place, to insure that the locating lip on upper half liner is located properly in the bearing case cap and pedestal cap when they are replaced. Replace pedestal and bearing case caps, insert dowels, and pull bolts securely into place. Turn unit over by hand to see that everything is functioning properly.

7—Remove governor hood (680) and thoroughly clean all governor parts of dirt, paint, rust, and slushing compounds; lubricate well and reassemble being careful to replace correctly. Fill governor spindle lubricator (656) with "light" turbine oil.

8—Open steam chest and casing drains and see that all traps are operating. Be sure that the valve in the turbine exhaust line is open. If the unit operates condensing, see that the vacuum is up.

9—Open stop valve in the steam line and set resetting lever (927). Keep all drain valves open until all water is drained from the system. Close all drain valves and listen for unusual sounds. Check oil rings (624) through sight cups (538) to see that they are rotating and picking up oil. If pressure circulation oil system is used, see that the oil pump primes and builds up the proper pressure. Turn cooling water into the oil cooling system.

10—After the turbine has been thoroughly warmed up, shut down the unit by striking the hand trip lever (935) Fig. 5. Close stop valve and check the piping and coupling alignment.

11—Reset the hand trip lever. Open the stop valve in steam line. Check oil rings (pressure in forced feed bearings) and take speed readings to see that the governor holds the turbine at no load speed, which is slightly above the full load speed. (The full load or rated speed is given on the nameplate.)

12—For condensing operation, adjust the sealing steam valve so that a small amount of condensate or vapor will be discharged from the leakoff lines.

13—Check the overspeed governor trip speed with one operator reading speed and the other firmly grasping both ends of the governor lever (671) Fig. 4 and pushing in on the governor spindle and pulling out on the governor valve stem. This will cause the turbine to speed up, operating the overspeed governor and tripping the turbine. The trip speed should be approximately 15 per cent above the maximum rated speed. (Refer to contract for exact conditions.)

14—Reset overspeed trip valve and again bring turbine up to speed. Allow unit to run for approximately one hour, checking bearings and making other general observations, as noted above. After this period, load can be applied and the turbine is ready for service.

15—Routine starting is accomplished by checking oil levels, opening drain lines and bringing turbine up to speed and on the governor. Close drains when steam is bled instead of water.

16—When shutting down, overspeed the turbine by hand to check the overspeed governor mechanism, close the stop valve and open all drains.

17—If turbine is used with a reduction gear and/or with special equipment, follow instructions pertaining to those particular items.

OPERATION, ROUTINE INSPECTION

These machines require a minimum of operating attention. Providing adequate lubrication is the one really essential and important operating detail. However, any routine system of inspection which anticipates possible operating difficulties before they reach serious proportions is manifestly desirable, and such a routine system is outlined below. The adoption of this system of routine inspection with such modifications or amplifications as are necessary to fit it into the operating schedule of your particular unit is recommended.

DAILY INSPECTION

1—Check oil level on all bearings.

2—Fill governor oil cup once every 8 hours.

3—Check bearings for lubrication and excessive temperature.

4—Check smoothness of operation and note any change.

5—Note any unusual noises or conditions and check frequently.

6—Check speed of unit.

7—If shutdown is made daily, trip overspeed governor valve by striking hand trip lever.

WEEKLY INSPECTION

1—If not on continuous running schedule, trip overspeed governor valve by overspeeding the turbine by hand as previously described.

2—If on continuous running schedule, the operation of the overspeed governor valve may be checked by tripping the hand trip lever which allows the trip valve to close. Immediately reset the hand trip lever. This can be done as soon as the turbine speed has dropped approximately 15 to 20%.

3—Remove hood over overspeed governor valve "top-works" and lubricate linkage sparingly with high temperature "Silicone" grease. (DC-710 Dow Corning Corp.)

MONTHLY INSPECTION

1—Change bearing oil and clean oil reservoirs as required.

2—Remove governor hood and bearing caps and make visual inspection of governor parts and bearings. Clean as necessary.

3—Check governor linkage and overspeed governor linkage for lost motion.

4—Check coupling between turbine and driven apparatus for looseness, alignment and wear. If this is a lubricated coupling, check the lubrication.

YEARLY INSPECTION

1—Before disassembling or assembling any of the various parts of your turbine, carefully read Section II of this book.

2—Check all clearances and adjustments as directed under Section III. Replace any wearing parts that may be worn.

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