Loosen the cover screws **[2]** and remove the stainless steel cover **[1].** • Remove the top half of the IDS / 2000 **[3]** by removing the five screws **[4]** and disconnecting the connector **[5].** • If the ink leak is apparent, investigate replacing the components identified in the drawing at left, which are replaceable except for the accumulator. • If the source of ink leak is not apparent or if the accumulator is leaking, contact Diagraph at 1-800-526-2531 for service or exchange.



1	1301-875 ¼" Tubing	8	1900-758 1/8" Quick Disconnect
2	1301-468 1/8" Tubing	9	5700-561 ¼" Quick Disconnect
3	5700-562 ¼" Tee	10	5700-962 Accumulator Assy
4	5700-302 Tee	11	5700-966 Pump Assy
5	5700-738 Check Valve	12	5700-262 Purge Valve Barb
6	5700-181 Tie Wrap	13	1902-307 Check Valve
7	5700-737 Purge Valve	14	1301-441 Clamps





Problem Type	Problem	Possible Causes	Corrective Actions
Leak	Regulator is leaking.	1 Body or fittings are loosened. 2 Broken component.	• Disconnect the ink outlet to the printheads from the unit. • Connect the effluent bottle to the printhead ink lines to depressurize the system. Disconnect the effluent bottle when no more ink is flowing. • Disconnect the ink regulator from the printhead and printhead ink main line. • Examine the ink regulator to see if the body coupling is tight. If it is not, it should be hand tightened. • Determine if any cracking of the body or loose tubing fittings are responsible. • If any physical damage is observed, contact Diagraph at 1-800-526-2531 for exchange or replacement. • If the tubing fitting is leaking, remove the tube and clean the fittings using the appropriate conditioner. Use a pair of diagonal cutters to remove about 1 inch of tubing. Be sure to make a good square cut. • Reconnect the tubing to the regulator and be sure all components are dry and clean before reassembling. Fittings should be hand tightened. Perform ink regulator maintenance procedure before using the part.

Problem Type	Problem	Possible Causes	Corrective Actions
	Beacon not working.	Beacon not connected	Check the cable between the beacon and the unit. Make sure that there is a secure connection and that there are no damaged connectors.
	Beacon not illuminated when the LED is flashing.	Beacon lamp is burned out.	Replace the lamp in the beacon. Note that the red plastic dome of the beacon is friction-fitted and VERY difficult to remove.
	Beacon is flashing but the LED is not lit.	LED is burned out.	Unplug the IDS/2000 and replace it with an LED assembly (5700-077) from the Spare Parts Kit.
	Beacon is ON.	LED is flashing.	Error condition.
	No lights (beacon or LED).	Unit is unplugged.	Check the power cord and make sure that the wall outlet is live. Plug the power cord into the wall and firmly press into the power entry module.
Light	No lights (beacon or LED).	A fuse in the power module has blown out.	Unplug the IDS/2000, check the fuses in the power entry module and replace the burned out fuses.
Noise	Intermittent noise from inside the IDS/2000.	Pump is loose.	Disconnect power cord. Remove cover and tighten pump mounts.
	Intermittent noise from inside the IDS/2000.	Accumulator is defective.	• Turn the Power Entry Module OFF and unplug unit from wall. • Disconnect ink input from container at unit. • Connect effluent bottle to printhead line to depressurize ink supply, then disconnect effluent bottle when ink stops flowing.

