

# Care and maintenance for Accu-Static™ Pumps. Revision 10/1/07

Your Accu-Static™ Pump is designed to excel in harsh environments with a minimum of maintenance. By following a few simple instructions, it will be easy to maintain the pumps accuracy and maximize its service life in your machine.

## Installing New Tubing

### General

Care in installing pump tubes will increase their performance and life. Removing the cover by sliding it out the mounting slots will make the job easier. Care should be taken to install tubing correctly as described below. Incorrectly installed tubing will reduce tube life.

### Common and Flow-Dividing manifolds

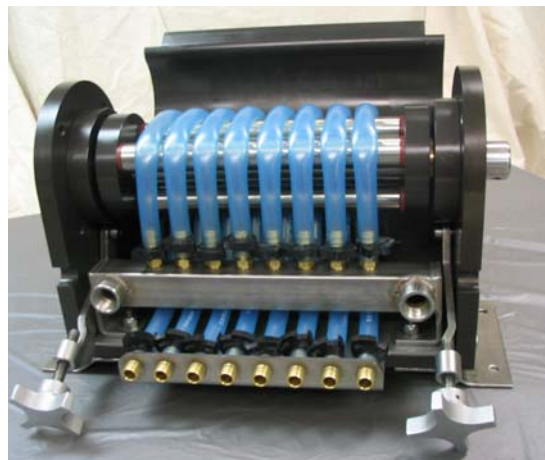
When cutting your tubes, cutting to the proper length makes for easier installation and better pump performance. **CUT ONLY ONE HOSE TO START!** Make a note of the length that works best for the tubing you have chosen, and write it down for future reference.

Following are general guidelines:

1/4 " ID hoses, cut approx. 15 3/4" long

3/8" ID hoses, cut hoses approx. 16 1/4" long

This will vary with hose type and ID.



When attaching tube to hose barbs, attach to the output manifold first, by threading the hoses through the back of the pump and pushing them on the barbs. This may be aided by a pair of needle-nosed pliers or forceps to push the tubing on the hose barb. Adjust the tube so that its natural curve places it perpendicular to the rotor. For example, when the tube is installed, it should be sticking straight up. If it is curved to the left or right, adjust it by twisting the tube right or left on the hose barb. Then pull the tube tightly around roller and clamp to the barb on the input manifold. The tube should just kink under slight tension as it lies over the rollers. If it lays to the right or left, or has slack, trim a bit off until it fits properly.

Insert fully onto the hose barbs. When clamping tubing, be careful not to twist or torque the tubing. Properly installed tubes will lie across the rollers perpendicularly. If not, remove clamp, adjust, and re-install. Improper installation will show by the tubes 'walking' left or right on the roller, indicating that they were twisted at installation.

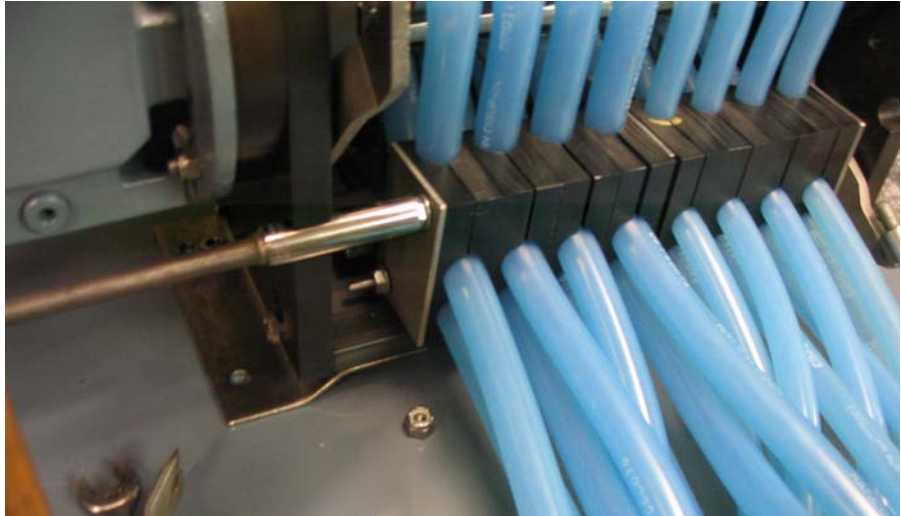
**DO NOT USE METAL HOSE CLAMPS!** Your pump was supplied with plastic hose clamps. While use of metal hose clamps on the outlet side of the hose is not dangerous, using metal clamps on the inlet **CAN DESTROY THE PUMP!** If a metal clamp becomes

loose in operation, it can be drawn into the pump and destroy the rotor and cover. Use only polymer tubing clamps like the ones supplied with your pump.

### Discrete channel manifolds:

The discrete channel manifold has a pair of clamping plates for each tube. Plates can be interchanged for different tube sizes.

With a deep well socket, loosen the manifold stack nuts enough so that the tubing can be pushed through the tube passages. It may require a screwdriver or blade to pry the clamp plates apart to start the tube. Pushing it into the outlet (bottom) side first, then drawing the tubing upward through the back of the pump and over the rotor generally works best.



Typically, 24 inches of tubing is about the practical minimum length per channel. This will leave about a 6" "pig-tail" on the inlet and outlet to connect your feed line to.

You may use as much tubing per channel as you desire. A common Preventative Maintenance (PM) strategy is to use 5-6 feet of hose, and pull 6 inches of hose through the pump every several hundred hours of service. This leaves a new, fresh section of hose without having to break the fluid line, and takes only a minute or two per channel.

