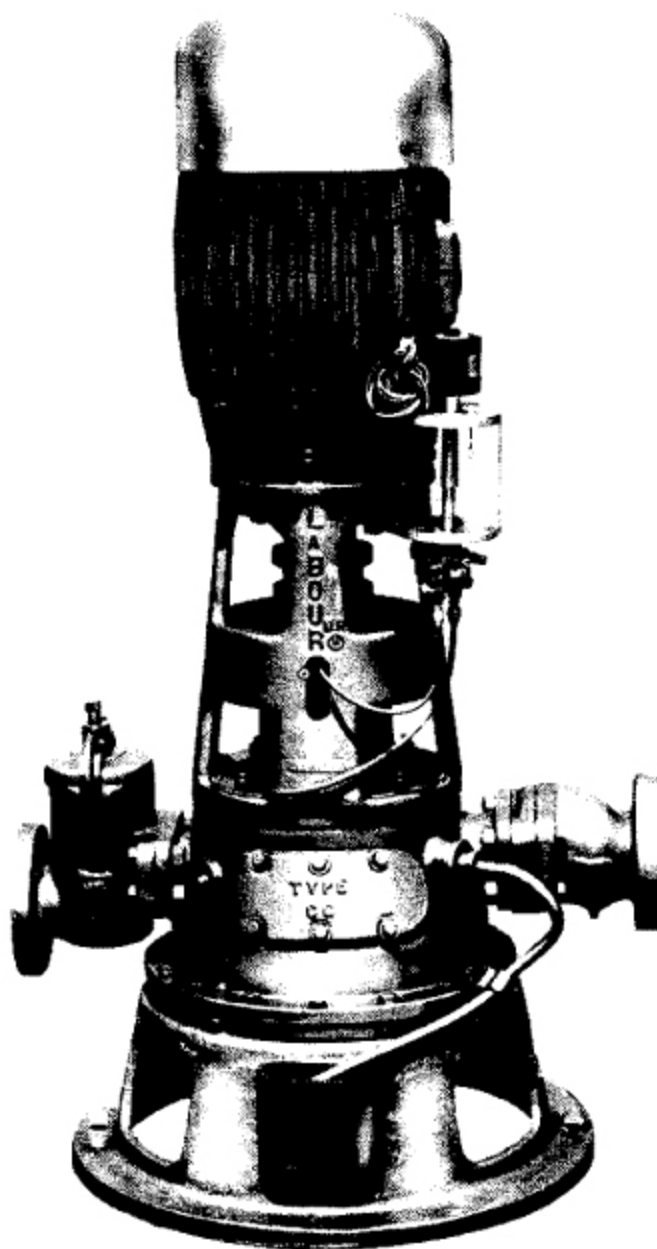


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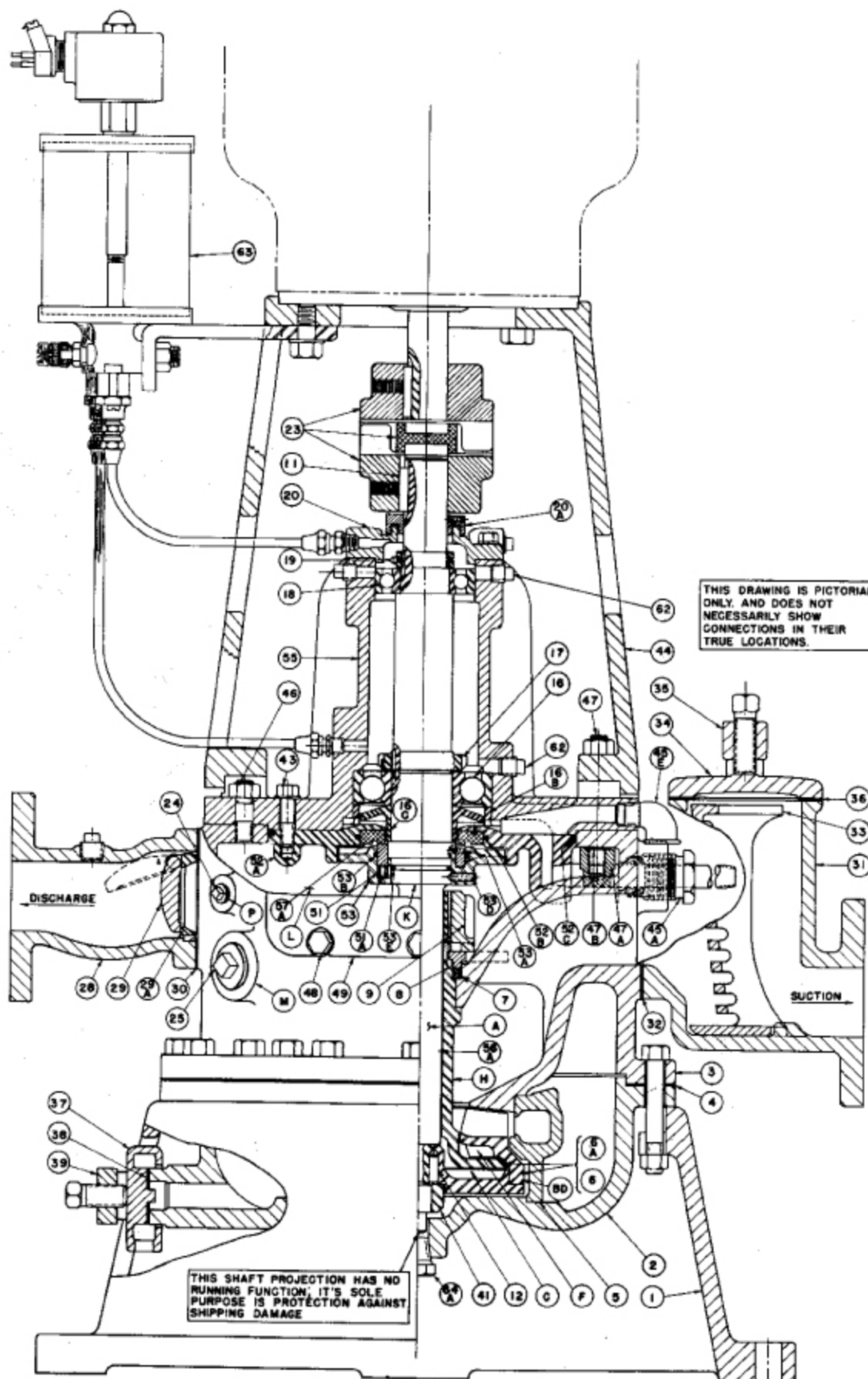


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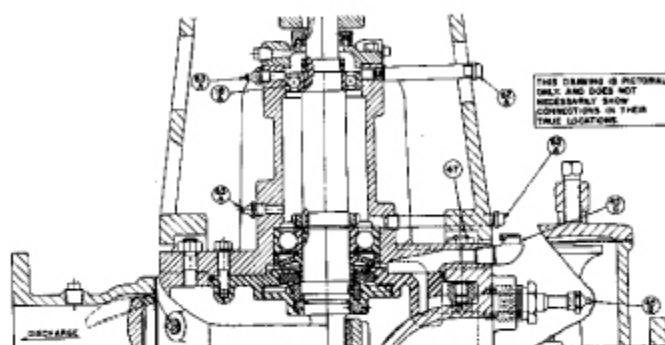
INSTALLATION, OPERATION, AND MAINTENANCE MANUAL
Labour Vertical Self-Primer Series G



