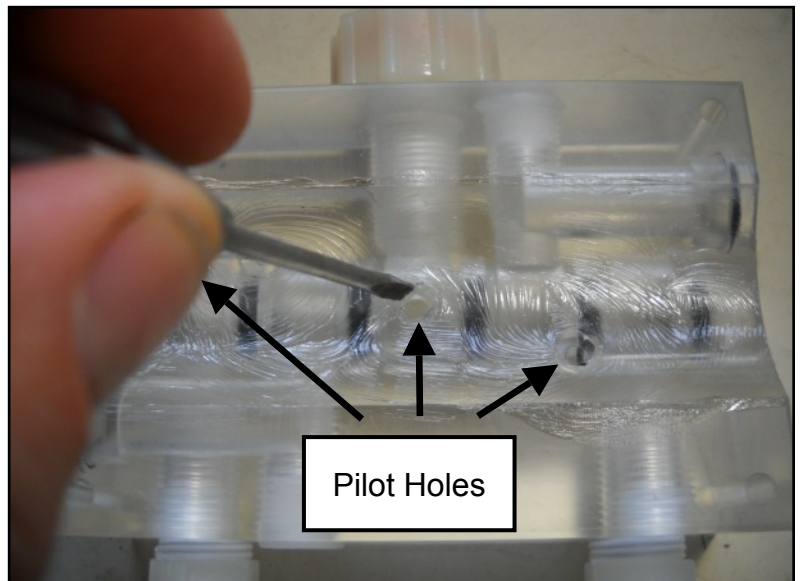


Assembling the Valve Assembly onto the Barrel can be tricky. It involves carefully aligning the three small Pilot Holes on the bottom of the Valve Assembly with the corresponding holes in the Barrel and using the right kind of glue and not too much of it.

1. Make an alignment tool to align the Valve Body Pilot Holes with the Barrel Pilot Holes. Get a piece of stiff wire about 1 foot long, such as 10 ga Romex. Make a small 90° bend in the end so that 1/4" sticks out. Wrap the wire around a stick and tape it in place.
2. Before you use this tool, scrape the Barrel clean of old glue and dirt.
3. Also remove the Spool Valve so you can see the Spool Valve chamber and the three Pilot Holes.
4. Then put a small amount of silicone glue, such as silicone bathtub caulk, on the Valve Assembly bottom so that there is only a thin layer of glue on it. Don't use any other kind of glue as the Valve Assembly would be impossible to remove later. If you use too thick a layer of glue near the Pilot Holes, the glue will get in the holes and seal them or restrict the flow. Then you have to take the Valve Body off the Barrel, clean out the Pilot Holes, and start all over again. Use a small screwdriver to scrape out any glue in the Pilot Holes.
5. Then put the three Pilot Hole o-rings in the corresponding holes. Always use new Pilot Hole O-Rings part 10-1313.
6. Slide the wire into the Barrel, locate the center hole, and stick the bent tip up through the hole.



7. Gently put the Valve Assembly down onto the Barrel, making sure the tip of the wire also slides into the center hole of the Valve Assembly. That's the initial alignment.
8. Remove the wire tool. Tighten down the 2 steel bands but leave them just loose enough that you can slide the Valve Assembly around while the glue is still wet.
9. Then stand the Barrel up in a sink with one end resting on a damp sponge. Fill the Barrel with water and watch to see where the water comes out. There are a total of five holes in the side of the Barrel but we are only interested in the three Pilot Holes. With the Barrel full, water should emerge in three small streams from three holes in the Spool Valve chamber in the Valve Assembly. The three streams should be all about equal in flow and should emerge perpendicular to the place where they came out in the Valve Assembly. If one is weak or sprays at an angle, the Pilot Holes are not aligned correctly. Move the Valve Assembly slightly side to side or up and down until you get the best looking flow. This is important to proper operation of the pump. Restricted flow can cause the pump to quit unexpectedly if it is operated at low pressures.
10. After alignment, tighten down completely on the steel bands. Don't overtorque. The pump can be re-assembled and used immediately, no waiting for the glue to set.

