

Technical Instruction
TC 744-1
 May, 1985

SPECIFICATIONS

Operating

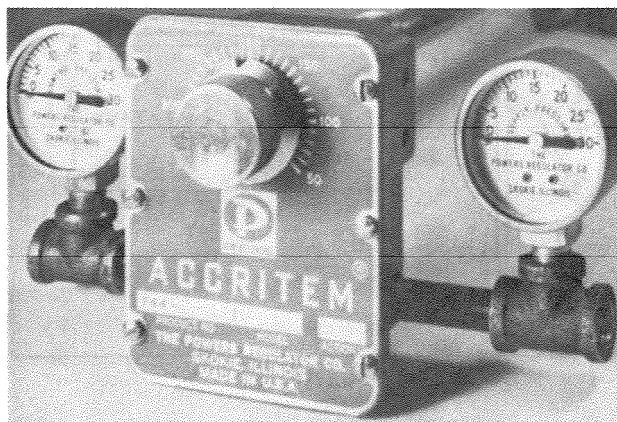
Direct or Reverse Acting
 Adjustment dial range — Standard 50F to 350F (10 to 177C)
 Maximum supply pressure (air or water)
 @ room temperature 35 psi (241.3 kPa)
 Air Consumption (max.) 800 SCIM (218 cm³/s)
 Maximum operating pressure 250 psi (1724 kPa)
 Maximum operating temperature 400F (204C)
 Temperature response 0.5F (.3C)
 Mounting. 1/2" NPT
 Air or water connections. 1/8" NPT
 Drain connection (water only) 1/4" NPT
 Shipping weight 4 lbs. (1.8 kg)
 Sensitivity (adjustable) 1/4 to 2-1/4 psi/F (3.1 to 27.9 kPa/C)
 Maximum pressure on wells
 Stainless Steel no. 744-082 1125 psi (7756 kPa)
 Copper no. 744-111 525 psi (3619 kPa)

AIR OPERATED:

Rigid Copper Bulb:
 Direct Action 744-1213
 Reverse Action 744-1214
Rigid Stainless Bulb:
 Direct Action 744-1270
 Reverse Action 744-1271

WATER OPERATED:

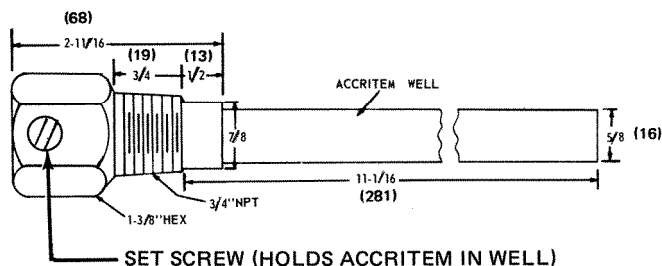
Rigid Stainless Bulb:
 Direct Action 744-1217
 Reverse Action 744-1218



ACCESSORIES

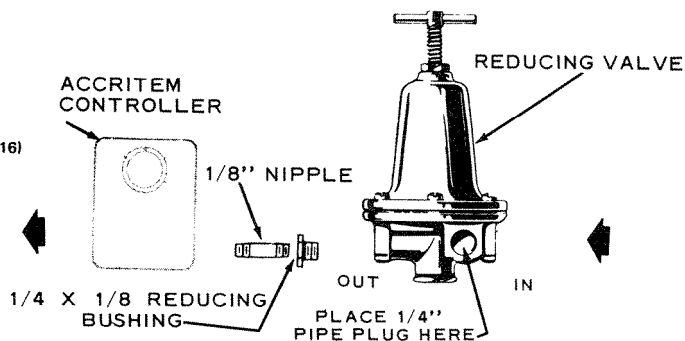
WELL DIMENSIONS

(Units in Parentheses are millimeters)
 Thread sizes are -NPT

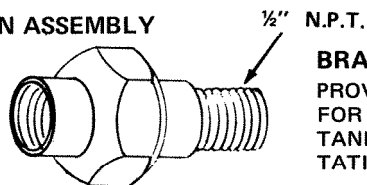


AIR ACCESSORY KIT NO. 744-107

(Contains dark outline items only)



