Combined Journal and Thrust Bearing

The bearing, as shown in Fig. 1, consists of a cast shell, split horizontally to facilitate assembly and removal, and lined with tin-base babbitt. The bearing is bored to provide the proper radial clearance as shown on the rotor clearance drawing.

Both ends of the bearing are babbitt faced and provided with radial oil grooves for lubrication, so that the bearing serves as a journal and thrust bearing combined. Axial clearances, as called for on the rotor clearance drawing, are determined by adjustment of the thrust collars on the turbine shaft, which are provided with liners for that purpose.

In normal operation, the bearing is lubricated by a pressure circulating system. Oil is supplied by the main oil pump and enters the bearing at the top, as shown in the illustration. The oil passing out of the ends of the bearing enters the oil grooves of the babbitted thrust faces and lubricates the thrust bearing. An annular groove is turned in each thrust face of the bearing, near the circumference, which serves as a catcher for the oil flowing outward over the thrust collars. Drilled holes connect these grooves to overflow recesses in the bearing housing, through which the oil drains back to the reservoir.

During the starting and stopping periods, when the pressure delivered by the main pump is not sufficient to supply the bearings, lubrication is provided by the conventional type of revolving rings shown as item "2". The bottom of the ring dips in oil in the cavity and carries it to the top of the journal. The oil ring cavity is automatically kept full of oil from the pressure supply inlet after the unit has once been operated.

The lower half of the bearing housing is equipped with a water chamber, cast integrally with it and located directly below the oil cavity. Water connections are provided for the circulation of cooling water. The flow may be in either direction and the quantity used will depend upon the temperature of the water and the results desired. Oil temperatures of 120 to 160 deg. F. leaving the bearing are considered good practice. This water chamber need not be used when an external cooler is used, unless special instructions are given.

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
1	Bearing Housing (Lower Half)
2	Oil Ring
3	Bearing (Lower Half)
4	Oil Seal Ring (Lower Half)
5	Thrust Collar (Turbine End)
6	Oil Seal Ring (Upper Half)
7	Bearing Housing (Upper Half)
8	Thrust Collar (Governor End)
9	Thrust Collar Key
10	Bearing (Lower Half)

