

## Topic - PULSAtron Quick Start Guide and Tips

### 1. Mounting the Pump

Analyze the application to determine whether the pump is to be installed as flooded suction or suction lift.

#### Flooded Suction:

The pump is installed next to the bottom of the solution tank (below the fluid level).

The pump suction line will be connected to a fitting installed near the bottom of the tank.

#### Suction Lift:

The pump is installed above the solution tank drawing fluid up and out of the tank.

Maximum suction lift is 5'. The pump is supplied with 4' of suction tube (4' recommended).

If the pump is mounted on a wall, the head and adaptor must be rotated.

The arrows on the valves and head must be pointed up. There is a weep hole in the head adaptor (Tapered black part behind head). The weep hole must be facing down.

To rotate the head adaptor the diaphragm must be removed. Take care not to lose the brass shim washers (if present) behind the diaphragm.

### 2. Connect the Tubing

Connect the suction, discharge, and bleed return tubing (See figure 1 for possible configurations).

- a. The suction tubing is the clear flexible tube (4' supplied with pump).  
The strainer/foot valve at the end of the suction tubing **MUST** be as vertical as possible with **NO** loops in tubing. Use the ceramic weight on the foot valve to weigh down the tubing.  
The tubing may be cut to ensure vertical orientation of the strainer/foot valve down in the tank, while keeping the foot valve hanging approximately 1" from the bottom of the chemical tank.  
Proper orientation of the strainer/foot valve will ensure good priming, and maintain prime between operational cycles.
- b. The discharge tubing is semi-rigid, white tube (8' supplied with pump).  
The discharge tube connects to the discharge valve, bleed valve, or 5 function valve to the injection valve. (See figure 1.) The quill on the injector may need to be cut so that the end of the quill is in the center of the fluid stream in a pipe. The discharge line should always have the injection valve attached to the end of the discharge tubing even if it is injecting into an open application like a drain or an open tank.  
Note: Degas heads have 3 valves with the discharge on the side instead of the top. (See figure 2.)
- c. The bleed return tubing is semi-rigid, white tube (4' supplied with pump).  
The bleed return tube should go back to the chemical tank.

### 3. Prime the Pump

See figure 3 for standard priming procedure.

**CAUTION:** You should never have to force the knobs to turn. Do not adjust the center stroke length knob when the pump is off. Only adjust the stroke length knob while pump is running to prevent damage to pump.

- a. Once the pump is primed, immediately clean up any spilled chemical that is on the pump housing or head.
- b. Once the pump is primed and installed properly, adjust the pump to desired output. We recommend leaving the stroke length knob at 100% and adjusting the stroke rate knob to desired flow rate. If needed to achieve a still lower desired output, lower the stroke length knob setting and keep the stroke length knob no less than 40-60%.

### 4. Priming Issues

- a. Tighten the head screws. It is common for the plastic heads to give way to the metallic fasteners. The head screws should be checked periodically for tightness.
- b. Check that the strainer/foot valve and suction tubing is straight down in tank and **NOT** laying on the bottom of tank. Make sure the tubing and the foot valve are vertical and are 1" from the bottom of tank.

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- c. Check the tubing, injection, foot, suction and discharge valves for obstructions or gelled fluids. To clean the valves, unscrew them from the pump head and rinse with warm water. If needed, order a KOPkit replacement (recommended every year).
- d. Check for air intrusion on the suction side of the pump. This can be caused by bad tubing (cracked or brittle), tubing that has been thinned out at the valve connection (cut off ½" of tube and re-install), or a poor seal on suction or discharge valves in the head. Re-tighten the valve hand tight only. **NEVER** use thread tape on the threads of the suction or discharge valves that fasten the valves to the head. Over-tightening the valves or using thread tape can crack the head. The only time thread tape should be used is when the pump is pipe connected. Only tape the pipe connection to the valve. If the pump is equipped with Teflon® seats and seals, the o-ring at the bottom of the valve inside the head may need replacing. Teflon® o-rings are a one-time seal. If valves are removed, the o-rings should be replaced.
- e. When reinstalled, the suction and discharge valves should only be hand-tightened ( **NO** thread tape). If the pump is not priming there may be a suction leak. This can be easily checked by disconnecting the suction tubing and submerging the suction valve in water with a small paper cup. If the fluid is pumped out the discharge valve, then you may have a suction leak. Slightly tighten the suction valve and test again.
- f. Check the diaphragm and replace if needed (recommend every year; Included in KOPkit).
- g. With some biocides it is common when chemical is fed infrequently (Example: once a week for a few minutes) to see a couple of inches of air in the tubing below the suction valve. This is caused by the oxidizing biocide outgassing over time. Recommend solution: Start the pump and count how long it takes for fluid to prime again. Add that amount of time to the regular feed schedule. For chemicals that heavily outgas such as Sodium Hypochlorite (chlorine) and Hydrogen Peroxide, a degassing head or 5 function degas valve can be helpful to facilitate auto-priming. Note: Degassing devices are only effective in a suction lift installation. Degassing devices should not be used in a flooded suction application.

