Oil Pump

The pump which supplies oil pressure for governing and oil for the lubrication of the bearings, is mounted below and driven from a skew bevel gear on the end of the turbine shaft. It is of the gear type and runs at one-third, one-half or three-fourths the turbine speed, depending on the operating speed of the unit. The construction is shown in Figure 1.

The pump proper consists of two gears, driver "5" and driven "3" located in a body "1" which is bolted to the inlet end bearing pedestal and closed by a cover plate "2". The driver gear is rotated by the shaft "7" through a feather key. The driven gear is mounted on a spindle "4" which is secured in the body by a light press fit. The driving shaft runs in a bushing "6" in the body.

Oil enters at the inlet and is entrained between the gear teeth and the body wall. Consequently as the gears revolve a small slug of oil, imprisoned between two adjacent gear teeth and the body 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 gears prevents oil from returning between them except for a small amount of leakage.

Since the pump gears are always submerged in oil during operation, lubrication is automatic. A priming cup is provided, which should be used when starting up after complete dismantling, or when the unit has stood idle for an extended period. Normally the pump will hold enough oil to seal it so that priming at start-up is unnecessary.

The proper operating clearances for the pump are as follows:

Between shaft and body bushing	-	0.003" - 0.005" on dia.
Between driven gear and spindle	-	0.005" - 0.007" on dia.
Between gear teeth and body wall	-	0.003" - 0.005" radial
Between body and upper gear faces	-	0.003" - 0.006" total

Increase in these clearances due to wear (especially between the body and gear faces) will reduce the efficiency of the pump, but will have no effect on the operation of the turbine unit unless the leakage becomes so great as to cause excessive reduction in capacity and discharge pressure.

The following list of parts 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
1	Oil Pump Body
2	Oil Pump Body Cover
3	Oil Pump Gear (Driven)
4	Oil Pump Gear Spindle
5	Oil Pump Gear (Driver)
6	Oil Pump Body Bushing
7	Oil Pump Shaft
8	Governor Gear (Driver)
9	Governor Gear (Driven)
10	Governor Thrust Bearing
11	Governor Thrust Collar
12	Governor Thrust Collar Pin
13	Locknut
14	Lockwasher
15	Governor Thrust Collar Liners
16	Thrust Bearing Cap Screw

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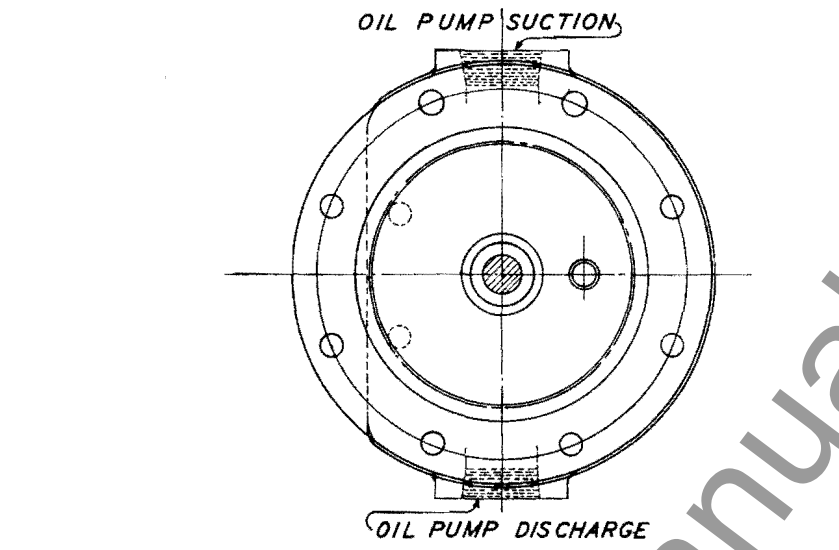

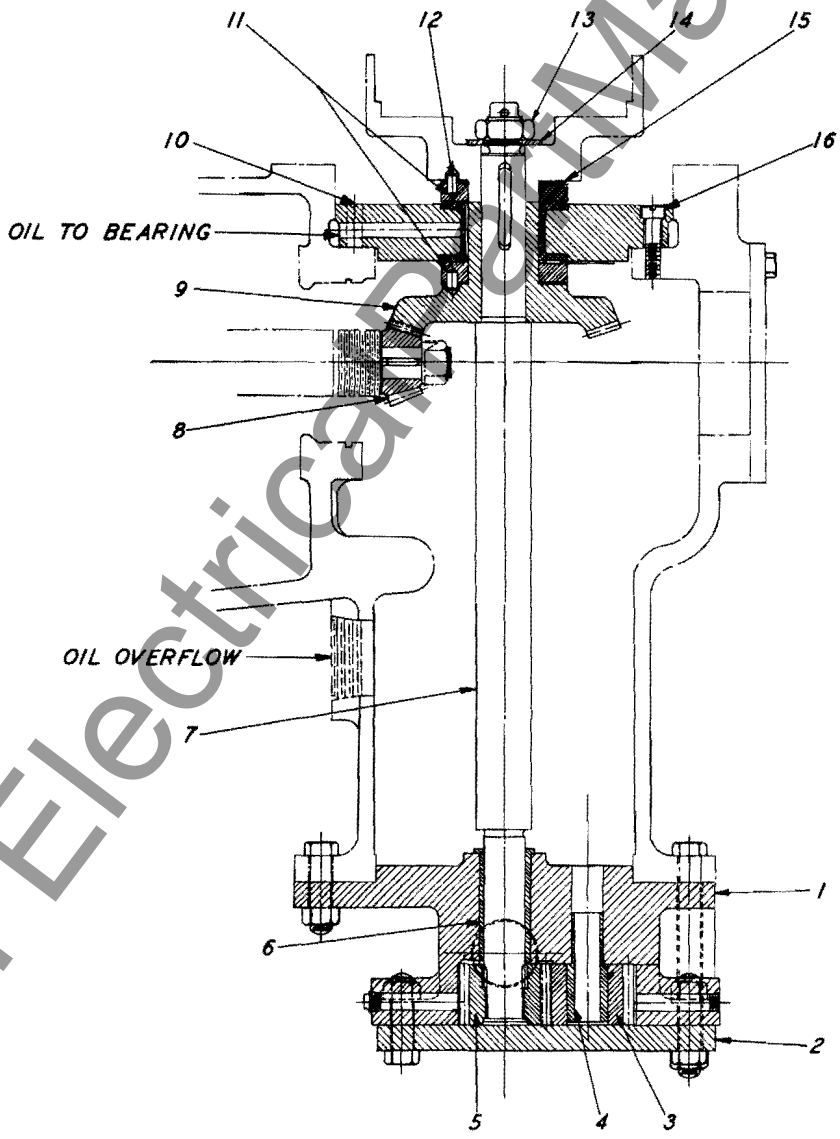

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