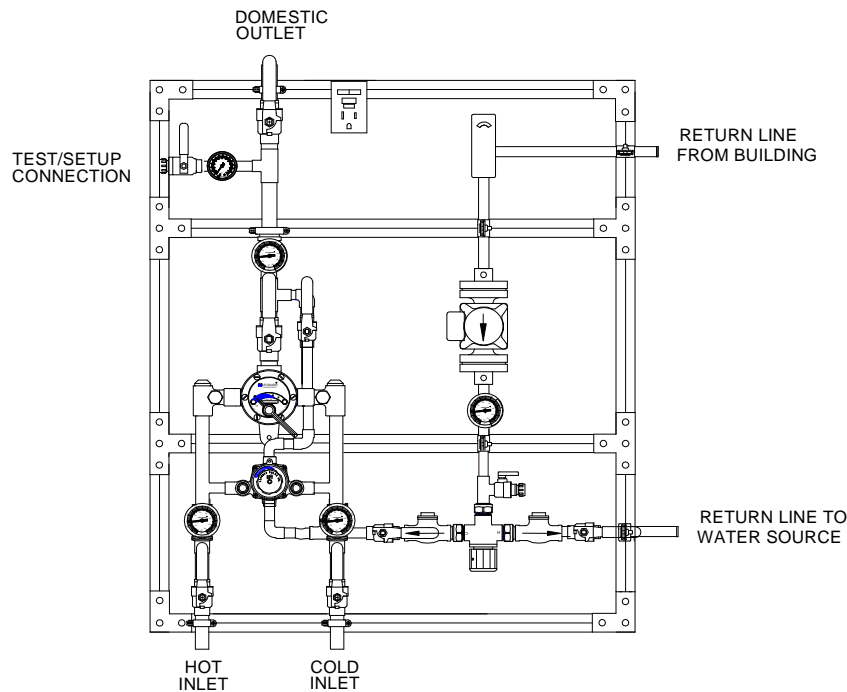


# MEGATRON® MODEL 2NB-LF, 3NB-LF, 4NB-LF, 5NB-LF NEXT GENERATION MANIFOLD SYSTEMS TM-520B-LF, 820B-LF, 920B-LF, 1520B-LF



**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](http://www.P65Warnings.Ca.gov)



- |  |   |
|--|---|
| <ol style="list-style-type: none"> <li>1. Type TM manifold systems are factory pre-assembled and tested and include large and small thermostatic water mixing valves which function as a system to meet both high and low demand for tempered water.</li> <li>2. System should be installed at a location where it can easily be cleaned, adjusted or repaired.</li> </ol> | <ol style="list-style-type: none"> <li>3. System supplies must be connected as shown (Hot-left, Cold-right). Exercise caution when soldering.</li> <li>4. Flush pipes thoroughly after system has been connected.</li> <li>5. Refer to page 3 &amp; 4 &amp; 5 of this bulletin for correct Setup Instructions.</li> </ol> |
|--|---|

**Maximum Operating Pressure 125PSI (862 KPA) for Hot and Cold Water.**

### 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 9. 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).**

# ADJUSTMENT AND SERVICE

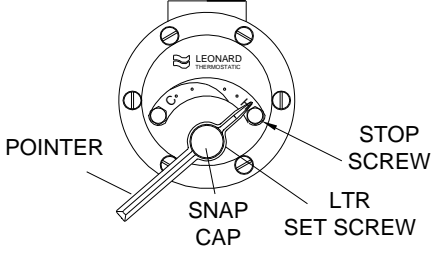
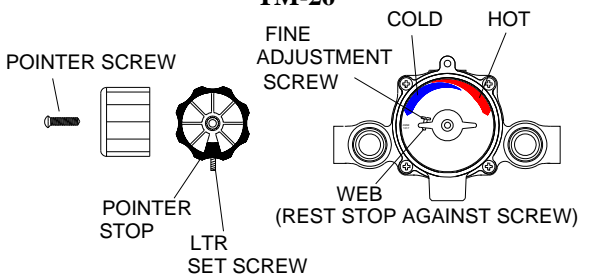
Leonard Type TM Thermostatic Water Mixing Valves are simple in design and may be easily cleaned, adjusted and repaired. If the installation is accessible, servicing may be completed without disconnecting the valves.

**NOTE:** High Low Manifold Systems include Thermostatic Water Mixing Valves, 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.