Model CG — SECTIONAL DRAWING



Model BG SECTIONAL DRAWING



PARTS LIST

Piece No.	Name of Part
1.	Base
2.	Lower Pump Casing
3.	Upper Pump Casing
4.	Casing Gasket
5.	Impeller Housing
*6.	Impeller and Seal Assembly (Type CG)
*6A.	Impeller and Seal Assembly (Type BG)
7.	Sleeve Seal Gasket
8.	Shaft Sleeve Lockwasher
9.	Shaft Sleeve Nut
11.	Shaft Coupling Key
12.	Impeller Drive Key
16.	Lower Bearing
16B.	Spacer
16C.	Lower Bearing Slinger
17.	Lower Bearing Locknut and Washer
*18.	Upper Bearing (Type CG)
*18A.	Upper Bearing (Type BG)
19.	Upper Bearing Locknuts
20.	Upper Bearing Cover
20A.	Upper Bearing Slinger
23.	Cushion Spline Coupling
24.	1/4" Alloy Pipe Plug
*25.	1" Alloy Pipe Plug (Type CG Only)
28.	Backflow Retarder Housing
29.	Backflow Retarder Disc
29A.	Backflow Retarder Seat
30.	Backflow Retarder Gasket
31.	Strainer Housing
32.	Strainer Housing Gasket
33.	Strainer
34.	Strainer Cover
35.	Strainer Cover Clamp
36.	Strainer Cover Gasket
37.	Drain Cover
38.	Drain Cover Gasket
39.	Drain Cover Clamp
41.	Drive and Impeller Shaft Nut
43.	Cover Plate Cap Screws
44.	Motor Bracket
45A.	Vent and Lubrication Drain
*45B.	Grease Inlet (Type BG)
*45C.	Grease Outlet (Type "BG")
*45E.	Vent Elbow (Type CG)
46.	Bearing Bracket Stud
47.	Motor Bracket Stud
47A.	Cap Nut
47B.	Cap Nut Gasket
48.	Hand Hole Cover Cap Screws
49.	Hand Hole Cover Assembly with Gasket
*51.	Bearing Seal { (9 reqd. for type "CG") Springs { (6 reqd. for type "BG")
51A.	Spring Guide { (9 reqd. for type "CG") Pins { (6 reqd. for type "BG")
52A.	Lower Bearing Cover Plate
52B.	Cover Plate "O" Ring
52C.	Cover Plate "O" Ring
53.	Bearing Seal Housing and Pressure Disc
53A.	Bearing Seal Ring and Pin
53B.	Bearing Seal Ring Gasket
53D.	Bearing Seal Drive Screws
53E.	Shaft "O" Ring
55.	Bearing Bracket
56A.	Drive Shaft and Impeller Shaft
57A.	Bearing Seal Disc
*62.	1/4" Pipe Plugs (Type CG)
*62A.	Upper and Lower Grease Outlets (Type "BG")
*63.	Lubricator and Fittings (Type "CG")
*63A.	Zerk Grease Inlets (Type BG)
64A.	Alloy Pipe Plug

*PARTS WHICH ARE NOT IDENTICAL AND INTERCHANGEABLE BETWEEN TYPE "CG" AND TYPE "BG" SERIES 59

OPERATING INSTRUCTIONS

DESCRIPTION

The TYPE G is a vertical, self-priming centrifugal pump with multiple discharge throats. When the pump is operating it employs an exclusive kinetic seal that prevents escape of the liquid being pumped. No stuffing box or other sealing device is required. Provisions for shutdown are explained under "INSTALLATION AND OPERATION." An assembly of parts is shown in "SECTIONAL DRAWINGS - Model CG and Model BG." (NOTE: The impeller assembly is demountable from the drive shaft, but is made in one inseparable unit.) The Model CG pump is oil lubricated; Model BG is grease lubricated.