### 5. KOPkit Replacement

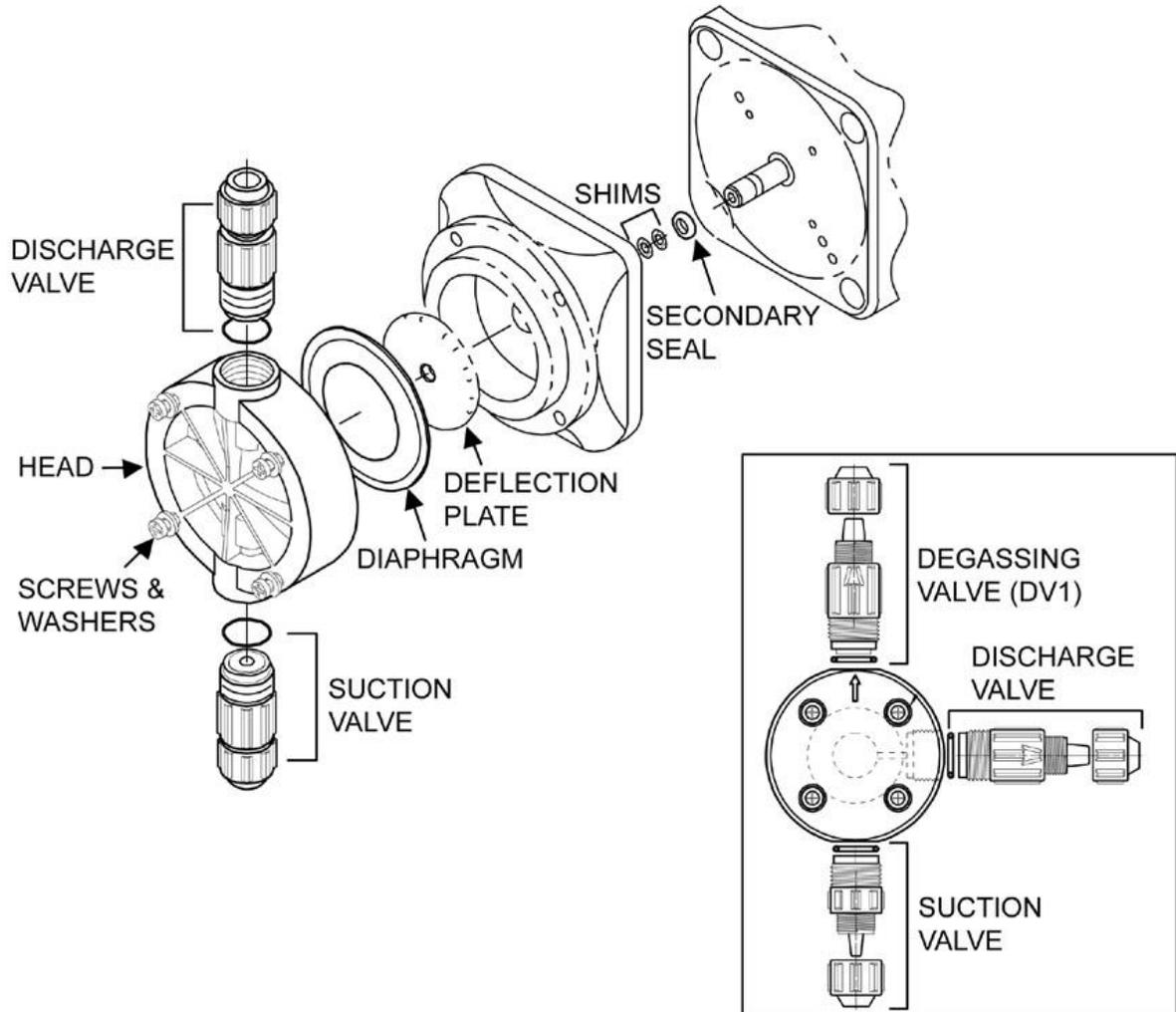
A PEPkit can also be ordered. The PEPkits includes the KOPkit plus bleed valve, injection valve, foot valve strainer and replacement tubing.

