

Auto Stop Governor and Quick Closing Valve

Section C-C shows the overspeed stop which automatically closes the quick closing valve thus shutting off the flow of steam to the turbine, if the speed increases to approximately 10% above normal. As shown in the illustration, the auto stop governor body is keyed to the rotor shaft by the key "1" and further secured by the nut "4". The overspeed trip weight "5" is set in a hole drilled in the rotor shaft and auto stop governor body, perpendicular to the axis of rotation, and normally, it is held in place by the compression spring "6" and the retainer "7". If the speed of the turbine increases to the point for which the auto stop is set to operate (approximately 10% above normal), the weight "5", due to its increased centrifugal force, overcomes the compression on the spring "6" and flies out, striking the trigger "21". This disengages the latch plate "23" and cam "24" allowing the spring "42" to pull the quick closing valve "28" shut, thus shutting off the flow of steam to the turbine.

The quick closing valve "28" is of the "flapper" type. It is carried on the shaft "32" and leakage of steam outward along the shaft is controlled by the bushings "36" and "37". Two leak-offs as shown in section B-B are provided from between these bushings and the steam leakage at these points should be led to a point at atmospheric pressure where a small amount of escaping steam is not objectionable.

The mechanism can be tripped by hand by pulling outward on trigger "21" and disengaging trigger plate "23" from the cam "24". Tripping by hand, however, tests only the tripping mechanism.

When the tripping mechanism has operated, it can be reset by closing the throttle valve and then pulling up on the handle "33" against the tension spring "42" until the trigger plate "23" engages the cam "24". The first upward movement of the handle "33" opens the pilot valve "30" which is considerably smaller than the quick closing valve "28". This decreases the pressure drop across the quick closing valve and enables the large valve to be opened easily. The handle will drop to its original position after re-setting. The re-setting, of course, cannot be done until the turbine speed has decreased sufficiently to allow the weight "5" to return to its normal position.

The turbine should be overspeeded occasionally to check the speed at which the weight "5" flies out and actuates the tripping mechanism. This test should be carried out in the following manner:

1. Close the throttle valve until the turbine speed drops below normal. The governing valves will then open wide. Place blocks under the valve operating lever so as to hold these valves open.
2. Open the throttle valve slowly, carefully watching the tachometer, and increase the speed to the tripping point. During this test the operator should stand by, ready to trip the mechanism by hand instantly if it does not trip automatically at approximately 10% overspeed.

If the weight "5" fails to fly out at the correct speed, the unit should be shut down and the auto stop parts inspected. Make sure that the weight is not sticking in the shaft or body and that the spring is not fouled in any way.

The speed at which the auto stop will function can be adjusted by means of the shims "8". Increasing the thickness of the shims increases the tripping speed. Decreasing the thickness of the shims decreases the tripping speed.

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The following list of parts 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>
1	Auto Stop Governor Body Key
2	Auto Stop Governor Body
3	Baffle Ring
4	Auto Stop Governor Body Nut
5	Auto Stop Governor Weight
6	Auto Stop Governor Weight Spring
7	Auto Stop Governor Spring Retainer Nut
8	Auto Stop Governor Spring Shims
21	Auto Stop Trigger
22	Auto Stop Trigger Pin
23	Auto Stop Trigger Plate
24	Auto Stop Cam
25	Auto Stop Cam Adjusting Screw
26	Tap Bolt
27	Quick Closing Valve Cover
28	Quick Closing Valve Body
29	Pilot Valve Spring Bushing
30	Pilot Valve
31	Pilot Valve Spring
32	Quick Closing Valve Shaft
33	Quick Closing Valve Latch Handle
34	Quick Closing Valve Latch Handle Pickup Collar
35	Quick Closing Valve Latch Handle Pickup Collar Pin
36	Quick Closing Valve Shaft Bushing (Outer)
37	Quick Closing Valve Shaft Bushing (Inner)
38	Quick Closing Valve and Pilot Valve Bracket
39	Quick Closing Valve and Pilot Valve Bracket Pickup Collar
40	Pickup Collar Pin
41	Quick Closing Valve Spring Pin
42	Quick Closing Valve Spring
43	Quick Closing Valve Spring Stop Pin
44	Spring Tap Bolt

