MODEL 210, 210-LF
THERMOSTATIC WATER MIXING VALVES
INSTALLATION SETUP AND OPERATING INSTRUCTIONS

IMPORTANT! Provide valve serial number (begins with serial no. H-1000) when ordering parts!!

NOTE: MODELS TM-554-210, C210-AF-TR AND C210-AF-BR-37C ARE ALSO COVERED BY THESE INSTRUCTIONS

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 casting. Connect the hot water into the inlet marked "HOT" and cold water into the inlet marked "COLD." These are NOT to be confused with the "C-H" markings on the front cover.

3. The checkstops furnished must be installed on both supply lines as shown above.

4. 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.

Maximum Operating Pressure 125PSI (860 KPA) for Hot and Cold Water.

WARNING

WARNING! THIS MIXING VALVE IS EQUIPPED WITH AN ADJUSTABLE HIGH TEMPERATURE LIMIT STOP FACTORY SET AT APPROXIMATELY 110°F(43°C) WITH AN INCOMING HOT WATER SUPPLY TEMPERATURE OF 135°F (57°C). IF INCOMING HOT WATER ON THE JOB IS HIGHER THAN 135°F (57°C), THE VALVE WHEN Turned TO FULL HOT MAY DELIVER WATER IN EXCESS OF 110°F (43°C), AND THE HIGH TEMPERATURE LIMIT STOP MUST BE RESET BY THE INSTALLER.

EXCESSIVELY HOT WATER (OVER 110°F) IS DANGEROUS AND MAY CAUSE SCALDING!!

NOTE: NOT FOR USE WITH EYE WASH OR EYE FACE WASH APPLICATIONS.

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 Model 210 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).

TO RESET ADJUSTABLE HIGH TEMPERATURE LIMIT STOP:

1. While valve is running, remove dial plate screw HV10-10 and turn dial plate to maximum setting of 110°F (43°C) or lower.
2. Remove dial plate and reinstall so screw hole is located at the end of the slot, at "H" on the dial plate
3. Reattach and tighten dial plate screw.

WARNING

WARNING! This Thermostatic Mixing Valve has an adjustable high temperature limit stop, which must be checked. If temperature is too high, the installer MUST RESET this stop immediately. Always check the temperature of the mixed water when the dial is turned to full HOT. Excessively hot water is DANGEROUS AND MAY CAUSE SCALDING!

The high temperature limit stop is factory set at approximately 110°F (43°C) with an incoming hot water supply temperature of 135°F (57°C). If the incoming hot water on the job is higher than 135°F (57°C), the valve when turned to full hot will deliver water in excess of 110°F (43°C) and the high temperature limit stop MUST BE RESET BY THE INSTALLER.

TROUBLESHOOTING INSTRUCTIONS

| PACKINGS & GASKETS | 1. Leak at pointer rod. | PARTS REQUIRED: |
| PORT SLEEVE ASSEMBLY | 2. Leak between valve cover and base. | 6806 Cover Gasket |
| THERMOSTAT GROUP | 3. Valve delivers either all hot or all cold water, or will not mix consistently. | MU-5A(2 ea.) O’Ring |
| CHECKSTOPS | 4. After cleaning or replacing port sleeve assembly, valve will not hold temperature. | TAG-1 Port Sleeve Assembly |
| | | OR |
| | | KIT#R/210 Rebuilding Kit |
| | 5. Hot water bypass into cold line. | 6920 Thermostat Group |
| | 6. Supplies cannot be shut off completely. | OR |
| | 7. Leak at checkstop bonnet. | KIT#R/210 Rebuilding Kit |
| | | KIT# 4/LVC (F checkstops) |
| | | KIT#"B" (SB, TB checkstops) |

SEE PAGE 5 FOR COMPLETE PARTS BREAKDOWN, PARTS KITS

If installed as a master mixer on a circulated hot water system, make certain the valve is piped according to Leonard Required Methods of Piping (see page 3).