Problem Type	Problem	Possible Causes	Corrective Actions
			• Disconnect ink output to printheads at unit. • Contact Diagraph at 1- 800-526-2531 for service or exchange.
Operation	Unexpected shutdown.	1 Slow ink leak (external)	Determine source of ink leakage and refer to the appropriate troubleshooting procedure for corrective action.
		2 Low line voltage	Check line voltage at outlet. Voltage should not be <90 VAC.
Operation	Dot sizes too small, unable to achieve required ink pressure.	1 Too many printheads	Do not exceed the maximum number of printheads per the table below: Printhead Size — Printhead Max # 1/2” — 12 7/8” — 8 2” — 4 Barcode — 4 If you are mixing printhead sizes, one 7/8” equals two 1/2” or one 2”; a barcode = three 1/2”.
		2 Ink flow path obstructed	Check the ink line for sharp bends. Make sure no objects are sitting on the line or pinching it.
Pump	IDS/2000 will not empty the ink pail.	Ink cap installed incorrectly.	Repeat installation instructions.
	Pump does not cycle on.	Pump is defective (IDS/SA Replacement Pump Assembly Kit #5700-992)	• Turn Power Entry Module OFF and unplug unit from wall. • Disconnect ink input from container at unit. • Connect effluent bottle to printhead line to depressurize ink supply; disconnect effluent bottle when ink stops flowing.

Problem Type	Problem	Possible Causes	Corrective Actions
			• Disconnect ink output to printheads at unit. • Loosen the six screws securing the cover to the unit. • Follow pump replacement procedure in Appendix A.
	IDS/2000 will not empty the ink pail.	Ink cap installed incorrectly.	Repeat installation instructions.
	Unit does not prime after following the priming instructions.	The IDS/2000 sits too far above the pail and the pump cannot draw ink up to that height.	Elevate the ink pail so a positive pressure occurs from the pail to the IDS/2000. Run the Priming procedure again.
Priming	The Prime button does not respond after holding it more than thirty seconds.	A time-out has probably occurred on the controller.	Reset the Prime button by switching the Power Entry Module from ON to OFF and back to ON. The Prime button should again be active.
	The priming goes on beyond 15 seconds.	1 Punctured or disconnected inkline.	Unplug the IDS/2000 and disconnect the ink out tube. Check immediately for the ink leak location. Repair the ink line break and reconnect the IDS/2000.
		2 Flow path obstructed.	Check the ink line for sharp bends. Make sure no objects are sitting on the line or pinching it.

