

SERIES 1 PUMP DISASSEMBLY, REBUILD AND ASSEMBLY PROCEDURE

TO DISASSEMBLE & REASSEMBLE PUMP;

Remove any gear from pump input shaft.

Loosen the setscrews at the front of the pump. The 4 set screws (1/8" Allen) at the perimeter of the pump lock the studs that assemble and align the pump into place. The single smaller setscrew (3/32" Allen) at the middle helps locate and lock the idler shaft in place.

The easiest way to work on the pump from this point on is to drill a 3/4" hole through a flat surface like a table or bench top. Stick the drive shaft into that hole, and the pump is ready to work on from the back. Use acetone or lacquer thinner to clean the pump along one side and apply the stick-on numbers to each section. This will help with reassemble. Number the sections from front to back.

Remove the 3 screws (3/32" Allen) from the bearing cover and remove it.

Unscrew and remove each of the 4 studs (1/4" Allen or 5/16" hex) that assemble the pump. Older pumps use a thin silicone film to seal between the sections. Newer pumps use o-rings.

Remove the snap ring from the back of the drive shaft and lift off the regulator housing.

Remove each section and gear set. Gear keys may have to be pulled out with pliers. Each key must be removed before the next section can be removed. Keep components together and in order.

If the pump was assembled with silicone, all silicone must be removed from each surface before reassemble. Flat sanding with solvent using 320 or finer paper on a granite plate, a ground surface or any really flat area is fine. Or clean by hand with Scotchbrite or similar scrubbing material. If the pump does not have o-rings, or in an emergency on an o-ringed pump, apply a thin coat of silicone to each of the bodies only as you reassemble the pump. Be prepared to complete the assembly once you start. If the pump uses o-rings, make sure each o-ring is properly seated in its groove before assembling the each piece.

Once the regulator housing is reinstalled, push each of the studs through its hole until it stops at the front bearing body. Make sure there is a washer under the head of the nut on each stud. Once they are all 4 pushed to the front of the pump, begin screwing the bolts in. Once all the slack is taken up check to make sure the pump spins freely on all 4. Then tighten all 4 evenly until they are hand tight with a normal short Allen wrench. If possible use a torque wrench to tighten to 45-50 inch pounds. Reinstall the snap ring and the rear bearing cover. Check the pump again.

Turn the pump around and tighten the idler shaft set screw (some older pumps do not have one) and then the 4 stud set screws. Use a thread sealer to seal and lock the threads. Removable Locktite (blue) is ok.

For pumps with seal sections, remove all the seals from the plate. Lightly oil the bores of the seal section with oil to allow the seal to slide into the bore. Push the seals into the bores so that the open side of the seals face AWAY from each other. The closed side of the seals will face each other. Make sure they are bottomed in the bore and there is no part of the seal protruding past the face of the section. Grease the seals. Fill the small "V" created between the seals with grease. Assemble the cover plate into the pump from the back end first. Install the section O-ring into the groove. Work the seals over the ends of the idler and drive shaft with a wiggling motion gently to prevent cutting the seal. Continue with reassembly as above.