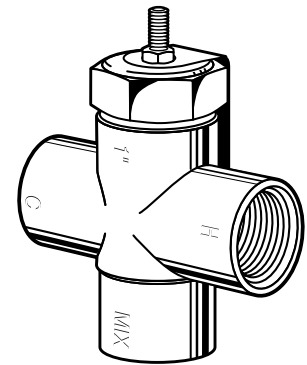


Series 21 Tempering Valve

OPERATION

Adjustable Temperature Range

Model	°F (°C)
21	140 – 200 (60 – 93)
21H	100 – 200 (38 – 93)
21LT	100 – 140 (38 – 60)



Series 21

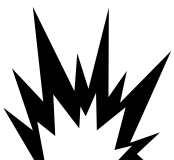
WARNING



- Before using this product read and understand instructions.



- Save these instructions for future reference.



- All work must be performed by qualified personnel trained in the proper application, installation, and maintenance of plumbing, steam, and electrical equipment and/or systems in accordance with all applicable codes and ordinances.



- Do not use tempering valves as anti-scald devices. Tempering valves may need to be used in conjunction with an anti-scald device.



- To prevent serious burns, wear heat resistant gloves when opening and closing valves, or handling hot equipment.

- Turn off water before servicing valve.

- Open supply valves slowly to prevent water hammer or sudden shock.

Failure to follow this warning can cause serious burns, personal injury or death.

INSTALLATION –

STEP 1 - Determine Where to Install the Tempering Valve



WARNING



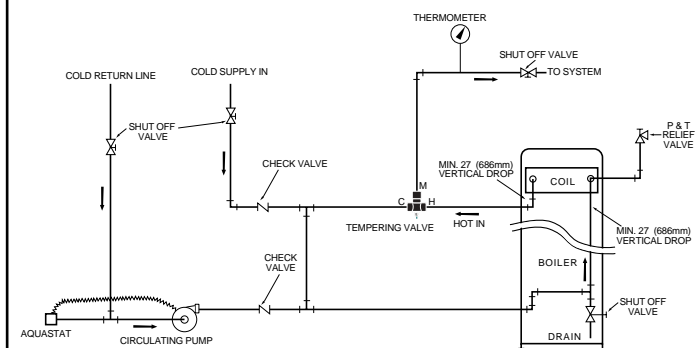
To prevent damage to the Post Stat Assembly from excessive heat, remove the assembly and O-ring before soldering near the tempering valve. See page 4 for detailed instructions.

Failure to follow this warning can cause serious burns, personal injury or death.

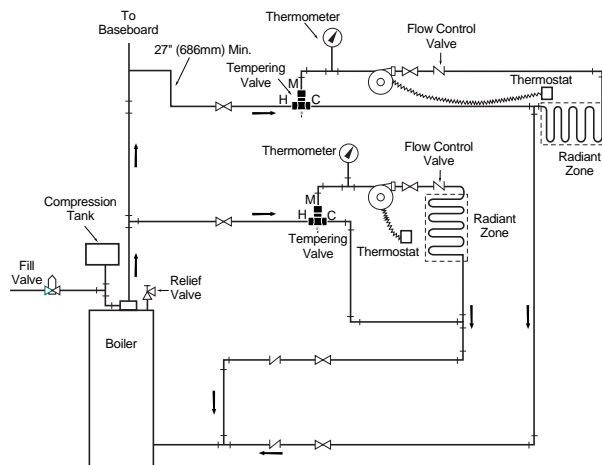
1. Using the Typical Piping Diagrams (right), determine where to install the tempering valve.