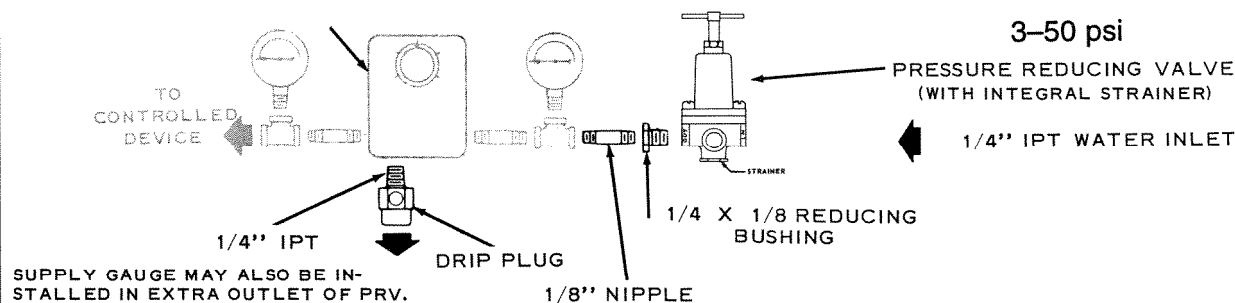
UNION ASSEMBLY



BRASS UNION ASSEMBLY NO. 744-106

PROVIDES PRESSURE TIGHT CONNECTION
 FOR INSTALLING ACCRITEM IN PIPE OR
 TANK WHERE SPACE DOES NOT PERMIT RO-
 TATION OF ACCRITEM BODY.

WATER ACCESSORY KIT NO. 744-180 (Contains dark outline items only)



OPERATION (Direct Acting Controller)

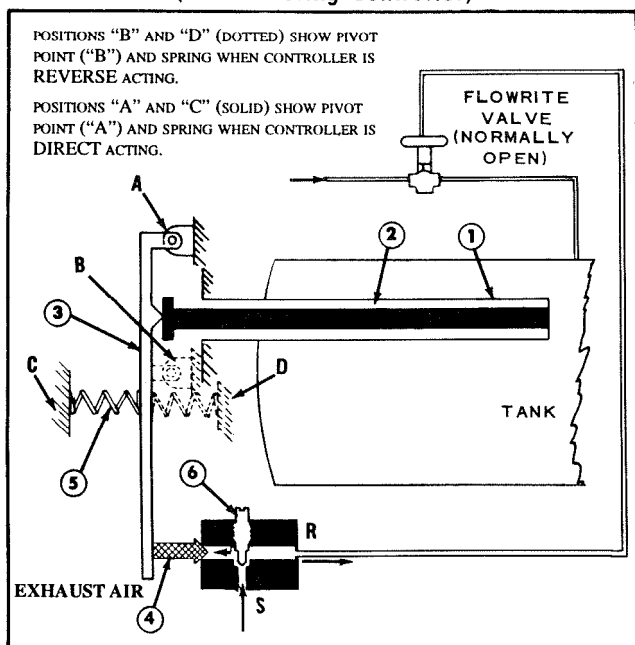


FIGURE 1

A temperature change in the medium being controlled creates a change in length of the sensitive tube (1). An increase in temperature lengthens the sensitive tube (1) and moves the Invar rod (2) away from the lever (3). The lever (3), which pivots at Point A, is moved to close the exhaust valve (4) by spring (5). This permits the supply (air or water) (S) to increase the pressure in the control line (R) and close the normally open valve. A decrease in temperature shortens the sensitive tube (1) and moves the Invar rod against the lever (3). The lever (3) moves against the pressure spring (5), to open the exhaust valve (4). This exhausts the pressure in the control line and opens the valve.

The sensitivity adjustment screw (6) regulates the rate of flow of the supply air (or water) to the controller to a change in temperature. Turning the screw clockwise increases the sensitivity by reducing the flow and increasing the response time. Turning the screw counterclockwise decreases the sensitivity by increasing the flow and reducing the response time.

SENSITIVITY

The sensitivity of the Accritem controller is adjusted by turning the restriction screw (Figure 2). (The restriction screw is factory set for air operation.) For water operation, the restriction screw should be opened a minimum of 1/2 turn and controller recalibrated. Restriction screw must NEVER be fully closed. Make adjustments slowly, allowing about two minutes after each adjustment for the controller to balance. NOTE: If sensitivity is changed, controller must be recalibrated.