### Lubrication

Peristaltic tubing works best lubricated. Tubing should be lubricated weekly, more frequently if used continuously. For most commercially available tube types, silicone-based spray lubricants or greases are recommended. Apply liberally to the entire surface of the tubing, inside of the cover, and rollers. If you cannot use silicone due to process limitations, test petroleum or food-based lubricants for compatibility before use, as they may chemically react with the tubes, causing excessive swelling that can negatively affect the life of the tube and accuracy of the pump.

Operating the pump without lubricated tubes will not damage the pump, but will reduce tubing life and increase the amount of heat generated by the pump.

### Breaking in New Hoses

#### General

The Pump may be used with any manufacturer's peristaltic pump tubing, so long as the

hose wall thickness matches the wall thickness of the tubing the pump originally came with. If you want to use another wall thickness, the rotor will have to be replaced, which is a simple task. Contact Ledebuhr Industries to obtain the correct rotor for the job.

New tubing may draw fluid more aggressively than than broken-in tubing, giving the pump a higher flow rate, so for maximum precision, accuracy, and tubing life, break in new tubes if possible.

### Break-in procedure:

If you haven't already done so, lubricate the outside surface of the newly installed tubes with a compatible lubricant. After tubing is installed as described above, start with low pump RPMS if possible. Install the cover and partially clamp it down, but do not clamp it completely tight. It may clatter some- that's OK. As the pump runs, slowly clamp the cover down and increase the pump speed over the course of a couple of minutes. Running the tubes for about 10 minutes before intended use allows them to take the shape that will change little over the rest of their useful life.

After this run, stop the pump, remove cover, and inspect for any signs indicating excess chaffing or tubing twists. The tubing should have a slightly flatted appearance and should lay perpendicular to the pump rotor. Re-adjust tubing that has "walked" to the left or right side and is not perpendicular, by twisting the tube on the hose barb, or by loosening the clamping plates and twisting the tube until it does lay perpendicular.

If you cannot due this due to process limitations, do not despair- your tubes will be fine. However, at minimum you should inspect the tubing by removing the cover after the first hour or so of run and adjust the tubing as described above.

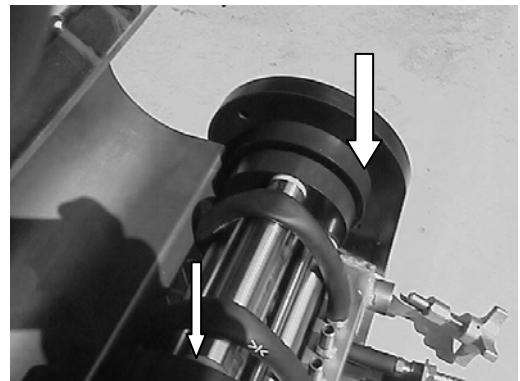
Some chaffing is normal. Periodic inspection of the tubing, on a weekly basis with regular use, is essential. Re-lubricate tubing during inspections and replace tubes that have become excessively worn, chaffed, or cracked.

### Storage

For long periods of disuse, it is recommended to loosen the clamps on the pump cover, which relaxes the clamping pressures and helps maintain the performance and extend the life of your tubing. Remember that they will need re-tightening before use!

### Cleaning

Your pump is made of stainless steel, brass, Delrin, Polycarbonate, and specially coated aluminum for years of corrosion resistance with little maintenance. To preserve the pump's accuracy, the occlusion rings, upon which the cover rests, located on the inside of each end of the pump, should be wiped free of debris and residue during normal maintenance (see picture). The Inside of the pump cover should also be wiped



totally free of debris, especially on the ends where it contacts the occlusion rings. If you need to wash or clean the debris from the pump, **avoid high-pressure washing**. If you do pressure wash, always avoid hitting the seals; this will drive water into the bearings and shorten their life significantly.

## **Service**

Your pump has a 2 year or 5000 hour warranty against failure. If you think you are entitled to a warranty claim, please contact Ledebuhr Industries Immediately for service.

### **General Pump Service:**

You will need the following tools to work on this pump:

7/16" deep well socket (discrete channel manifolds only)

½" wrench

9/16" wrench

Flat bladed screwdriver

Needle nosed pliers can be helpful.

### **Replacing the Rotor**

The Rotor is not field serviceable; it must be replaced as a complete unit. Remove the hoses, Remove 4 bolts from either end, slide off either endplate, and slide out the rotor. It can be returned for core credit. The new rotor can be slid in, the endplate replaced, and the bolts and hoses re-installed.

For re-building the pump endplates, if necessary, you will also need:

snap-ring pliers

¼" hex key (to remove clamp arms if necessary)

Rubber or soft mallet

### **Rebuilding the endplates:**

Order the Bearing and Seal Kit. Remove the endplates by removing the 4 bolts in each one. LEAVE THE OCCLUSION RINGS ATTACHED BY THE 3 SOCKET SCREWS- They are glued in place and sealed, and there is no reason to remove them. You do not have to remove the clamp arms, unless the threads have been damaged and they need replacing.

Pry out the seals with a screw driver or pry bar, remove one of the retaining rings, and press or tap the bearing out of the cavity. Clean the cavity if necessary, replace retaining ring, and press in new seals. If you do not have an arbor press, the seals can be pressed in by placing seal over the cavity, placing the other endplate over the seal, and tapping on the plate with the mallet. This will press the seal into the cavity flatly and completely.

The pump will require little other service other than periodic hose changes.