OVERSPEED TRIP MECHANISM

Figure 1 shows the overspeed trip mechanism which automatically closes the throttle valve, thereby shutting down the turbine, if the speed increases to approximately 10% above normal.

As shown in the illustration, the trip weight "7" is carried in a container "4" which is screwed into a hole drilled perpendicularly to the axis of rotation in an overspeed trip body attached to the shaft. The center of gravity of the weight is slightly offset from the axis of rotation, and normally it is held in place by the compression spring "8" and the retainer "9". If the speed of the turbine increases to the point for which the mechanism is set to operate (approximately 10% above normal) the weight "7", due to its increased centrifugal force, overcomes the compression on the spring "8" and moves outward, striking the trip finger "3". The movement of the trip finger disengages the latch plates "13" and "14" thereby allowing the spring "30" to pull the weight "28" toward the left. This movement causes the weight "28" to strike the face of the lever "29" with sufficient force to actuate the throttle valve tripping mechanism thereby shutting down the turbine.

The mechanism can be tripped by hand by striking the hand trip lever "21", which disengages the latch plates "13" and "14" thus closing the throttle valve in the same manner as described. Tripping by hand, however, tests only the trip linkage and does not test the overspeed trip weight and spring adjustment.

When this mechanism has operated, it must be reset by hand. This is accomplished by pushing in on the resetting handle "19" until the latch plates "13" and "14" are again engaged. The resetting, of course, cannot be done until the turbine speed has decreased sufficiently to allow the overspeed trip weight "7" to return its normal position.

The turbine should be overspeeded occasionally to check the speed at which the weight moves out and actuates the trip linkage. This test should be carried out in the following manner:

1. Close the throttle valve until the speed drops below normal. The governing valves will then be wide open, Place blocks under the valve operating lever 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, an 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 fails to move out at the correct speed, the unit should be shut down and all parts inspected. Make sure that the weight "7" is not sticking in the container and that the spring is not fouled in any way. The linkage should also be inspected to see that all parts work freely. The overspeed test should again be run, and if the same trouble results, it is evident that the compression of the spring "8" is not correct and should be changed as follows:

1. In order to increase the tripping speed, insert thin liners (.010 to .050 thick) between the spring seat "6" and the container liner "2" so as to increase the spring compression.

2. In order to decrease the tripping speed, remove liners from between the container liner and the spring seat. In case there are no liners, grind the end of the spring squarely, just enough to obtain the desired decrease in compression.

When making these adjustments, it is important to place the liner between the container liner "2" and the spring seat "6" and not between the spring and the collar on the end of the weight "7".

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.

Item No.	Name of Part
1	Overspeed Trip Weight Spring Adjusting Liners
2	Overspeed Trip Weight Container Liner
3	Overspeed Trip Finger
4	Overspeed Trip Weight Container
5	Overspeed Trip Weight Container Lockwasher
6	Overspeed Trip Weight Spring Seat
7	Overspeed Trip Weight
8	Overspeed Trip Weight Spring
9	Overspeed Trip Weight Retainer
10	Overspeed Trip Body
11	Overspeed Trip Resetting Lever Bracket
12	Overspeed Trip Resetting Segment
13	Overspeed Trip Latch Plate
14	Overspeed Trip Resetting Segment Latch Plate
15	Overspeed Trip Resetting Handle Spring
16	Overspeed Trip Resetting Handle Set Screw
17	Overspeed Trip Resetting Handle Fulcrum Pin
18	Overspeed Trip Resetting Segment Set Screw
19	Overspeed Trip Resetting Handle
20	Overspeed Trip Finger Fulcrum Pin Set Screw
21	Hand Trip Lever
22	Overspeed Trip Finger Fulcrum Pin
23	Overspeed Trip Finger Adjusting Liners
24	Overspeed Trip Latch
25	Overspeed Trip Rod Clevis Pin
26	Overspeed Trip Rod Clevis
27	Overspeed Trip Rod
28	Overspeed Trip Rod Weight
29	Throttle Valve Trip Lever
30	Overspeed Trip Rod Spring
31	Overspeed Trip Rod Spring Seat
32	Overspeed Trip Rod Disc
33	Torsion Spring