5 - IDS/2000 Parts & Inks

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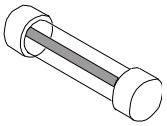
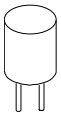
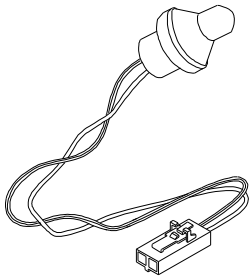
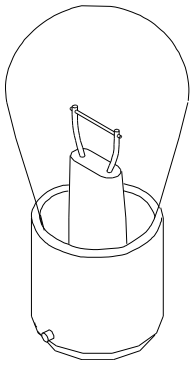
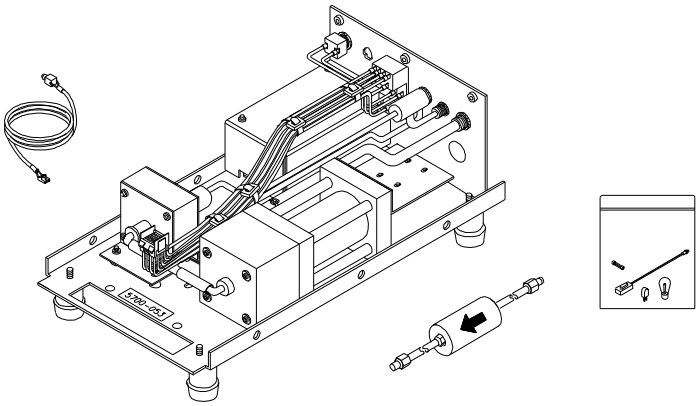
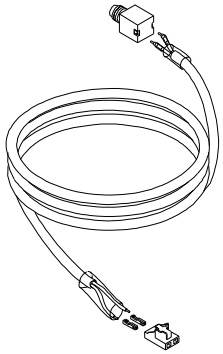
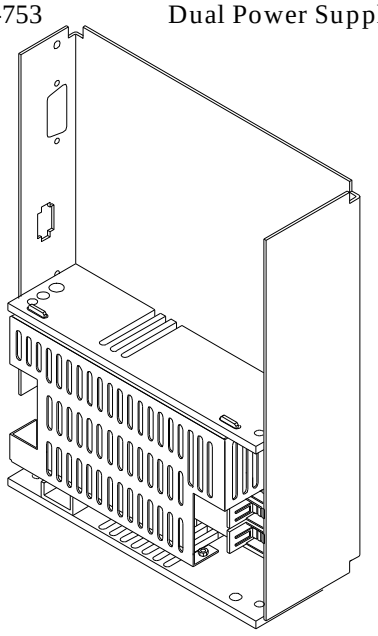
