

**U-Cup/Valve Casing Assembly: (Fig. 1)**

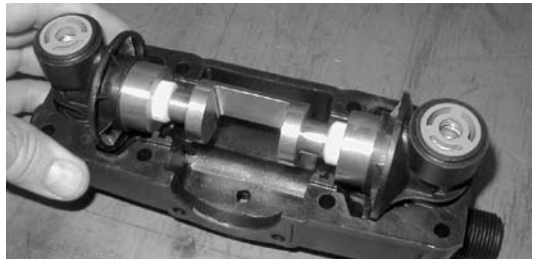
Lubricate o-ring on valve with oil and push valve in casing as shown in Figure 1. Note: The cage should always be on the upper side of the assembly. Solution enters the valve through the stainless steel metal seat of the valve and exits through the plastic cage. On the plunger side of the casing, insert the U-cup with the open side facing in. This allows the pressure of the liquid to spread the lips of the U-cup and energize it to seal against the ceramic plunger. Insert metal backup ring and then the o-ring to finish assembly.

**Figure 1****Assemble Sub-Assemblies:**

Push vacuum seal/plunger guide over ceramic plunger. Groove for o-ring on retainer should be facing outward. Next slip valve/U-cup casing onto plunger and mate it up to the retainer cup. Repeat for other side of plunger. Check orientation: inlet valve side of valve casing (metal seat side of valve) towards the bottom and the blue plastic cage side up. The connecting rod cupped face should be orientated to face the motor pilot of the body half (Fig. 2).

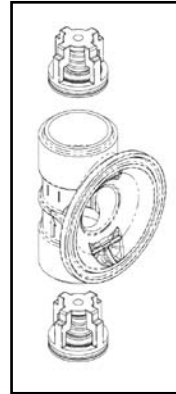
**Figure 2****Final Pump Head Assembly:**

Lubricate and insert o-ring (No. 1720-0076) into the bottom of the pump body's two circular cavities (Fig. 3). Use grease or vacuum seal grease to hold o-rings in place. Carefully place sub-assembly into pump body's lower half. Slide or reposition parts to get the assembly to fit into place (Fig. 4). Extra care is usually necessary for positioning of the brass plunger guide. Next, place lubricated o-rings in upper body half and squeeze lower body with sub-assembly into upper body. Some lateral pressure will have to be applied to the two valve casings to get them to feed into the pump body. Once the two identical body halves are together, drop the bolts in so that the flanged nuts are positioned on the bottom (inlet) side. Tighten nuts 35 to 40 in-lbs. Finally, lubricate connecting rod with wheel bearing grease (three pumps of grease gun). Pump head is now ready for assembly onto motor or gas engine.

**Figure 3****Figure 4**

### **Diaphragm/Valve Casing Assembly: (Fig. 5)**

Lubricate o-ring on valve with oil and push valve in casing as shown to the lower right. Note: The cage should always be on the upper side of the configuration. Solution enters the valve through the stainless steel metal seat and exits through the plastic cage. Note arrow on side of valve casing showing the direction of flow. The valve cage can only assemble into the valve casing from this side.

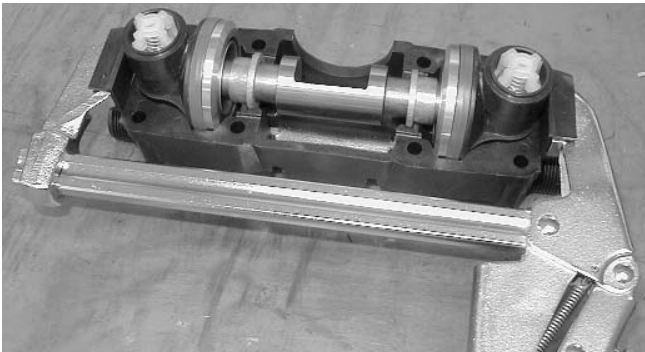


**Figure 5**

### **Final Pump Head Assembly:**

Lubricate and insert o-ring (No. 1720-0076) into the bottom of the pump body's two circular metal cavities. Use grease or vacuum seal grease to hold o-rings in place. Next, work lower body with subassembly into upper body. Some lateral pressure will need to be applied to the two valve casings to compress the diaphragms and allow the valve casing to feed into the upper pump body. A bar clamp is a very helpful aid for this task (Fig. 6).

Once the two identical body halves are together, drop the bolts in so that the flanged nuts are positioned on the bottom (inlet) side. Tighten bolts and nuts 35 to 40 in-lbs. Finally, lubricate connecting rod with wheel bearing grease (three pumps of grease gun). Pump head is now ready for assembly onto motor or gas engine.



**Figure 6**