

MODEL 210, 210-LF

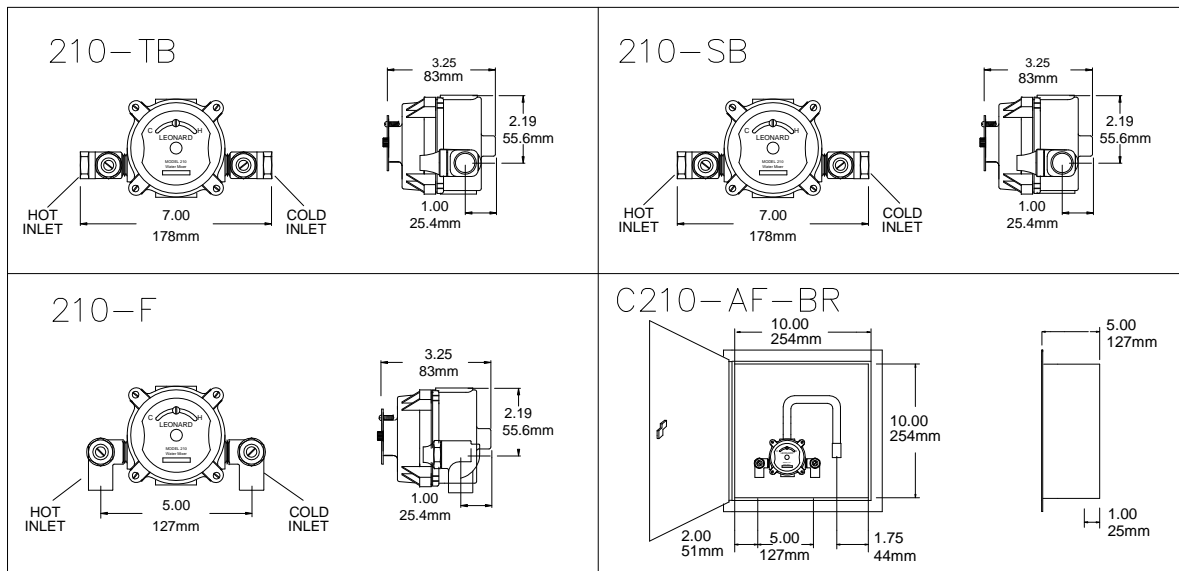
THERMOSTATIC WATER MIXING VALVES

INSTALLATION SETUP AND OPERATING INSTRUCTIONS

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



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



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.

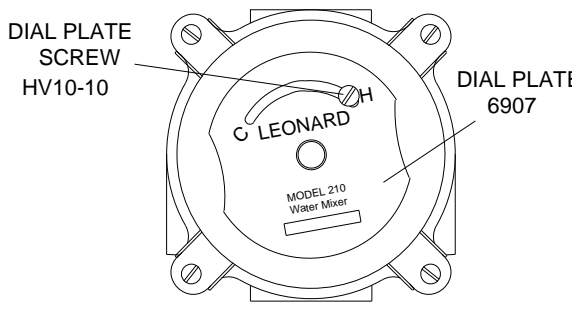
REMEMBER! THIS IS A CONTROL SYSTEM WHICH MUST BE CLEANED AND MAINTAINED ON A REGULAR BASIS (SEE MAINTENANCE GUIDE AND RECORD MGR-1000).

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:

 <ol style="list-style-type: none"> 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. 	<h3 style="text-align: center;">WARNING</h3> <p>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!</p> <p>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.</p>
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TROUBLESHOOTING INSTRUCTIONS

PACKINGS & GASKETS	<ol style="list-style-type: none"> 1. Leak at pointer rod. 2. Leak between valve cover and base. 	PARTS REQUIRED: 6806 Cover Gasket MU-5A(2 ea.) O'Ring
PORT SLEEVE ASSEMBLY	<ol style="list-style-type: none"> 3. Valve delivers either all hot or all cold water, or will not mix consistently. 	TAG-1 Port Sleeve Assembly OR KIT#R/210 Rebuilding Kit
THERMOSTAT GROUP	<ol style="list-style-type: none"> 4. After cleaning or replacing port sleeve assembly, valve will not hold temperature. 	6920 Thermostat Group OR KIT#R/210 Rebuilding Kit
CHECKSTOPS	<ol style="list-style-type: none"> 5. Hot water bypass into cold line. 6. Supplies cannot be shut off completely. 7. Leak at checkstop bonnet. 	KIT# 4/LVC (F checkstops) KIT#"B" (SB,TB checkstops)