## WARNING

These mixing valves are equipped with an adjustable high temperature limit stop factory set at approximately 120°F (49°C) with an incoming hot water supply temperature of 150°F (65.5°C). If the hot water supply temperature of the job is greater than 150°F (65.5°C), the valves when turned to full HOT will deliver water in excess of 120°F (49°C) and the limit stops **MUST BE RESET BY THE INSTALLER!**

## TO RESET ADJUSTABLE HIGH TEMPERATURE LIMIT STOP:

<p><b>Serial# s starting with 52, 82, 92, 152</b></p>  <ol style="list-style-type: none"> <li>1. Loosen LTR set screw.</li> <li>2. Remove SNAP CAP, SCREW &amp; WASHER. Remove POINTER.</li> <li>3. Temporarily place POINTER on the spline rod, turn RIGHT for warmer temperature, turn LEFT for cooler temperature. When valve is delivering warmest temperature desired, remove the pointer.</li> <li>4. Replace POINTER on the spline rod so that its RIGHT edge is resting against the STOP SCREW located on the RIGHT SIDE OF THE COVER.</li> <li>5. The new maximum temperature has now been set. Test this temperature by holding a thermometer under the flow of water to be certain it is as desired.</li> </ol> <p>* <b>LIMIT STOP MUST BE RESET AND RECHECKED EACH TIME HANDLE IS REMOVED.</b></p>	<p><b>TM-26</b></p>  <ol style="list-style-type: none"> <li>1. Loosen LTR SET SCREW, remove POINTER SCREW.</li> <li>2. Adjust POINTER to maximum desired temperature.</li> <li>3. Remove POINTER, replace POINTER on spline rod with STOP (which is cast into the underside on the pointer), resting against the BOTTOM side of the WEB on the FINE ADJUSTMENT SCREW.</li> <li>4. If fine adjustment is needed, adjust FINE ADJUSTMENT SCREW on the cover, loosen for hotter or tighten for cooler temperature.</li> <li>5. Replace POINTER and check temperature, if set to desired temperature replace POINTER SCREW, and tighten LTR SET SCREW.</li> <li>6. The new maximum temperature has now been set. Test this temperature by holding a thermometer under the flow of water to be certain it is as desired.</li> </ol> <p>* <b>LIMIT STOP MUST BE RESET AND RECHECKED EACH TIME HANDLE IS REMOVED.</b></p>
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**IMPORTANT! BOTH MIXING VALVES MUST BE SET AT THE SAME OPERATING TEMPERATURE.**

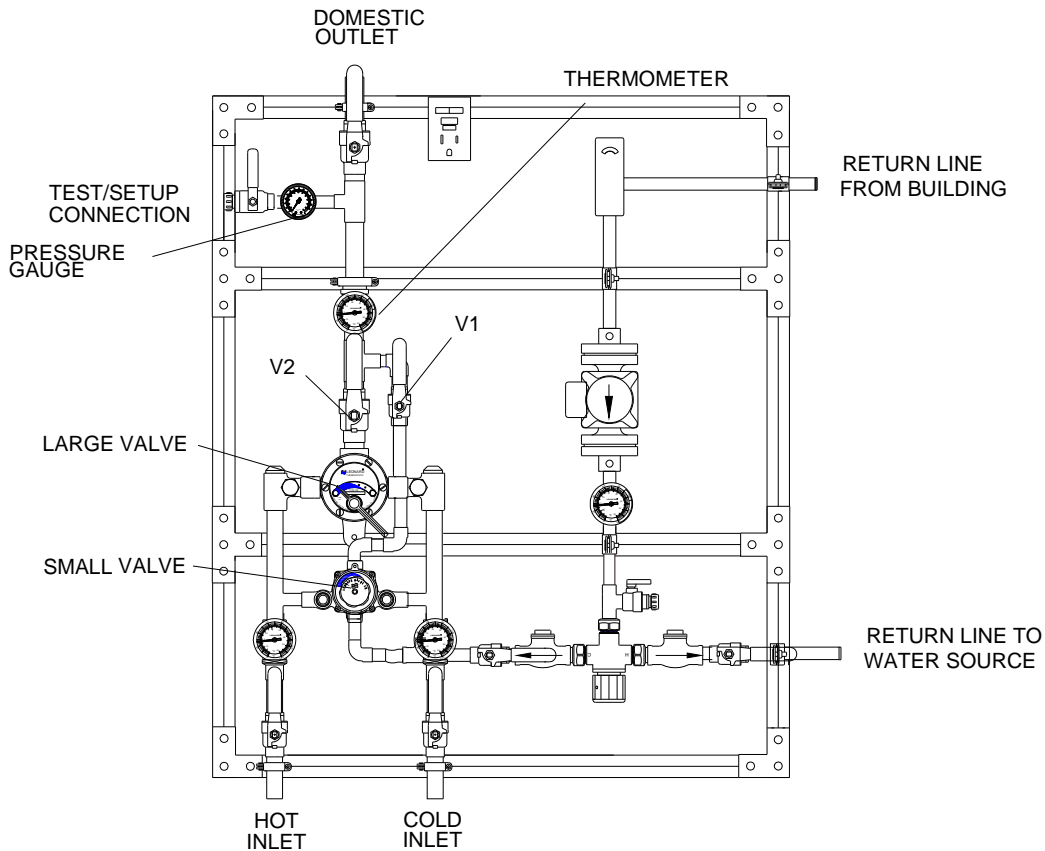
**SEE PAGES: 7 & 8 FOR COMPLETE PARTS BREAKDOWN**

Check for significant variations in outlet flow. Thermostatic valves will NOT provide the desired accuracy outside of their flow capacity range. Minimum flows must be no less than shown (see Flow Capacities, page 9).

