

AUXILIARY OIL PUMP

Figure 1 shows the turbine driven, centrifugal type auxiliary oil pump which is used to supply oil (or any other fluid used for lubrication or valve operation) to the system during the starting and stopping periods when the pressure delivered by the main pump is too low for the turbine requirements. It will also start at any time, when the main turbine is running, if the pressure in the system drops below the predetermined point for which the regulator is set.

The unit, as shown in Figure 1, is designed for mounting on the oil reservoir so that the pump impeller is always below the minimum oil level. This arrangement insures a positive suction head, and eliminates the necessity of priming the pump.

The pump impeller "5" is keyed on the lower end of the shaft and further secured by the nut "1". Leakage from the discharge side back to the suction is limited to a minimum by the small clearance between the body liners "3" and the impeller hubs. The sheet metal screen "2" is used to protect the impeller against debris.

The turbine rotor "26" is keyed on the upper end of the pump shaft "12" and further secured by the nut "27". It is of the single wheel type with the blades or buckets milled in the inner diameter of an overhanging flange.

Steam leakage from the exhaust chamber along the shaft is limited to a minimum by the gland packing "20" which is of the conventional carbon ring type. Any steam or water that does leak past the packing is thrown outward by the thrower "18" and is removed by means of a drain which discharges to the atmosphere.

The entire rotating element is carried by a thrust bearing and two shaft bearings. The upper shaft bearing "15" is of the split shell babbitt lined type and the lower one "7" is of the sleeve type, babbitt lined. Each of these bearings is lubricated by oil supplied from the pump discharge chamber. The thrust bearing consists of the collar "10" which is pinned to the shaft, running against the babbitt faced disc "9" and carries the weight of the entire rotating element.

The steam flow to the pump turbine, and hence the speed of the pump is controlled by a separate regulator (or governor). If it should be necessary to operate the pump with the regulator by-passed, the orifice "24" limits the steam flow so as to keep the speed below a predetermined maximum. The size of this orifice should be adjusted, after the pump is installed, so that the maximum discharge pressure obtainable with the regulator by-passed will be approximately twice the normal discharge pressure. Such an adjustment will keep the maximum speed within the desired limits.

The following list has been compiled to facilitate ordering spare or renewal parts by item number and name together with the serial number of the turbine:

Item No.	Name of Part	Item No.	Name of Part
1	Pump Impeller Nut	16	Pump Shaft Bearing Oil Seal Ring
2	Pump Body Cover	17	Turbine Support
3	Pump Body Liner	18	Turbine Shaft Thrower
4	Pump Impeller Key	19	Turbine Shaft Thrower Screw
5	Pump Impeller	20	Turbine Shaft Gland Packing (Complete)
6	Pump Body	21	Turbine Shaft Gland Case (Complete)
7	Pump Shaft Bearing (Lower)	22	Gasket
8	Pump Shaft Bearing Pin	23	Turbine Housing
9	Pump Thrust Bearing Disc	24	Turbine Housing Orifice
10	Pump Thrust Bearing Collar	25	Turbine Nozzle Block
11	Pump Thrust Bearing Collar Pin	26	Turbine Rotor
12	Pump Shaft	27	Turbine Rotor Nut
13	Pump Distance Piece	28	Turbine Rotor Key
14	Pump Shaft Bearing Pin	29	Pump Thrust Bearing Disc Pin
15	Pump Shaft Bearing (Upper) In Halves		

Auxiliary Oil Pump

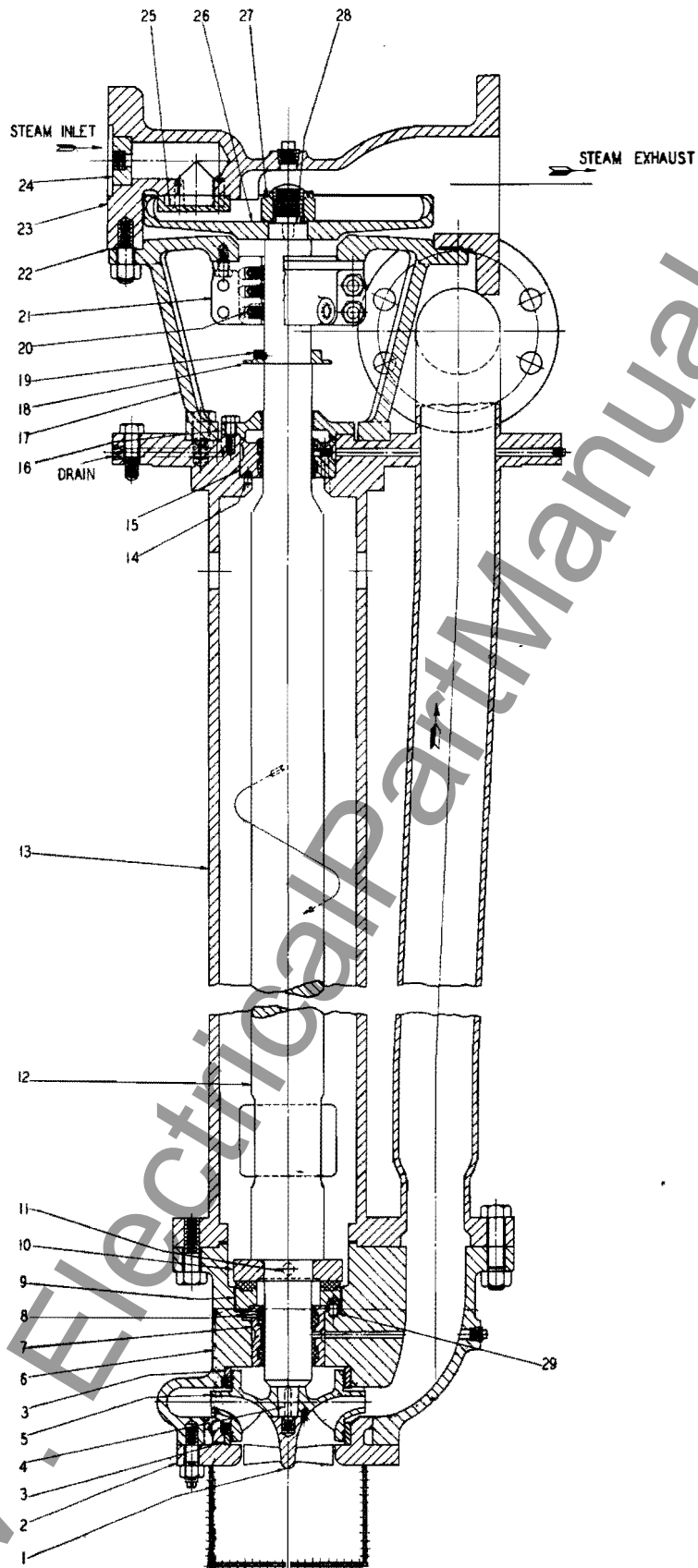


Figure - 1