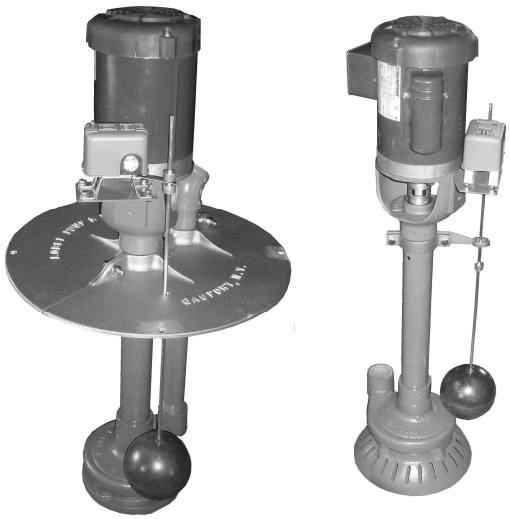
LOBEE VERTICAL SUMP PUMP

LOBEE MODEL S/SH AND SA/SHA SUMP PUMPS
INSTALLATION AND OPERATING INSTRUCTIONS



These instructions are important - please read them thoroughly before installing your Lobee Pump. Quiet and successful operation depends on proper installation and operating procedures. The paragraph on alignment is particularly essential. Keep these instructions on hand for future use, together with a parts list which may be helpful should you need replacement parts.

LOCATION

Although sump pumps are designed to handle dirty fluids, it is important that they be located in an area that is as clean as possible. This makes proper pump care and maintenance much easier. Another important consideration is to make sure that there is sufficient vertical head room for fast, easy pump removal. The pump is removed by dismantling when this isn't possible. Pump surrounding should be kept as clean as possible. Most sump pump units are installed in cast iron or concrete basins, but when necessary, it can be adapted for use in improvised installations. Generally, pumps are installed as simplex or duplex units standing on the bottom of sump (Model S/SH) or mounted on a round or square cover (Model SA/SHA) and suspended into the sump through a round or square opening. Unit length must be adjusted to suspend it 3 inches above the sump floor.

INSTALLATION

If the sump has been used previously, check the condition of the water in the sump. When its consistency indicates that it cannot be pumped, prepare for pumping by dilution, agitation, or some similar method.

Lower the pumping unit into place in the sump with a chain hoist and rigging. A duplex pump set may be set in a piece at a time - for instance, the cover first and then each pump individually. This approach is especially desirable when lifting facilities are light.

PIPING

The discharge pipe must always be as large as or larger than the piping on the pump to avoid excessive friction losses. Provide for a union (or two flanges), a check valve and gate valve in the discharge line. Some applications with short discharge lines and free, open end may omit the check valve in discharge line because when the pump is shut down, the back flow is small.

Piping should be supported independently to keep weight off pump. Excessive piping strains tend to throw the pump out of line. For installations where noise is objectionable - such as hospitals, offices, hotels, apartment buildings, etc., the discharge pipe should be properly insulated against

vibration before attaching it to the steel frame work. In extreme cases, flexible piping connections can be used on the discharge lines.

WIRING

Consult the wiring diagram on the motor and float switch for the proper way to connect the pump and controls.

ALIGNMENT

Lobee Sump Pumps are precision built for perfect alignment. The entire unit is aligned through use of male and female fittings on the column pipe and it's mating pieces.
The discharge pipe is supported independently on the mounting plate to assist in the casing support and maintenance of good alignment.
Generally, motors are shipped mounted on the pump. The top flange of the driver pedestal is jig drilled, with 4 holes to receive standard vertical motors.
Determine the motors rotation before putting in operation. Connect leads and start it for an instant - motor should rotate clockwise when viewed from the top (end opposite shaft extension). Consult motor diagram on motor to change rotation.
Check the alignment of the coupling by using a straight edge at four (4) places -90° apart.

LUBRICATION

Care of ball thrust bearings and motor bearings: The ball bearings on the pump and motor as shipped from the factory are permanently lubricated and do not require any additional attention when putting the unit in service.
Injury to ball bearings is more likely to result from over greasing than from under greasing. The real purpose of the lubricant for ball bearings is to form a coating on the highly polished surfaces as a protection against corrosion, rather than for lubrication. An over supply of grease in ball bearings produces heating-due to friction - and causes the grease to ooze out of bearing housing and along the shaft as the bearing becomes worn. This is why we have selected sealed permanently greased ball bearings.
Under usual conditions, ball bearings will reach a temperature of from 10° to 55° above surrounding temperatures. Unless the bearing temperature reaches 125° above surrounding temperatures there is no cause for alarm. If bearings are removed from housing for cleaning or servicing, use extreme care to see that they are placed on a clean surface and wrapped until ready for reinstallation.
Sleeve Bearings - self lubricating: Standard self lubricating sleeve bearings are oil impregnated bronze. Optional Rulon™ or PEEK bearings are available for high temperature and/or chemicals or corrosives.

