OIL PUMP

(Oil Turbine Driven)

Figure 1 shows the oil turbine driven, vertical shaft, centrifugal type pump used to supply oil to the generator hydrogen seals.

The unit as shown in the illustration, is designed for mounting on the auxiliary reservoir, which is integral with the main 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 "7" is threaded on the shaft "11" with a right hand thread and secured by a set screw. Leakage from the discharge side back to the suction is limited to a minimum by the small clearance between the wearing rings "2" and the impeller hubs. The sheet metal screen "4" is used to protect the impeller against debris.

The oil turbine (of the radial inward type) utilizes the energy of high pressure oil delivered by the main oil pump, and discharges into the bearing supply system. The oil turbine wheel "17" is threaded on the shaft with a right hand thread and secured by a set screw. The wearing rings "16" fit around the wheel hubs with a small clearance to limit oil leakage from the inlet chamber.

A centrifugal type blower, consisting of items "29", "30" and "31" is mounted at the top of the unit and driven by the shaft "11". This blower in conjunction with special baffles between the main and auxiliary reservoirs is used to thoroughly deaerate the oil and thus maintain a supply for the generator seals, free of entrained air or hydrogen gas. The blower impeller "31" is threaded on the shaft with a left hand thread and secured with a set screw. Leakage of oil into the suction side of the blower from the turbine discharge is limited to a minimum by the shaft thrower "34" and packing ring "32", and the drain line in the pump support "23". The blower discharge should be led to a point at atmospheric pressure outside of the building.

The shaft "11" is supported by three babbitt lined, sleeve type bearings. The upper bearing "20" and the intermediate bearing "38" are each lubricated by oil from the oil turbine discharge. The lower bearing "10" in addition to carrying the radial load, serves also as a thrust bearing. It is lubricated by oil supplied through suitable passages from the oil pump discharge.

Oil which leaks downward from the turbine wheel chamber is prevented from mixing with the hydrogen seal supply by a small viscosity pump, formed by the spiral grooves in the shaft operating within the babbitt lined shell "40". These grooves exert an upward pumping action, sufficient to discharge the oil leakage through the overflow pipe into the main reservoir.

The support "23" is bolted to the top of the oil reservoir. When dismantling for inspection, the entire unit should be lifted out of the reservoir. Dismantling of the various parts is then obvious.

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 unit.

Item No.	NAME
1	Pump Discharge Pipe
2	Pump Body Wearing Rings
3	Gasket (1/32 Thick)
4	Pump Body Screen
5	Pump Body Cover
6	Pump Body
7	Pump Impeller
8	Gasket (1/32 Thick)
9	Thrust Bearing Set Screw
10	Thrust Bearing
11	Shaft
12	Pump Body Support (Lower)
13	Gasket (1/32 Thick)
15	Oil Turbine Body
16	Oil Turbine Body Wearing Ring
17	Oil Turbine Wheel
19	Oil Turbine Body Cover
20	Bearing (Upper)
21	Gasket (1/32 Thick)
22	Oil Drain Pipe
23	Pump Support
24	Gasket (1/32 Thick)
25	Oil Drain Cover
26	Gasket (1/32 Thick)
27	Blower Body Taper Dowel
28	Gasket (1/32 Thick)
29	Blower Body Cover
30	Blower Body
31	Blower Impeller
32	Blower Oil Guard Packing Ring
33	Blower Oil Guard
34	Shaft Thrower With Set Screw
34-A	Gasket (1/32 Thick)
35	Gasket (1/32 Thick)
36	Gasket (1/32 Thick)
37	Oil Turbine Inlet Pipe
38	Bearing (Intermediate)
39	Bearing Retaining Bolt
40	Viscosity Pump Shell
41	Viscosity Pump Shell Retaining Bolt
42	Pump Body Support (Upper)
43	Thrust Bearing Collar

