Maintenance and Lubrication

seepex recommends using seepex joint grease type 30321 with all seepex pumps with pin joints. There is no equivalent for this grease, as stated on page 5 of the seepex Operating and Assembly Manual. Also, an operation guarantee cannot be granted if other greases are used.

Safety Precautions

- Disconnect and lock out electrical service before conducting any work to pump and/or gear motor.
- Close all valves on suction and discharge piping before conducting any work on pump.
- Ensure coupling guards and motor fan covers are in place before unlocking electrical connections.
- Take care when removing holding bands from universal joints as edges can be sharp.
- Ensure that splash ring (slinger ring) is always in proper position on plug-in shaft.
- Exercise extreme care when adjusting packing as shaft is rotating.

Lubrication Schedule

Item	Action	Frequency	Type of Lubricant
Gear Reducer	Check oil level Change Oil	Weekly 3 years	210cSt @ 40°C (Gulf EP Lube-S 100/equal) 210 cSt @ 40°C (Gulf EP Lube-S 100/equal)
Motor Bearing	Repack with grease	3 years	Gulf EP No. 2/equal
Pump Bearing	Repack	3,000 operating hours	Shell Alvania EP 2/equal
Pump Universal Joints	Repack	Rotor replacement or 10,000 operating hours-whichever is first	seepex special grease ONLY

Maintenance Schedule

Item	Action	Frequency	Remarks
Packing	Check leakage rate and tighten/loosen to allow 1-6 drops per minute	Weekly	Adjust tightening nuts only 1/2 turn per minute until stabilized
Water Flush	Check flow and pressure	Weekly	
Pump Rate	Check flow at rated pressure	Weekly	Replace rotor/stator as required
Bearings	Check end play and temperature. Change grease.	Monthly (3,000 operation hours)	See operating manual
Universal Joints	Check seal integrity. Check bushing and joint wear. Replace grease.	Upon rotor/stator replacement	
Motor	Check RPM/amperage. Drain. Check fan cover for obstruction/dirt.	Monthly	
Gear Reducer	Check temperature and oil level Exchange oil	Monthly 3 years	

seepex Pre-Start-Up Check List

- ☐ Piping inspection complete check for foreign debris
- ☐ All the flanges must be checked insuring they are tight
- ☐ Are seal lines connected to the pump glands?
- ☐ Check couplings for connection and proper attachment
- ☐ Check belts for proper tension - no appreciable deflection is permitted for initial start-up
- ☐ Check guards for secure positioning and any other protective devices must be secured
- ☐ Pump to be primed
- ☐ Drivers supplied must be checked for oil if supplied with gearboxes
- ☐ Clean all hazardous debris or equipment from area
- ☐ Check electrical connections and conduit boxes on drivers
- ☐ Check pump rotation - normal rotation CCW
- ☐ Pipe lines open, check for liquid to pump suction
- ☐ Check that all valves are open
- ☐ Suction lift applications - insure liquid in pump suction
- ☐ Turn on seal water flush if flush is used
- ☐ If leakage is excessive at packing after 15 minutes, retighten packing periodically 1/4 turn until 1-2 drops per minute is obtained. Do not over tighten to eliminate leakage with packing.
- ☐ Pump rotation is indicated on bearing frame
- ☐ Unlock lockout on panel and at pump
- ☐ Check amps of driver
- ☐ Check pump in manual mode
- ☐ Check pump in auto mode
- ☐ Check for vibration, check gauges, etc.
- ☐ Avoid dry run during operation
- ☐ Check the pump to prevent overpressure

Pump Shutdown Procedure

- ☐ Disconnect power to pump driver local or as required
- ☐ Close discharge valves
- ☐ Close suction valves
- ☐ Shut of seal water system water supply

