INSTRUCTION BULLETIN
HHLF Self-Priming Centrifugal Pumps

Overview:

It is important that this instruction bulletin be fully read and understood prior to pump operation. These instructions pertain to model HHLF pump end. Your HHLF pump may have included a driver such as close-coupled electric motor, engine, bearing pedestal or hydraulic motor pedestal that will hereafter be referred to as the driver.

Unpack and check the unit over carefully. Missing or damaged parts should be reported to the freight company.

Packed with each unit are instruction booklets, parts list and performance information.

INSTALLATION:

Optimum performance can be attained by placing the pump as close to the liquid source as possible. Secure the pump by mounting it to a foundation or base plate.

Hose or pipe can be used on the suction and discharge. The suction line must not be reduced in size. If hose is used, reinforced non-collapsible type is recommended. The discharge line must be rated to the maximum pressure developed by the pump. Avoid kinks in the hose and unnecessary restrictions that may affect pump performance.

All pipe connections must be sealed with adequate thread sealant. A small air leak in the suction line will affect priming performance. If a throttling valve is used to adjust the flow rate, it should be mounted to the discharge piping only - never in the suction.

A large low restriction de-watering type strainer must be used whenever there are solids present in the liquid source.

OPERATION:

♦ **Caution – Do not run the pump dry.** The seal in the HHLF pump is lubricated by the liquid in the pump. Serious damage will result if the pump is run without liquid in the housing.

Fill the pump with liquid through the fill-plug located on the top of the housing. The pump housing should be completely full. If the pump has a discharge valve it must be fully open to expel air during priming at initial start-up. Long horizontal suction lines require extra time to prime, 2 additional minutes for every 10 feet of horizontal run.

Start the pump driver. The pump will prime the suction hose and establish flow in about 5 minutes, more or less, depending upon the lift distance and length of horizontal run. After prime, the pump will perform to its full flow capability.

After the initial prime, the pump will retain liquid in the housing and may not need to be refilled after shutdown and restart even if the suction pipe has air in it.

TROUBLE SHOOTNG;

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

1) Insufficient liquid in the pump.
2) Air leak in the suction line due to loose connections or pinholes in the hose.
3) Collapsed suction line or clogged strainer.
4) Seal worn and sucking air.
5) Worn impeller – impeller gap too large.
6) Pump not running fast enough.
7) Suction lift too high.
8) Priming against high head or obstruction such as check valve in discharge line.

MP PUMPS, INC.
34800 BENNETT • FRASER, MI 48026-1686
(586) 293-8240 • FAX (586) 293-8469
(800) 563-8006 • www.mppumps.com

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PERIODIC MAINTENANCE:

If the pump is to be idle for any length of time in freezing weather it must be drained to prevent damage.

DISASSEMBLY:

Use the exploded parts view with these instructions and note recommended replacement parts for the rebuild process.

1. Disconnect the power to the driver
2. Disconnect the lines and drain the pump
3. Loosen clamp and driver fasteners and disconnect pump end from the driver. Some means may be necessary to loosen the drive sleeve if it has frozen to the driver shaft.
4. Remove and place the pump end suction down on a bench.
5. Remove 4 nuts from the adaptor and remove the rotating assembly form the housing.
6. Remove the inner volute and discard the gasket.
7. Remove the impeller/drive sleeve assembly from the adaptor.
8. Remove seal from the drive sleeve and discard.
9. Remove the seal seat from the adaptor and discard.
10. Inspect the impeller for abrasive wear at the edges of the machined surfaces. If they are not well defined the impeller should be replaced.
11. Should the impeller or drive sleeve require replacement secure the drive sleeve and unthread the impeller by rotating it in a counter-clockwise direction.

REASSEMBLE:

1. Using a water-soluble lubricant, lubricate the seal rubber parts and seal-housing bore. Install new seal seat into the adaptor with the polished side of the seat up. Install by hand using your thumbs to squarely locate the seats against the shoulder of the adaptors. Wipe the seal faces dry with a rag.
2. Thread a new drive sleeve into the impeller.
3. Using a water-soluble lubricant, lubricate the impeller sleeve and the seal rotary bellows inner diameter. Install the seal rotary with the spring against the impeller and seal face out.
4. Install the inner volute in the housing by first placing gasket on the volutes suction. Align the priming port with the bottom of the housing. The two ribs on the volute that reassemble a "V" shape are to be aligned with the top of the pump housing
5. Place the impeller/drive sleeve assembly face down in the inner volute.
6. Replace the housing o-ring then place the adaptor with seal seat installed over the drive sleeve. Install and tighten housing fasteners to 24 ft/lbs
7. Slide the drive sleeve clamp assembly on the sleeve.
8. Remove inlet and discharge flanges from the housing. Discard the discharge gasket and flapper.
9. Pull the clamp assembly and sleeve backward then slide a shim down the pump discharge between the wearplate and impeller vanes. Shim material thickness should be .01 -.03 inches. Ideally the shim should be long enough to extend out of the pump discharge.
10. ▲ **With the shim still in place** replace the discharge gasket and flange. Tighten fasteners to 24 ft/lbs
11. Replace the flapper and suction flange. Tighten fasteners to 24 ft/lbs

The pumpak is now ready to be assembled to the driver.

PUMPAK ASSEMBLY;

1. With the drive clamp fasteners loose slide the pumpak onto the driver shaft. This should not require extreme force.
2. Install and tighten the four driver fasteners to 24 ft/lbs
3. Tighten the drive clamp fasteners to 24 ft/lbs. Take care to center the clamp halves so they do not come into contact.
4. Remove the metal shim. This should also not require extreme force.
5. Rotate the shaft to insure that the pump rotates freely before putting it into service.

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