Overspeed Trip Mechanism

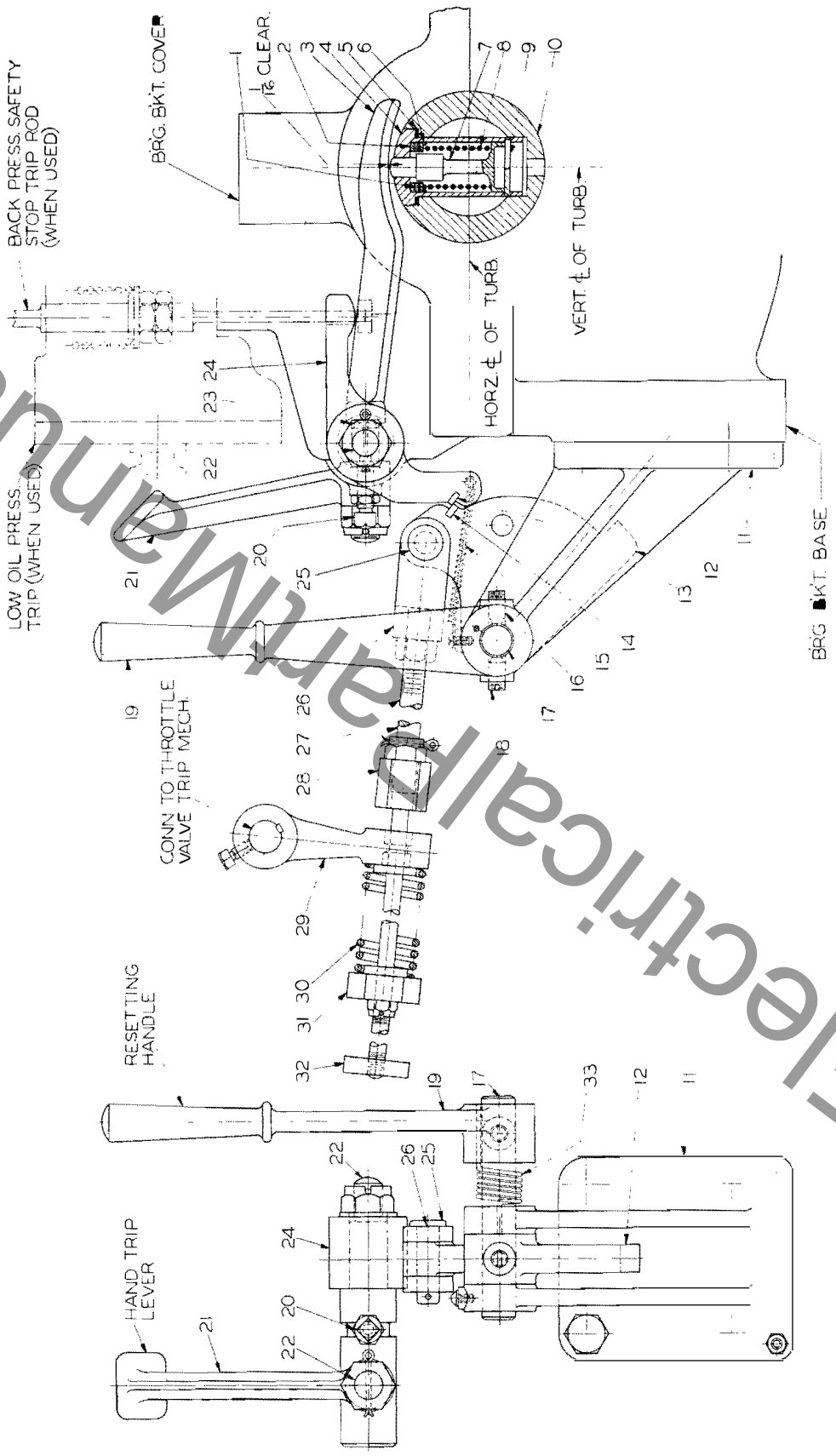

Figure 1

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