OPERATION

Lobee Sump Pumps are designed to operate automatically, after they have been placed in service. The units are started with a starter (manual or magnetic) and then controlled by a pilot device, which may be a float switch, mechanical alternator, electrode controls or other controls. When water in the sump rises the pump is started and operates until the water reaches the lower level when the pump is automatically shut off.

PERFORMANCE

All pumps are designed and sized to the horsepower of the mounted electric motor to operate at maximum performance with an unrestricted outlet. This means the pump unit will put out its maximum rated flow and will draw the maximum rated motor current when the outlet is wide open with no valves or high head pressure. Should the pump exceed the flow desired for your application, and/or should the current draw of the electric motor operate at a level above your electrical system capabilities, install a valve in the outlet connection to adjust the flow and power demand to an acceptable level. Closing the valve will reduce the output flow and current draw proportionately.

MAINTENANCE

Impeller adjustment: The impeller is located .015 - .030" from suction cover during final assembly at the factory. When replacing the shaft, impeller or other parts that would affect this gap, it is critical that this clearance dimension be held upon re-assembly. The impeller is held in place by a key, set screw and a taper pin holding it securely in place.
Float Rod Adjustment: To change the level of the water in the sump, simply change the setting of the stop collars on the float rod. The collars are moved by loosening the set screw, moving the collar and tightening the screw again.
Strainers: The strainers on sump pumps, Model S/SH and SA/SHA, may become clogged, particularly if the water has lint in it. To clean the strainer under these conditions, the pump must be pulled from the sump.

PUMP ASSEMBLY INSTRUCTIONS

The Lobee Model S/SH and SA/SHA sump pumps are shipped assembled, with the exception of the SA/SHA Model which is shipped with the mounting plate off the pump. Assembly instructions for pumps dismantled for repairs are as follows:

1. Press Oil Impregnated Sleeve Bearing into casing. Bearing must be reamed with .752 reamer (.002" clearance) after pressing as some shrinkage will occur during pressing.

1a. Press Rulon Sleeve Bearing into casing. Bearing must be finish reamed to .755 - .757" after pressing as some shrinkage will occur during pressing. This dimension is critical to allow for expansion of Rulon material. If the .005" minimum clearance is not held the shaft may bind in operation as the composite sleeve material expands.

2. Push shaft (impeller end) into casing.

3. Mount impeller, with keyway, set screw and taper pin, to shaft. Do not allow shaft to extend into the impeller cavity. Install suction plate and screen. For easy assembly line up prick punch holes on casing and pressure plate. When repairing and replacing shaft, a new taper pin hole must be drilled and tapered using a #2 X 1-1/2 taper. The replacement shaft will have necessary keyways.

4. Install drop leg, with weephole, into casing. Tighten set screws.

5. On Models over 4 foot install intermediate bearing (For Rulon or Oil Impregnated Sleeve Bearing, using same procedure as in Step 1).

6. On Models over 4 foot install second section of drop leg. Tighten set screws.

7. Install motor mount with thrust bearing. Tighten set screws.

8. Place ¾"coupling on shaft with keyway and taper pin and tighten set screw. Coupling locates flush on thrust bearing. When repairing and replacing shaft, a new taper pin hole must be drilled and tapered using a #2 X 1-1/2 taper. WHEN PERFORMING THIS STEP THE PUMP SHOULD BE HELD VERTICALLY WITH A .015 - .030" SHIM BETWEEN THE SUCTION COVER AND IMPELLER TO ALLOW FOR PROPER CLEARANCE. ONCE THE REPLACEMENT SHAFT HAS BEEN DRILLED AND TAPERED AND THE COUPLING ASSEMBLY STEP COMPLETE, REMEMBER TO REMOVE THE CLEARANCE SHIM.