SEE PAGE 5 FOR COMPLETE PARTS BREAKDOWN, PARTS KITS

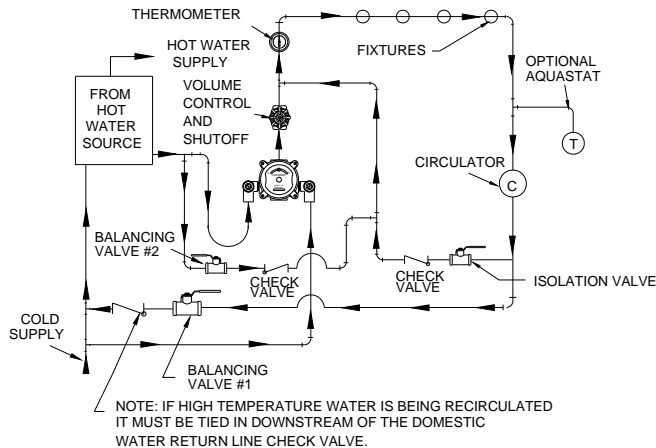
If installed as a master mixer on a circulated hot water system, make certain the valve is piped according to Leonard Required Methods of Piping (see page 3).

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REQUIRED METHODS OF PIPING 210 VALVES

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

METHOD #5



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, 1/4, 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.

DO NOT CONFUSE THE MINIMUM FLOW REQUIREMENTS OF THE MIXING VALVE WITH PROPER SIZING OF THE CIRCULATOR.

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

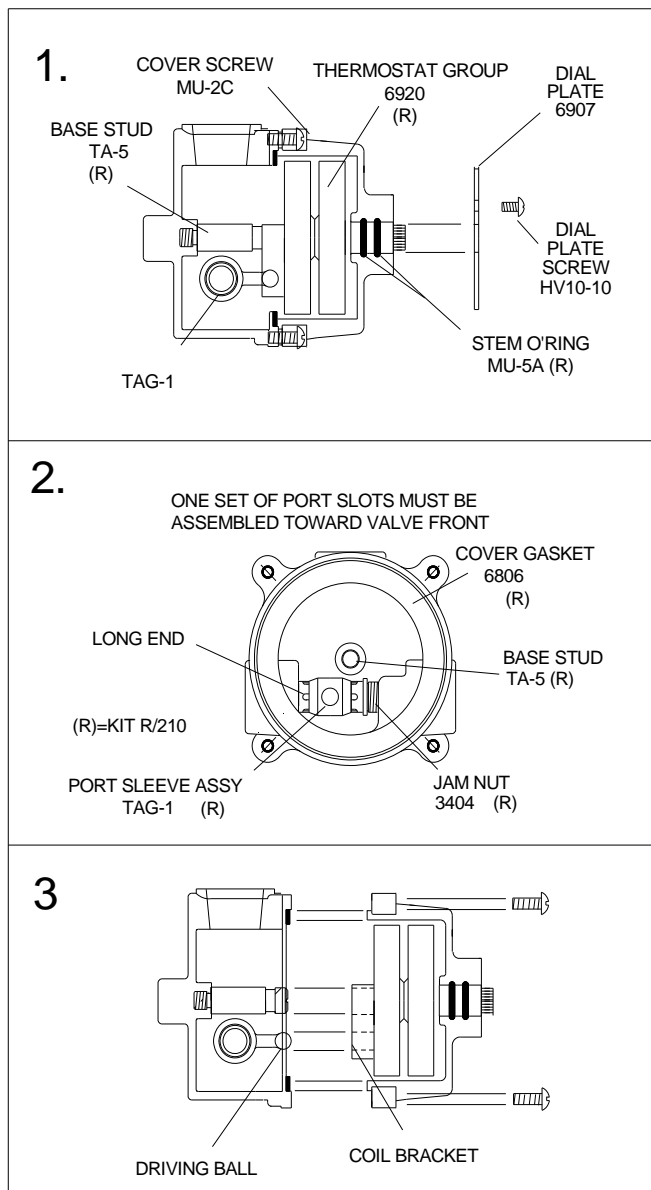
To clean port sleeve assembly TAG-1 (DWG 2.): Remove base stud TA-5. Back off port sleeve nut 3404 as far as it will go into base. Slide TAG-1 port sleeve assembly toward port sleeve nut and lift out of valve base. Clean part TAG-1 with a soft cloth; **DO NOT** use abrasives such as emery cloth or sandpaper. 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.