INSTALLATION AND OPERATION

Locate pump as near as possible to and above suction source. Suction pipe should be no larger than suction flange. Each pump should have its individual suction pipe. Suction line manifolding will often cause priming problems. CAUTION: BEFORE STARTING THE PUMP IT MUST BE FILLED WITH ITS INITIAL CHARGE OF PRIMING LIQUID. The suction opening in the Strainer Housing No. 31 is below the opening in the Upper Casing No. 3. Remove Strainer Cover No. 34 and direct or funnel priming liquid into opening of Upper Casing until it completely fills the pump and starts to spill out the suction opening of Upper Casing. Discharge piping can be manifolded, but each pump MUST be isolated by a check valve that has an air release line back to the sump, or to an alternate disposal point. Model CG pumps should have a drain line or hose run from the outlet at Pipe Plug No. 25 to suction sump as a safety measure, to avoid flooding or contamination of Bearing Bracket Assembly. The suction line MUST be free of air leaks and drain away from the pump freely and completely without obstruction. No part of the suction line should be higher than the pump suction opening. If during intermittent service it is desirable to maintain liquid in the discharge line (or where more than one pump is connected to the same discharge line), the special LaBour check-valve assembly must be installed. If a filled discharge line is not required, the standard LaBour back-flow retarder valve will permit slow drainage of the discharge line back through the pump. Suction line valves are not recommended. If during shutdown it is desirable to drain a discharge line employing a check valve, this may be accomplished by removing the pipe plug located on bottom of the check-valve assembly. Provision also is made for attaching a small air vent line to the LaBour check-valve assembly to permit free release of air during the priming cycle. This vent line can be returned to the source of supply when feasible, or alternatively valved and closed after priming is achieved.

PREPARATION FOR DISASSEMBLY

If the pump is to be dismantled after handling corrosive liquids it should first be drained and washed out, as follows:

1. Drain Discharge piping and disconnect the pump from all pipe lines.
2. Drain the pump by loosening Drain Cover No. 37.
3. Block the suction opening on the pump.
4. Flush through the strainer cover opening, using the pump discharge opening as the outlet. This will flush all parts except the seal.
5. Block the discharge outlet. Water will now be forced through the seal and out past Shaft Sleeve Nut No. 9.
6. Again drain out by loosening Drain Cover No. 37. There will still be a small amount of liquid left in the seal which can be removed only by turning the seal upside down.

IMPELLER HOUSING & SEAL DISASSEMBLY

1. Remove Lower Pump Casing No. 2 by unbolting from Upper Pump Casing No. 3.
2. Remove Drive and Impeller Shaft Nut No. 41.
3. Back up Shaft Sleeve Nut No. 9 (right-hand thread) against Shaft Shoulder "K" and force the impeller and Seal Assembly No. 6 out of their mountings. Access to the Shaft Sleeve Nut is through opening "L" in the Upper Pump Casing after Hand Hole Covers No. 49 are removed.
4. Replace Casing Gasket No. 4 between Upper and Lower Pump Casings upon re-assembly.

BEARING BRACKET & LOWER BEARING DISASSEMBLY

If BEARING BRACKET AND BEARING SEAL ASSEMBLIES are to be worked on, it is best to remove the entire assembly from the pump. This necessitates removal of the driving motor.

Remove nuts on Motor Bracket Studs No. 47. Lift off Motor Bracket No. 44, and remove the two nuts on Bearing Bracket Studs No. 46. Loosen the Cover plate Cap Screws No. 43 and relieve compression of "O" ring No. 52C. Remove Vent and Lubricant Drain No. 45A. Then remove BEARING BRACKET ASSEMBLY being careful to protect the extended Drive Shaft No. 56A against damage.

To remove LOWER BEARING SEAL ASSEMBLY, remove Cover Plate Cap Screws No. 43, and loosen the three Bearing Seal Drive Screws No. 53D. The Lower Bearing Cover Plate No. 52A, and the entire LOWER BEARING SEAL ASSEMBLY may now be slipped off Drive Shaft.

To remove the Drive Shaft and Bearing Assembly, remove Upper Bearing Slinger No. 20A and Upper Bearing Cover No. 20. The Drive Shaft and Bearing Assembly may now be removed.

