



Instruction Sheet Heat-Gard™ Thermostatic Valves

102-051

SUPERSEDES: 102-051 January 1, 1986

EFFECTIVE: August 1, 1997

Plant ID#: 001-1002

DESCRIPTION AND APPLICATION

Operator Models	Current Valve Bodies That Operators Control		Discontinued Valve Bodies That Operators Control			
	1/2"	3/4"	1/2"	3/4"	1"	1 1/4"
5201-2 5203-2	5321-C1	5331-C1	5221-C1	5231-C1	5241-1	5251-1
	5321-1	5331-1	5221-1	5231-1	5242-1	5252-1
	5322-1	5332-1	5222-1	5232-1	5243-1	5253-1
	5323-1	5333-1	5223-1	5233-1		
		5234-1	5227-1	5237-1		
			5228-1	5239-1		
			5229-1			

The Taco Heat-Gard thermostatic valves consist of a straight (globe type), angle or side-mount angle valve and an operator.

They are self-contained, wireless, automatic, modulating control valves for use in hot water or two pipe steam space heating systems. They sense changes in temperature and automatically increase the flow of heat in response to a temperature drop or automatically decrease it in response to a temperature rise. They may be used to control baseboard, convactor and radiator types of space heating units.

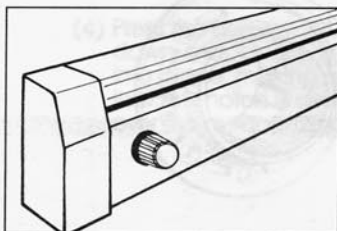
RATINGS: Hot Water	150 PSI (1,034kPa)	250°F (120°C)
L.P. Sat. Steam	15 PSI (103kPa)	250°F (120°C)
Differential Pressure (Shut-off Pressure)	*50 Ft. WG (150kPa)	

**NOTE: Valve noise increases at high differential pressures. It is recommended that differential pressure be limited to 40 ft. WG (120kPa). If higher pump head is encountered, it is recommended that a differential by-pass valve be installed.*

INSTALLATION

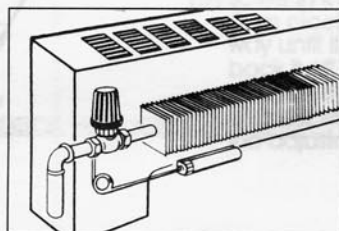
The valve and the operator of the Heat-Gard Thermostatic Valve must be selected and installed so that the temperature sensor is properly positioned. It must be exposed to circulating air. It must not be obstructed or shut in by covers, draperies or furniture. Locate the sensor so that it is not exposed to direct sunlight or drafts.

TYPICAL HEAT-GARD™ INSTALLATIONS



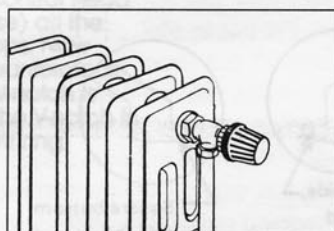
1. BASEBOARD

In-line straight valve with direct control mounted through the cover so that it may sense air temperature in open space.



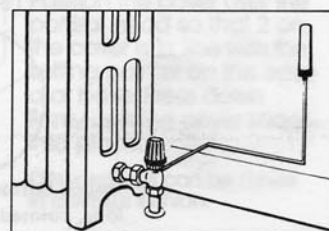
2. FINTUBE CONVECTOR

Valve installed inside cover at access door with remote sensor under the radiation so that it will sense the returning air.



3. FREE STANDING RADIATOR

Direct mount operator on a side-mount angle valve. Sensor is away from direct heat of pipe and radiator. Shown at top, valve can also be placed at bottom of radiator.



4. FREE STANDING RADIATOR

Remote sensor allowing accurate sensing of air temperature by removing sensor from direct heat influence of radiator.

VALVE INSTALLATION

1. The system must be clean and free of oil. Additives containing oil or petroleum-based products must not be used.
2. Make sure that the valve is installed with the arrow cast on its side pointing in the direction of fluid flow in the pipe.
3. A steam system should have a strainer installed to keep the valve seats free of loose particles.