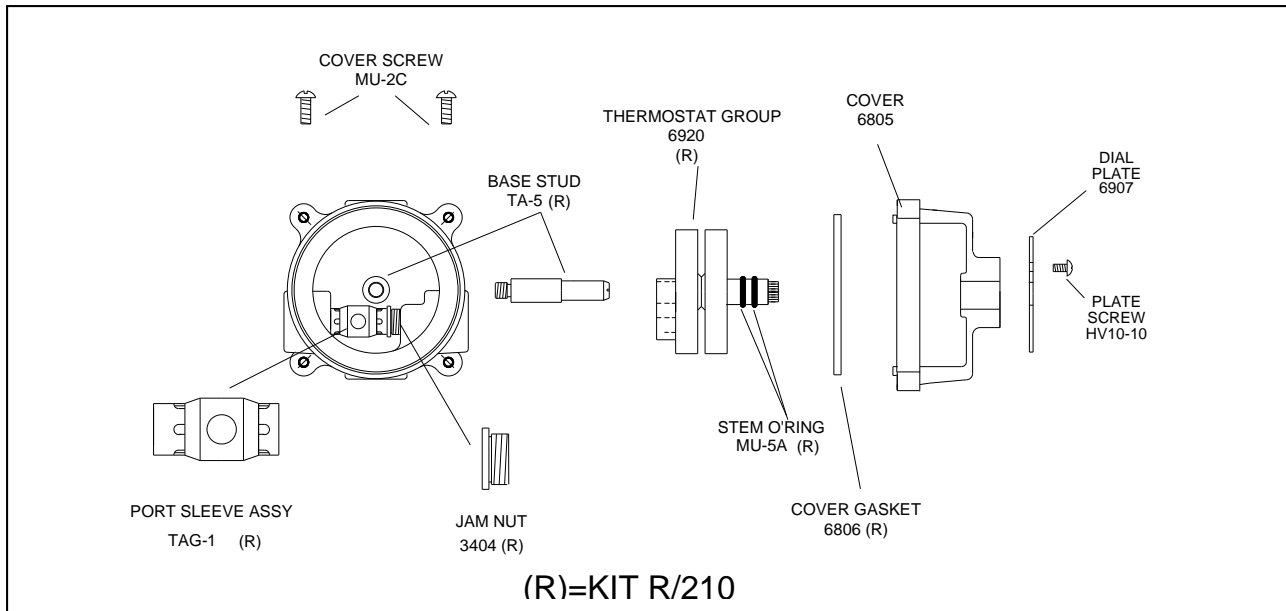
To reassemble: be sure port sleeve assembly is in place and is working freely from side to side. Reinstall base stud TA-5, then place thermostat group 6920 on base stud and **BE SURE DRIVING BALL ON PORT SLEEVE ASSEMBLY TAG-1 IS INSERTED IN HOLE ON LOWER COIL BRACKET (DWG 3.)** Move thermostat back and 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!!**