If installed on a recirculated hot water system, make certain the valve is piped according to Leonard Required Piping Method (see page 4 & 5).

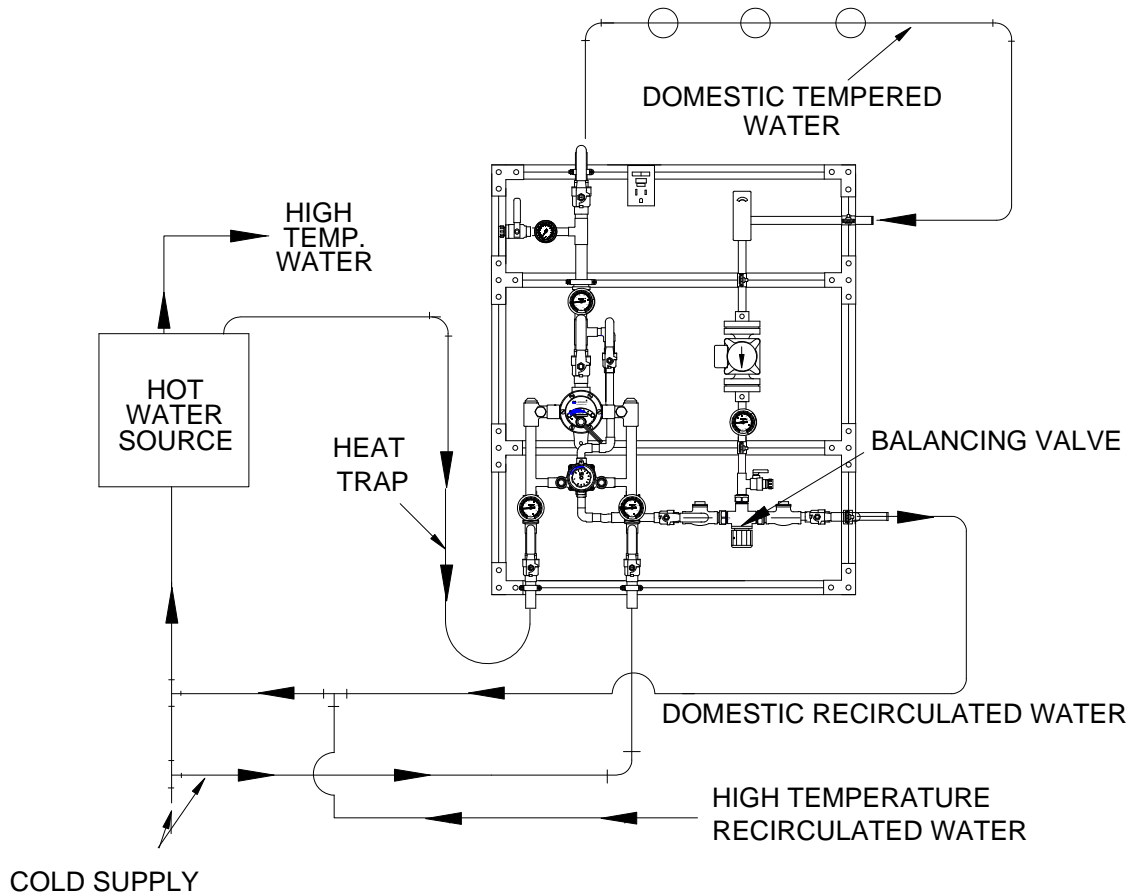
**REMEMBER! THIS IS A CONTROL DEVICE WHICH MUST BE CLEANED AND MAINTAINED ON A REGULAR BASIS. (SEE MAINTENANCE GUIDE AND RECORD, MGR-1000).**