OPERATOR INSTALLATION

- 1. For best results, all types of direct mount (sensor built in — no capillary) Heat-Gard operators should have their valves installed so that the operator is horizontal with the floor, not directly over the pipe or valve.
- 2. The sensor of the remote sensor-type operator can have the sensor located on the wall under the heating unit if the heating unit is not too deep and the sensing bulb can be located at least 3" (8 cm.) from the bottom of the heating unit. Make sure that a remote sensor is not buried in carpeting. The sensing bulb can also be located on a wall alongside the heating unit.
- 3. Take care not to kink or make very sharp bends in the capillary tubes of remote sensor operators.
- 4. When connecting an operator to a valve, first turn the setting dial to No. 5. Locate the set point stud of direct mount and remote sensor operators so that the dial setting is easy to read. Center the operator over the valve stem and cartridge hexagon. Engage the inside hexagon shape of the operator with the hexagon shape of the cartridge. Push down and at the same time turn the assembly nut down onto the thread of the neck of the valve until the operator is firmly in place. Tighten slightly with smooth-jawed pliers or wrench.

OPERATION

Set the dial to provide the comfort level desired. The following table may be used as an approximate guide:

Dial Setting	•	1	2	3	4	5
Temperature F	43	54	61	68	75	82
Temperature C	6	12	16	20	24	28

• Snowflake marking is a minimum setting to prevent freezing.

System conditions and sensor location can cause variations from the above settings.

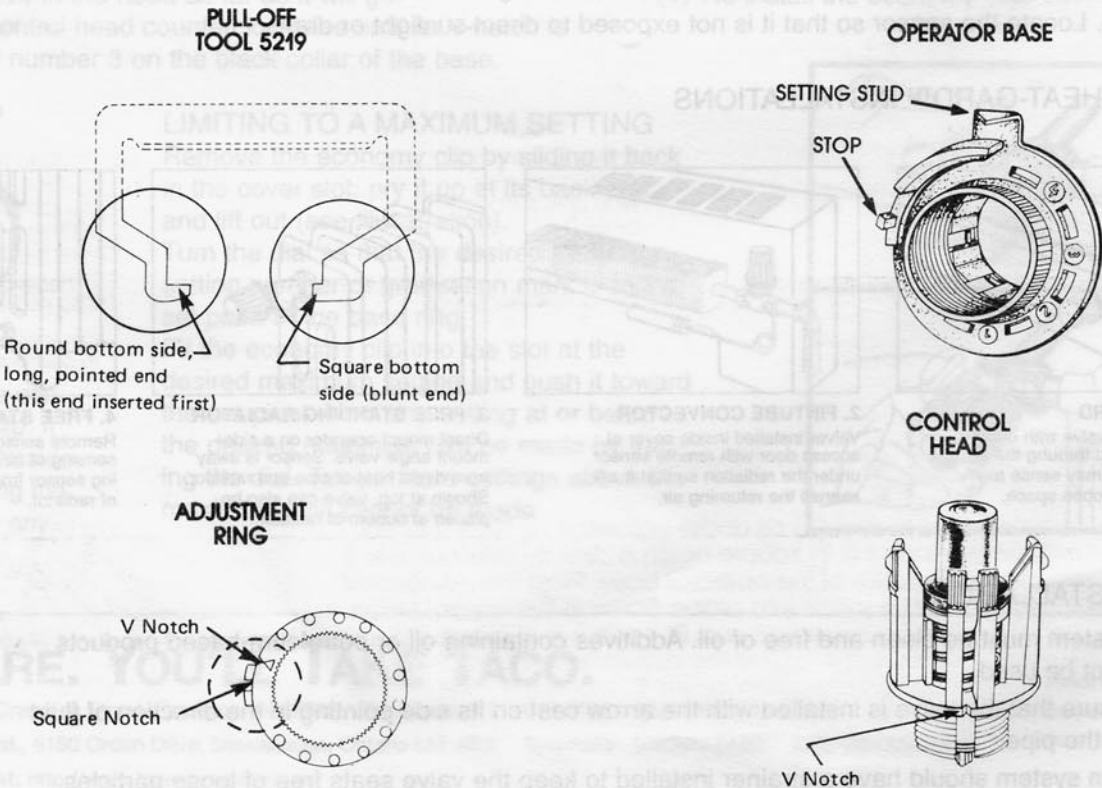
MAINTENANCE

No maintenance of any kind should be required for many years. If leakage occurs at the stem, the top "O" ring gland can be removed and replaced. The entire cartridge can be replaced by using a 3/4" socket wrench. Use only a 6 point type socket in order to avoid deforming the corners of the brass hexagon when wrenching it out. The cartridge can be removed and replaced without draining the system by using a Taco cartridge removal tool.

