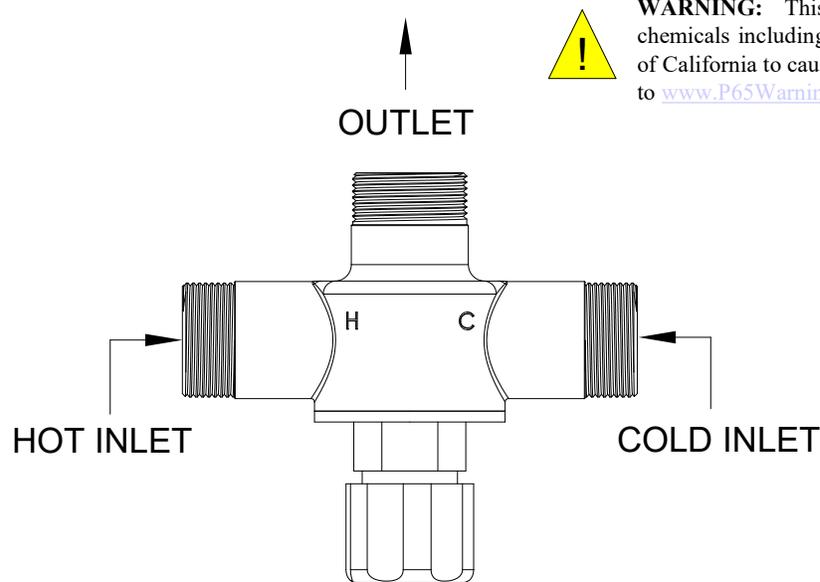


INSTALLATION ADJUSTMENT SERVICE

MODEL 417-LF



WARNING: This product can expose you to chemicals including lead, which is known to the State of California to cause cancer. For more information, go to www.P65Warnings.Ca.gov

INSTALLATION

1" NPT Hot and Cold Inlets, 1" NPT Outlet
Outlet Temperature Range: 90 - 140°F (32 - 60°C)
Maximum Operating Pressure 125 PSI (860 kPa)

1. Valve should be installed at a location where it can easily be cleaned, adjusted or repaired
2. Connect the hot water and cold water as shown above
3. Valve has integral check valves
4. A shutoff valve must be installed on the outlet pipe. Model 417-LF valves do not have a built-in shutoff
5. Use solder or pipe cement sparingly. Supply pipes should be flushed before the valve is connected. Flush outlet pipe and valve as soon as it is connected

CAUTION

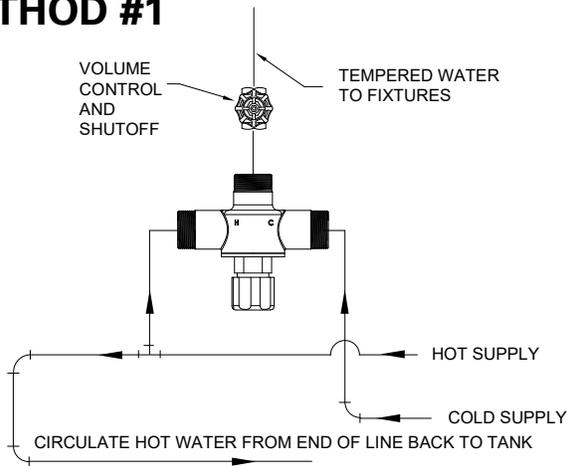
All thermostatic water mixing valves have limitations. They will not provide the desired accuracy outside of their flow capacity range. Consult the capacity chart on page 4. Minimum flow must be no less than as shown.

REMEMBER! THIS IS A CONTROL SYSTEM WHICH MUST BE CLEANED AND MAINTAINED ON A REGULAR BASIS (SEE MAINTENANCE GUIDE AND RECORD MGR-1000).

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REQUIRED METHODS OF PIPING TM VALVES (RECIRCULATED HOT WATER SYSTEMS)