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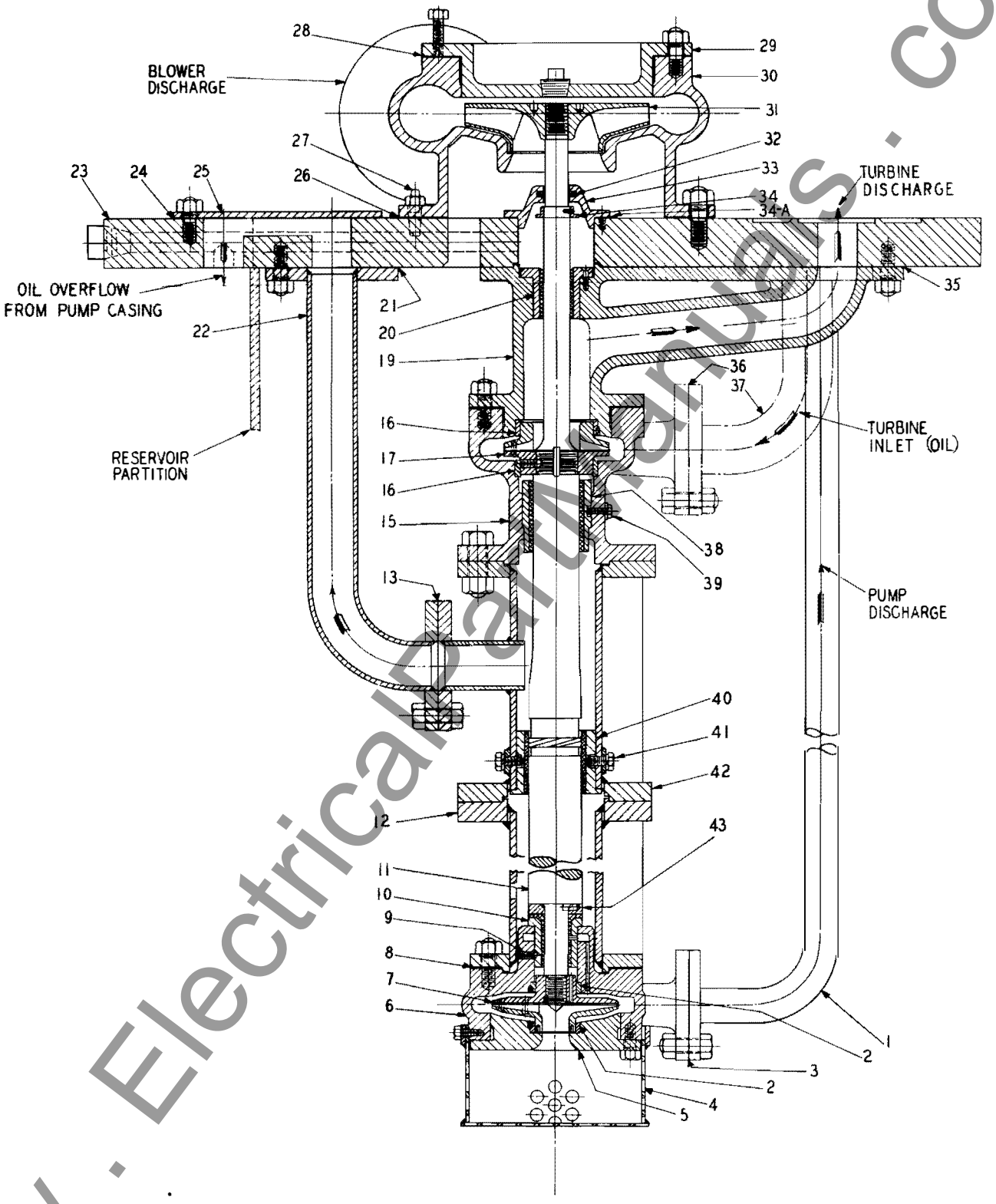

Fig. 1