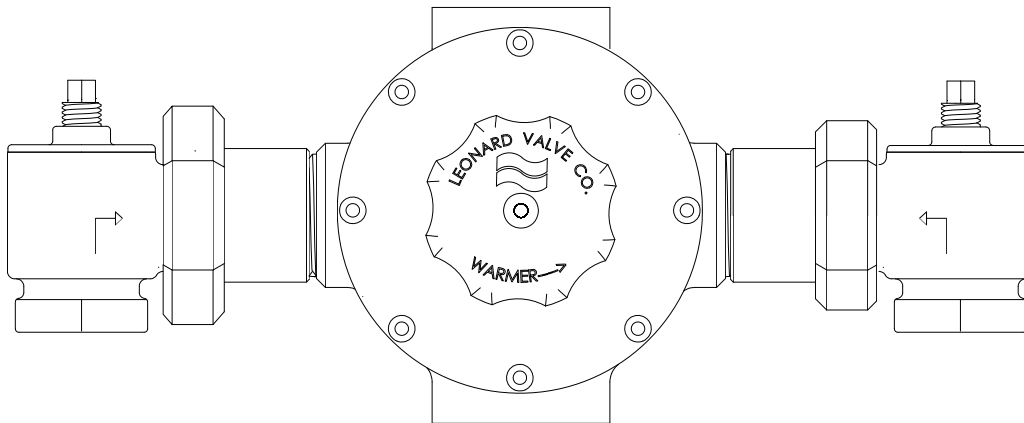


INSTALLATION ADJUSTMENT SERVICE

THERMOSTATIC WATER MIXING VALVE

SERIES LV-983, LV-983-LF & LV-984, LV-984 -LF

IMPORTANT! Provide valve serial number, (located on valve cover) when ordering parts!!



INSTALLATION

1. Valve should be installed at a location where it can easily be cleaned, adjusted or repaired.
2. The inlets are clearly marked on the valve body. Union angle strainer checkstops furnished must be installed on both supply lines as shown above.
3. A shutoff valve must be installed on the outlet pipe. Type LV valves do not have a built-in shutoff.
4. Use solder, or thread sealant sparingly. Supply pipes should be flushed before the valve is connected. Flush outlet pipe and valve as soon as it is connected.

125 PSI (8.6 BAR) MAXIMUM OPERATING PRESSURE

CAUTION

All thermostatic water-mixing valves have limitations. They will not provide the desired accuracy outside of their flow capacity range. Consult the flow capacity chart on page 5.

Minimum flow must be no less than as shown.

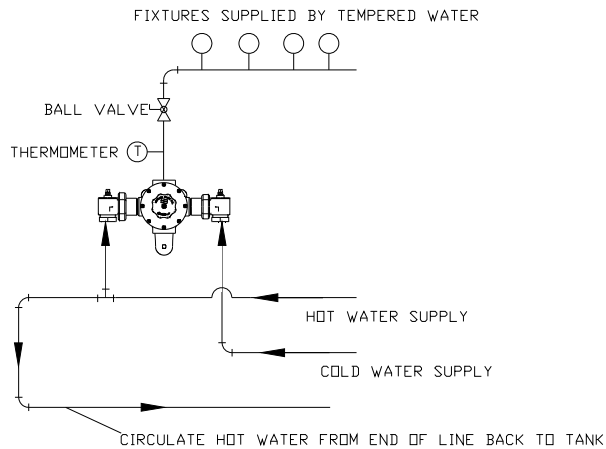
REMEMBER! THIS IS A CONTROL SYSTEM WHICH MUST BE CLEANED AND MAINTAINED ON A REGULAR BASIS (SEE MAINTENANCE GUIDE AND RECORD MGR-1000).