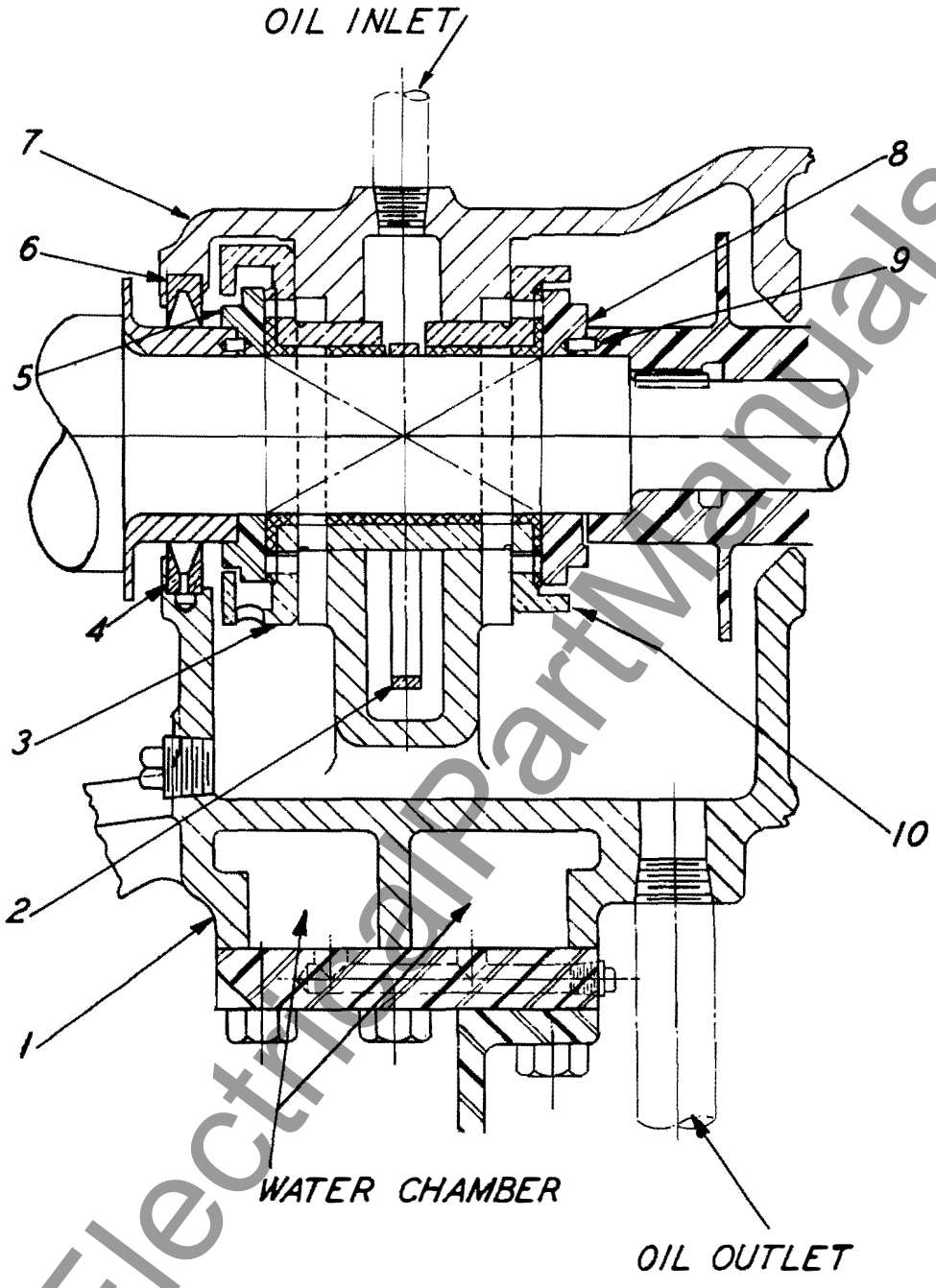

Fig. 1

Coupling End Bearing

The bearing as shown in Figure 1 consists of a cast shell, split horizontally to facilitate assembly and removal and lined with tin base babbitt. The bearing is bored to give the proper clearance as given on the "Rotor Clearance" drawing.

In normal operation, the bearing is lubricated by a pressure, circulating system. Oil is supplied by the main oil pump and enters the bearing at the top, as shown in the illustration. Oil grooves near the ends of the bearing lower half communicate with drain passages machined in the bearing housing and most of the oil passing through the bearing is thus released into the drain chamber. Any oil passing out the ends of the bearing is thrown radially by the revolving throwers "4" into the guards formed on the ends of the bearing and drained through holes in the bottom, into the drain chamber. Any oil which may pass the throwers is caught in the oil rings "2" and "5" and flows back into the drain chamber.

During the starting and stopping periods, when the pressure delivered by the main pump is not sufficient to supply the bearings, lubrication is provided by the conventional type of revolving rings shown as item "6". The bottom of the ring dips in oil in the cavity and carries it to the top of the journal. The oil ring cavity is automatically kept full of oil from the pressure supply inlet after the unit has once been operated.

When the turbine is coupled to a generator not equipped with internal air baffles, it is necessary to guard against windage caused by the rotor. In such instances, the generator rotor may set up a low pressure zone between it and the bearing, thus creating a suction sufficient to draw oil vapor outward from the bearing housing. To prevent this condition, a baffle "2" is mounted on the end of the housing.

The lower half of the bearing housing is equipped with a water chamber, cast integrally with it and located directly below the oil cavity. Water connections are provided for the circulation of cooling water. The flow may be in either direction and the quantity used will depend upon the temperature of the water and the results desired. Oil temperatures of 120 to 160 deg. F. leaving the bearing are considered good practice. This water chamber need not be used when an external cooler is used unless special instructions are given.