# SETUP INSTRUCTIONS



1. High-low Unit MUST be piped to correct piping method (see pages 4 &5).
2. Make sure hot and cold supplies to this assembly are operating. The temperature of the hot water source must be properly set and maintained.
3. The circulator (if used) must be turned OFF before setup.
4. Turn on enough fixtures for a flow of at least \* downstream from this system. Make sure each fixture is set to deliver full "HOT" water.
  - \*8 GPM (30 l/min.) if TM valve is a TM-50 (Serial #52)
  - \*13 GPM (45 l/min.) if TM valve is a TM-80 (Serial #82)
  - \*13 GPM (45 l/min.) if TM valve is a TM-90 (Serial #92)
  - \*18 GPM (68 l/min.) if TM valve is a TM-150 (Serial #152)
5. Close outlet Valve V1 at the smaller Type TM Valve.
6. Make sure valve V2 at the large Type TM Valve is in the full open position.
7. Set outlet temperature of the large Type TM Valve to the required level.
8. Open outlet Valve V1 at the small TM Valve.
9. Shut outlet Valve V2 at the large TM Valve.
10. Turn on enough fixtures for a flow at least 2 GPM downstream from this system. Make sure each fixture is set to deliver full "HOT" water.
11. Set outlet temperature of the small TM Valve to the same temperature as step 7.
12. Open outlet Valve V2. System is operational.
13. IMPORTANT!! See pages 4 & 5 to balance recirculation system.

