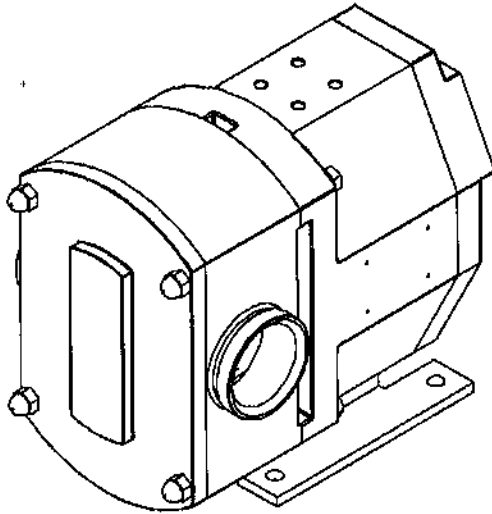




SANITARY TRUCK PUMP OWNERS MANUAL

G12-398 Rev.-

8/12/2003



SAFETY INSTRUCTIONS

This is an industrial component, which is intended for a qualified systems integrator to design it into a system.

It is up to the integrator to determine proper plumbing, mounting, driveline and guard components.

Fully understand and follow the instructions shown in this manual before operation

INSTALLATION

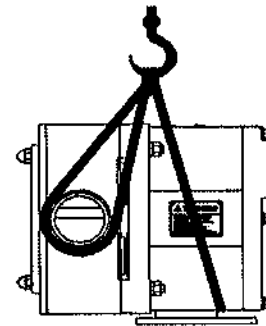
Handling:

To prevent damage or shifting due to an unbalanced load when moving the pump, use nylon straps (i.e. slings) wrapped around the pump as shown in figure on the right.

Note: Make sure that the slings cross each other to prevent slipping

Check Ports Versus Rotation:

Make sure the inlet and outlet ports have been correctly plumbed corresponding to the direction of rotation. See figure below for various configurations.



| VERTICAL MOUNT | | HORIZONTAL MOUNT | |
|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| HIGH DRIVE | LOW DRIVE | RIGHT SIDE DRIVE | LEFT SIDE DRIVE |
| <p>INLET DISCHARGE CW</p> | <p>DISCHARGE INLET CW</p> | <p>INLET DISCHARGE CW</p> | <p>DISCHARGE INLET CW</p> |
| <p>DISCHARGE INLET CCW</p> | <p>INLET DISCHARGE CCW</p> | <p>DISCHARGE INLET CCW</p> | <p>INLET DISCHARGE CCW</p> |

Good Practice

NOTE: These are general guidelines and do not cover all possible situations. It is the responsibility of the system integrator to properly apply this product.

Plumbing

1. The inlet pipe should be as short and straight as possible to minimize suction pressure losses. Excessive restrictions at the inlet can cause cavitation resulting in poor performance, noise, vibration, or pump damage.
2. Slope the inlet plumbing appropriately to avoid air pockets.
3. Plumbing weight, misalignment with the ports or thermal expansion can exert excessive force on the pump. Plumbing must be properly supported and aligned with expansion joints, if required, to minimize these forces.
4. A relief valve is recommended, as close to the pump outlet as possible, to prevent over pressure situations. The relief valve should be before any shut-off valves

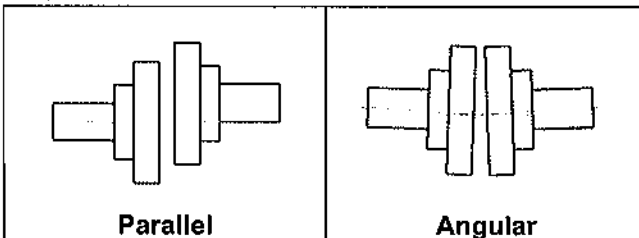
Separate Pump and Drive Assemblies

Driveline Guards

1. Assure adequate guards have been installed to prevent personnel contacting moving components.
2. Follow all OSHA, Federal, state and local codes.

Check Alignment of Pump to Driveline

Excessive misalignment can overload the pump input shaft and cause premature failure. The figures on the right show angular and parallel misalignments.



Mounting Base

1. Mount the unit on a rigid, heavy base to provide support and absorb shock. Bases should be designed for high rigidity, not just strength.
2. When mounting to cement or concrete use a steel base plate (supplied by others) to distribute the mounting stress over an area large enough to prevent the cement from failing. The pump feet were not designed for mounting to concrete, and do not have enough contact area to prevent it from failing. The base plate should be at least as thick as the pump feet, and grouted in place.

Roper Pumps' Close Coupled Drives

Hydraulic or Gearmotor units where the drive mounts directly to the pump.

1. Driveline is not exposed and does not require guards.
2. Alignment between pump and drive line is maintained by the assembly.
3. The mounting base does not need to be as robust, because the assembly absorbs reaction forces of the driveline. The level of rigidity and strength is determined by the piping stresses from the system.

! WARNING



Over pressure may burst pump or system components.
Do not over pressurize pump or block discharge line while running.

