AUXILIARY OIL PUMP

Figure 1 shows the spur type auxiliary oil pump which is used to supply oil to the system during the starting and stopping periods when the oil pressure delivered by the main oil pump is too low for the turbine requirements. The complete casing is built in two main sections. The turbine housing "45" contains the turbine rotor, nozzle, rotor shaft packing and the steam inlet and exhaust connections. The pump body "31" contains the spur gears, and shaft bearings.

The turbine rotor"40" which is mounted on the end of the shaft "41" is of the single wheel type with the blades or buckets milled internally. Steam leakage from the exhaust chamber along the shaft into the oil is prevented by the packing gland composed of items "48", "49" and "50" and the thrower "44". Any steam or water that does leak past the packing is thrown outward by the thrower and is removed by means of a drain which discharges to atmosphere.

The pump proper consists of the driving gear "35" and the driven gear "36". The driver is assembled on the end of the shaft and secured by a key. The ends of the driven gear are machined to form stub shafts which operate within bushings which are pressed tnto the pump case and cover. These bushings are grooved for oil passage and are lubricated by oil from the discharge side of the pump.

Oil enters the pump through the body as indicated and is entrained between the gear teeth and the body wall. Consequently, as the gears revolve a small amount of oil, imprisoned between two adjacent teeth and the wall, is carried around to the discharge side, each pair of teeth on each gear similarly carrying around its portion of oil. The meshing of the teeth prevents oil from returning between them except for a small amount of leakage.

The main bearing "42" is of the sleeve type and is lubricated internally by oil from the pump. The guide bearing "34" consists of a bushing pressed into the pump cover.

The reservoir used with this pump is usually installed so that the pump gears are at least partially submerged in oil when the unit is shut down. Under these conditions, priming the pump is not necessary. However, if the reservoir installation is such as to impose a suction lift on the pump, priming may be necessary when starting up for the first time or if the turbine has been out of service for a considerable period. When priming is required a suitable connection is provided as shown.

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

Item No.	Name
31	Pump Body
32	Pump Body Bushing
33	Pump Body Cover
34	Pump Body Cover Bushing
35	Pump Gear (Driver).
36	Pump Gear (Follower)
37	Turbine Nozzle & Rev. Chamber
38	Turbine Nozzle & Rev. Chamber Liner
39	Turbine Nozzle & Rev. Chamber Liner
40	Turbine Rotor
41	Turbine Rotor Shaft
42	Turbine Rotor Shaft Bearing
43	Turbine Rotor Shaft Collar
44	Turbine Rotor Shaft Thrower
45	Turbine Housing
46	Turbine Housing Cover
47	Turbine Rotor Shaft Gland Flange
48	Turbine Rotor Shaft Gland Packing
49	Turbine Rotor Shaft Gland Packing Ring
50	Turbine Rotor Shaft Gland Packing Seat

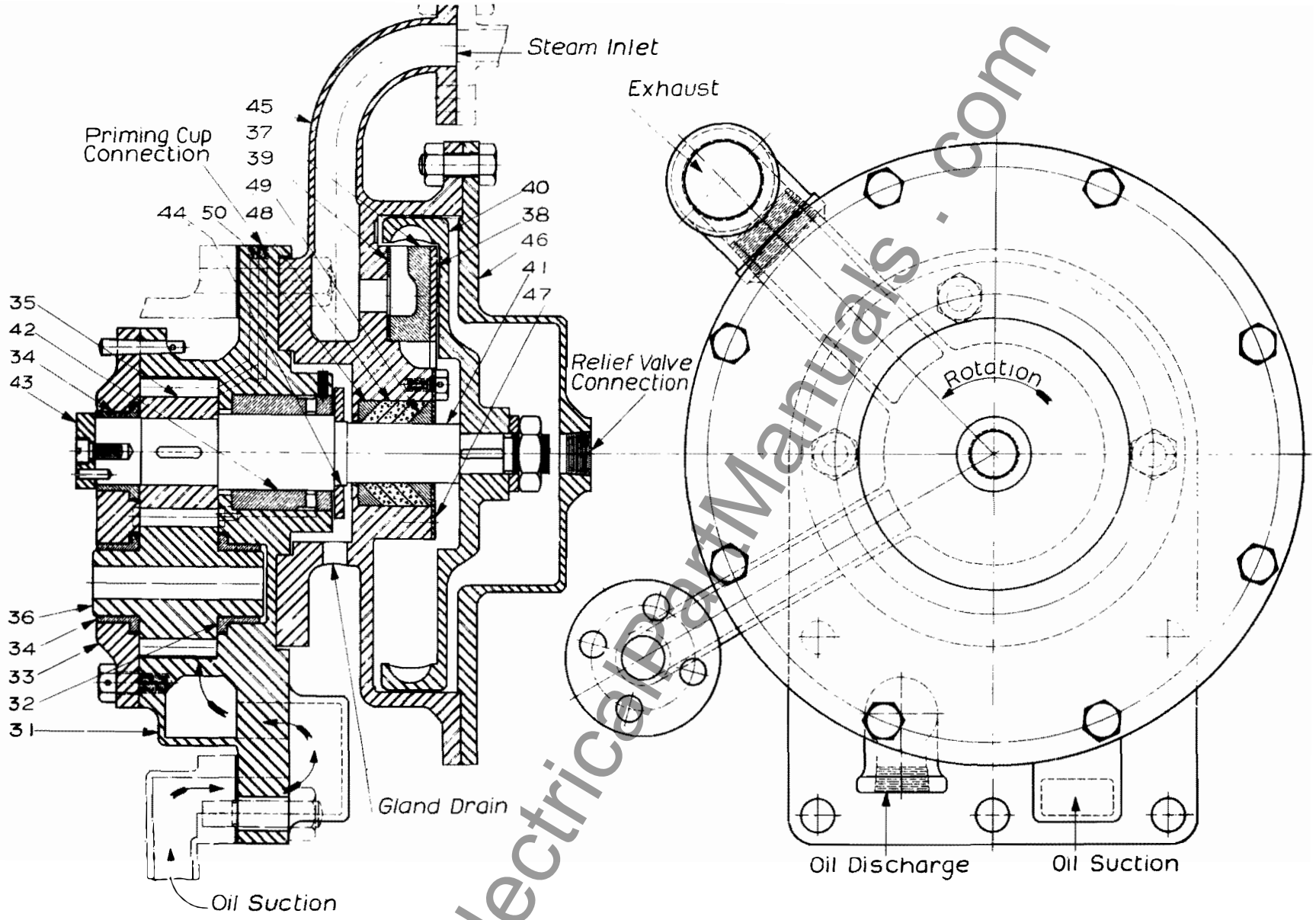

Figure 1