PETROLEUM SELF-PRIMING CENTRIFUGAL PUMPS

INSTRUCTION BULLETIN

Read this bulletin in full before installing, operating or servicing this pump. If any of the warnings of this bulletin are ignored serious injury or death could occur.

WARNING!

This pump was designed to handle volatile and flammable fluids. To reduce the risk of fire or explosion keep pump in well ventilated area free of explosive atmosphere. Do not smoke where the fuel is being handled, also keep away from any sparks or open flame. Do not operate pump with either the suction or discharge valves fully closed as this will over heat the pump. If pump becomes overheated allow to cool before next use.

Do not operate the pump in a manner that it was not intended to be used.

Do not continue to operate the pumping system when a known leak exists or the system starts to smoke.

Do not install a piping system that does not allow for any flex due to expansion from heat generated by the pumping system.

Do not continue to operate the pumping system when unusual noise or vibration occurs.

Do not allow severe temperature changes to occur in a short time period within the pumping system.

Do not perform service or maintenance when the pumping system is pressurized or hot.

Drain pump completely before switching fuel type that is to be pumped.

Do not mount pump in conditions that high piping loads exist on the pump flanges.

MODELS:

PO Biodiesel, Diesel and Fuel Oil.

PG Gasoline, Kerosene, Avgas Jet A and JP 8 Fuel.

PE Ethanol and E-85.

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INSTRUCTION BULLETIN

It is important that this Instruction Bulletin be read carefully to fully familiarize yourself with the pump assembly arrangement. The instructions contained herein pertain to installation and maintenance of the pump assembly only. Check unit carefully to make certain that no parts are missing or have been broken in shipment.

INSTALLATION

For optimum performance, place pump as close to liquid source as possible to reduce suction lift to a minimum. For best results, pump should be installed not more than 15 feet above the liquid supply. Set the unit on solid footing and as nearly level as possible.

Pipe or hose of the same size as the provided flanges should be used. Reinforced suction hose is recommended providing greater flexibility and prevents collapsing due to vacuum in the suction line when pump is in operation. The suction line should be as short as possible to keep friction loss at a minimum. Use pipe sealant on all the connections and make certain that all fittings are tight, particularly on the suction line where an air leak can prevent priming or reduce pump capacity.

OPERATION

This petroleum pump is a self-priming centrifugal pump and only requires priming prior to its initial start. The pump will retain sufficient liquid for self-priming thereafter.

If pump fails to prime or stops pumping, check for the following possible causes:

1. No liquid in the pump housing
2. Air leak in the suction line due to loose connections or pin holes in the hose.
3. Collapsed suction line or clogged strainer
4. Seal worn and leaked air.
5. Worn impeller - too much clearance between impeller and wear plate.
6. Pump not running fast enough.
7. Suction lift is too high.
8. Trying to prime against too high a discharge head.

MAINTENANCE

This pump is of simple construction with only one moving part.

The impeller on the PO,PG,PE 5 and 8 is threaded to a stainless steel drive sleeve. The impeller on the PO,PG,PE 10 and 15 has stainless cover pressed on. The sleeve slips over the drive shaft and is locked to the drive shaft with a two piece clamp. This means that a standard drive shaft is used - no special taper or threads. It is easy to adjust or remove the impeller.

This pump is equipped with a self-lubricated shaft seal. The self-lubricated seal is lubricated by the liquid in the pump. Operating the pump dry will seriously damage the mechanical seal.

If the pump is to be left standing idle for any length of time in freezing conditions, the pump housing should be drained. A drain plug at the base of the pump housing is provided for draining.

DISASSEMBLY

Disconnect power to prevent accidentally starting.

Disconnect lines and drain pump housing.

TO REMOVE PUMP HOUSING

Remove cap screws and nuts holding pump housing to base (where used).

Remove nuts and lock washers holding the pump housing to adapter.

Loosen the housing and remove carefully to prevent tearing gaskets.

TO REMOVE IMPELLER

Remove impeller clamp nuts and clamp to unlock impeller drive sleeve from drive shaft.

Use two pry bars or large screwdrivers diagonally across from each other between adapter and end of drive sleeve. Pry the sleeve off the drive shaft.

Before removing the seal from the impeller, inspect the carbon washer. If nicked or worn, replace it with a new one. Inspect seal seat (still in the pump adapter). If no nicks, scratches or cracks appear and the surface is clean and smooth, there is no need to replace it. If replacement is necessary, remove adapter by removing four hex nuts and washers. Place adapter on flat surface, with impeller side down. Press out seal seat by using wooden end of a screw driver or similar tool. (SEE PARAGRAPH REFERRING TO REASSEMBLY).