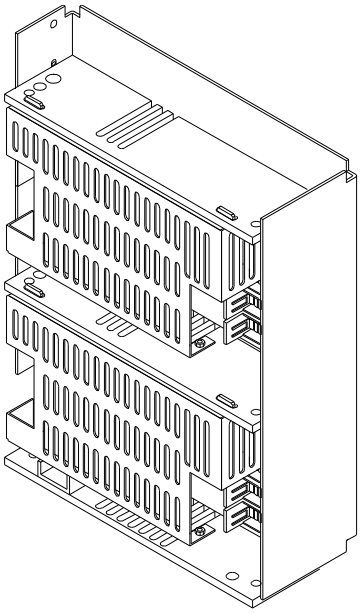
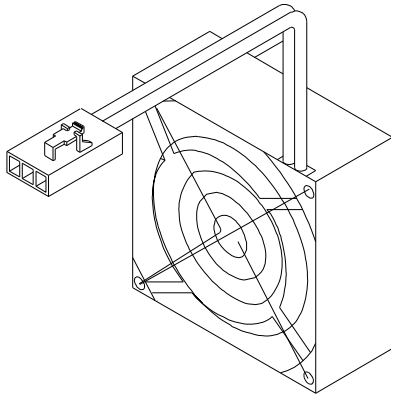
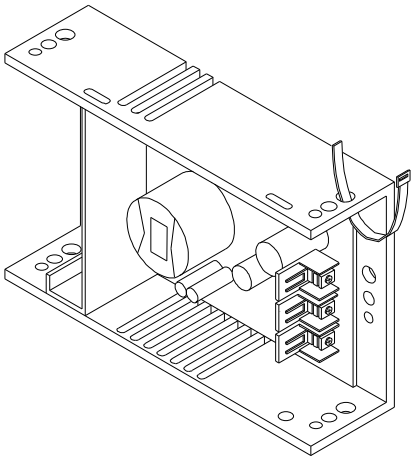
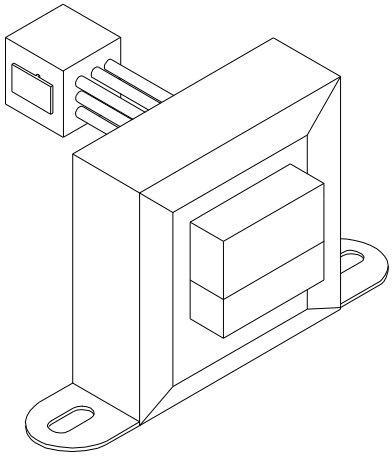
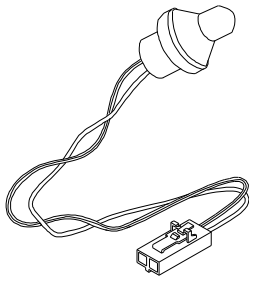
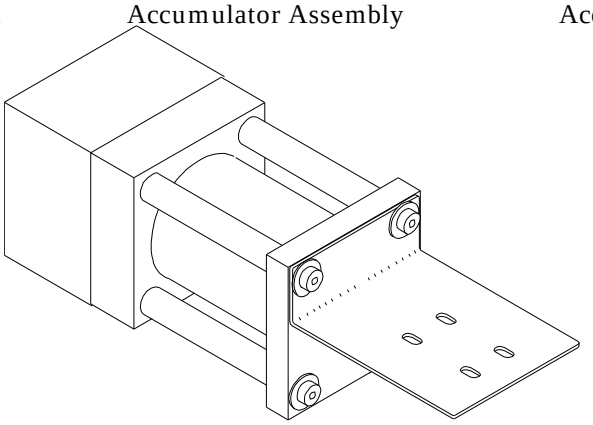
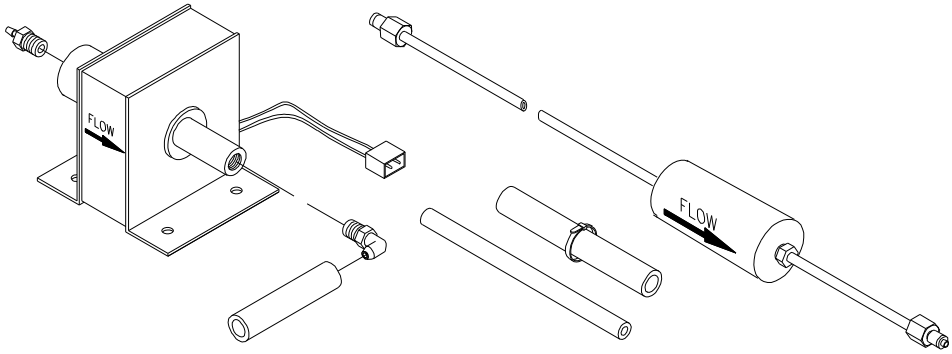
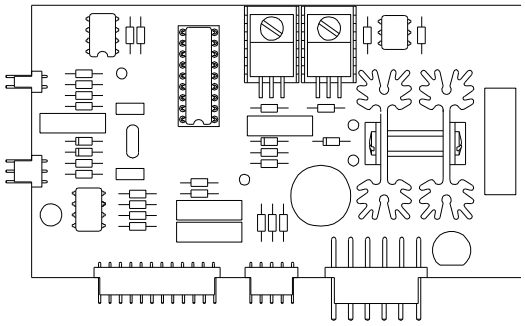
Spare Parts Kit (5700-277)