INSTALLATION

REQUIRED METHODS OF PIPING LV SERIES

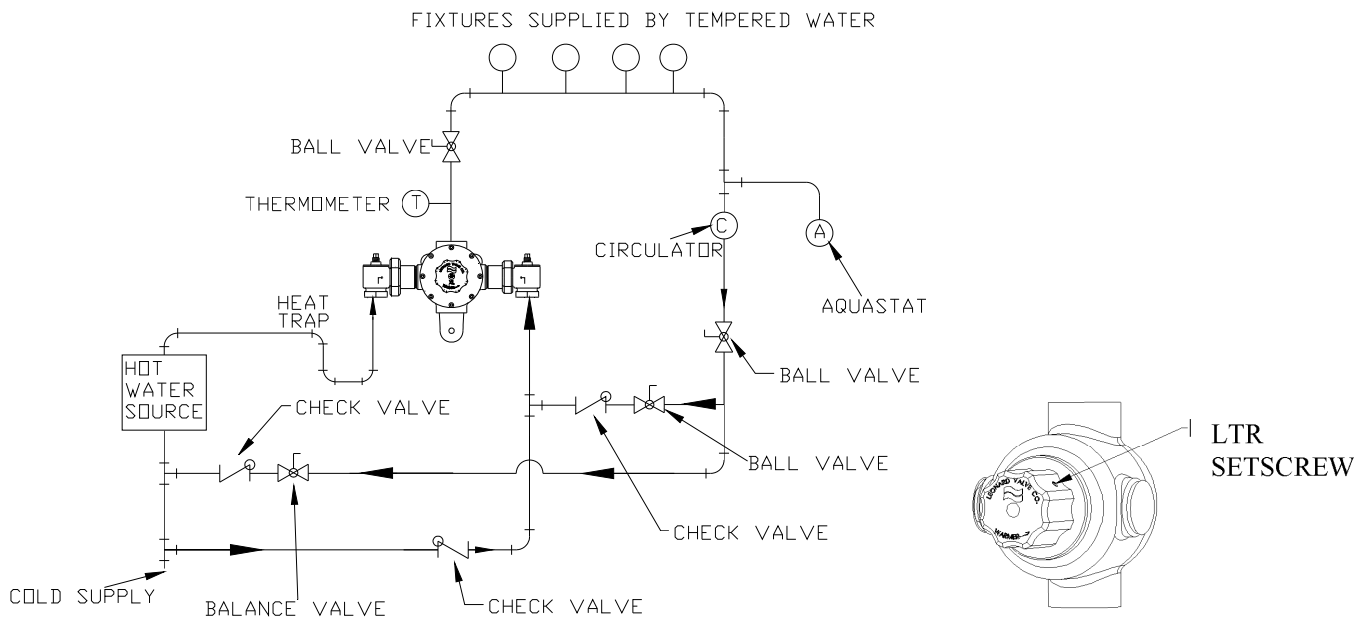
METHOD #1

Required when **TEMPERED WATER is NOT CIRCULATED**. Only the hot water supply to the mixing valve can be circulated with this piping arrangement.



METHOD W

Required when **TEMPERED WATER IS CIRCULATED**.



OPERATION

1. Verify that the temperature of the hot water source is properly set and maintained. Shutoff and isolate the circulator pump.
2. Loosen LTR set screw located on temperature adjustment knob with allen wrench.
3. Turn on enough fixtures to flow approximately 10 GPM, turn knob clockwise until it stops (full cold) then counterclockwise until it stops (full hot), three times to exercise the thermostatic element.
4. Set mixing valve to the desired temperature, (See warning tag for temperature set point). Tighten LTR set screw.
5. Shut off all fixtures. Setup is complete.
6. Turn on circulator. With all fixtures still off, (no water flowing) observe the circulation temperature until it stabilizes.
7. If temperature rises, close balance valve until desired temperature is reached

INSTALLATION CONTINUED

WARNING	
<p>WARNING! This Thermostatic Mixing Valve has an Locking Temperature Regulator (LTR) which must be checked. If the temperature is too high, the installer MUST RESET this adjustment immediately. Always check the temperature of the mixed water after installation. Excessively hot water is DANGEROUS AND MAY CAUSE SCALDING!</p>	<p>The LTR is factory set at approximately 120°F (49°C) with an incoming hot water supply temperature of 150°F (65°C) If the incoming hot water supply for your installation is higher than 150°F (65°C), the valve may deliver water in excess of 120°F (49)° and the LTR MUST BE RESET BY THE INSALLER.</p>

SERVICE

Leonard Type LV Thermostatic Water Mixing Valves are simple in design and may be easily cleaned, adjusted and repaired. If the installation is accessible, servicing may be completed without disconnecting the valve.

