

Oil Pump

The pump which supplies oil under pressure for governor operation and lubrication purposes, is mounted on the lower end of the governor spindle and, therefore, is driven from the turbine shaft by the same bevel gears which drive the governor.

The pump proper consists of one driving gear and one, two or three driven gears, the number depending on the pump capacity desired. Figure 1 shows the pump with two driven gears. The driver is assembled on the lower end of the governor spindle with a spline fit, thus insuring positive drive. Each gear is machined to form stub shafts which operate within bushings which are pressed in 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 cover "6" and is entrained between the gear teeth and the case 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 gears discharge the oil into the air bell "10" and thence into the oil system. This air bell (or surge tank) maintains a reserve supply of oil at discharge pressure to meet abnormal demands, such as rapid movements of the governing valve servo-motor, and thus insures ample pressure in the pump discharge line at all times.

As shown in Part Section B-B of the illustration, a spray nozzle is provided at the top of the air bell to direct a small stream of oil onto the governor driving gears. The length of the tube which supplies this nozzle must not be altered under any circumstances, because it is this length of tube which maintains the correct amount of air in the air bell and hence the oil level.

The oil reservoir used with this pump is usually installed so that the pump gears are at least partly 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.

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.

<u>Item No.</u>	<u>Name</u>	<u>Item No.</u>	<u>Name</u>
1	Pump Gear (Driven)	9	Pump Case Dowel
2	Pump Gear Bushing (Driven)	10	Pump Air Bell
3	Pump Gear Bushing (Driver)	11	Gasket
4	Pump Gear (Driver)	12	Pump Air Bell Dowel
5	Pump Cover Dowel	13	Bevel Gear Oil Spray Tube
6	Pump Cover	14	Bevel Gear Oil Spray Tube Bushing
7	Pump Case	15	Bevel Gear Oil Spray Tube Nipple
8	Gasket	16	Bevel Gear Oil Spray Ball Check Valve

Oil Pump

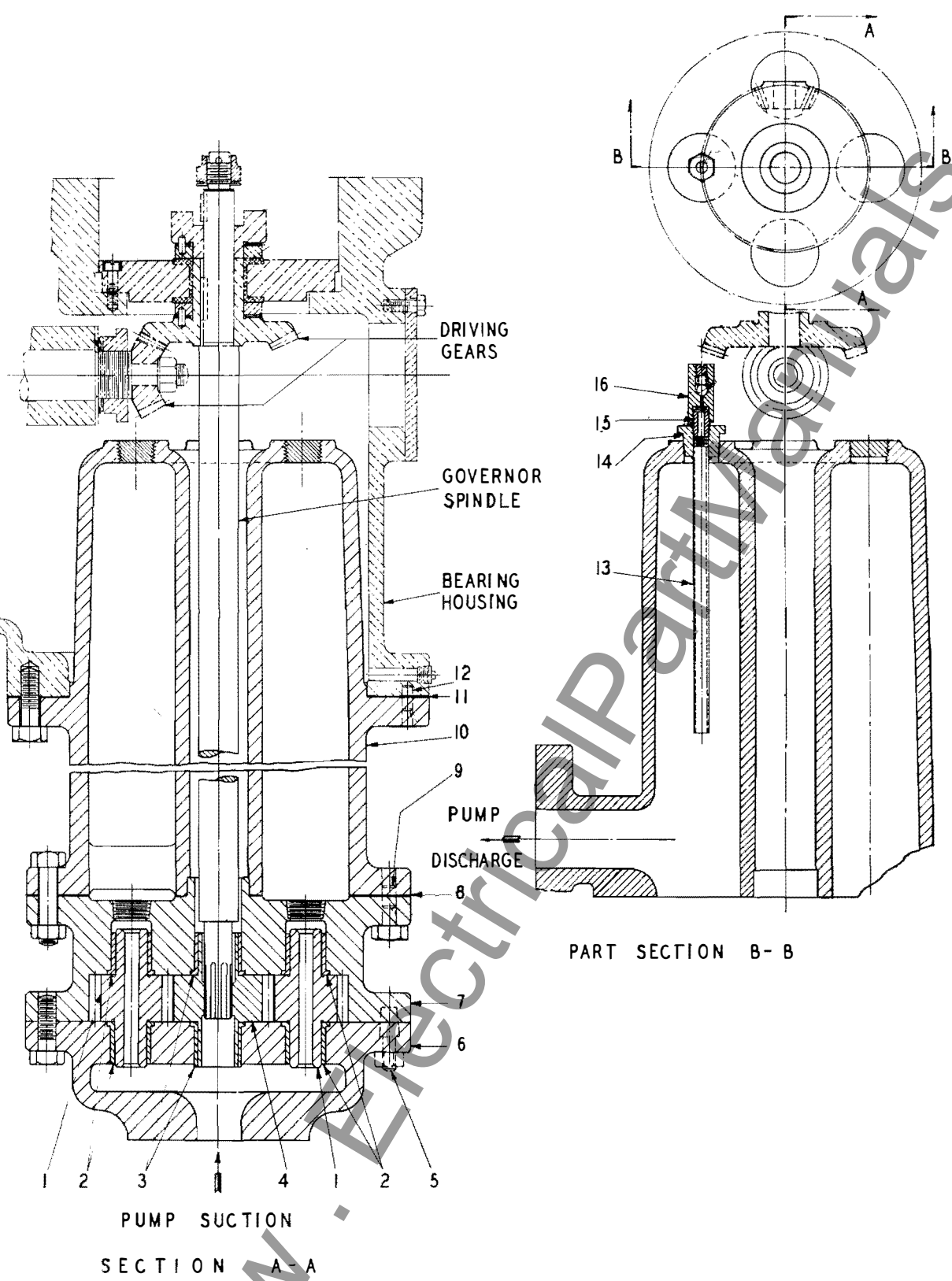


Fig. 1 - Oil Pump