

Governing Valve Emergency Trip

The plunger "4" and bushing "3", shown in the accompanying illustration, form a trip which automatically closes the governing valves instantly in case the overspeed trip mechanism functions or if the plunger is pushed downward by hand. These parts are built in the thrust bearing pedestal and the passages shown are drilled in the pedestal castings.

As shown in the illustration, the lower land on the plunger controls ports which admit high pressure oil and the second land (from the bottom) controls ports which lead to drain. The ports above the second land connect to the governor servo-motor bellows with a ball check valve in the line to allow flow to the bellows but to prevent flow in the opposite direction. With the plunger in its upper position (as shown) the high pressure supply ports are closed and the ports leading to drain are open to carry away any leakage past the lower land. If the plunger moves to its lower position, the drain ports are closed and the ports leading to the governor are connected to the high pressure oil supply, thus admitting high pressure oil to the servo-motor bellows which closes the governing valves instantly (as described under "Governor").

This trip operates automatically in conjunction with the overspeed trip mechanism in the following manner. The space below the plunger is connected to the standard type of overspeed trip valve. As long as this valve remains closed, high pressure oil is maintained below the plunger holding it in its upper position. If the overspeed trip functions, the oil pressure below the plunger "4" is released and the spring "5" moves the plunger downward. This movement automatically closes the governing valves as described above. It can be operated by hand by pushing downward on the trip knob provided on the upper end of the plunger. However, if operated by hand, the plunger must be held down in order to keep the governing valves closed. With the overspeed trip in its normal position, this emergency trip plunger will return to its upper position and allow the governing valves to open again just as soon as the hand is removed from the knob "1".

In order to meet special operating conditions, a needle valve can be installed in place of the plug "6" and adjusted to limit the maximum oil pressure admitted to the servo-motor bellows, thereby limiting the steam admission to that passed by the #1 valve only. Such operation is sometimes desirable for starting and synchronizing. However, the adjustment of this needle valve must be made by the operators and its use is not recommended unless required by special operating conditions.

The opening shown in the illustration for a connection to the governor anticipator is merely for convenience in connecting the latter device. The anticipator has no effect on the operation of the emergency trip. In case the construction is such that this anticipator connection cannot be brought out at the side as shown, it is connected at the top of the bushing "3" with suitable drilled holes to complete the passage.

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 turbine.

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Item No.	Name
1.	Emergency trip hand knob.
2.	Emergency trip bushing set screw.
3.	Emergency trip bushing.
4.	Emergency trip plunger.
5.	Emergency trip plunger spring.
6.	Pipe plug.

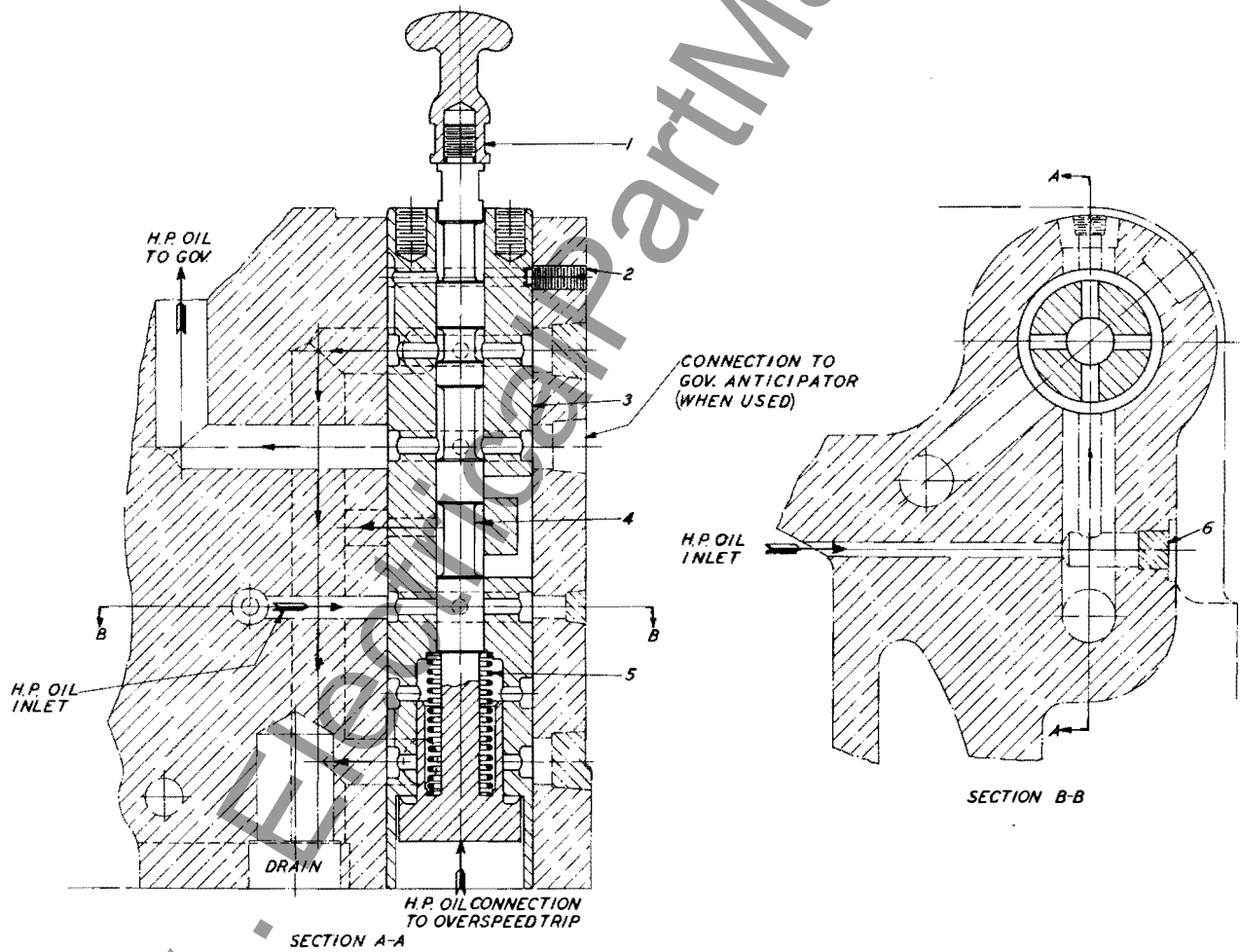


Fig. 1