Equipment Shutdown Longterm

- ☐ Shutdown - isolate pump and electrical
- ☐ Rotate pump shaft once per week
- ☐ Remove drain plug to facilitate drying of suction housing
- ☐ Prevent freezing at pump, drain and protect from freezing.
  Fill with light oil or ethylene glycol. It must be compatible with pump elastomers.
  Buna, EPDM, Viton are compatible with ethylene glycol.
- ☐ Put grease into stuffing box. If packing is used – loosen packing.
- ☐ Use light oil for mechanical seal protection
- ☐ If pump is not installed, place blind flanges over suction and discharge flanges
- ☐ Store pump in cool, dry atmosphere

Grinder Start-Up Checklist

- ☐ Turn on seal water flush to grinder
- ☐ Open suction and discharge valves - starting flow of liquid
- ☐ Start the seerator/grinder
- ☐ Start the pump used with the seerator/grinder

Grinder Shutdown Peocedures

- ☐ Stop the pump associated with the grinder
- ☐ Stop the grinder
- ☐ Close suction and discharge valves
- ☐ Shutdown seal water system

Stator Retensioning Procedures

- The pump must be calibrated when new, and recalibration can be based upon either fluid flow or motor amperage.

- Record the following data upon installation and start-up of the new pump.

Calibration fluid _____ _____ **cPs viscosity**

_____ **RPM** _____ **PSIG (discharge)** _____ **PSIG (inlet)**

_____ **°F temperature** _____ **% solids** _____ **motor amperes**

or/ _____ **GPM** _____ **particle size**

- Ensure all operating parameters, except motor amperage or flow rate, are as originally calibrated ... including fluid levels on the suction and discharge side of the pump, piping conditions, fluid viscosity or solids contents and temperature . . . before testing for stator wear.

- **DO NOT** calibrate pump and test for stator wear on two different fluids.

- **DO NOT** adjust stator unless pump is tested against calibration performance.

- **DO NOT** adjust stator unless its tested performance at its calibrated conditions show a 40% or greater drop in flow or amperage.

- **NOTE:** On applications with viscous materials and long pipe lengths, it may not be possible to record test pressure readings identical to the calibration readings due to the high frictional component of total system pressure.

- Ensure that suction and discharge static head conditions and piping arrangements have not been changed since the last calibration procedure.

- **Every time any change is made to either the suction or discharge piping or every time the pumped fluid is changed, the pump must be recalibrated.**

- Once the above conditions are verified, tighten the nuts on the stator retensioning device **one-half turn each**, starting on the discharge side of the pump and alternating left to right sides.

- **DO NOT** tighten all the nuts on one side and then tighten the nuts on the other side.

- Check test performance. If tested performance is less than 90% of calibrated performance, retighten nuts following procedures described previously.

- **DO NOT** tighten nuts to achieve more than 90% of calibrated performance. Wear has occurred on the pumping elements and the formed cavity is slightly smaller. Increased performance above 90% of calibrated levels can only be achieved by increasing the pump speed. Over tightening will cause premature wear and component failure.

- **DO NOT** use discharge pressure as an indicator of pump performance. Pressure indicates piping and fluid conditions and is not a valid indicator of performance for a positive displacement pump. If pressures are significantly different from those recorded during calibration, check for changes to the piping and fluid consistency.

- When the stator can no longer be tightened, it should be replaced. Once the stator is removed, carefully inspect and measure the rotor for wear. Call seepex to obtain the proper dimensions and procedures to check for rotor wear. Rotor wear should not exceed 0.012” it should be replaced.

Note: Pumps with the stator retensioning device often require both the rotor and stator to be changed at the same time.

- Replacement stators for pumps with the stator retensioning device usually do not need to be adjusted when installed. This is especially true when a new rotor has also been installed. Always check for rotor wear before installing a new stator.

- Test the new stator performance using the same test procedures used to test a worn stator. If the performance needs to be improved, follow the tightening procedures outlined above. Again, as a precaution, do not tighten to achieve more than 90% of the calibrated performance, in an effort to avoid over tightening and premature wear.