## METHOD #2, FOR METHOD #5 (1" or larger return line) see page 5

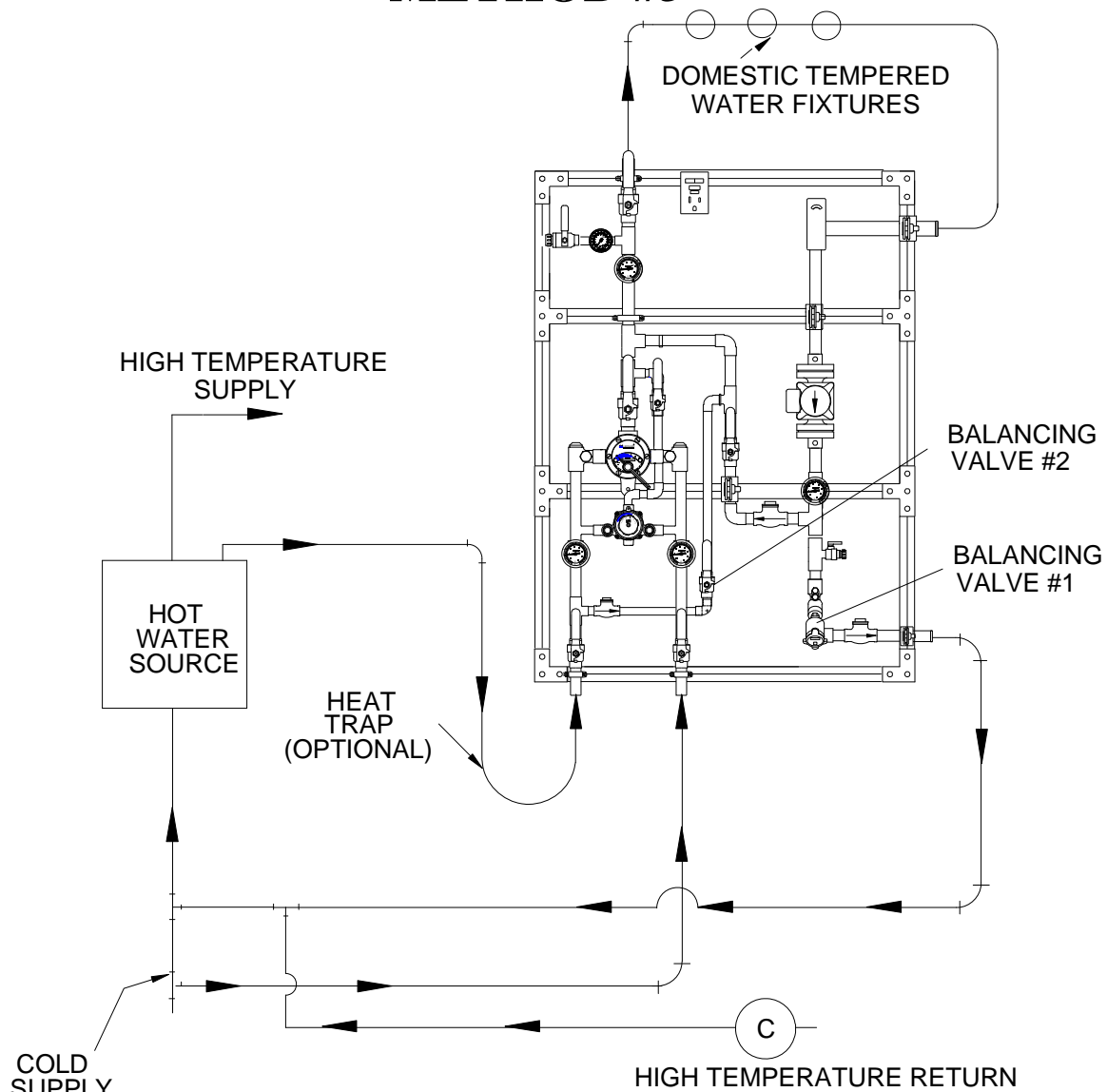


### PROCEDURE TO BALANCE RECIRCULATION SYSTEM

1. 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.
2. Be sure system is piped correctly.
3. Turn circulator off, set mixing valve to the desired temperature, (see page 3).
4. 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.
5. Open the ball valve fully and start the circulator.
6. Observe the temperature until it stabilizes.
7. Adjust 370 ARV counter clockwise (coming out of valve body) slightly if warmer temperature is desired or clockwise (going into valve body) if cooler water is desired. Allow to stabilize. Repeat until the desired recirculated temperature is set.
8. Note: If system has a 1" return line or larger (circuit setter instead of ARV) see page 5 for set-up.

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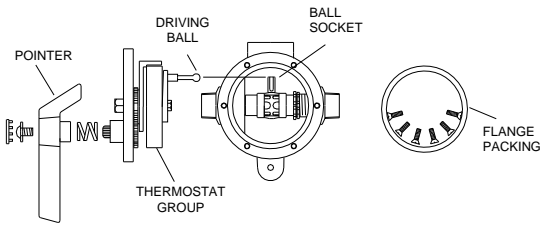
## METHOD #5



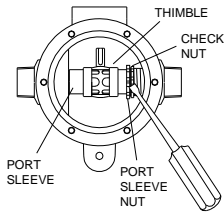
### PROCEDURE TO BALANCE CIRCULATION SYSTEM

1. Make sure no water is being drawn in the building, open balancing valve #1 approximately half way and start the circulator. Keep balancing valve #2 closed at this time.
2. Observe temperature until it stabilizes.
3. Close balancing valve #1 slightly if temperature is too hot, or open it slightly if temperature is too cold. Allow temperature to stabilize, repeat until desired circulation temperature is set.
4. If unable to reach desired temperature with balancing valve #1 in the full open position, open balancing valve #2 in very small increments (I.E. 1/16, 1/8, 3/16, 1/4, etc.) until desired temperature is achieved.

## INSTRUCTIONS FOR SERVICING LARGER TM VALVE

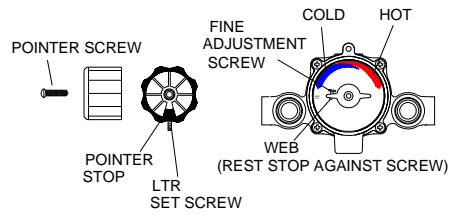


1. Shut off hot and cold supplies to this valve, loosen LTR set screw, remove snap cap, screw and washer, friction spring, remove pointer.
2. Remove, cover screws and cover, to which the thermostat group is attached.

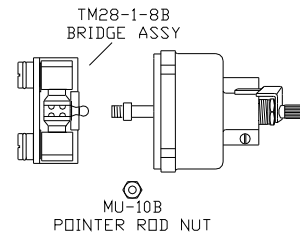


3. To clean port sleeve assembly (the thimble must slide freely on the port sleeve): unscrew the check nut as far as it will go, then screw the port sleeve nut into the base. The port sleeve and thimble may then be lifted out.
4. Clean with a non-corrosive cleaning solution. **DO NOT USE ABRASIVES!** The port sleeve should be reassembled in the valve with the shoulder to the left.
5. To clean thermostat group brush in a non-corrosive cleaning solution.
6. When reassembling, make sure driving ball of thermostat group engages the ball socket of the port sleeve assembly.

## INSTRUCTIONS FOR SERVICING SMALLER TM 26 VALVE



1. Loosen LTR set set screw.
2. Remove pointer screw, and pointer.
3. Turn off hot and cold supplies at screwdriver checkstops. Remove M20-2C cover screws to release cover and thermostatic control assembly.



4. To remove bridge assembly, TM-28-1-8B, remove pointer rod nut (MU-10B) and pull bridge assembly off control rod.
5. To clean submerge bridge assembly in clean water or non-corrosive cleaning solution. **DO NOT USE ABRASIVES!** Be certain thimble moves freely on port sleeve. Note! Driving ball must engage slot in thimble when reassembling.
6. To clean thermostat group, loosen gland nut and remove cover. Brush in a non-corrosive cleaning solution.
7. To disassemble bridge assembly, see drawing next page (remove TM25-3A holder nuts with screwdriver in slots provided).