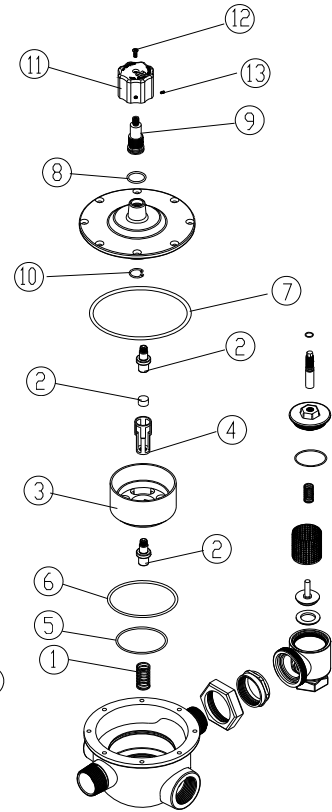
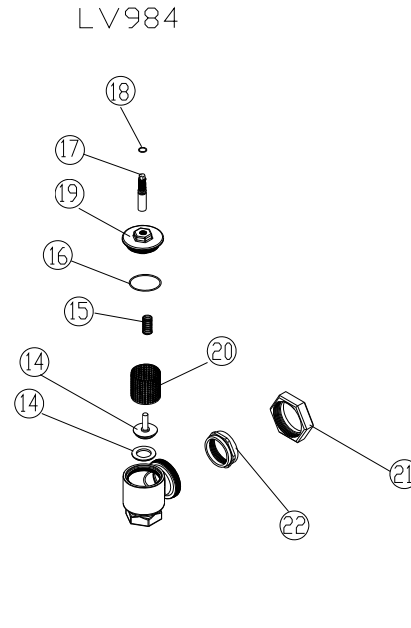
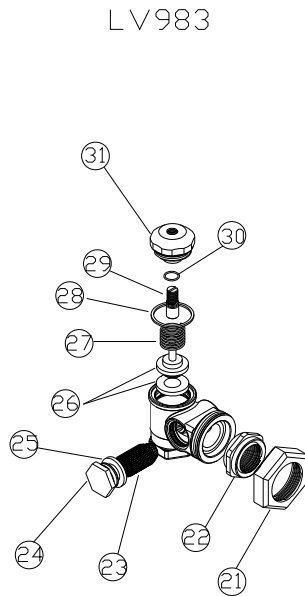
NOTE: Thermostatic Water Mixing Valves are REGULATING mechanisms, which must be regularly maintained to provide best performance. Frequency of cleaning depends on quality of local water conditions and usage. (See Maintenance Guide and Record MGR-1000).

TROUBLESHOOTING INSTRUCTIONS

ITEM:	PROBLEM:	LV983 SERIAL # LV983000001 THRU LV983000009	LV983 SERIAL # LV983000010 AND ABOVE	RECOMMENDED REPAIR KITS: LV984
PACKINGS & GASKETS	<ol style="list-style-type: none"> 1. Leak at stem. 2. Leak between valve cover and base. 	KIT 1/XL150	KIT 1/XL150	KIT 1/XL150
SHUTTLE ASSEMBLY	<ol style="list-style-type: none"> 3. Valve delivers either all hot or all cold water, or will not mix consistently. 	KIT R/LV984 OR KIT 2/LV984	KIT R/LV984 OR KIT 2/LV984	KIT R/LV984 OR KIT 2/LV984
CHECKSTOPS	<ol style="list-style-type: none"> 4. Hot water bypass into cold line. 5. Supplies cannot be shut off completely. 6. Leak at checkstop bonnet. 	KIT 4/984	KIT 2/50	KIT 4/984

