Cash Acme MasterGuard Plus™ LEAD-FREE*

Thermostatic Mixing Valve

❑ Installation ❑ Maintenance Instructions

INSTALLATION INSTRUCTIONS

This is a Temperature Control device that must be checked and serviced regularly to ensure correct and safe performance. It should not be necessary to disassemble a new valve on initial installation. However, if after following all instructions and troubleshooting guides presented here and you are still having difficulties, please contact Cash Acme for additional guidance and information.

- Every valve is factory-set to a nominal temperature of 116.5°F ± 3.5°F (47°C ± 2°C) . The outlet temperature range is 85 – 150°F (29.4 – 66°C) and the maximum pressure is 125 psi (862 kPa). Every valve must be adjusted on-site to ensure correct delivery of the desired mixed water temperature, as installation conditions can vary from site to site. Measure and note all site parameters (pressure, temperature, etc.) and check against the specifications of the chosen valve. If the site conditions are outside those specified for the valve then they must be rectified prior to installing the valve.
- Valve MUST NOT be subjected to heating during installation as this may damage the valve's internals.
- Valve MUST NOT be fitted on steam-supplied systems, but to water systems only.
- Valve MUST NOT be frozen. If the valve is installed in a situation where freezing is a possibility, then suitable measures must be taken to prevent the valve from freezing.
- DO NOT use excess thread sealant (in liquid, tape or other form) as this may cause the valve to fail.

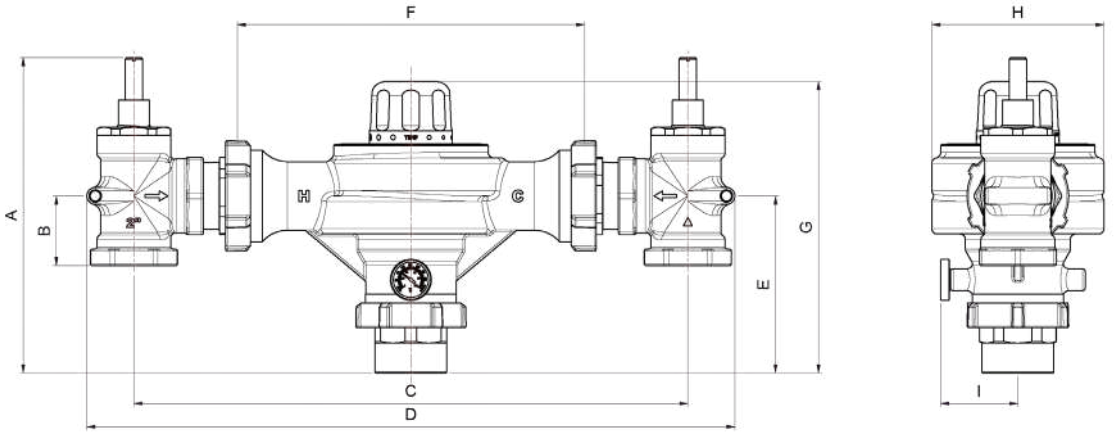
INSTALLATION

NOTE: Failure to comply with all aspects of these instructions may result in unsafe performance. All installations must comply with relevant State and Local Authority requirements.

1. Flush the Hot and Cold delivery lines **completely** before installing the MasterGuard Plus. All debris MUST be flushed from the pipe work prior to installing the device. Not flushing the system properly is the most common cause of system difficulties.
2. The inlet shutoff fittings supplied must be installed with the valve to ensure correct operation.
3. Connect the inlet lines as shown on the following page.
4. It is recommended that an isolation valve be installed on the outlet of the MasterGuard Plus.
5. Connect the outlet line as shown on the following page.
6. Check the set outlet temperature by running a plumbing fixture and verifying with a thermometer. (See Temperature Adjustment)

NOTE: In areas where temperatures can drop below freezing, care should be taken to ensure the valve does not freeze. Freezing the valve will result in serious damage to the internal components that will cause the valve to malfunction.

