



INSTRUCTIONS and PARTS LIST

TYPE 6LIC

WARNING

**READ THIS INSTRUCTION BOOK AND CA-1 BEFORE
INSTALLATION, OPERATION OR MAINTENANCE**

Instructions 6LIC-(R-3)

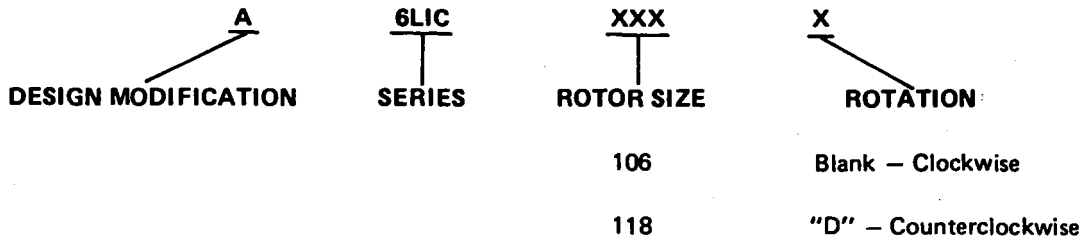
This manual now is
identified as part no.
SRM00029

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FOREWORD

Series 6LIC is designed for close-coupled integral mounting where leakage can drain back to the reservoir. This type pump is designed without a shaft seal. The appended assembly drawing (SF-5440) shows a sectional assembly of the pump with the component parts list. The model of a particular pump may be found on the nameplate. Basic types of pumps are identified as follows:



OPERATIONAL SAFETY PRECAUTIONS

Operating conditions, such as speed, fluid viscosity, inlet pressure, discharge, temperature, filtration, duty cycle, mounting, drive type, etc. are interrelated. Due to these variable conditions, the specific application limitation may be different from that of the structural limitations. This equipment must not be operated without verification that operating requirements are within published capabilities as shown in the appropriate pump data book (available from local IMO Pump Division offices and representatives).

Under no circumstances are the following structural limitations to be exceeded.

Maximum Discharge Pressure – 2000 PSIG

Maximum Inlet Pressure – 50 PSIG

Maximum Fluid Temperature – 200°F

SPECIAL INSTALLATION INSTRUCTIONS

Exceptional care should be exercised in mounting the pump to the equipment to which it is to become a part. The pump must be set with relation to the driving shaft when at rest and when running. The coupling should be installed to provide for any lateral or endwise movement of the drive shaft. A sleeve type spline coupling is recommended for flexibility and to facilitate the removal of the pump from the main unit.

Alignment of the pump is of prime importance. The driving shaft of the main unit should be checked for concentricity and squareness with mounting opening. Proper allowance must be made for clearances in the main shaft bearings and the running position of the drive shaft, and the pump aligned accordingly. A check should be made as to the squareness of the mounting bracket face with the drive shaft of the main unit. This should be done preferably by dial indicator. Each pump is checked for concentricity of shaft as well as squareness of the pump shaft to the mounting face of the pump before it leaves the factory. An inspection cover in the main unit is advisable to check alignment, coupling spacing and rotor position with pump in place. Normal coupling alignment in running condition to be .003" to .005" for low speed units. Closer alignment is necessary for high speed units.

PIPING—Piping should start at and run away from pump, with allowances made for contraction and expansion strains caused by temperature changes. Support piping independently of pump.

Make suction pipe short and direct. Use pipe at least one size larger than suction opening of pump. Do not force connecting unions or flanges in place.

Avoid piping pockets or loops. All joints must be air tight. Whenever possible, have liquid flow to pump. When liquid does not flow to inlet, install a foot valve in suction line as far from the pump as possible.

In making up the piping, always provide a priming connection on the suction side and a venting connection on the discharge side of the pump.

Where integral mounting pumps are to be used, a careful check should be made as to the possibilities of the main unit ever reversing its rotation, which in turn would reverse the action of the pump. Unless provision is made to relieve the pressure on the suction line when this occurs, if a foot or check valve is used, failure of the pump is likely to occur. To avoid a failure of this character, a small crossover line connecting the pump discharge to the suction and a small relief valve should be provided to release the excess pressure to the discharge side of the pump.

ASSEMBLY AND DISASSEMBLY PROCEDURES

DISASSEMBLY—Disconnect main piping and drain pump case. Remove bolts holding pump to driving unit and draw pump horizontally clear of machine. Disconnect and remove tubing (036).

