



Instruction Sheet Heat-Gard™ Thermostatic Valves

100-3.4C

SUPERSEDES: 100-3.4C October 1, 1985

EFFECTIVE: August 1, 1997

Plant ID#: 001-1003

DESCRIPTION AND APPLICATION

The Taco Heat-Gard thermostatic valves consist of a straight (globe type), angle or side-mount angle valve and 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, convector and radiator types of space heating units.

Operator Models	Current Valve Bodies That Operator Controls		Discontinued Valve Bodies That Operator Controls			
	1/2"	3/4"	1/2"	3/4"	1"	1 1/4"
5206-2	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			

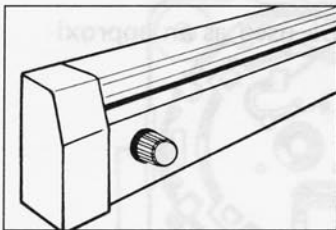
RATINGS: Hot Water 150 PSI (1,034kPa) 250°F (120°C)
L.P. Sat.Steam 15 PSI (103kPa) 250°F (120°C)
Differential Pressure
(Shut-off Pressure) *50 Ft. WG (150kPa)

**NOTE: Valve noise increases at high differential pressures. It is recommended that differential pressure be limited to 40 ft.WG (117.2kPa). If a higher pump head is encountered, it is recommended that a differential by-pass valve be installed.*

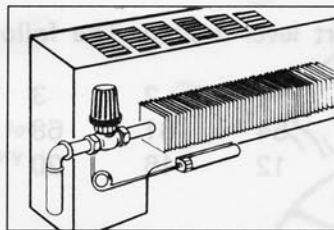
INSTALLATION

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.

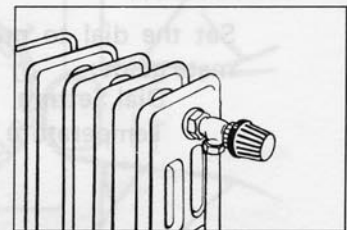
TYPICAL HEAT-GARD™ INSTALLATIONS



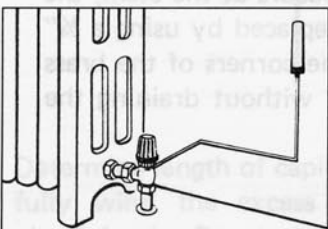
1. BASEBOARD
In-line straight valve with direct control mounted through the cover so that it may sense air temperature in open space.



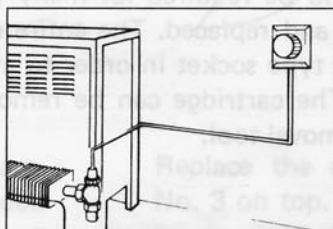
2. FINTUBE CONVECTOR
Valve installed inside cover at access door with remote sensor under the radiation so that it will sense the returning air.



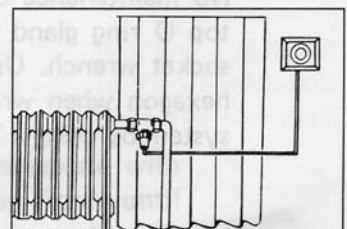
3. FREE STANDING RADIATOR
Direct mount operator on a side-mount angle valve. Sensor is away from direct heat of pipe and radiator. Shown at top, valve can also be placed at bottom of radiator.



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



5. CONVECTOR OR ENCLOSURE
Wall mount dial mounted away from heat influence of radiator on a nearby wall or actually on convector cover if provision is made to insulate sensor from heat influence of cover.



6. OBSTRUCTED VALVE LOCATION
On remote sensor application, valve body can be installed in a cover or behind draperies. The remote sensor must be mounted away from obstructions so that the thermostatic control can sense surrounding air.

INSTALLATION (Cont'd)

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 a 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" (8cm.) 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. The wall mount operator has its sensor and setting dial together and it should be mounted at a wall location alongside the heating unit being controlled. It can be mounted on the cover of a heating unit if there is an area on the cover which stays relatively cool or the back of the sensor is insulated from the cover.
4. Take care not to kink or make very sharp bends in the capillary tubes of remote sensor operators.
5. 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:

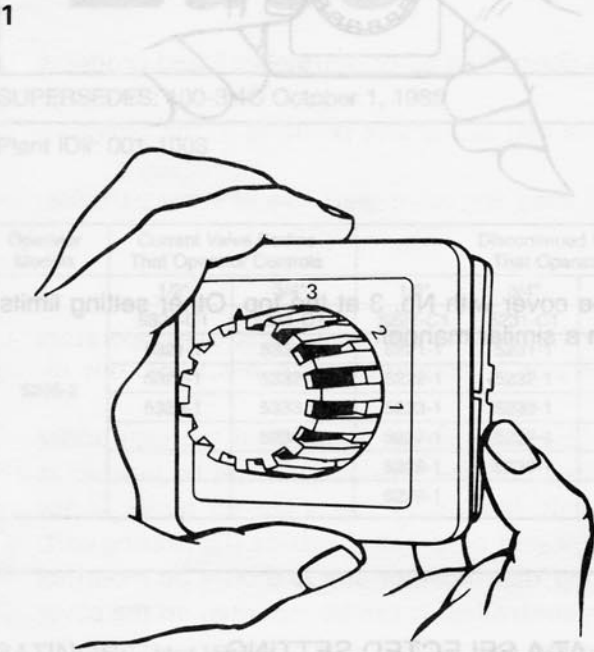
Dial Setting	Closed	1	2	3	4	5
Temperature F	43	54	61	68	75	82
C	6	12	16	20	24	28

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

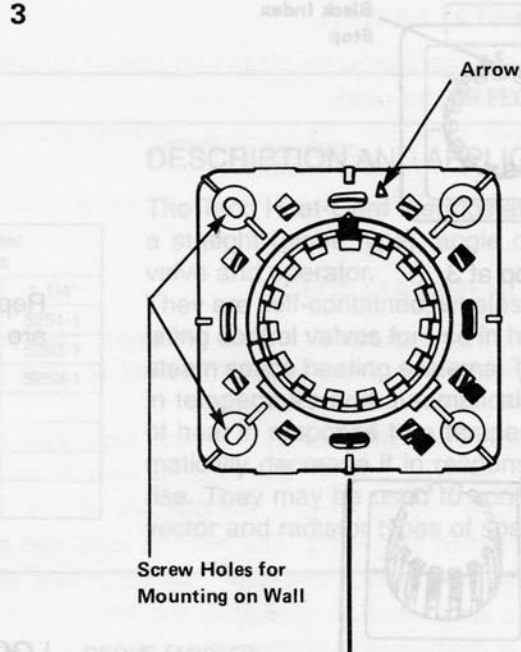
MAINTENANCE

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 $\frac{3}{4}$ " 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.

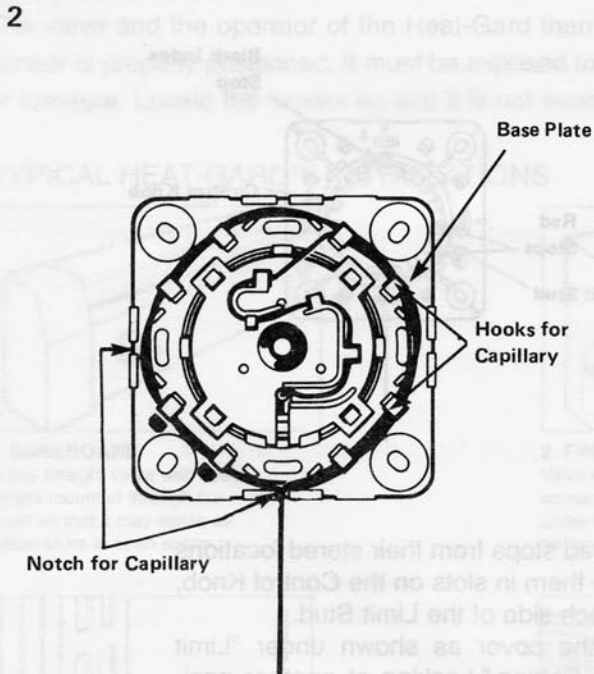
INSTALLATION



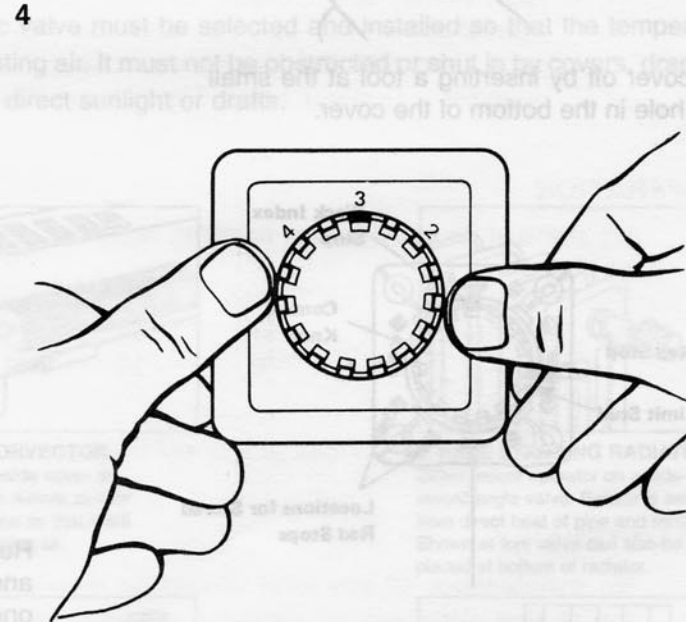
Remove the cover from the baseplate.