9. Mount motor with 5/8" coupling to motor mount using four 3/8" bolts and tighten.

10. Mount float switch to bracket on motor mount. (On duplex models switch may mount to plate)

11. On SA/SHA Model install split aluminum cover plate tight to bottom of motor mount.

12. Mount float valve guide to desired position on drop leg. On some models and on stainless steel pumps the float rod guide may be substituted with a tube guide mounted on the switch bracket or on the mounting plate.

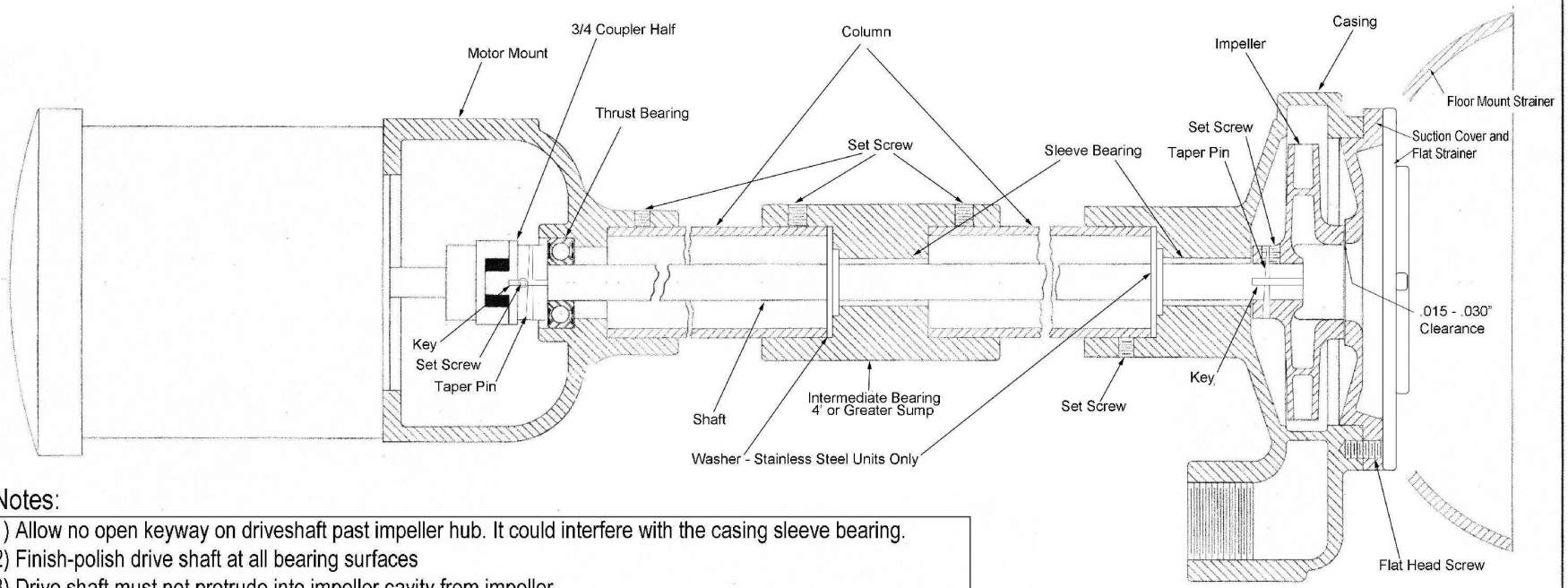
13. Place one stop on float and push float rod through guide. (On SA/SHA Model also push through hole in mounting plate)

14. Place float rod stop on rod, 1 at bottom of switch arm and 1 at top of switch arm. (Allow 1/8" clearance between bottom stop and switch arm for free action of rod.) Tighten set screws.

15. For disassembly, reverse the procedure.

- SEE LOBEE PARTS PRICE LIST #P132010-S OR LOBEE PARTS CUTAWAY FOR ITEM VIEW AND IDENTIFICATION

VERTICAL SUMP PUMP MAINTENANCE AND REPAIR CUTAWAY



Notes:

1) Allow no open keyway on driveshaft past impeller hub. It could interfere with the casing sleeve bearing.
2) Finish-polish drive shaft at all bearing surfaces
3) Drive shaft must not protrude into impeller cavity from impeller
4) Allow.015 - .030" clearance between impeller and suction cover
   *surface galling, heavy vibration and excessive motor amperage will occur otherwise
5) When using Rulon or PEEK collar type sleeve bearings, allow .005 min to .007 max clearance between drive shaft and sleeve bearing.
6) Reduce column pipe machine fit into intermediate bearing and casing by .125" to allow for #SP-42 hold down washer for collar type Rulon sleeve bearing

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