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

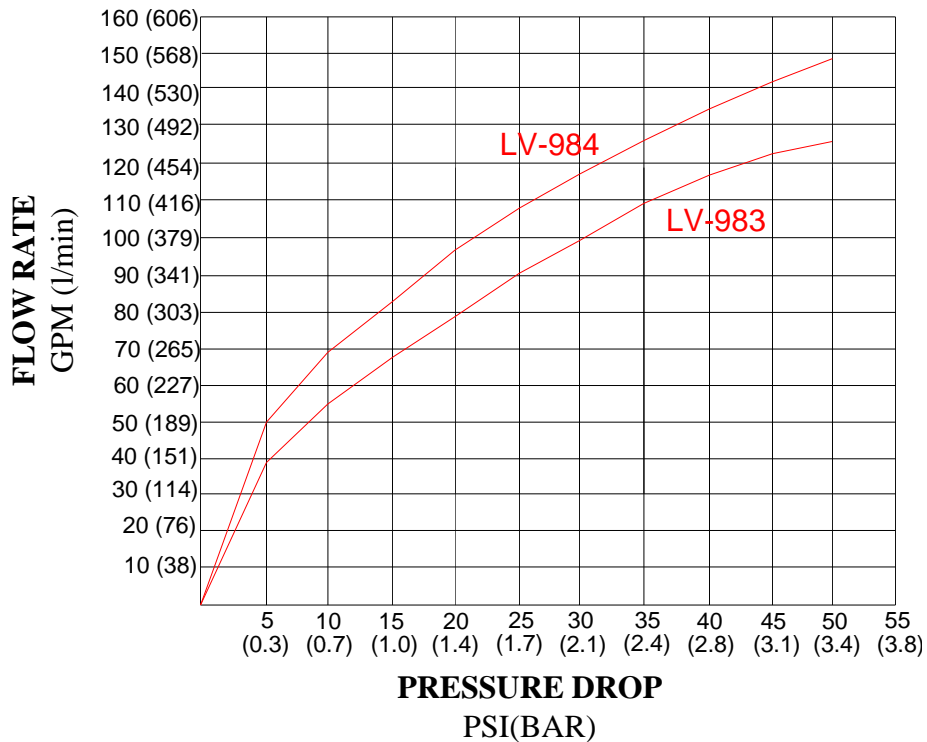
LV983	LV984	KIT TYPE	INCLUDES
R/LV984	R/LV984	COMPLETE REPAIR	1,2,3,4,5,6,7,8,10
1/XL150	1/XL150	O-RING	5,6,7,8
2/LV984	2/LV984	SHUTTLE	1,2,3,4
764300	764300	KNOB	11,12,13
	4/984	CHECK	14,15,16,18,20
2/50		CHECK	23,25,26,27,28,30



ITEM #	DESCRIPTION	QTY.	PART # / KIT #
1	SPRING, RETURN	1	2/LV984, R/LV984
2	THERMOSTATIC ELEMENTS AND SPACER	1	2/LV984, R/LV984
3	SHUTTLE	1	2/LV984, R/LV984
4	ELEMENT HOLDER	1	2/LV984, R/LV984
5	O-RING, LOWER SHUTTLE	1	1/XL150, R/LV984
6	O-RING, UPPER SHUTTLE	1	1/XL150, R/LV984
7	O-RING, COVER	1	1/XL150, R/LV984
8	O-RING, STEM	1	1/XL150, R/LV984
9	STEM ASSEMBLY (DO NOT REMOVE SNAP RING)	1	771800
10	RETAINING RING, COVER	1	7611, R/LV984
11	KNOB	1	764300
12	SCREW, KNOB	1	764300
13	LTR SET SCREW	1	764300
14	LOWER STEM & PACKING	2	4/984
15	SPRING,CHECK	2	4/984
16	COVER O-RING	2	4/984
17	STEM, UPPER CHECK	2	1761
18	O-RING, UPPER STEM	2	4/984
19	CHECK BONNET	2	1755
20	SCREEN	2	4/984
21	SWIVEL NUT	2	4611
22	SWIVEL	2	1705
23	SCREEN	2	2/50
24	STRAINER CAP	2	06
25	STRAINER CAP PACKING	2	2/50
26	LOWER STEM & PACKING	2	2/50
27	SPRING	2	2/50
28	BONNET PACKING	2	2/50
29	UPPER STEM	2	MU-4A
30	UPPER STEM O-RING	2	2/50
31	BONNET	2	02

FLOW CAPACITIES

VALVE	PRESSURE DROP											
	MIN FLOW	5	10	15	20	25	30	35	40	45	50	PSI
		0.3	0.7	1	1.4	1.7	2.1	2.4	2.8	3.1	3.4	BAR
LV-983	5	39	55	68	79	91	99	109	117	122	126	GPM
	19	148	208	257	299	344	375	413	443	462	477	l/min
LV-984	6	50	69	83	97	108	117	126	134	141	148	GPM
	22.7	189	261	314	367	409	443	477	507	534	560	l/min



LIMITED WARRANTY

Leonard Valve Company warrants the original purchaser that products manufactured by them (not by others) will be free from defects in materials and workmanship under normal conditions of use, when properly installed and maintained in accordance with Leonard Valve Company's instructions, for a period of one year from date of shipment. During this period the Leonard Valve Company 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. There are no warranties, express or implied, which extend beyond the description contained herein. There are no implied warranties of merchantability or of fitness for a particular purpose. In no event will Leonard be liable for labor or incidental or consequential damages. Any alteration or improper installation or use of the product will void this limited warranty.

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