- a. Flush the pump head and valve assemblies out by running water or other suitable neutralizing solution through the pump. Wash the outside of pump down if chemical dripped on pump.
- b. Release the system pressure by opening bleed valve.
- c. **IMPORTANT** – Set the stroke length of pump to 50% while pump is running and unplug the pump. (**CAUTION** – Do not adjust the stroke length knob when the pump is off. **ONLY** adjust the stroke length knob while the pump is running to avoid damage to the pump).
- d. Disconnect the tubing or piping from the pump. Remove the four pump head screws, and then remove the pump head assembly.
- e. Remove the diaphragm by grasping it at the outer edges and turning it counterclockwise until it unscrews from the electronic power module (EPM). Note the number of diaphragm shims which are behind the diaphragm. Shim quantity can be from 0 to 2.
- f. Pull the adapter off and remove the secondary seal.
- g. Install the new secondary seal onto the shaft and add a general purpose lubricant to the shaft. **Do Not** use petroleum based lubricants.
- h. Replace the adapter with weep hole pointing down.
- i. Slide the diaphragm deflection plate onto the back of the diaphragm stud, radius side (curved) towards the diaphragm.
- j. Next slide the number of shims from step 5.e onto the diaphragm threaded stud.
- k. Apply a general purpose lubricant to areas of the diaphragm that contact the deflection plate or radius on the adaptor. **Do Not** use petroleum based lubricants.
- l. Screw the diaphragm into the EPM unit. Turn the diaphragm clockwise until the deflection plate and shims are tight against solenoid shaft, and the diaphragm stops turning. If there is a gap between the adaptor and