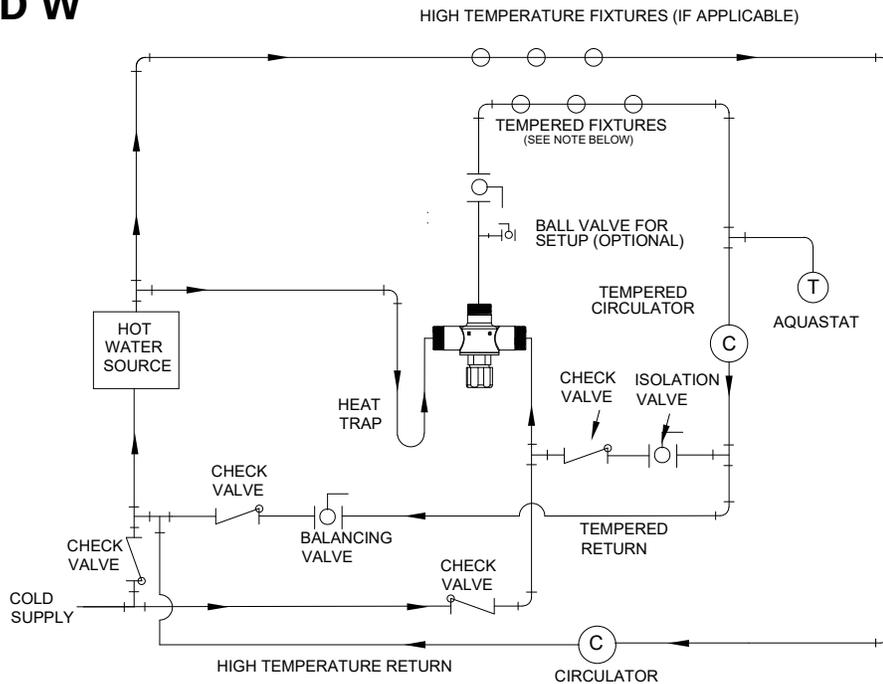
METHOD #1



METHOD #1

Required when hot water supply is to be circulated to a master mixer or individual thermostatic mixing valves which are a substantial distance from the hot water source. It is used primarily in a building with several risers, with tempered water in each riser controlled by a separate master mixer. NOTE: The engineer must determine maximum distance which can be run, i.e. maximum allowable time for hot water to reach user with one shower head operating, based upon code requirements and/or good practice.

METHOD W



METHOD W SETUP INSTRUCTIONS

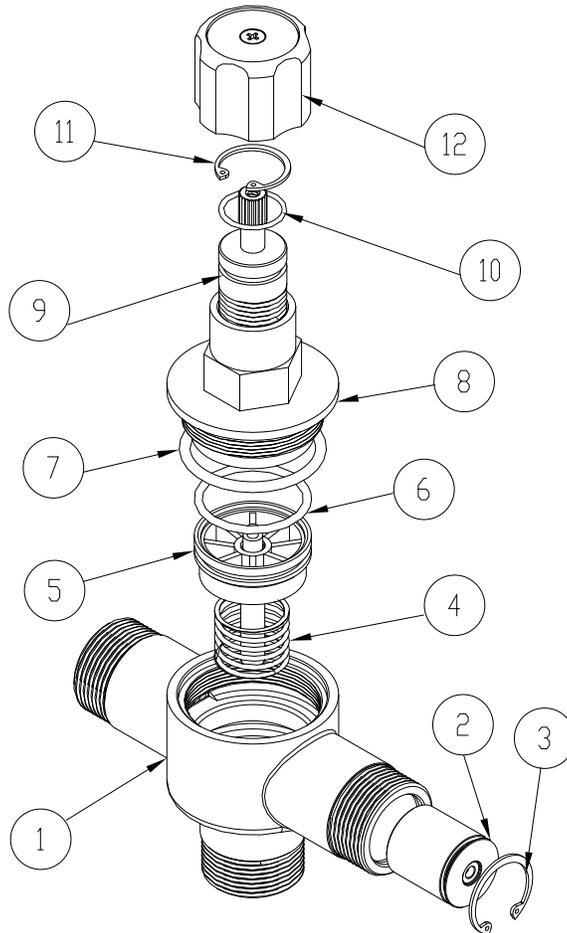
Before any attempt is made to adjust this system, be sure the temperature of the hot water at the source is properly set and maintained.

1. Be sure system is piped in accordance with Method W.
2. Shut off circulator.
3. Open enough fixtures to flow 2 TO 4 GPM.
4. Set mixing valve to the desired temperature,
5. Shut off all fixtures. Note: At this point, be sure NO water is being drawn through any fixture until the temperature in the recirculated line has been set.
6. Open the balancing valve approximately 1/2 way and start the circulator. Make sure no water is being drawn.
7. Observe the temperature until it stabilizes.
8. Close the ball valve slightly if the temperature is too hot, or open if it is too cold and again let the temperature stabilize. Repeat until the desired recirculated temperature is set.

INSTRUCTIONS FOR SERVICING VALVE

1. Shut off hot and cold supplies to mixing valve.
2. Remove cover of mixing valve.
3. Remove shuttle assembly and spring from valve body.
4. Remove debris from cover, shuttle assembly and valve body.
5. Lubricate the shuttle O-ring only with silicon-based grease.
6. Reassemble mixing valve and open supply and outlet valves.