CALIBRATION

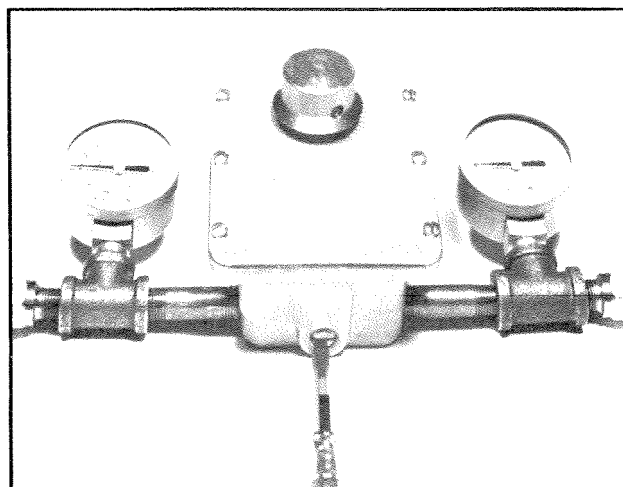


FIGURE 2

Set restriction screw for desired sensitivity. Air: 1/8 turn from closed (minimum). Water: 1/2 turn from closed (minimum).

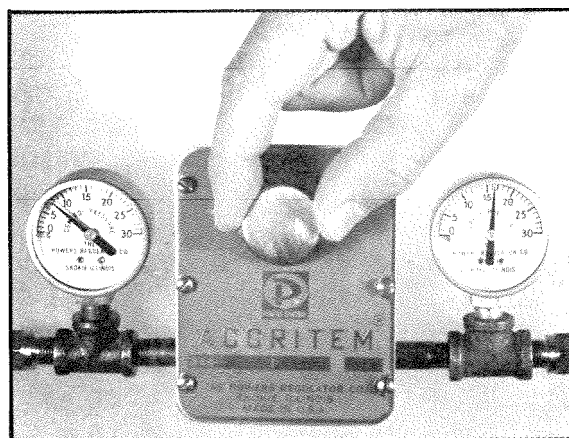


FIGURE 3

Turn adjusting knob until 7-1/2 psi (52 kPa) control pressure shows on gauge. Read temperature at bulb with an accurate thermometer.

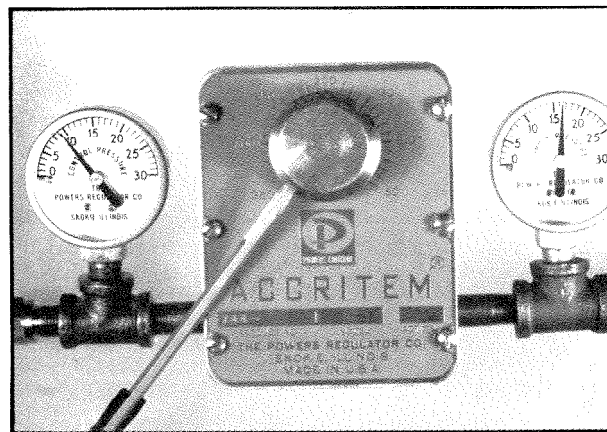


FIGURE 4

Loosen set screw and turn adjusting knob to indicate temperature at bulb. Tighten set screw. Set controller for desired control temperature.