Mount the baseplate on a flat wall surface with the arrow pointing up.



Determine length of capillary needed and carefully wind the excess around the molded plastic hooks. Be sure to lead the capillary out from the baseplate at one of the four notches provided.



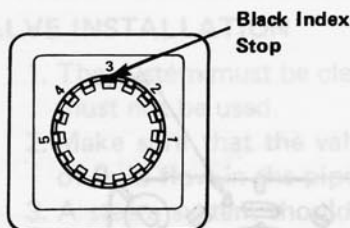
Replace the cover over the baseplate with No. 3 on top. Press the cover on firmly until it snaps into place.

TO LIMIT MAXIMUM SETTING

Example: Limit to No. 3

4

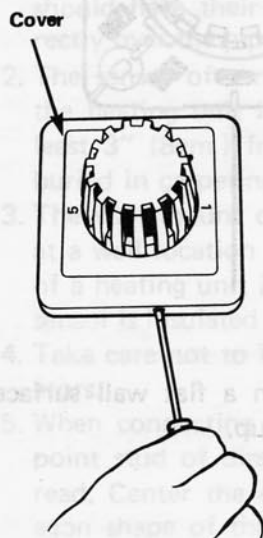
1



Black Index Stop

Set black index stop at 3

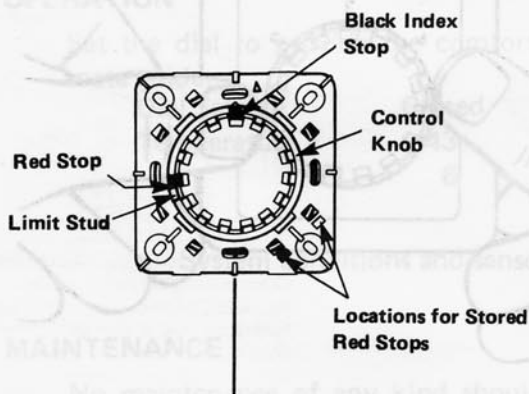
2



Cover

Pry cover off by inserting a tool at the small oval hole in the bottom of the cover.

3



Red Stop

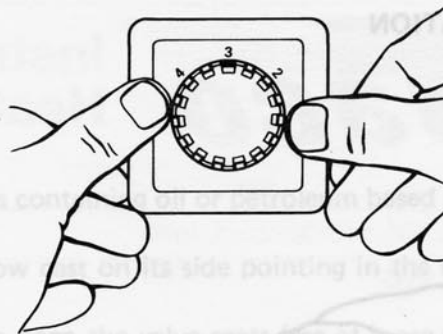
Limit Stud

Black Index Stop

Control Knob

Locations for Stored Red Stops

Remove a red stop from its stored location and place it in the slot of the control knob just above the limit stud.

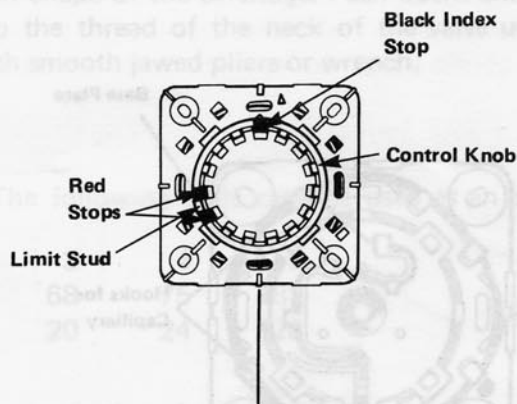


Replace the cover with No. 3 at the top. Other setting limits are done in a similar manner.

LOCKING AT A SELECTED SETTING

Example: Locking at No. 3

Set the control knob at 3 and remove the cover as shown under "Limit Maximum Setting."



Black Index Stop

Control Knob

Red Stops

Limit Stud

Remove red stops from their stored locations and place them in slots on the Control Knob, one on each side of the Limit Stud. Replace the cover as shown under "Limit Maximum Setting." Locking at another position is done in a similar manner.

COMPARE. YOU'LL TAKE TACO.

TACO, INC., 1160 Cranston Street, Cranston, RI 02920 Telephone: (401) 942-8000 FAX: (401) 942-2360.

TACO (Canada), Ltd., 6180 Ordan Drive, Mississauga, Ontario L5T 2B3. Telephone: 905/564-9422. FAX: 905/564-9436.

Visit our web site at: <http://www.taco-hvac.com>

Printed in USA

Copyright 1997

TACO, Inc.