Qty	Part Number	Part Type	Notes
2	5700-748	MDL-2 Fuse 250V, 2A 	Replacing these fuses requires a small blade screwdriver to pry open the power module cover and to pop out the tray that holds the fuses. When returning the fuse tray with new fuses, pay close attention and orient it to the correct power configuration, 115V or 230V. Be sure the power module cover snaps closed completely.
2	5700-369	Fuse 125V, 315 mA 	This micro-fuse only powers the fan. Unplug the IDS/2000 and remove the stainless steel cover to replace this fuse on the controller board.
1	5700-077	Panel LED Assembly 	Replacing this assembly requires removing the stainless steel cover. Be sure to disconnect power before removing. Locate this assembly on top of the unit; disconnect the two-pin connector and pop the LED out of the front panel.
1	5700-776	Beacon Lamp 	To access the beacon lamp, remove the red plastic beacon cover. This cover however, fits VERY tightly and will require considerable effort to remove it. Take care not to crack the cover when removing and replacing the lamp.

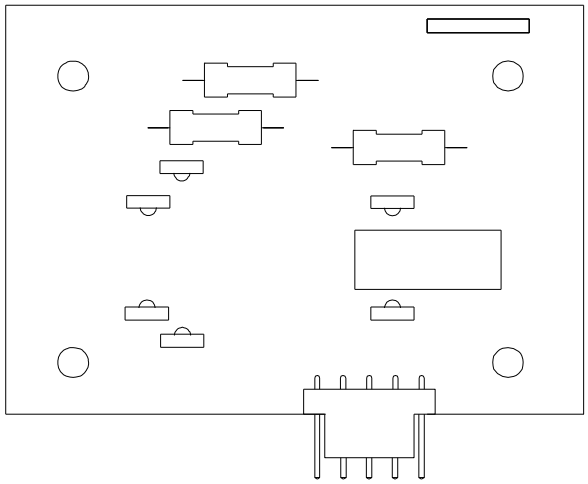
Other Spare Parts Kits or Components

Qty	Part Number	Part Type	Notes
1	5701-016 P or NP	IDS Assembly Replacement Kit	Complete IDS assembly replacement.
			
1	5701-018	Flushing Cable Assembly	Allows the user to override the pump to perform manual flushing. Remove the cover and attach the two position connector to the unused two position connection at the rear of the unit.
			
1 1	5700-752 5700-753	Single Power Supply Card Dual Power Supply Card	Power Supply add on cards
		 	

Qty	Part Number	Part Type	Notes
1	5700-076	Fan Assembly	Fan assembly replacement.
			
1	5700-091	Power Supply	Power Supply replacement
			
1	5700-936	Transformer Assembly	Transformer replacement kit
			

Qty	Part Number	Part Type	Notes
1	5700-077	LED assembly	LED assembly replacement.
			
1	5700-962	Accumulator Assembly	Accumulator assembly replacement kit
			
1	5700-992	Pump Replacement assembly	Pump replacement kit
			
1	5700-749V11	IDS Controller Board	IDS Controller Board replacement kit
			

Qty	Part Number	Part Type	Notes
1	5700-750	IDS Sensor Board	IDS Sensor Board replacement kit



Inks

Wear safety goggles whenever working with ink or ink supply lines. Check with your supervisor for additional safety directives.

Diagraph supplies three kinds of ink jet system inks: porous, non-porous and pigmented. DO NOT USE PIGMENTED INK IN THE IDS/2000. Use of pigmented ink will void all warranties, expressed and implied. It is built for use only with porous and non-porous varieties.

Compatible Inks

The Diagraph inks identified in the table below have been tested and approved for use in the IDS/2000.

USE ONLY LISTED INKS. Untested inks could impair the operation of the IDS/2000 and possibly cause permanent damage.

Diagraph Ink	One Gallon Container	Five Gallon Container	30 Gallon Container
TWP-1 Black	2600-306A	2600-305	2600-912A
TWP-2 Red	2600-309	2600-308	
TWP-3 Green	2600-311	2600-310	
TWP-4 Bright Blue	2600-317	2600-316	
TWP-5 Purple	2600-292	2600-291	
TWP-6 Yellow	2600-284	2600-283	
TWP-8 Bright Orange	2600-296	2600-295	
TWP-9 Brown	2600-288	2600-287	
TWP-GB Black	2600-315	2600-314	
TWP-GB Blue	2600-272	2600-271	
TWP-WR Black	2600-313	2600-312	
TWP Conditioner	2600-252	2600-251	

Diagraph will be adding more ink to this list so check with your Field Sales Representative to keep informed about new inks, new colors and extended capabilities.