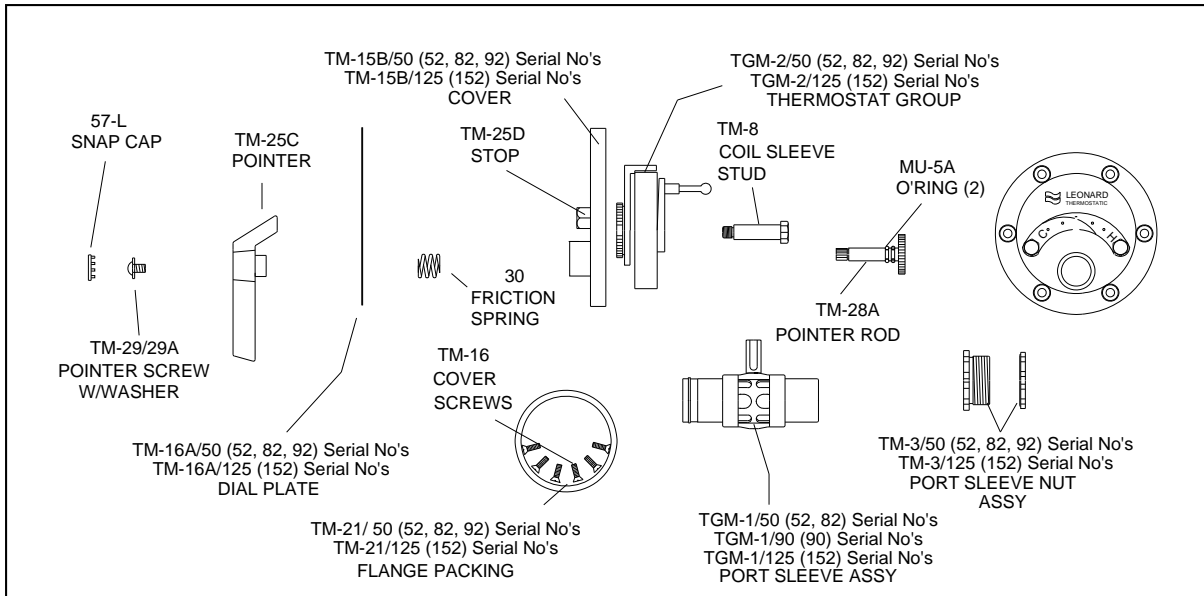
## TROUBLESHOOTING INSTRUCTIONS

Note: Provide valve serial number when ordering parts for either valve!

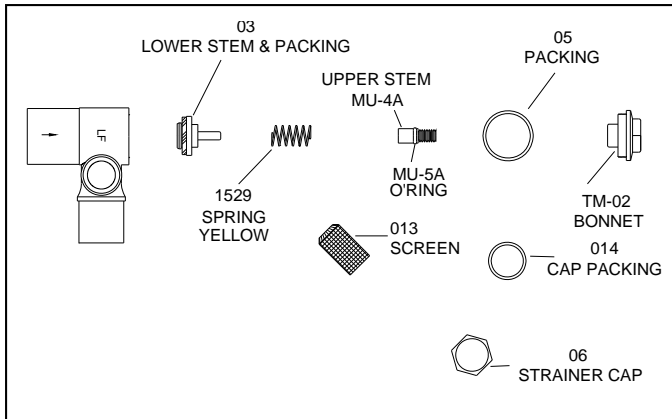
		Large Valve (52,82)	Large Valve (92)	Large Valve (125)	Small Valve TM-26
PACKING & GASKETS	1. Leak between valve cover and base.	Repair Kit 1/50Y	Repair Kit 1/50Y	Repair Kit 1/125Y (125)	Repair Kit 1/26 (Packings & Gaskets)
PORT SLEEVE /BRIDGE ASSEMBLY	2. Valve delivers either all hot or all cold water, or will not mix consistently.	Repair Kit R/50	Repair Kit R/90	Repair Kit R/125	Repair Kit R/28 or TM-28-1-8B (bridge assembly)
THERMOSTAT GROUP	3. After cleaning or replacing port sleeve/bridge assembly, valve performance is not consistent.	Repair Kit R/50 or TGM-2/50	Repair Kit R/90 or TGM-2/50	Repair Kit R/125 or TGM-2/125	KIT#R/28 (rebuilding kit) Or TM28-G2 (thermostat group)
CHECKSTOPS	4. Hot water by-pass into cold line (or cold into hot). 5. Supplies cannot be shut off completely. Supplies leak at checkstop bonnets.	Repair Kit 2/50Y	Repair Kit 2/50Y	Repair Kit 2/50Y	Repair Kit 4/M20 (Checkstop Kit)