PART	DESCRIPTION
1	BODY
2	CHECK VALVE
3	RETAINING RING
4	SHUTTLE SPRING
5	SHUTTLE AND THERMOSTAT
6	SHUTTLE O-RING
7	COVER O-RING
8	COVER
9	STEM
10	STEM O-RING
11	RETAINING RING
12	HANDLE



KIT	DESCRIPTION	INCLUDES
R/417	REBUILD KIT	4-7, 10-11
1/417	GASKET KIT	6, 7, 10
4/417	CHECK VALVE KIT	2, 3 (2 SETS)

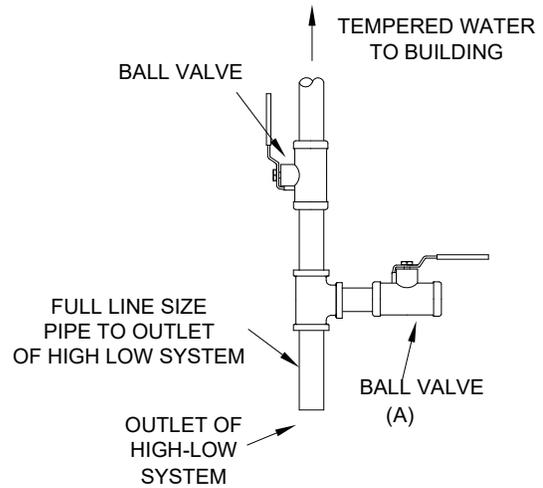
TROUBLESHOOTING INSTRUCTIONS

		PARTS REQUIRED:
PACKINGS & GASKETS	<ol style="list-style-type: none"> 1. Leak at pointer rod. 2. Leak between valve cover and base. 	KIT 1/417 (PACKINGS & GASKETS)
PORT SLEEVE ASSEMBLY	<ol style="list-style-type: none"> 3. Valve delivers either all hot or all cold water or will not mix consistently. 	KIT R/417 (REBUILDING KIT)
THERMOSTAT GROUP	<ol style="list-style-type: none"> 4. After cleaning, valve will not hold temperature. 	KIT R/417 (REBUILDING KIT)
CHECKSTOPS	<ol style="list-style-type: none"> 5. Hot water bypass into cold line. 6. Cold water bypass into hot line. 	KIT 4/417 (CHECKSTOP KIT)

OPTIONAL OUTLET SETUP PIPING

(BY OTHERS)

The addition of this piping arrangement (extra tee and ball valve) eliminates the need to turn showers on and off throughout the building at setup. The flows required in the setup instructions (page 2) are set by using Ball Valve A. (make sure main outlet ball valve is closed).



CAUTION! ALL THERMOSTATIC WATER MIXING VALVES AND SYSTEMS HAVE LIMITATIONS! THEY WILL NOT PROVIDE THE DESIRED PERFORMANCE OUTSIDE OF THEIR FLOW CAPACITY RANGE! CONSULT THE CAPACITY CHART BELOW AND OBSERVE MINIMUM FLOWS SHOWN.

FLOW CAPACITIES

MODEL	IN	OUT	MINIMUM FLOW GPM (l/min)	PRESSURE DROP						PSI
				5	10	20	30	40	50	
417-LF	1" 25 mm	1" 25 mm	1.0	8	12	16	20	24	27	GPM
			3.7	30	45	61	76	91	102	l/min

LIMITED WARRANTY

Leonard Valve Company (hereinafter, “Leonard”) warrants the original purchaser that products manufactured by Leonard will be free from defects in material or workmanship under normal conditions of use, when properly installed and maintained in accordance with Leonard’s instructions, for a period of one year from the date of shipment. During this period, Leonard will at its option repair or replace any product, or part thereof, which shall be returned, freight prepaid, to the Leonard factory and determined by Leonard to be defective in materials or workmanship. Leonard provides no warranty, express or implied, which extends beyond the description contained herein. LEONARD SPECIFICALLY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE. Nonetheless, some jurisdictions may not allow the disclaimer of certain implied warranties, in which case Leonard hereby limits such implied warranties to the duration of the limited warranty period contained herein. Some jurisdictions may not allow limitations on how long an implied warranty lasts, so the foregoing durational limitation may not apply to you. In no event will Leonard be liable for labor or incidental or consequential damages. Any alteration or improper installation or use of this product will void this limited warranty. If any provision of this limited warranty is prohibited by law in the applicable jurisdiction, such provision shall be null and void, but the remainder of this limited warranty shall continue in full force and effect.

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