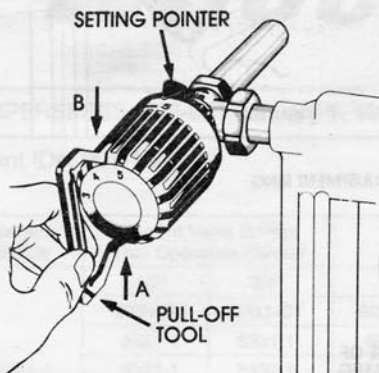
OPERATOR ADJUSTMENTS

1. IMPORTANT PARTS

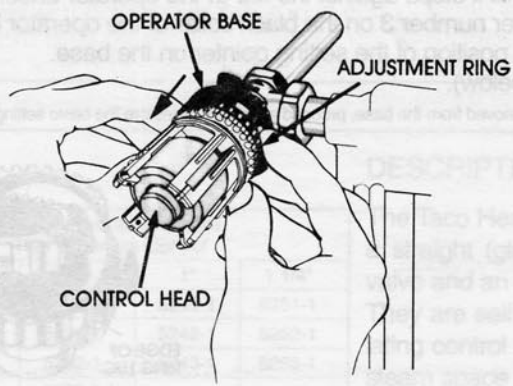
Observe the key locations on the illustrations of these important parts before starting adjustments and refer to them as required.



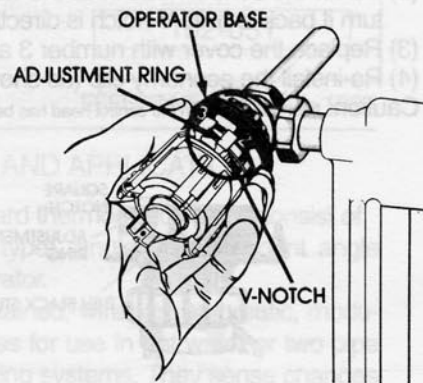
2. TO LIMIT TO A SELECTED MAXIMUM SETTING (EXAMPLE: MAXIMUM SETTING AT 2)



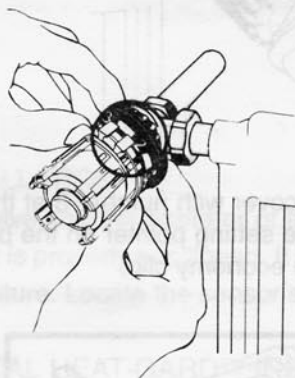
- (1) Remove the economy clip (see page 4) and turn the cover dial to position 5. Engage the pull-off tool on the cover, inserting the long pointed end (B) into the first available slot (on cover). Then, snap the square end (A) into the vent slot directly across cover. With a hard pull back, snap off the cover.



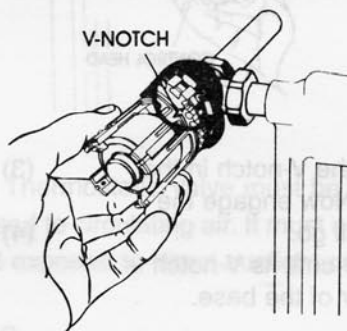
- (2) Turn the control head $\frac{1}{2}$ turn (180°) counterclockwise to provide space and lift the adjustment ring off the operator base (direction of arrow).



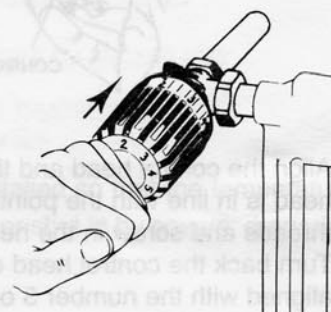
- (3) Turn the adjustment ring so that its V-notch is directly over number 2 on the black collar of the operator base.



- (4) Press the adjustment ring down, snapping it firmly into place, making sure that its V-notch is directly over the number 2.



- (5) Screw in the control head (turn clockwise) all the way until it stops. Now back it off (counterclockwise) until its V-notch is aligned with the V-notch in the adjustment ring.

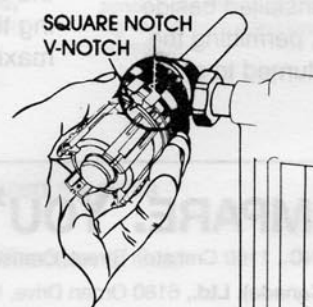


- (6) Position the cover over the control head so that 2 on the cover is in line with the setting pointer on the operator base. Press down firmly until the cover snaps into place.

Other settings can be made in a similar fashion.