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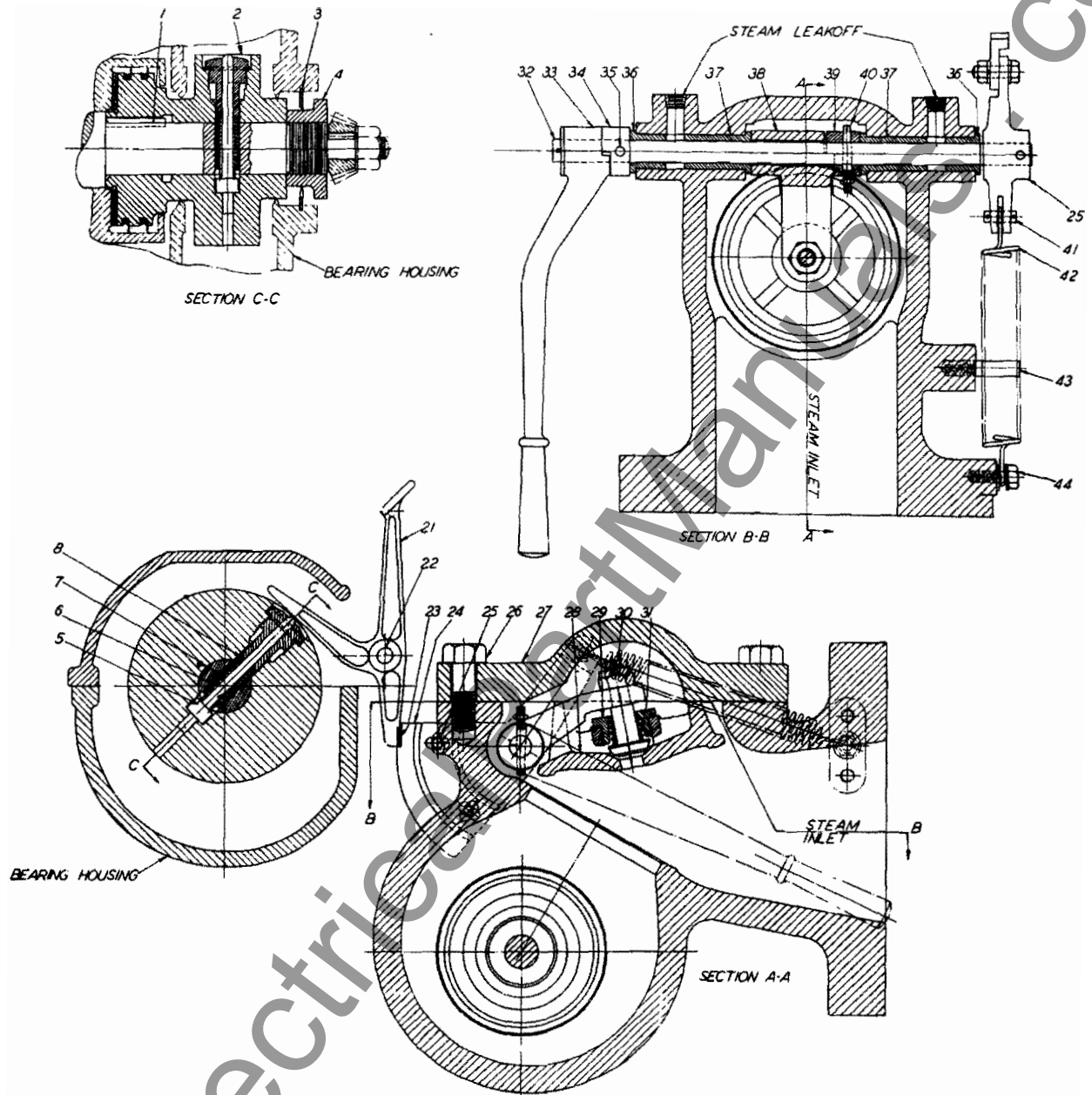


Fig. 1 Auto Stop Governor and Quick Closing Valve Assembly