CONSTRUCTION

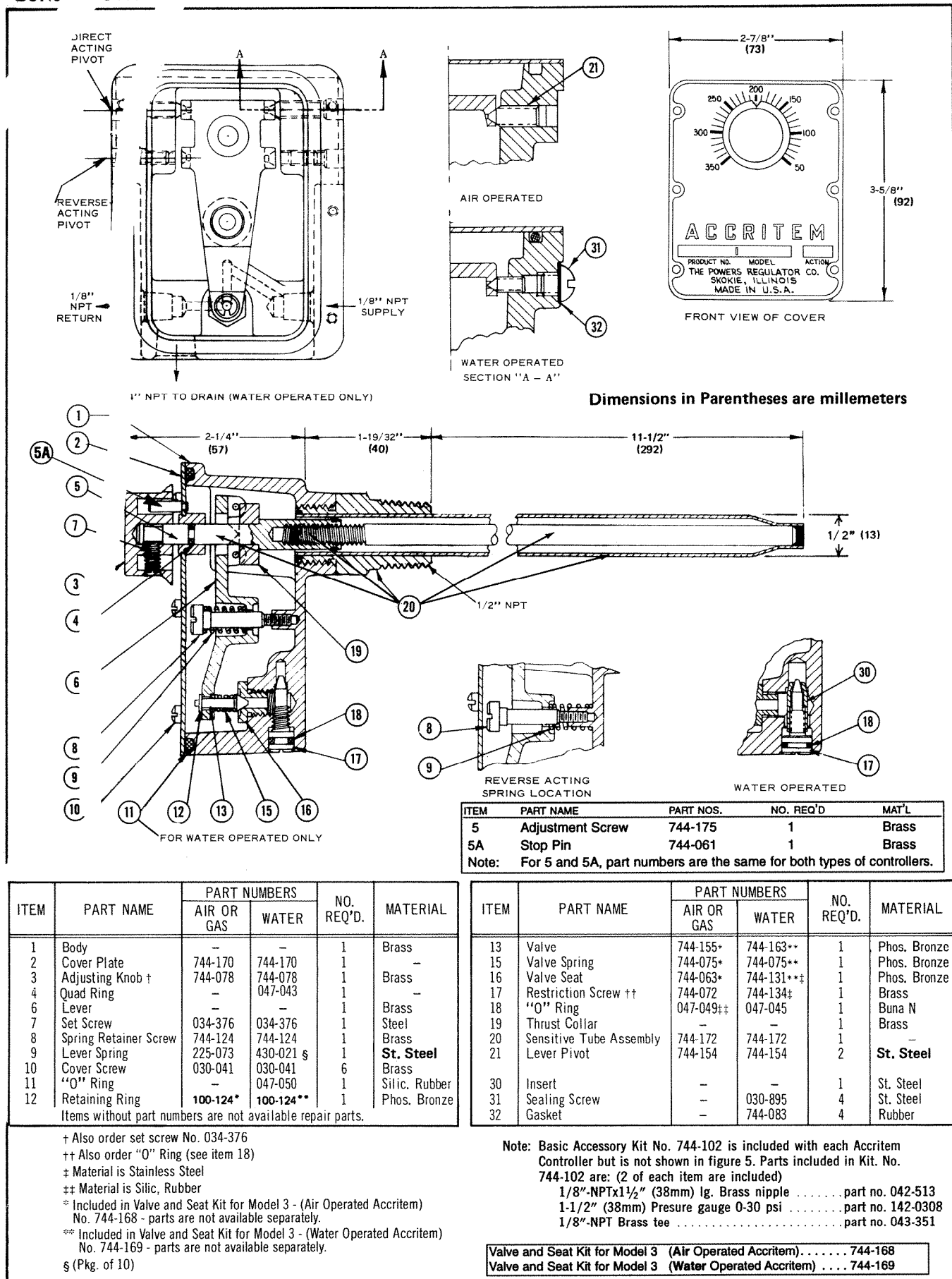
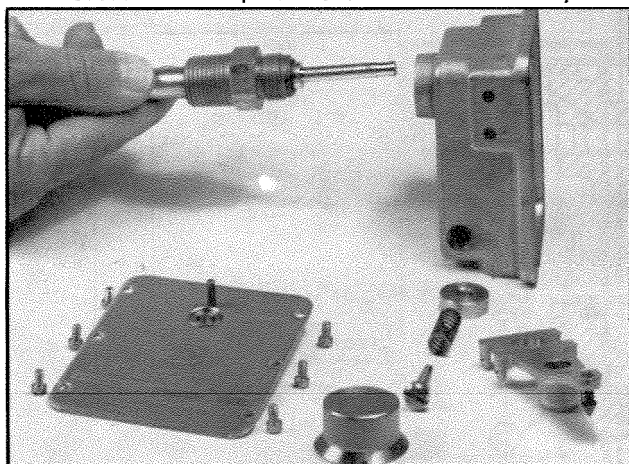


FIGURE 5

INSTALLATION (General Instructions)**To Disassemble & Replace Sensitive Tube Assembly****FIGURE 6**

Powers Accritem Controller requires a clean, reliable supply of compressed air or cold water at room temperature and 15 to 25 pounds pressure. Other fluids may be used, such as gas, oil, etc., providing provision is made for safe disposal.

Select sensitive element location with care to insure satisfactory results. Bulb must project entirely into the liquid or air being controlled.

Flush or blow out all lines before making final connections. Put supply pressure through all control line and check for leaks.

FOR AIR OPERATION

Controller should normally be installed in horizontal position; however, other positions may be used if the supply and control connections are parallel with the ground and calibration is checked after installation.

FOR WATER OPERATION

Controller should normally be installed in horizontal position with drain connection at bottom. Drain piping should be 3/8" minimum for positive drainage at all times.