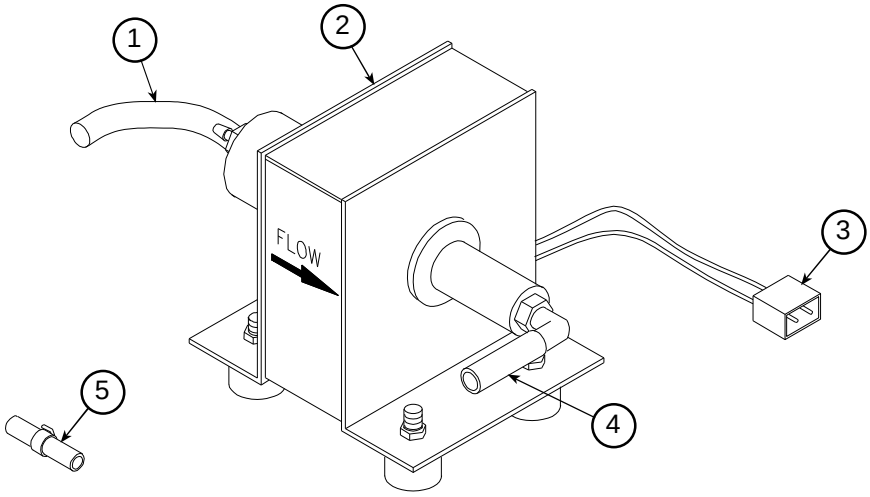
Appendix A - Replacing the Pump

Tools & Materials

Replacement pump kit (Part # 5700-992)
Effluent bottle
Disposable dry wipes
TFE tape or pipe joint compound
3/8 inch socket wrench
Xacto knife

Always wear safety goggles when working with pressurized liquid systems.

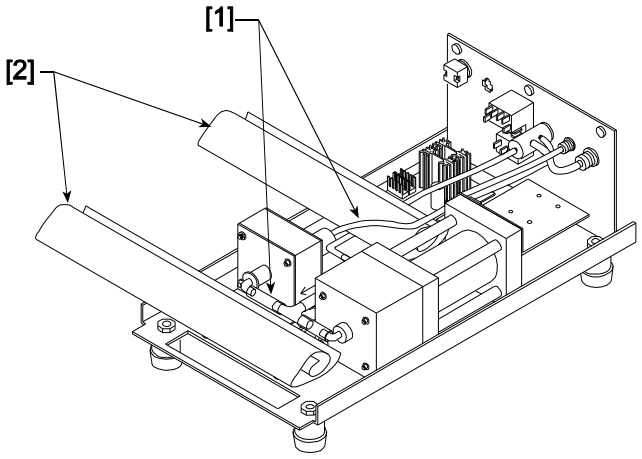
Open the IDS/2000 pump replacement kit and identify all components. If any parts are missing or were damaged in shipping, contact Diagraph Service.



① Tubing connection to purge switch
② 24 Volt AC Pump
③ Molex connector to Controller board
④ 1/8” ID tubing to manifold elbow
⑤ Check valve for INK OUT port

Removing the Faulty Pump

1. Unplug the IDS/2000 power cord.
2. Connect the effluent bottle to the Ink Out port and wait for the accumulator to depressurize.
3. Remove the cover and top half of the IDS/2000.
4. Disconnect the two pin Molex connector from the pump to the transformer.
5. Remove the four nuts holding the pump to the base with the 3/8 inch socket wrench. Set aside the nuts.
6. Fold a dry wipe and place it under the 1/8 inch fitting on the input side of the pump.



[1] Cut Here
[2] Cloth

7. Using diagonal cutters, cut the 1/8-inch ID tubing connected to the input side of the pump.
8. Press the wipe around the severed tubing to absorb any ink
9. Roll a fresh wipe and place it under the elbow fitting on the output side of the pump.
10. Position the IDS/2000 so that the electrical compartment is closest to you. This repositioning allows you to closely observe the next step and to gain leverage for cutting tubing.
11. Using the Xacto knife, cut the tubing between the elbow fitting on the output side of the pump and the elbow fitting on the manifold. Cut toward the metal partition to avoid an accidental puncture.
12. When the tubing is cut through, press the wipe around the cut to absorb leaking ink.
13. Remove the faulty pump from the housing.
14. Use another clean wipe and clean up any drips.
15. Using diagonal cutters, carefully nibble away the tubing that remains on the manifold elbow fitting. Take care not to cut or scar the fitting. Clean with a wipe when complete.

16. Using diagonal cutters, carefully pinch and pull the 1/8 inch ID tubing from the fitting on the air purge valve. Take care not to cut or scar the fitting. Clean with wipe when complete.