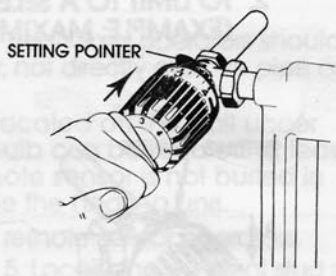
3. TO LOCK AT A SELECTED SETTING (EXAMPLE: LOCK AT 2)

Follow steps (1) and (2) as under procedure 2. Now turn the adjustment ring until its square notch is directly over number 2 on the black collar of the operator base. Press the adjustment ring down, until it snaps into place. Screw in the control head until it stops. Now back it off until its V-notch is aligned with the center of the square notch of the adjustment ring, and the number 2 on the black base collar. Replace the cover following step (6) under procedure 2 with the number 2 on the cover directly over the setting pointer on the base.

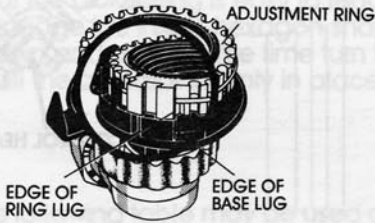
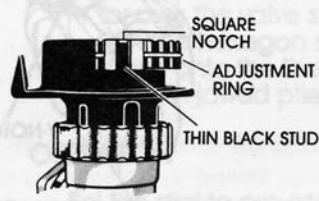


4. TO MAKE THE BASIC SETTING (FACTORY CALIBRATION)

- If for any reason the operator is out of calibration, proceed as follows to restore the basic setting:
- (1) Remove the cover following step (1) of procedure 2.
 - (2) Screw the control head in all the way until it stops against the top of the operator base. Now turn it back until its V-notch is directly over number 3 on the black collar of the operator base.
 - (3) Replace the cover with number 3 at the position of the setting pointer on the base.
 - (4) Re-install the economy clip (as shown below).

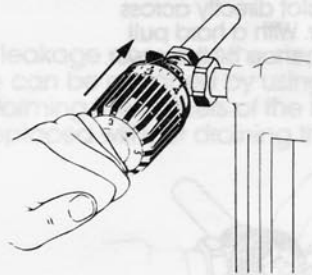
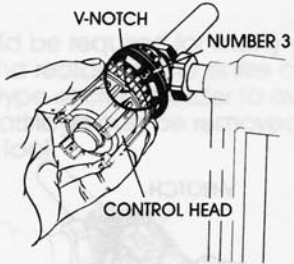
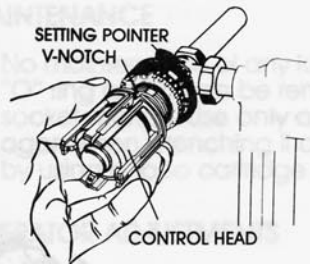


Caution: If for some reason the control head has been removed from the base, proceed as follows to restore the basic setting:



Direct Mount Operators 5201-2 and 5202-2

- (1) Mount the adjustment ring on the base so that its square notch fits around the thin black stud on the base.



Remote Sensing Operators 5203-2 and 5204-2

- (1) Mount the adjustment ring on the base so that the right side edge of the square notch lug is aligned with the right side edge of the black lug on the base.

- (2) Align the control head and the base so that the V-notch in the head is in line with the pointer on the base. Now engage the threads and screw in the head as far as it will go. Turn back the control head counterclockwise until its V-notch is aligned with the number 3 on the black collar of the base.

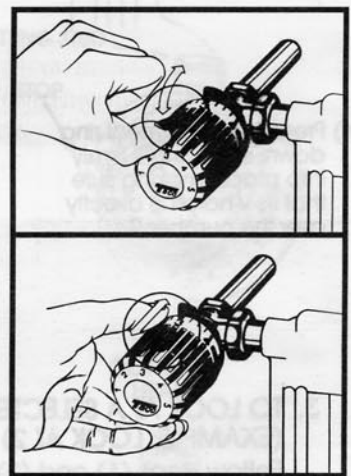
- (3) Replace the cover with number 3 at the position of the setting pointer on the base.
- (4) Re-install the economy clip.

ECONOMY CLIP



LIMITING TO A MAXIMUM SETTING

Remove the economy clip by sliding it back in the cover slot; pry it up at its back end and lift out (see illustration). Turn the dial so that the desired maximum setting number or graduation mark is at the set point of the base ring. Fit the economy clip into the slot at the desired maximum setting and push it toward the set point. Now any setting at or below the desired maximum can be made by turning the dial. Temperature settings above the maximum limit cannot be made.



This operator has a convenient economy clip. It is factory installed beside position 5, permitting the dial to be turned to any setting.