BEARING BRACKET & LOWER BEARING RE-ASSEMBLY

Install Bearing Seal Ring Gasket No. 53B in groove on Bearing Seal Housing & Pressure Disc No. 53. Place Bearing Seal Springs No. 51 in holes provided in Bearing Seal Housing. (NOTE: 9 springs are required for TYPE CG pumps and only 6 for TYPE BG.) Place Spring Guide Pins No. 51A on springs. Install Bearing Seal Ring & Pin No. 53A on top of guide pins. Set the above assembly in Lower Bearing Cover Plate No. 52A. Install two temporary machine screws with flat washers in holes provided in Cover Plate. Tighten screws and compress springs. Start three Bearing Seal Drive Screws No. 53D in Bearing Seal Housing. Insert Drive Shaft & Bearing Assembly into Bearing Bracket No. 55. Slip Spacer No. 16B over shaft to contact Lower Bearing outer race. Install Shaft "O" Ring No. 53E in groove provided on shaft. Slip the assembled Cover Plate and Seal Housing over shaft with pin of Bearing Seal Ring No. 53A aligned with indentation on shaft provided for this purpose. Position Cover Plate "O" Ring No. 52C on Cover Plate. Install four Cover Plate Cap Screws No. 43 with lockwashers. Tighten three previously started Bearing Seal Drive Screws No. 53D. Remove two temporary cap screws and washers which are used for assembly purposes only. Install Upper Bearing Cover No. 20 with gasket. Slip Upper Bearing Slinger No. 20A over Shaft and (allowing approximately 1/16" clearance between it and Bearing Cover) tighten the two socket set screws. Installation of Motor Bracket No. 44 completes re-assembly.

BEARING LUBRICATION Model BG (grease)

The bearing housing is provided with two Zerk Grease Inlets (Piece 63A) and Upper and Lower Grease Outlets (Piece 62A). Use Alemite #40 or equal grease. Once every two weeks when the pump is in operation, open the Grease Outlets and pump two to three shots of grease into the Zerk Fittings (Piece 63A). Re-close the Grease Outlets after grease has practically stopped flowing (Note: there may be no grease flow). Bearings will overheat if supplied with too much grease. Both bearings are of the half shielded type with the shields down.

BEARING LUBRICATION Model CG (oil)

Lubricator No. 63 is a solenoid operated sight feed oiler. Vent and Lubrication Drain No. 45A leads to an oil drain reservoir (not shown) attached to the base.

Before first starting or after complete oil drainage, fill Lubricator with SAE 30 oil. Open Lubricator feed adjustment more than normal until oil begins to drip into the reservoir. Now, reduce the oil feed to about one drop per minute. The solenoid will shut off the oil when the pump is not running. The oiler must be kept supplied with oil and must be connected electrically on the motor side of the starter so that the solenoid will open and close with the excitation of the motor.

The upper bearing has no shield and the lower bearing has a shield on the bottom only.

OPERATING CHECK LIST

PUMP FAILS TO PRIME

1. Pump has not received its initial prime.
2. Direction of rotation is wrong.
3. There are air leaks on the suction side of the pump in excess of the pump's air capacity under the existing conditions of vacuum.
4. A plugged suction line. Install vacuum gauge at the pump suction and note if the dry vacuum developed is sufficient for the suction lift required.
5. Suction lift too high for the handling of the desired liquid. The principal factors affecting this are:
 - A. Specific gravity of liquid too high. The only remedy is to place the pump nearer the liquid level.
 - B. Vaporization of liquid under vacuum or liberation of absorbed gas under vacuum. These troubles are most difficult to detect. The only sure check is to test operation of the pump with cold water under similar conditions of suction.
6. Discharge line plugged or under pressure, preventing free release of air. It is necessary to arrange for the free release of air without back pressure.
7. Liquid foams readily and does not release air, thus preventing the separator from functioning. This will be found when attempting to handle materials like liquid soap.
8. Loss of priming liquid.
9. Speed too low.
10. Mechanical damage, wear or corrosion.