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
1	Bearing Housing (Lower Half)
2	Oil Labyrinth Ring (Lower Half)
3	Oil Baffle
4	Oil Thrower
5	Oil Labyrinth Ring (Upper Half)
6	Bearing Housing (Upper Half)
7	Bearing Oil Ring
8	Bearing (Upper Half)
9	Bearing (Lower Half)

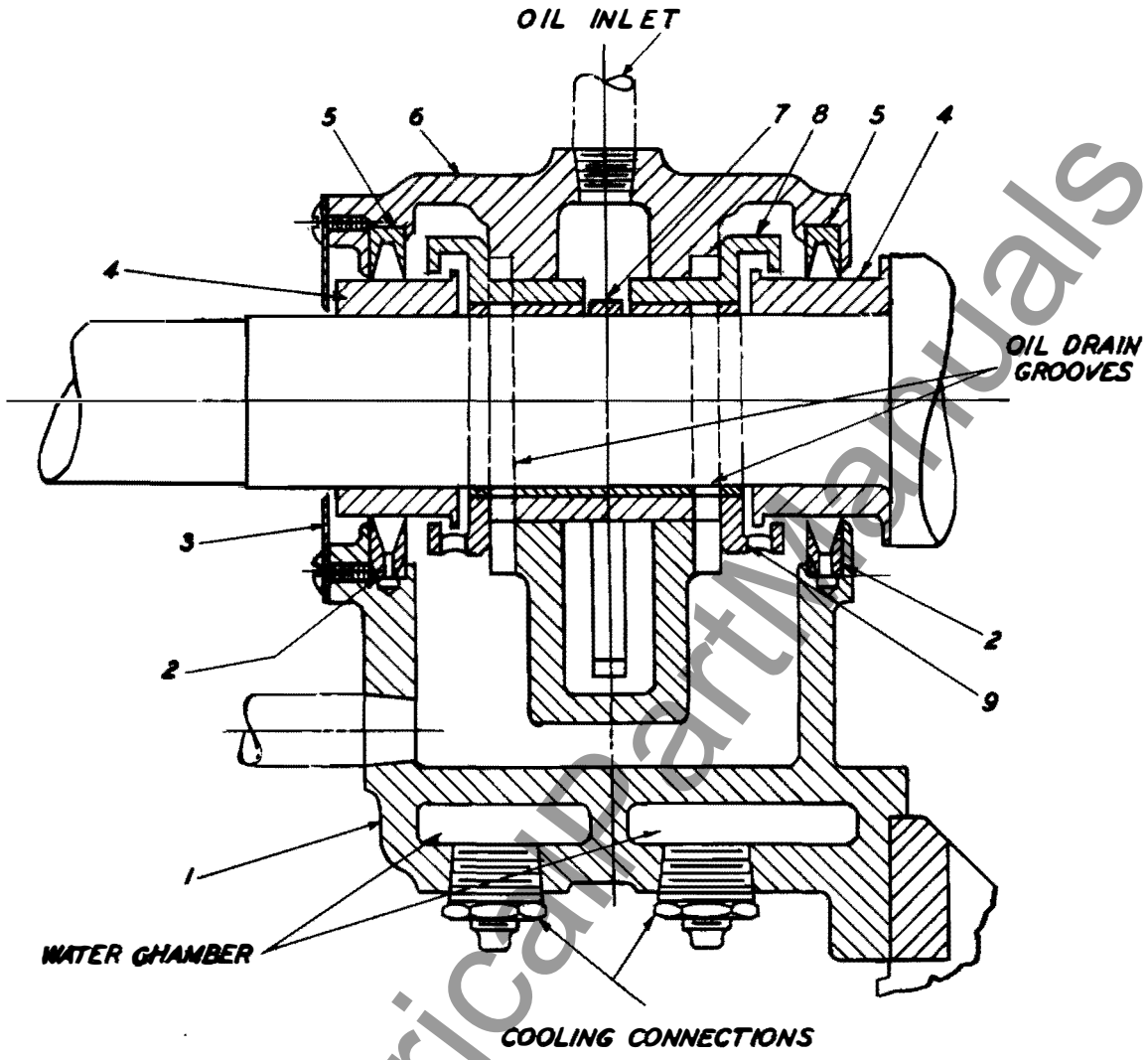

Fig. 1 - Coupling End Bearing

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