

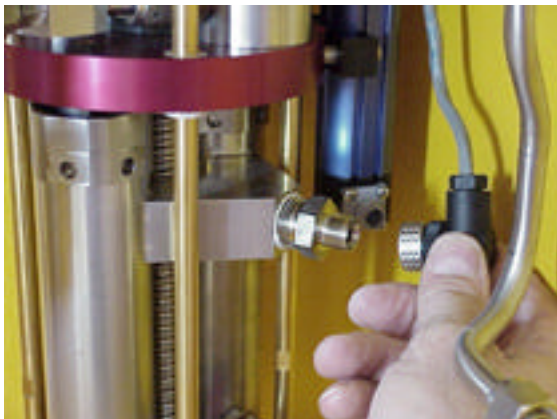
## Seal Kit 100-SA-SK-013 Replacement Linear Displacement Pump (LDP) Removal, Disassembly, and Seal Replacement



Detach the Flex Hose compression nut from the upper cylinder manifold.



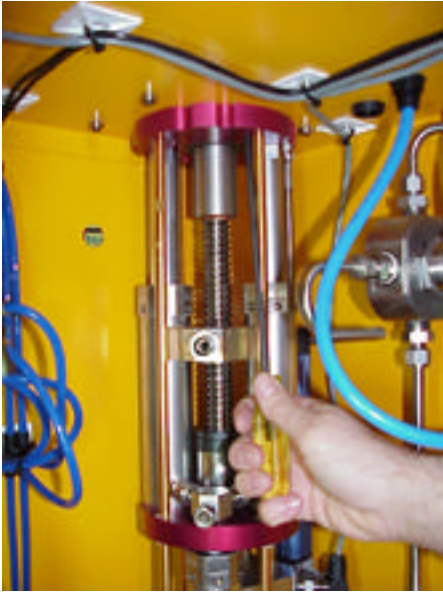
Detach the SS hard line from the lower cylinder Manifold. It will be necessary to loosen the nut on the other end of the tube connected to the Cross Over Valve.



Detach the electrical connector from the Linear Transducer.



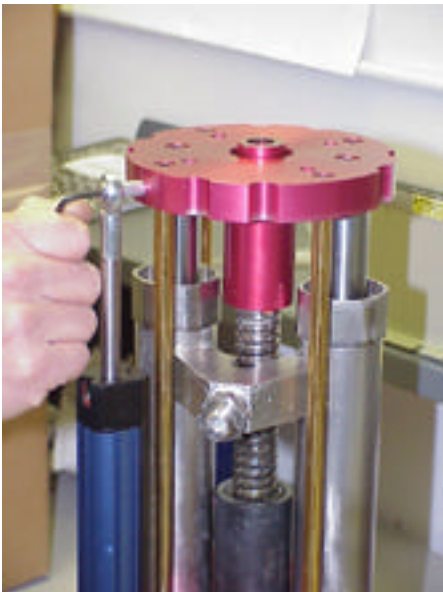
Center the Pump Lift under LDP and raise it until it seats against the bottom of the pump.



Remove three mounting screws (5/16-24 SHCS) from the top mounting plate.



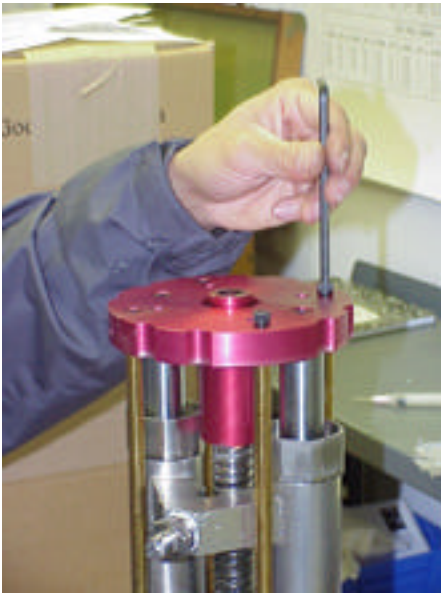
Slowly lower the Pump Lift until the pump disengages from the drive shaft. Place the pump on the work bench.



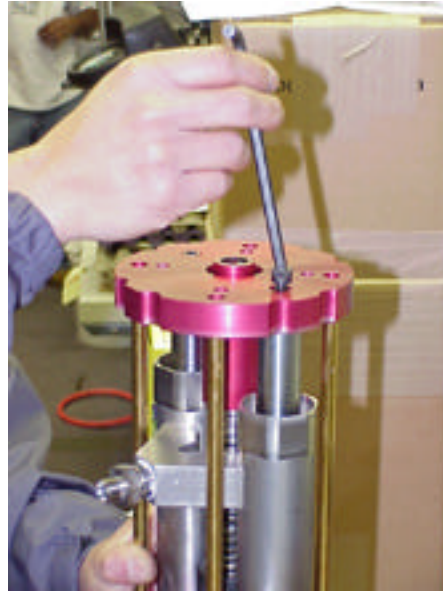
Remove 10-32 screw from the Linear Transducer rod



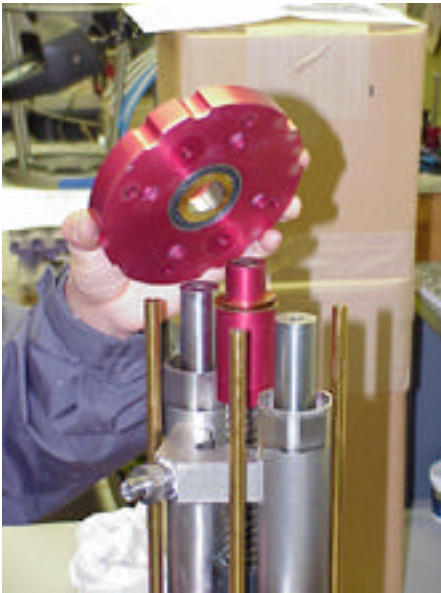
Remove 10-23 screws from the Linear Transducer bracket and remove the Linear Transducer Assembly from the pump.