PUMP PRIMES BUT CAPACITY LOW

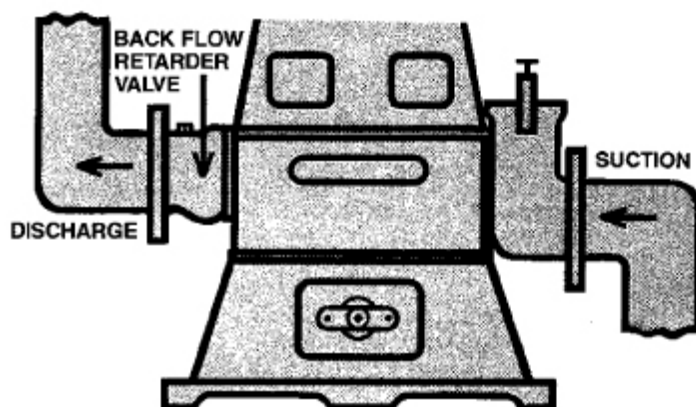
1. Speed too low.
2. Direction of rotation wrong.
3. Gas or vapor entering pump with liquid.
4. Suction pipe partially plugged.
5. Solids build-up in sump under suction pipe.

PUMP REQUIRES TOO MUCH POWER

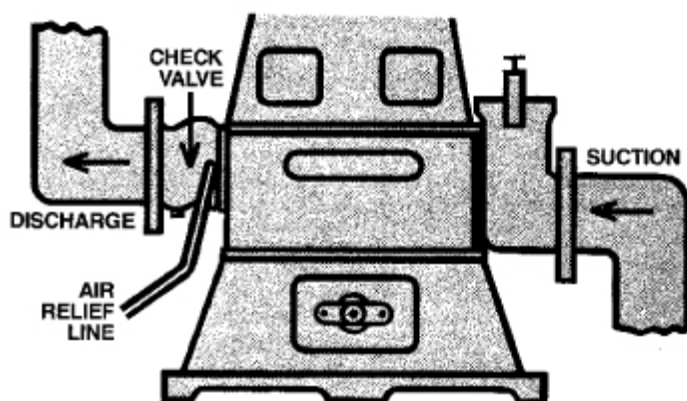
1. Dynamic head materially lower than that specified. May be corrected by throttling the discharge.
2. Specific gravity of liquid higher than that for which the pump is powered.
3. Viscosity of the liquid too high.
4. Mechanical damage such as impeller rubbing.
5. Scale deposits or other obstructions inside of pump casing and in contact with rotating parts.
6. Mechanical or adjustment defects in the motor; low voltage resulting in an apparent overload.

APPROVED INSTALLATIONS

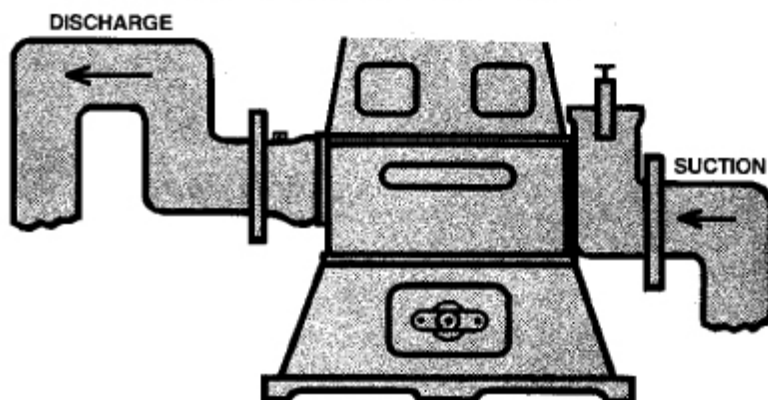
RETARDER VALVE — Allows liquid to drain slowly back through pump to suction supply (which must be located below pump at its highest level). Suction line also must drain freely without trap or valve to prevent overflow around drive shaft when pump is stopped.



CHECK VALVE — Installation should provide free release of air during priming by means of a small line to source of supply or other disposal point. This line may have a shut-off valve if desired.



DOWNWARD DISCHARGE — Discharge line must be trapped high enough to prevent syphoning of pump prime.





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