TYPICAL PIPING DIAGRAMS

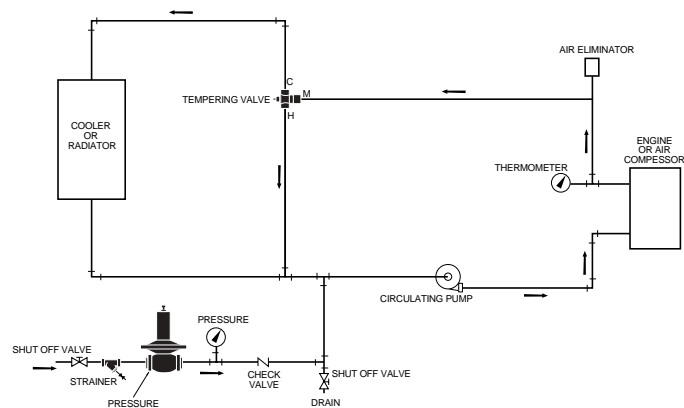
Tankless Water Heater Installation



Radiant Heating Installation

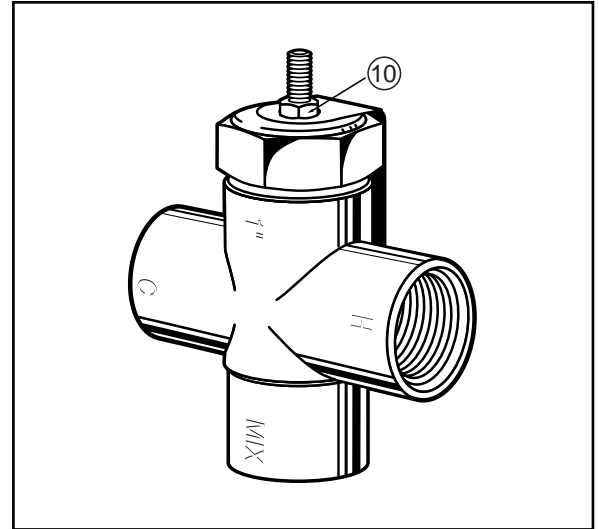


Engine Jacket Temperature Control Installation



STEP 2 - Temperature Adjustment

2. a. Make sure that the hot water supply temperature to the tempering valve is at least 20°F (11°C) hotter than the desired temperature of the mixed water.
- b. Operate system and allow temperature to stabilize.
- c. Loosen nut (10).
- d. In one-half turn increments, turn adjustment screw:
 - Clockwise to reduce temperature
 - Counter clockwise to increase temperature
- e. Allow the system to stabilize. When temperature reaches desired level, tighten nut (10).



INSTALLATION COMPLETE

TROUBLESHOOTING & SERVICE

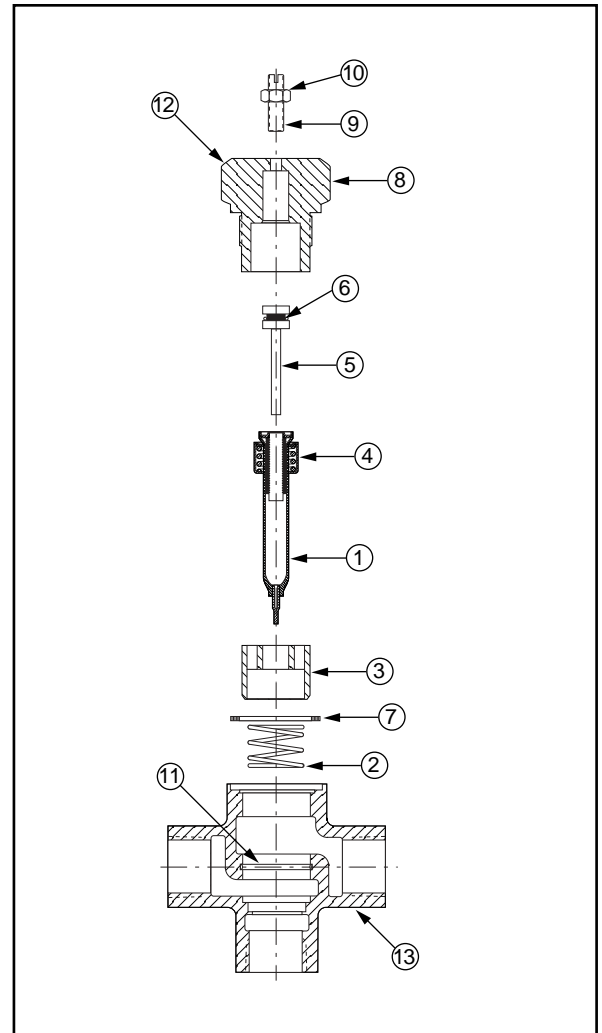
Parts Description

Number	Part	Repair Kit	Thermostat Kit
1	Post Stat Assembly	X	X
2	Piston Spring	X	
3	Piston	X	
4	Overheat Spring Assembly	X	X
5	Pushrod Assembly	X	X
6	Pushrod O-Ring	X	X
7	Body Gasket	X	X
8	Bonnet	X	
9	Adjustment Screw	X	
10	Nut	X	
11	Body O-Ring	X	X
12	Nameplate	X	

CAUTION



- Turn off water before servicing tempering valve.
 - To prevent serious burns, wear heat resistant gloves when opening and closing valves or handling hot equipment.
- Failure to follow this caution could cause personal injury.