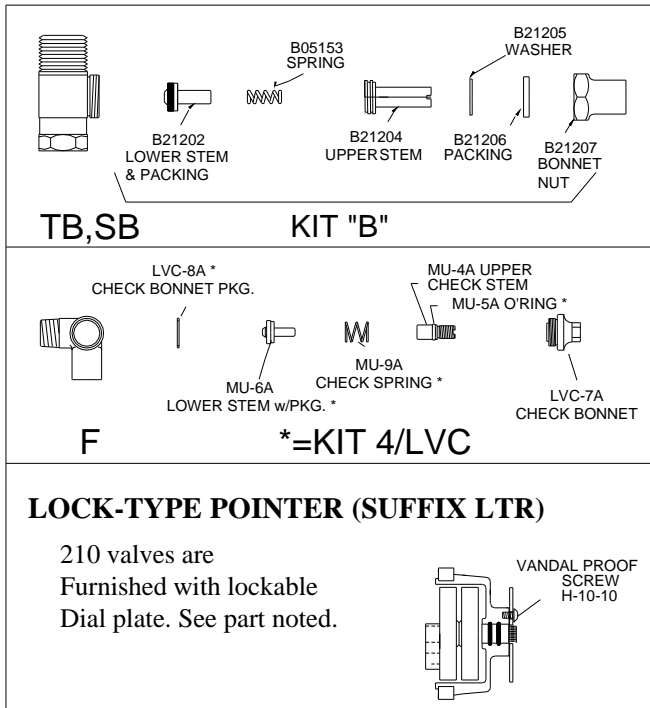
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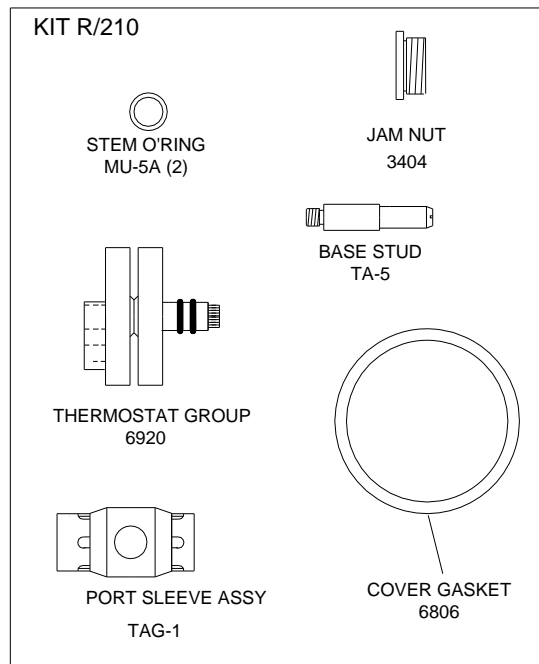
210 VALVE PARTS



CHECKSTOPS PARTS



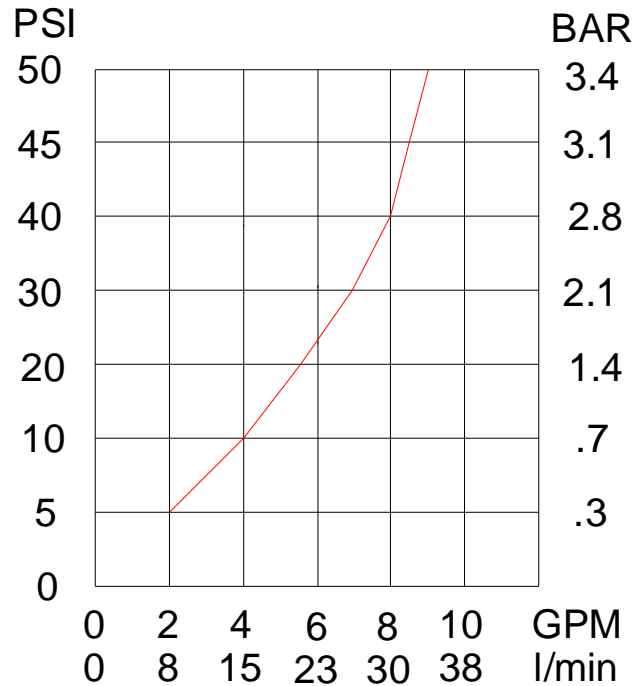
REPAIR KIT



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

MODEL 210 FLOW CAPACITIES



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.

MODEL	IN	OUT	MINIMUM FLOW (GPM)	PRESSURE DROP							PSI	BAR
				5	10	20	30	40	45	50		
210	1/2"	1/2"	0.5	2.0	4	5.5	7	8	8.5	9.0	GPM	
			1.9	7.6	15	21	26	30	32	34	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.