Installing the New Pump

1. Place the new pump in position.
2. Use TFE tape or pipe joint compound on the threads of the elbow on the manifold and slide on the tubing from the output side of the pump.
3. Use TFE tape or pipe joint compound on the threads of the male fitting on the purge switch and slide on the tubing from the input side of the pump.
4. Fit the two pin Molex connector from the pump and reconnect to the transformer.
5. Secure the pump to the housing with the nuts set aside earlier.
6. Reconnect ink lines and with the effluent bottle at the end. Re-install the top half of the IDS/2000.
7. Turn on system power.
8. Press the prime button: you should hear the pump start. If it does not, unplug the power cord and check the Molex connector to transformer.
9. Hold the prime button until the air evacuates the line and ink runs into the effluent bottle.
10. Release the prime button and disconnect the effluent bottle.
11. Terminate the end of the ink line.
12. Press the prime button until the system comes up to pressure.
13. Replace the system cover.

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Appendix B – Removal of the Air Purge Valve

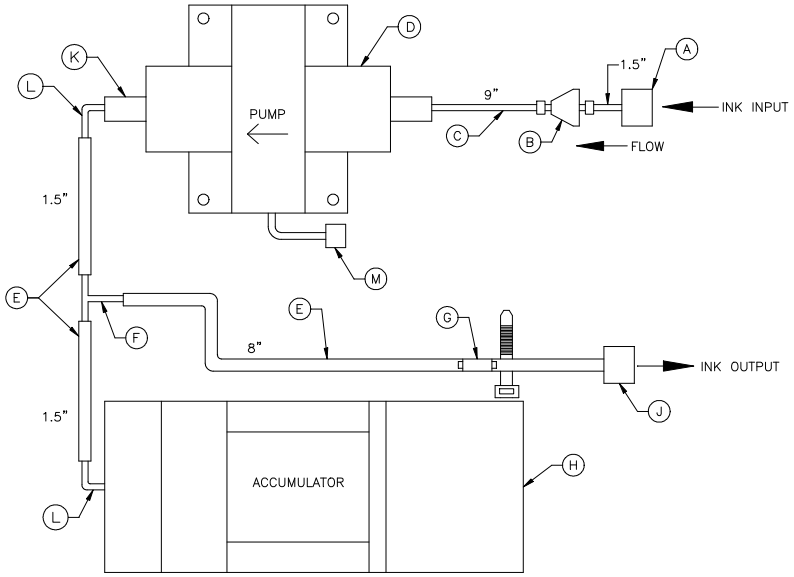
Older units of the IDS/2000 have an air purge valve. This air purge valve has been removed from the newer IDS/2000.

IDS/2000 without the air purge valve:

The operation of the IDS / 2000 has not been affected by the removal of the air purge valve.

Connections:

On the newer units the ink-input line connects directly to the input side of the pump. The output side of the pump connects to a T fitting, which is then connected to the accumulator and the ink output. Appendix A (Replacing the Pump) guides you toward making connections to the air purge valve, ignore these instructions and make the connections per the below figure.



A – Coupling (1900-758)
B – Check Valve (1902-307)
C – Tubing (1301-468)
D – Pump (5700-098)
E – Tubing (1301-875)
F – T fitting (5700-562)
G – Check Valve (5700-738)
H – Accumulator (5700-902)
J – Coupling (5700-561)
K – Hose Barb (5700-160)
M – Connector (1199-158 & 1199-160)

Air bubbles:

There are two places in the manual that refer to using the air purge valve to remove bubbles from the ink line. Tests have proven that the air bubbles are not removed by the air purge valve. They can only be removed by priming the system per the instructions in the manual.

IDS/2000 with the air purge valve:

If you have an older IDS / 2000 and are not experiencing any problems with the air purge valve, we advise that you leave it in place rather that remove it.

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