MAINTENANCE PROCEDURE TB-1

REPLACING THE THERMOSTATIC ELEMENT
TRAC Style 'B' Temperature Regulators

When the valve fails to respond to temperature changes at the thermo. bulb (within the range stamped on the nameplate) and adjustments made using the temperature adjusting wheel have no effect on process temperature, the thermostatic element has lost its thermal charge. A "dead" element is not repairable and must be replaced.

In most cases the thermostatic element can be replaced with the valve remaining in the pipeline. The valve needs to be removed only when access to the bellows housing is limited or ship procedures require the unit control temperature to be set at another location.

Once it has been determined that the thermostatic element must be replaced, several important steps must be followed in sequence:

1. Shut off fluid supply to the temperature regulating valve. In many installations the bulb is installed in a process loop separate from the temperature regulating valve and the bulb is not inserted into a thermo. well; in these cases, also shut off fluid supply to the process loop and if possible, isolate the thermo. bulb so that the entire process loop does not have to be drained.

   Tag the fluid supply and temperature regulating valve OUT OF SERVICE according to ship's procedures.

2. Mark or measure the current position of the adjusting wheel (10)(to speed the process of resetting the control temperature).

3. Slowly loosen the four screws (1) holding the bulb end flange in the pipe line or tank and allow it to drain. When there is no flow or pressure remaining in the pipe line or tank, proceed to remove the four screws (1) and remove the bulb assembly.

4. Remove the compression on the adjusting spring (9) by screwing down the temperature adjustment wheel (13).

5. Remove the bracket mounting screws (5) and nuts (12). The thermostatic element is now free of the valve bracket and can be removed.

6. Before installing the new thermostatic assembly, check the valve for stroke and function by pressing down on the upper spring plate on the overheat protection assembly (8). No movement or stiff movement indicates that the packing is binding the stem.

   If the packing is binding the stem (16), loosen the packing nut (17) or replace packing, as required. If the stem (16) moves freely, proceed to install the new thermostatic assembly.

Caution: Before any attempt is made to install the new thermostatic assembly, the entire assembly must be refrigerated or chilled in ice or water bath at a minimum temperature of 20 deg. F. below the lowest temperature of the range indicated on the label, and held at this temperature until the assembly is mounted to the bracket.

Note: Thermostatic elements for valve sizes 1/2" thru 2" have permanent stop plates riveted to the bellows housing when the lowest range of the actuator is below 100 Deg. F. and are not to be removed.

Thermostatic elements for valve sizes 2-1/2" thru 6" with ranges starting below 100 Deg.F. have wood stop plates held in place by 2 screws and nuts which are to be removed only after the entire unit is chilled. Do not remove this plate until the bellows can be fully compressed into the housing by hand. If removed before being chilled, the bellows will expand beyond its limits and may be rendered inoperable.

7. While observing the caution described above, determine that the bellows (7) is completely chilled and remove the stop plate if required. Immediately install the thermostatic assembly on to the bracket (11) and secure the bracket mounting screws (5) and nuts (12). If possible, maintain the bulb in cold water or ice while installing the new thermostatic assembly.

Caution: The standard thermostatic element can be installed horizontally, vertically, or at any other angle as long as the bulb mounting flange is uppermost. When mounting the bulb horizontally, be sure that the word "TOP" stamped on the bulb mounting flange is on top.

8. With the bellows housing (6) secured on the valve bracket (11), the bulb (4) can be installed into the bulb bushing welded or brazed into the process piping. Use a new gasket (3) for this installation (finned bulbs do not require a gasket).

   While observing the caution described above, slip the new gasket (3) onto the bulb (4), insert the bulb (4) into the process piping connection, and install the four screws (1).

9. Slowly open fluid supply to the temperature regulating valve. In those installations where the bulb is installed in a process loop separate from the temperature regulating valve, slowly open fluid supply to the process loop also. Open all isolation (shutoff) valves to their normal operating state.

10. If attempting to set the valve to the original temperature setting, screw the adjustment wheel (13) up to the location marked or measured in step 2. From this point the temperature setting can be fine tuned as described below:

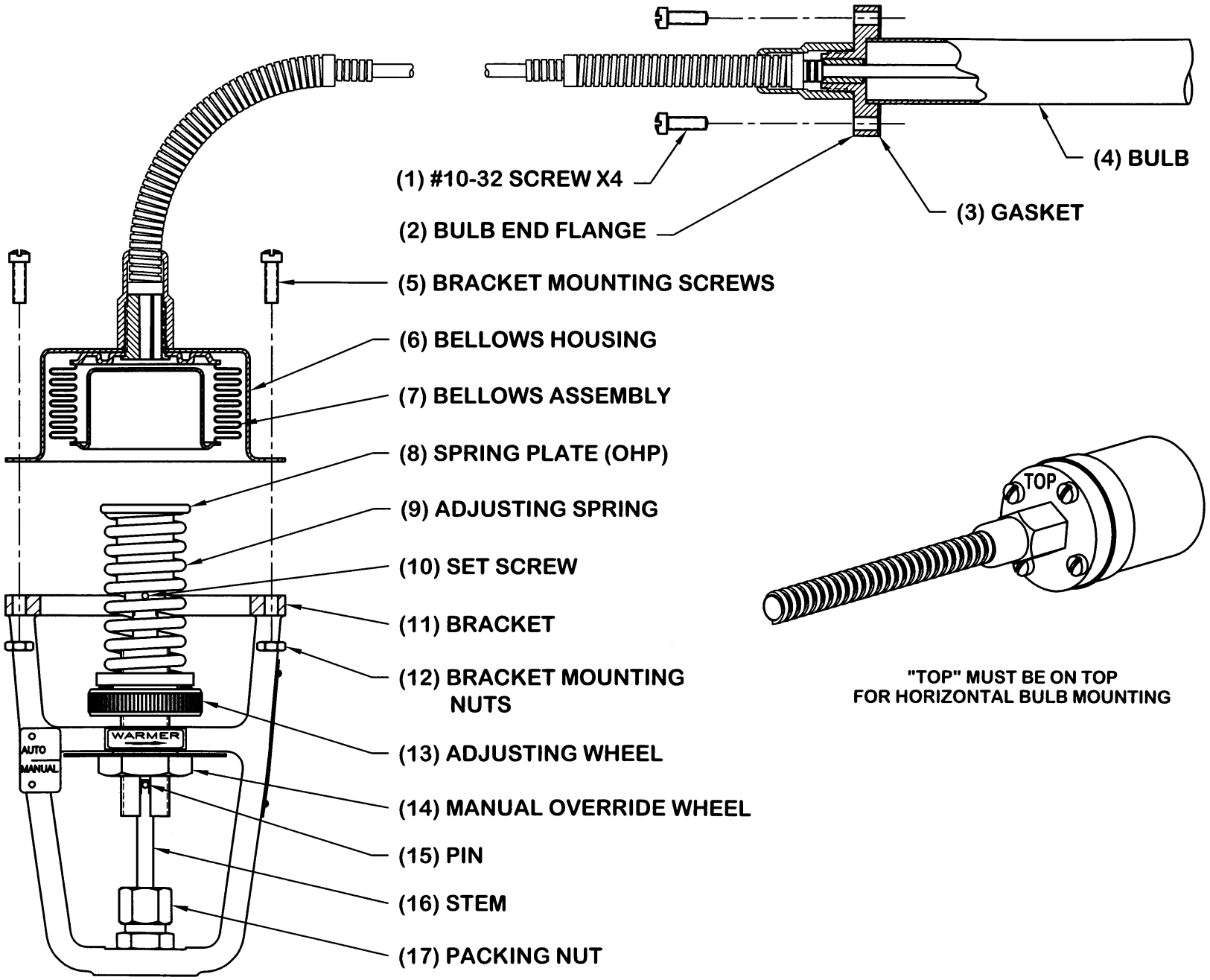
    The valve can be set to control at any temperature (within the limits of the temperature range stamped on the nameplate) by making a simple adjustment to the valve. The Trac Style 'B' temperature regulator has a "warmer" label affixed to the bracket web of all production valves to indicate the direction of adjustment for the desired temperature setting.

    To raise the set temperature: Increase spring compression by turning the adjusting wheel counterclockwise (looking from the top of the regulator).

    To decrease the set temperature: Decrease spring compression by turning the adjusting wheel clockwise (looking from the top of the regulator).

    Wait until the temperature at the bulb stabilizes at one steady reading. It may be necessary to adjust the adjustment wheel incrementally to obtain the desired set temperature.

Note: No adjustment to valve stroke should be necessary if the stem adjustment was not changed during the installation of the new thermostatic element.


(1) #10-32 SCREW X4
(2) BULB END FLANGE
(3) GASKET
(4) BULB
(5) BRACKET MOUNTING SCREWS
(6) BELLOWS HOUSING
(7) BELLOWS ASSEMBLY
(8) SPRING PLATE (OHP)
(9) ADJUSTING SPRING
(10) SET SCREW
(11) BRACKET
(12) BRACKET MOUNTING NUTS
(13) ADJUSTING WHEEL
(14) MANUAL OVERRIDE WHEEL
(15) PIN
(16) STEM
(17) PACKING NUT
WARMER
AUTO
MANUAL
TOP
"TOP" MUST BE ON TOP
FOR HORIZONTAL BULB MOUNTING