See pages 7 & 8 for parts Breakdowns

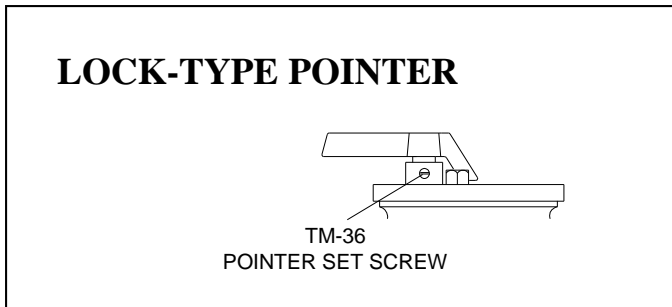
# TM VALVE PARTS 1" INLET & LARGER



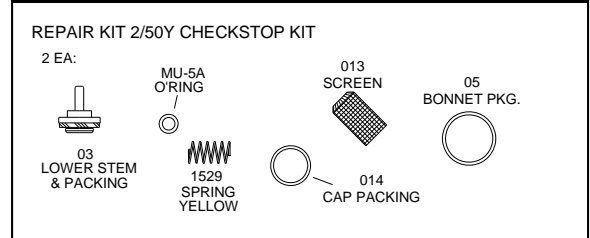
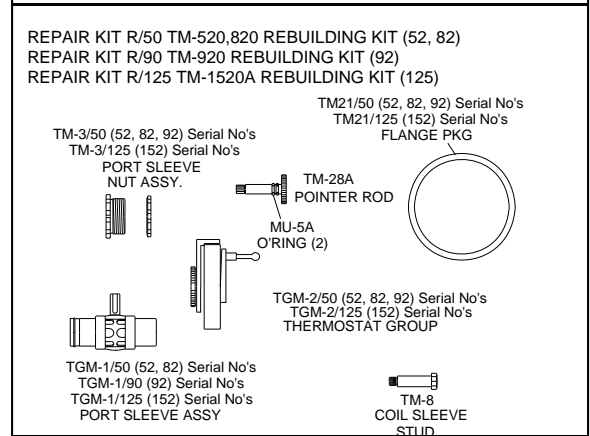
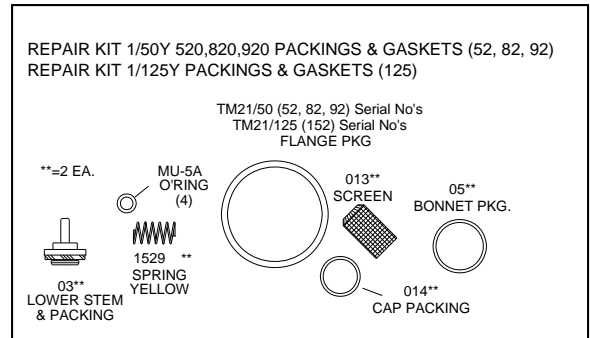
## CHECKSTOP PARTS