! WARNING



Moving machinery can grab, crush, cut, mangle and dismember.
Do not operate without adequate guards in place.
Operating without guards could result in serious injury or death.

PUMP RATINGS

| Maximum Ratings | | | | |
|-----------------|------------------|-----------------|-------------------------------------|--------------------|
| Pump | Flow Rate GPM | Pressure PSI | Ambient or System Temperature °F | Input Speed RPM |
| SP043 | 255 | 120 | 160 | 700 |
| SP029 | | 120 | 160 | 700 |

CLEANING PUMP

Manual cleaning:

If it will be manually cleaned, remove the faceplate and rotors for access to the areas under the rotors. Refer to pump disassembly procedures.

CIP (Clean-in-place):

For CIP it is best to have the pump run with the outlet pressurized. The outlet pressure will force cleaning solution through the gaps located at the rotor end faces, rotor nut cavity, and seal cavity. The maximum cleaning fluid temperature is 212°F. Reduce maximum operating pressure to 50 psi if cleaning at temperatures above the pump rating.

! WARNING



**Rotors can crush.
Do not operate with faceplate
removed. Disconnect power source
before servicing or manual cleaning**

MAINTENANCE SCHEDULE

Routine

Wet end:

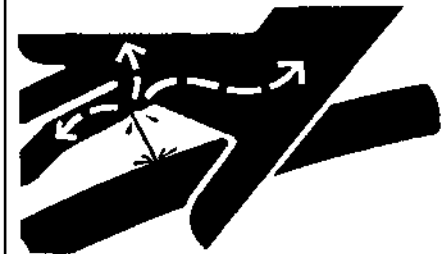
1. Check to see if the pump seals are leaking. Replace seals as needed and follow the seal removal/installation procedure provided in the manual.

2. Check to see if there are any scores or scratch marks inside the casing or on the rotors. Bring to the attention of the pump manufacturer if any abnormalities are noticed.

Drive end:

Check the pump and timing gearbox for signs of leakage. Replace seals as required. No other maintenance is required. The unit is furnished with synthetic oil that does not need to be replaced within the planned rebuild period.

! WARNING



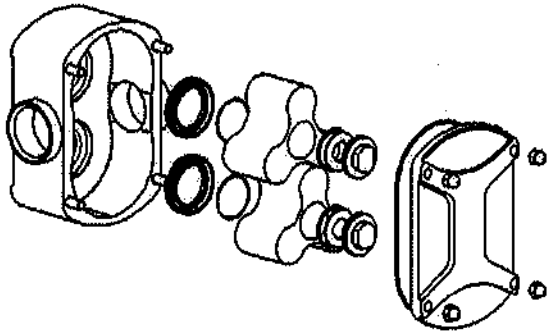
**Injection Hazard
Avoid close contact with fluid jets.
Escaping fluid can penetrate skin
causing serious injury.**

Planned Rebuild Cycle

The unit should be scheduled for rebuild every 10,000 to 20,000 hours of operation. The exact period is based on the severity of service and is best determined through experience with the application.

DISASSEMBLY & ASSEMBLY

Wet End Exploded View:

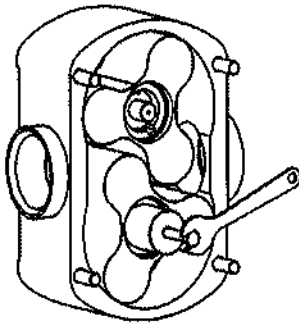
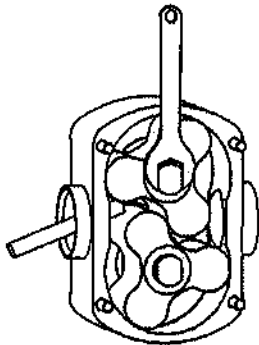


Note: The direction of the small cone end of disk spring should be face out, away from the pump.

Torque Data

| Pump | Rotor Nuts | Face Plate Bolts |
|-------------|------------|------------------|
| SP043/SP029 | 60 ft-lbs | 60 ft-lbs |

Removing Rotors:



Steps:

1. Close suction and discharge lines and shutoff power supply.
2. Loosen and remove the acorn nuts holding the faceplate.
3. Remove faceplate and faceplate O-ring and place them in a safe place.
4. Use a plastic rod through the inlet or through the outlet port and lock the rotors in place
5. With a 1-1/4" wrench loosen the rotor nut.
6. Remove the rotor nut, Disc Spring and place them in a safe place.

Note: It is required to replace O-rings every time during maintenance.

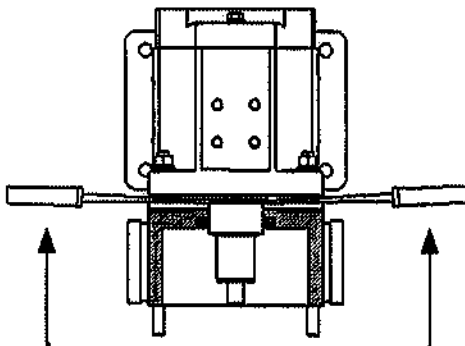
7. After removing the rotor nuts, thread rotor removal tool into rotor till the tool bottoms out.