Remove four ¼-20 SHCS that connect the Top Plate to the four Linear Shafts.



Remove the two 5/16-24 SHCS that connect the Top Plate to the two LDP Rods.



Remove the Top Plate and set aside.



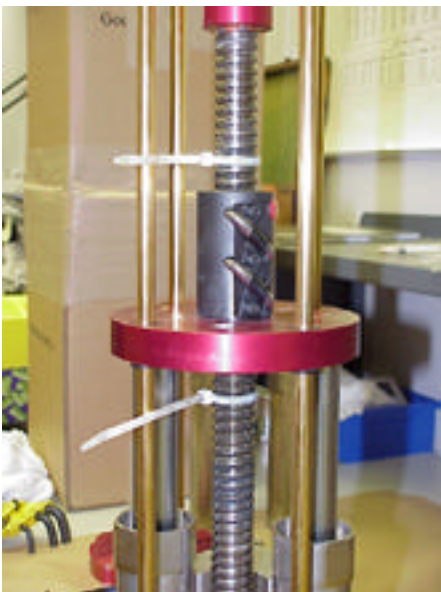
Remove four ¼-20 SHCS connecting Upper Cylinders to the Center Plate.



Remove the Upper Cylinder Set and set aside.



Remove two 5/16-24 SHCS that connect the Center Plate to the two LDP Rods.



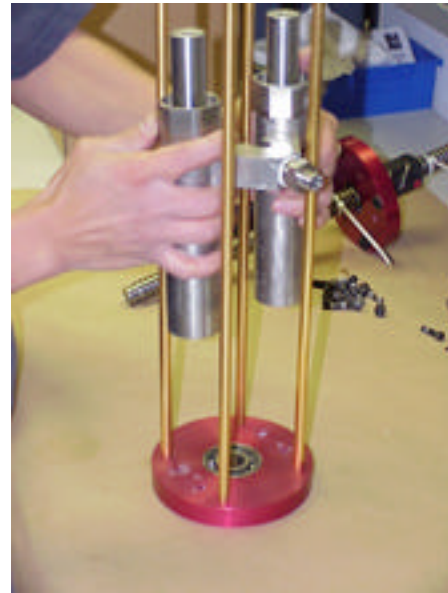
Attach tie raps to the Ball Screw above the Ball Nut and below the Center Plate. (This prevents the Ball Screw from accidentally unwinding out of the Ball Nut)



Lift the Center Plate Ball Screw Assembly off the Linear Shafts and set aside.



Remove four 1/4-20 SHCS connecting the Bottom Plate to the Bottom Cylinder Set.



Remove the Bottom Cylinder Set and set aside.



Mount the Cylinder Assembly in the LDP Cylinder Clamping Fixture. Use a 1 3/4 socket to loosen the LDP Cylinder Nuts. ( The Clamping Fixture provides maximum holding power without imparting stress to the welded Cylinder Manifold joints. If the welded interfaces are broken, the assembly cannot be repaired)



Remove the Cylinder Nuts with LDP Rods inserted. Be careful not to ding or scratch the Rods.



Carefully remove the LDP Rods from the Nut. (Scratches or dings on the Rod surface can cause short seal life)



Remove the old Seals from the Nuts taking care not to damage the plastic Rod Bearing surface.

Clean the Cylinder Nuts and LDP Rods of any resin/catalyst residues. Care should be taken not to scratch or dent the LDP Rod surface. Soft tools made of plastic, wood, or soft abrasives (such as 3M Scotch Brite) are safe. For heavy tenacious residues, soaking parts overnight in chemical strippers will dissolve or soften the polymeric residues.

## PUMP SEAL REPLACEMENT

LDP SEAL KIT 100-SA-SK-013



Insert the seal into each LDP cartridge nut with the spring groove facing in the up direction as shown.



Lubricate Teflon O rings (002-PR-OR-001) with a light oil. Install O ring into cylinder O ring groove. Seat the O ring in the groove by installing a cartridge nut hand tight. Remove the nut and inspect O ring to make sure it has seated properly. If the O ring is damaged in anyway, install a new one.



Apply anaerobic Teflon pipe sealant to the cartridge nut threads (Perma-Lok LH150 or Loctite 567PTS or equivalent) to prevent thread galling. Do not use Teflon thread tape or non-Teflon anaerobic thread locking



Mount the LDP cylinder assembly into the bench vice using a Cylinder Clamping Fixture (013-ST-CF-001). **Note:** This fixture provides maximum holding power and eliminates applied stress to the welded manifold that connects the two cylinders. A broken cylinder manifold assembly is expensive to replace.



The above photos show the **wrong way** to hold the cylinder manifold assembly. Using the above methods will apply excessive stress to the welded manifold joints when the cartridge nuts are torqued and potentially result in a broken cylinder assembly. This is an expensive part to replace.



Install the cartridge nuts into the cylinders and torque to 150 ft/lbs. Use 6pt 1 $\frac{3}{4}$ " socket to tighten the cartridge nuts.

**CAUTION:** Do not use an open end wrench to tighten the cartridge nuts as it can damage them.



Install the LDP pump rods into the installed cartridge nuts in the cylinder assembly. Lubricate the rods with a light oil. Carefully align the rods vertical and insert into the plastic bearing. Push the rods into the cartridge nut by hand. You will feel some resistance when the rod reaches the seal. Apply more force to penetrate the seal until the rod is fully inserted. **CAUTION:** Handle the pump rods with care. Dents, dings, and scratches can significantly reduce the seal performance life.