TROUBLESHOOTING & SERVICE (cont'd)

If tempering valve fails to regulate temperature, proceed as follows:

1. Disassemble

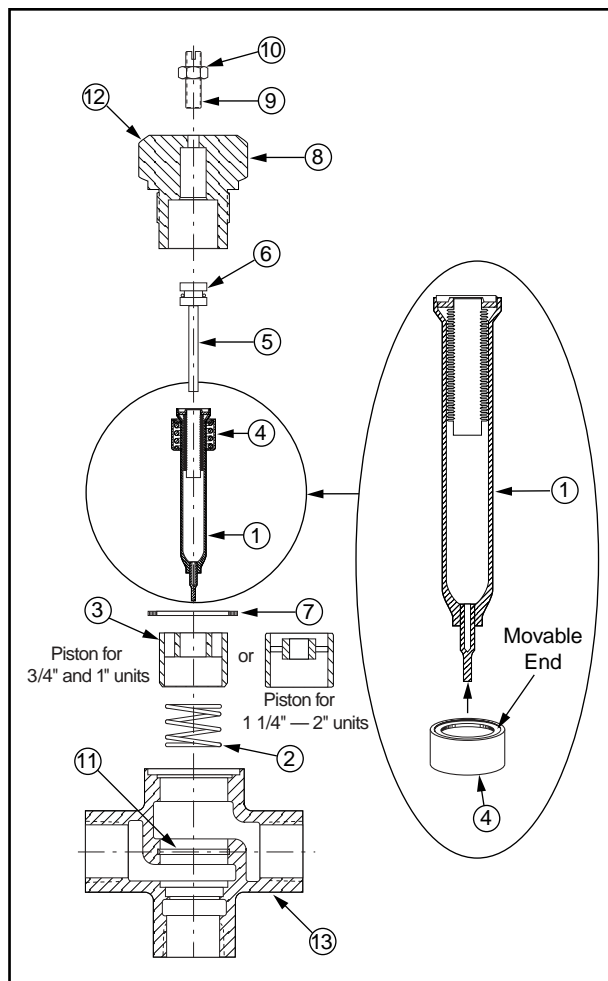
- a. Secure all water flow and allow tempering valve to cool.
- b. Unscrew and remove Bonnet (8). Do not remove the Pushrod assembly (5) from the Bonnet.
- c. Remove the Post Stat Assembly (1) and Overheat Spring Assembly (4).
- d. Remove Piston (3).



2. Clean (Only if parts are dirty or have scale build-up)

- a. Clean all contact surfaces with a crocus cloth.
- b. If all parts are clean and free moving, and the tempering valve still doesn't operate, the Post Stat Assembly (1) has probably lost charge and must be replaced.

3. Reassemble

- a. Install the Body O-Ring (11), Spring (2) and Piston (3) in the Valve Body (13).





 WARNING	
	<p>To prevent serious burns, personal injury or death, ensure that the movable end of the Overheat Spring Assembly faces the Bonnet. Failure to follow this warning can cause serious burns, personal injury or death.</p>

- b. Install the Post Stat Assembly (1) and Overheat Spring Assembly (4). Ensure that the **movable end** of the Overheat Spring Assembly faces the Bonnet (8).
- c. Make sure gasket surface areas are clean. Lubricate new gasket (7) with a high temperature silicone-based lubricant and install it.
- d. Install Bonnet (8) with Pushrod Assembly (5&6).
- e. Return to Service and readjust temperature following Step 2 on page 3.

MAINTENANCE SCHEDULE:

- Initially and every 6 months thereafter.
- Replace tempering valve every 15 years. More frequent replacement of the tempering valve is required if it is used in locales where significant water treatment is required, or where more frequent cleaning is necessary.

PROCEDURE:

 CAUTION	
	<ul style="list-style-type: none">• Turn off water before servicing tempering valve.• To prevent serious burns, wear heat resistant gloves when opening and closing valves or handling hot equipment. <p>Failure to follow this caution could cause personal injury.</p>

1. Inspect joints for leaks. Stop all leaks by tightening the bonnet.

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