Note: Make sure the jackscrew is all the way out.

8. Using a 9/16" wrench turn the screw till the rotor starts sliding out.
9. Once the rotor starts coming out grip using your fingers and pull out gently.
10. To remove the second rotor insert the plastic rod through the opposite port.

Note: Do not hammer or pry on the rotors

Removing Sleeve:

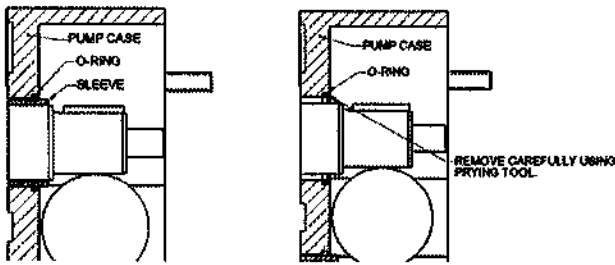


Steps:

1. Insert two screwdrivers into the groove on the sleeve through the space between the casing and the gear housing.
2. Apply force simultaneously on the two screwdrivers and push the sleeve as far as possible.
3. Pull out with fingers from the front side.

Note: Take care so as not to score the ceramic seal surface and store in a clean safe place.

Removing O-Ring Seal

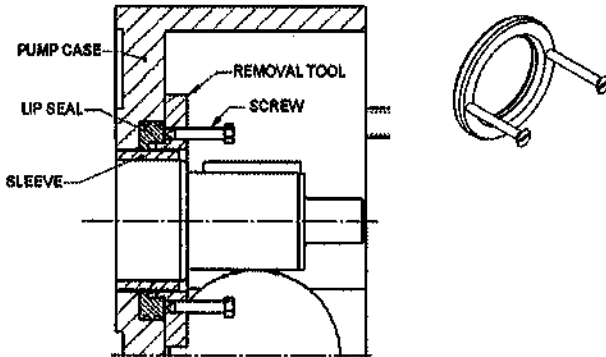


Steps:

1. Remove the sleeve as explained under "removing sleeve" section.
2. Using a hooked tool or a screw driver and remove the damaged O-ring.
3. Insert the new O-ring in the groove.
4. Assemble the sleeve by pushing on it from the front.
5. Make sure that the sleeve has bottomed on to the shaft shoulder.

Note: Make sure the groove side faces toward the back of the pump

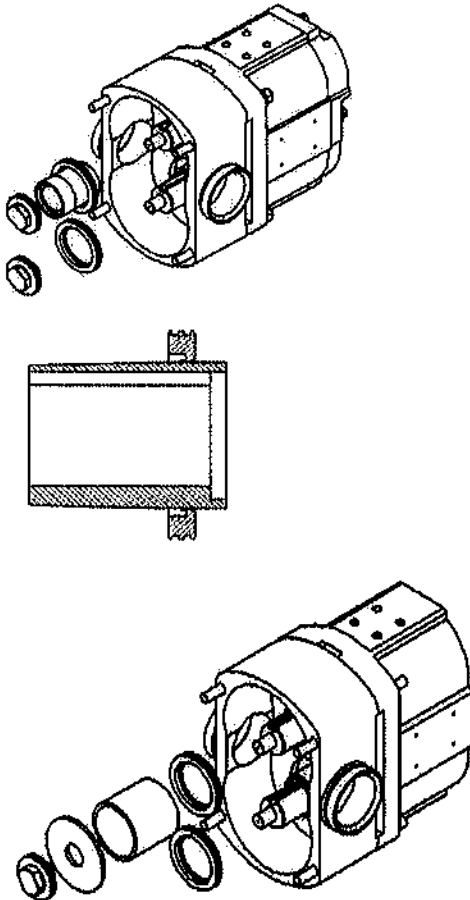
Removing Lip Seal:



Steps:

1. Insert seal removal tool with the screws into the seal as shown in the figure to left.
2. Holding the seal removal tool with one-hand thread screws into the face of the seal.
3. When sufficient thread depth is reached pull seal by gripping the screws.

Assembling Lip Seal:



Steps:

1. Align keyway in the seal installation tool with the key on the shaft and push till it bottoms out.
2. Push the lip seal on the tool till it reaches the front of the seal housing.
3. Push seal gently into the seal housing.
4. Make sure the seal has just entered the housing and is not cocked.
5. Align the pipe on the face of the seal
6. Hold the pipe, washer with one hand and tighten uniformly using the rotor nut as shown in the figure.
7. Stop tightening when the seal has bottomed out.

Notes:

The pressure lip side should face the front of the pump.

Pipe size:

ID 2-5/8"; OD 3-1/4"; Length 2-7/8".

Washer size:

ID 1-1/4"

Do not over tighten as it may damage the seal