TO REPLACE IMPELLER

On the threaded sleeve of this pump it is not necessary to remove the seal. Clamp the drive sleeve using caution not to mar the seal surface.

Hold firmly and unthread impeller by turning counterclockwise - left hand. Replace with a new impeller. Be sure seal spring fits over hub on back of impeller.

TO REMOVE ADAPTER

Remove the four nuts and lock washers. Loosen and remove adapter.

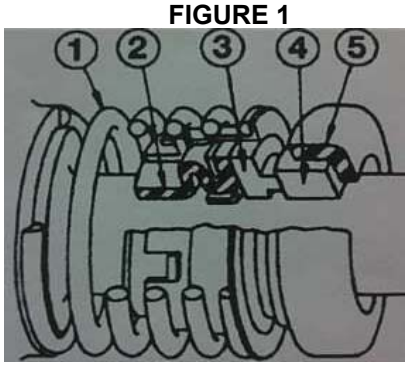
TO INSPECT SELF-LUBRICATED SEAL ASSEMBLY (See Fig. 1)

After the impeller and drive sleeve have been removed from the drive shaft, inspect the lapped sealing face of carbon washer (Part 3) for wear which would necessitate replacement.

Inspect lapped sealing face of floating seat (Part 4) in adapter housing counterbore for scuffing or cracks. If necessary to replace, press out old seat and ring, and proceed as outlined in paragraph on MOUNTING ADAPTER.

If spring &/or bellows (Part 1 & 2) are damaged and require replacement, lubricate the impeller sleeve with a suitable lubricant for the fluid being pumped and slide parts off sleeve.

FIGURE 1



TO REMOVE WEAR PLATE

After pump housing has been removed from the adapter, inspect the wear plate. If wear plate is badly worn, it should be replaced. To remove wear plate, loosen and remove acorn nuts and gaskets on the outside of the pump housing.

CAUTION

When replacing wear plate, be sure to use new gaskets under acorn nuts to seal against air leaking in on suction side during priming cycle.

INSPECTION

After pump has been disassembled, check all parts over carefully for wear or damage. When ordering parts for your pump, be sure to specify the model and serial numbers shown on the name plate.

REASSEMBLY

MOUNTING ADAPTER

Before mounting adapter, thoroughly clean the counterbore.

Clean and lubricate the synthetic member on seal seat and press (do not drive) the assembly into the adapter counterbore, seating it firmly and squarely.

CAUTION

In handling, avoid dropping seat and take particular care not to scratch the lapped face.

Install adapter. Install lock washers and tighten four nuts evenly.

MOUNTING SELF-LUBRICATED SEAL ASSEMBLY (See Fig.1)

Mount seat and seat ring (Part 4 and 5) as outlined above. Inspect impeller sleeve for nicks and burrs. Polish sleeve with fine emery or crocus cloth. Then clean and lubricate with a clean light oil.

Slip the spring (Part 1) onto the impeller sleeve making certain that it is seated properly on the shoulder of the impeller.

Lubricate the inside of the washer and bellows assembly (Part 2 and 3) with a clean light oil and slide it onto the impeller drive sleeve only until it clears the chamfer.

Slide the seal bellows and washer assembly onto the impeller drive sleeve. Push the seal down over the drive sleeve with even pressure. Pull the seal head back up to the position where there is no spring load. This insures proper assembly on the drive sleeve.

Before sliding the impeller onto the drive shaft, wipe the lapped sealing faces of the floating seat (Part 4) in the adapter counter bore and the carbon washer (Part 3) on the bellows assembly perfectly clean.

Then lubricate both faces with a clean light oil.

IMPORTANT

The assembly of impeller and seal to the drive shaft should take place as soon as the bellows assembly is slipped on the impeller sleeve so as to avoid bonding of the bellows to the sleeve at the improper working height.

CAUTION

Foreign matter between sealing faces will cause leakage and shorten life of the seal.

MOUNTING PUMP HOUSING

Replace gaskets on pump housing and mount the housing on the adapter. Replace two lock washers and nuts on studs diagonally across from each other and tighten.

Turn drive shaft over slowly by hand and listen at outlet opening on housing for any rubbing of the impeller on the housing or wear plate.

The clearance between the impeller and wear plate can be checked with a feeler gauge. Normal clearance is .015" to .025". If the clearance exceeds .025" readjust impeller. If the impeller rubs use an additional gasket to space impeller.

After clearance has been established, replace lock washers and nuts on remaining studs and tighten. If cap screw and nuts are used to hold housing to mounting base, replace these and tighten.