## LOCK-TYPE POINTER



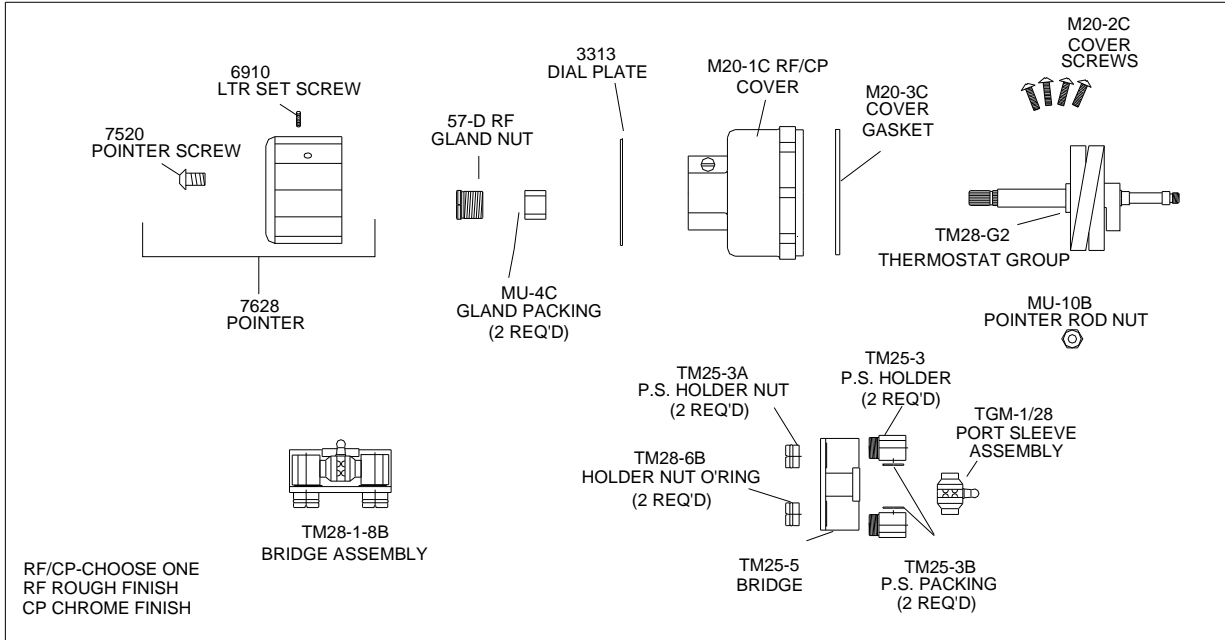
## REPAIR KITS



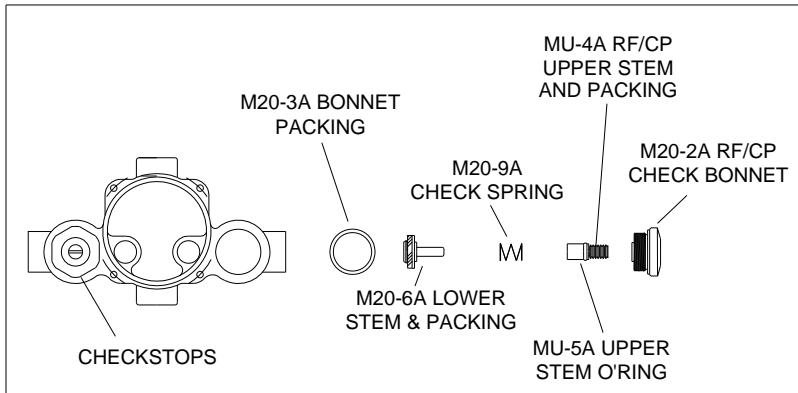
**REMEMBER!** THIS IS A CONTROL DEVICE WHICH MUST BE CLEANED AND MAINTAINED ON A REGULAR BASIS. SEE MAINTENANCE GUIDE AND RECORD MGR-1000.

**NOTE:** AFTER INSTALLING NEW PARTS IT WILL BE NECESSARY TO RESET THE ADJUSTABLE HIGH TEMPERATURE LIMIT STOP ON EACH VALVE (SEE PAGE 2).

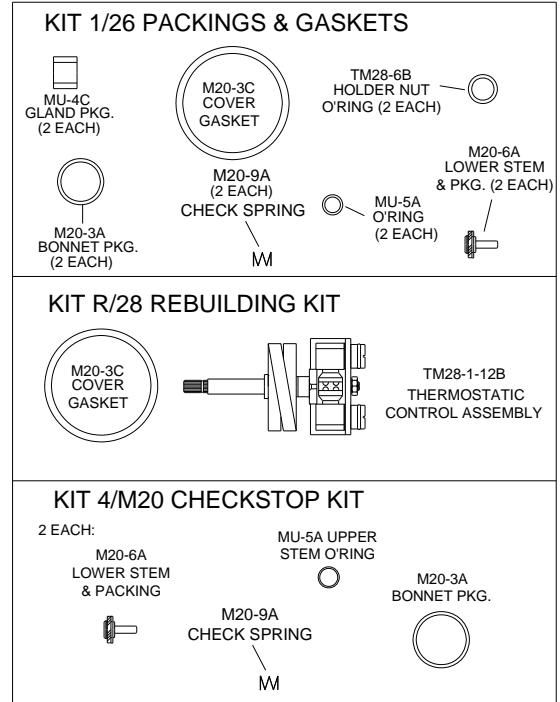
# TM-26 VALVE PARTS (BOTTOM VALVE)



## CHECKSTOP PARTS



## REPAIR KITS



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

**NOTE:** AFTER INSTALLING NEW PARTS IT WILL BE NECESSARY TO RESET THE ADJUSTABLE HIGH TEMPERATURE LIMIT STOP ON EACH VALVE (SEE PAGE 2).



# FLOW CAPACITIES

MODEL	IN	OUT	MINIMUM FLOW (GPM) (l/min)	SYSTEM PRESSURE DROP (PSIG)										PSI BAR
				5	10	15	20	25	30	35	40	45	50	
				,3	.7	.97	1.4	1.7	2.1	2.4	2.8	3.1	3.4	
TM-520B	3/4"	1"	1.0 (3.7)	19 72	29 110	38 144	45 170	51 193	56 212	62 235	68 257	72 272	75 284	GPM l/min
TM-820B	1"	1 1/4"	1.0 (3.7)	26 98	40 151	48 182	58 220	63 238	68 257	74 280	79 299	84 318	89 337	GPM l/min
TM-920B	1 1/4"	1 1/4"	1.0 (3.7)	33 98	47 151	56 212	63 220	68 238	82 257	85 280	92 299	103 318	115 337	GPM l/min
TM-1520B	1 1/4"	1 1/2"	1.0 (3.7)	48 182	65 246	80 303	95 360	112 424	120 454	130 492	140 530	158 598	165 625	GPM 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