REMEMBER! THIS IS A CONTROL DEVICE WHICH MUST BE CLEANED AND MAINTAINED ON A REGULAR BASIS. (SEE MAINTENANCE GUIDE AND RECORD, MGR-1000).
REQUIRED METHODS OF PIPING 210 VALVES

(ONLY IF USED AS A MASTER CONTROL ON A RECIRCULATED DOMESTIC WATER SYSTEM)

METHOD #5

Required when TEMPERED water is to be circulated through the entire building, to maintain tempered water at each fixture. The function of the by-pass is to allow the recirculated water to by-pass the mixing valve during periods of no draw without entering the hot water source to avoid being reheated. The ball valve allows the system to be properly balanced. The by-pass loop helps reduce the buildup of undesirable hot water in the primary system, and MUST NOT be omitted. See set-up instructions below.

PROCEDURE TO BALANCE CIRCULATION SYSTEM METHOD #5

1. MAKE SURE NO WATER IS BEING DRAWN IN THE BUILDING. OPEN BALANCING VALVE #1 APPROXIMATELY HALF WAY AND START CIRCULATOR. KEEP BALANCE 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 VALVE #1 IN THE FULL OPEN POSITION, OPEN BALANCE VALVE #2 IN SMALL INCREMENTS (i.e. 1/8, ¼, 3/8, ETC) UNTIL DESIRED TEMPERATURE IS ACHIEVED.

WARNING: THIS PIPING METHOD WILL NOT PERFORM EFFECTIVELY IF THE VALVE IS OVERSIZED. MINIMUM FLOWS ARE SHOWN ON FLOW CAPACITIES CHART, PAGE 6. FOR ESTIMATING MAXIMUM HOT WATER DEMAND, CONSULT LEONARD CASPAK SIZING PROGRAM.
INSTRUCTIONS FOR
DISMANTLING VALVE

1. Turn off hot and cold supplies to this valve.
2. Remove four cover screws MU-2C, lift off cover and thermostat group 6920 (DWG 1).

After installing new parts, it will be necessary to reset Dial Plate to obtain correct temperature range from Cold to Hot. See page 2 instructions "TO RESET ADJUSTABLE HIGH TEMPERATURE LIMIT STOP."

TO CLEAN PORT SLEEVE ASSEMBLY

To clean port sleeve assembly TAG-1 (DWG 2): Remove base stud TA-5. Back off port sleeve nut 3404 as far as it will go into base. Slide TAG-1 port sleeve assembly toward port sleeve nut and lift out of valve base. Clean part TAG-1 with a soft cloth; DO NOT use abrasives such as emery cloth or sandpaper. After cleaning, wash parts in clean water and reassemble in valve base. When reassembling port sleeve assembly BE SURE TO INSTALL WITH LONG END IN BASE AND SHORT END AT PORT SLEEVE NUT. Locate one set of port slots facing directly toward front of the valve. Tighten jam nut 3404 just enough to hold port sleeve in place, (do not cramp or distort port sleeve by exerting excessive pressure when tightening jam nut).

TO CLEAN THERMOSTAT GROUP

To clean thermostat group 6920 (DWG 1), remove dial plate 6907 by loosening dial plate screw and pull off. Remove thermostat group by pushing rod through cover. BE CAREFUL NOT TO PULL COILS OUT OF SHAPE. If deposit has collected on thermostat coil, clean it off with a brush in cleaning solution and wash well before reassembly. Cleaning solution should be non-corrosive and grit free.

To reassemble: be sure port sleeve assembly is in place and is working freely from side to side. Reinstall base stud TA-5, then place thermostat group 6920 on base stud and BE SURE DRIVING BALL ON PORT SLEEVE ASSEMBLY TAG-1 IS INSERTED IN HOLE ON LOWER COIL BRACKET (DWG 3.) Move thermostat back and forth to be sure all parts are free. Replace cover and cover gasket on valve base, install the four cover screws, and turn on hot and cold water supplies. See instructions "To Reset High Temperature Limit Stop" to properly reset limit stop.

After installation, adjustment, cleaning, always check the temperature of the valve when turned to full HOT per the warning on the front page, using a thermometer. Also check and if necessary adjust the temperature of the hot water source. EXCESSIVELY HOT WATER (OVER 110°F) IS DANGEROUS AND MAY CAUSE SCALDING!!

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

CHECKSTOPS PARTS

REPAIR KIT

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 (SEE PAGE 2).
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 and DO NOT OVERSIZE. Flow must not greater or less than as shown below.

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