Remove bearing retainer (028) and pull power rotor (031) from inboard end. Ball bearing (026) and retaining ring (027) normally may be left assembled during this operation. If ball bearing requires servicing remove retaining ring and press bearing off shaft.

Remove thrust plate (002) from outboard end together with thrust plate (007) which is bolted to cover. Pull out idler rotors (032), together with cups (024) and shoes (025), from outboard end. Remove inboard end cover (021) together with idler stop bushing (023), which is pressed in position, and balance piston bushing (022), which is loctited in. An inspection of housing bores and rotors may be made at this point.

If it is necessary to remove rotor housing (017) proceed as follows: Remove plug (015) and "O" ring (014) to expose rotor housing stop pin (016). Stop pin may be removed by using 1/4"-20 bolt in tapped hole which is provided for that purpose. Remove laminated shim (006) and spacer (0111) through outboard end. Housing and spacer (020) may now be removed.

REASSEMBLY—Inspect and clean all parts before starting reassembly. New "O" rings and gasket should be installed whenever the pump is rebuilt. Light lubricating oil should be used to assist reassembly. DO NOT USE GREASE.

Install new "O" ring (019) and backup ring (018) onto rotor housing (017). Backup ring should be positioned so that it is toward outboard end of pump when housing is installed. Install housing with stop pin slot toward outboard end. Line up slot with hole in pump case (001) and install housing stop pin (016) making sure it is properly seated in slot. Install plug (015) and "O" ring (014) on top of stop pin.

Install spacer (020) into pump case against discharge end of housing. Install new "O" ring (019) and backup ring (018) into groove on inboard end cover (021). Backup ring should be positioned so that it is toward inboard end of pump when cover is installed. Install end cover (021) complete with balance piston bushing (022), which is loctited in position, and idler stop bushing (023), which is pressed in position. Make sure opening in end cover is in line with discharge opening in case.

Insert power rotor (031) and ball bearing (026) into case through inboard end cover. Install bearing retainer (028).

Insert idler rotors (032) from outboard end together with shoes (025) and cups (024). Install spacer (011) making sure spring pin (012) is in spacer and that pin is aligned with stop pin slot in housing.

After making sure entire assembly is snug against inboard end measure distance from outboard face of case (001) to spacer (011). Add to this figure .006" to compensate for .010" gasket which is used between thrust plate (002) and case. This will determine amount of shim (006) to be used. Insert shim into case and install new gasket (004) on outboard face of case. Bolt thrust plate (002) to case. *CAUTION*—When thrust plate (002) is bolted to case care must be taken to make sure hydraulic balance holes in thrust plate (007), which is bolted to (002), line up with the idler rotors. This is also true if thrust plate (007) is removed from thrust plate (002) for any reason.

Be sure that pump rotors turn freely in place after the pump itself has been reassembled. Reinstall the pump in accordance with instructions given in the section dealing with "INSTALLATION".

PARTS LIST

Series 6 LIC

<u>No.</u>	<u>Name</u>	<u>No.</u>	<u>Name</u>
001	Pump Case	021	Inboard End Cover
002	Thrust Plate	022	Balance Piston Bushing XX
003	"O" Ring X	023	Idle Stop Bushing XX
004	Gasket X	024	Cup XX (2)
005	Cap Screw (8)	025	Shoe XX (2)
006	Laminated Shim XX	026	Ball Bearing X, XX
007	Thrust Plate XX	027	Retaining Ring X, XX
008	Cap Screw (4)	028	Bearing Retainer
009	Washer (4)	029	Hex. Hd. Bolt (4)
010	Soc. Hd. Pipe Plug	030	Cap Screw (8)
011	Spacer	031	Power Rotor XX
012	Spring Pin XX	032	Idle Rotor XX (2)
013	Soc. Hd. Pipe Plug	033	Key
014	"O" Ring X	034	Name Plate
015	"O" Ring Plug XX	035	Elbow
016	Rotor Housing Stop Pin XX	036	Tube
017	Rotor Housing XX	038	Drive Screw
018	Back Up Ring X	039	Name Plate
019	"O" Ring X		
020	Space		

Recommended Spare Parts

All parts marked X make up a minor repair kit.

All parts marked X and XX make up a major repair kit.