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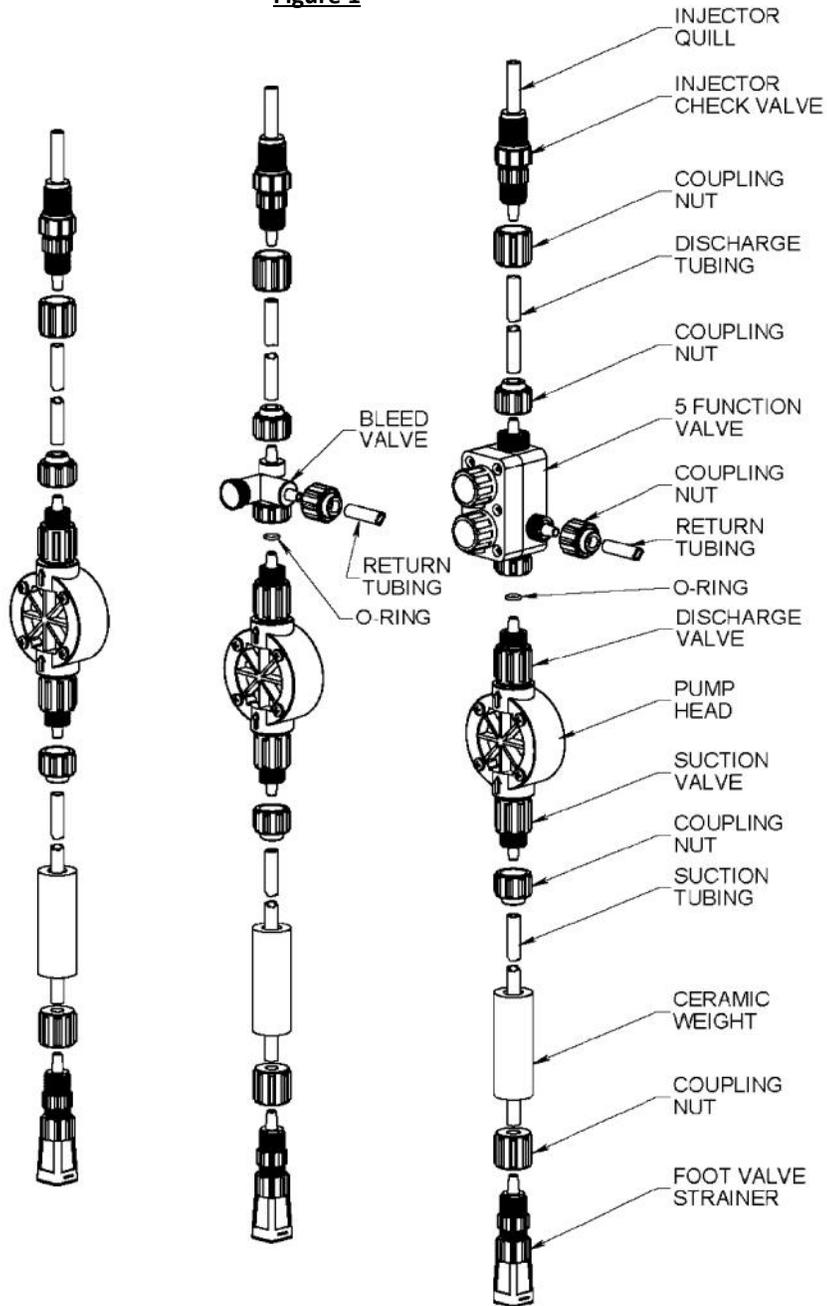
- diaphragm, repeat the procedure removing one shim each time until the diaphragm just touches the adaptor or is slightly recessed.
- m. Place the pump head onto the adaptor with the valve flow arrows pointing up and install washers and screws. Tighten the pump head screws in a criss cross pattern until snug and pump the head pulls up against the adaptor.
  - h. Install the Suction and Discharge valves (Confirm o-rings are attached to the valves) with stamped letters reading from top to bottom, and the arrow pointing in the direction of flow. Hand-tighten only, do not use wrenches or pliers (Degas head comes with pre-assembled valves).
  - i. Reconnect the tubing or piping and reinstall the pump.
  - j. Start the pump.
  - k. Check for leaks around newly installed fittings.

### KOPkit parts identification

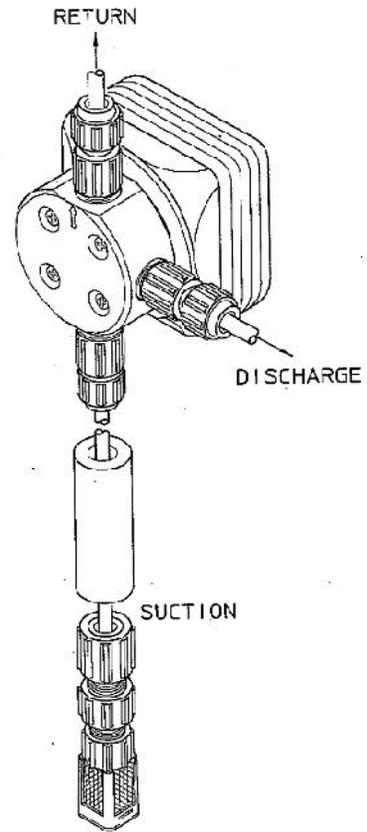


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**Figure 1**



**Figure 2**



For Technical Support contact the Pulsafeeder Technical Support Team  
 941-575-8300 [ppgspotech@idexcorp.com](mailto:ppgspotech@idexcorp.com)

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Figure 3

### PRIME GUIDE