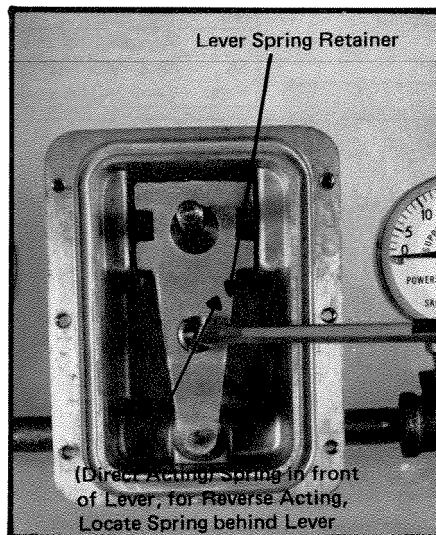
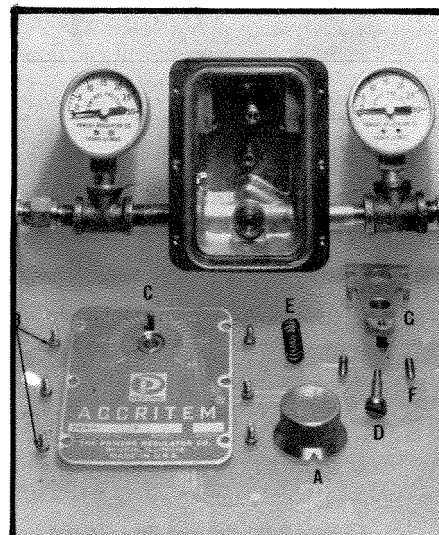
TO CHANGE CONTROLLER ACTION

(See Figures 7 & 8)

1. Turn adjusting knob clockwise to remove tension.
2. Remove adjusting knob & cover.
3. Remove lever spring retainer (D) and spring (E).
4. Relocate lever pivots (F).
5. Turn lever pivots to be snug without binding.
6. Replace lever spring retainer (D) and spring (E).
7. Replace cover & adjusting knob.
8. Recalibrate.

The parts above are identified in order of disassembly. (Figure 8)
For item numbers see construction view. (Figure 3, page 3)

A. (item 3) adjusting knob, B. (item 10) cover screws, C. (item 2) cover plate, D. (item 8) lever spring retainer, E. (item 9) lever spring, F. (item 21) lever pivot, G. (item 6) lever.

**FIGURE 7****FIGURE 8**

Always locate controller as close to controlled device as possible. The piping between the controller and controlled device (valve or damper motor) should be 1/8"-NPT brass pipe or 1/4" (6.4 mm) OD copper tubing.

Difference in height between Accritem controller and controlled device should be kept to minimum. When controller is below controlled device, elevation can not exceed 10' (3 m) with 15 psi (104 kPa) supply pressure. If controller is above controlled device, adjust springs on valve or damper motor to compensate for static head pressure.

PRESSURE CONTROLLER FOR USE WITH WATER

Set pressure at 15—20 psi (104-138 kPa) when water is flowing. Clean strainer at regular intervals.

BOTH AIR AND WATER CONTROLLERS**To Disassemble:** (Refer to Figures 5 and 6)

1. Remove Knob (3) after loosening its Set Screw.
2. Remove Cover Assembly (2).
3. Remove Lever Spring Retainer (8), and Lever Spring (9).
4. Back up one Lever Pivot (21) and remove Lever (6).
5. Unscrew Sensitive Tube Assembly (20) from Body (1).

To Reassemble:

1. Install new Sensitive Tube Assembly (20) to Body (1).
2. Install Lever (6). Tighten the Lever Pivot Screws (21) as required. The lever must be in the exact center of the body and must move freely but without side play.
3. Install Screws (31) and gaskets (32) on Water Operated.
4. Install parts (8) and (9). (Note relationship for Direct and Reverse Acting).
5. Back up Adjustment Screw (5) until Collar (19) touches the Pivots on Lever (6).
6. Install Cover Assembly (2).
7. Install Adjustment Knob (3). The notch on Knob (3) should be opposite the dial marking corresponding to the room temperature. Tighten the Knob Set Screw very firmly.
8. Turn the Adjustment Knob to the desired control temperature for an approximate calibration.
9. Recalibrate as required after the controller is installed and connected to the supply and control lines.