**The wetted surface of this product contacted by consumable water contains less than 0.25% of lead by weight.*



PART NUMBER	INLET	OULET	FLOW AT 45 PSI (GPM)	MINIMUM FLOW RATE (GPM)	DIMENSIONS (approximate)																				WEIGHT	
					A		B		C		D		E		F		G		H		I					
					in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lb	kg
25763	3/4"	1"	64	5	7.3	186	1.4	36	12.1	307	14.5	368	5.2	132	7.6	193	9.0	229	3.6	92	2.0	51	10.3	4.7
25764	1"	1-1/4"	64	5	7.5	190	1.5	38	13.0	330	15.4	391	5.4	136	7.6	193	9.2	233	3.6	92	2.0	51	11.1	5.0
25765	1-1/4"	1-1/2"	129	6	9.8	250	1.8	46	14.7	373	17.5	445	6.3	161	8.7	221	10.6	268	4.5	113	2.3	58	21.2	9.6
25766	1-1/2"	1-1/2"	144	6	9.8	250	2.1	53	15.9	404	18.7	475	6.3	161	8.7	221	10.6	268	4.5	113	2.3	58	22.1	10.0
25767	1-1/2"	2"	191	10	9.9	251	2.1	53	19.1	485	21.9	556	6.4	162	12.2	310	10.8	274	6.1	156	2.8	71	30.4	13.8
25768	2"	2"	208	10	11	284	2.5	64	19.8	503	23.1	587	6.3	160	12.2	310	10.8	274	6.1	156	2.8	71	34.6	15.7

Installation Conditions:

Hot Temperature Supply Range:	120°F (48.9°C) – 180°F (82.2°C)
Maximum Peak Hot Supply Temperature:	200°F (93.3°C)
Cold Temperature Supply Range:	39°F (3.9°C) – 80°F (26.7°C)
Maximum Supply Pressure:	125 PSI (860kPa)
Permitted Supply Pressure Variation:	10% (max)

Operating Conditions:

Adjustable Temperature Range:	85°F (29.4°C) – 160°F (71.1°C)
Factory Set Temperature Range:	113°F (45°C) - 120°F (48.9°C)
Minimum Temperature Differential:	25°F (15°C)

Recirculation Piping Requirements

In order to maintain mixed water throughout the installation it is recommended that a recirculating system be used. To achieve a stable recirculation temperature, follow the piping diagram exactly.

NOTE: In areas where temperatures can drop below freezing, care should be taken to ensure the valve does not freeze. Freezing the valve will result in serious damage to the internal components that will cause the valve to malfunction.

SETTING RECIRCULATION TEMPERATURE SET

1. Purge the system of air and ensure the hot water source is switched on and delivering hot water at normal operating temperature.
2. With the Adjustment Ball Valve fully closed and the recirculating pump turned off, set the desired mix temperature of the valve as detailed in the Temperature Adjustment section.
3. With the mixed temperature set, close all outlets. (Make sure there is no water being drawn off through the MasterGuard Plus).
4. Start the Circulating Pump and open the Adjusting Ball Valve approximately half way.
5. Allow the recirculating temperature to stabilize.
6. If the temperature increases above the desired temperature, slightly close the Adjustment Ball Valve. If the temperature decreases below the desired temperature, open the Adjustment Ball Valve slightly.
7. Repeat steps 4 and 5 until the valve is recirculating at the desired temperature.

TEMPERATURE ADJUSTMENT

1. Prior to setting the valve it is necessary for the hot water source to be switched on and delivering hot water at normal operating temperature.
2. Open the nearest hot water outlet supplied by the MasterGuard Plus to a flow of 4–5 GPM. Allow the water to reach a stable temperature before recording. The temperature must be tested at the nearest outlet to ensure that the water delivered to any outlet is not greater than the desired maximum.
3. If the temperature is outside the desired operating limits it will be necessary to adjust the valve. The valve has two modes of temperature adjustment: (a) Adjustable to a preset maximum (b) Locked temperature operation.

a) ADJUSTABLE (W/ PRESET MAX)

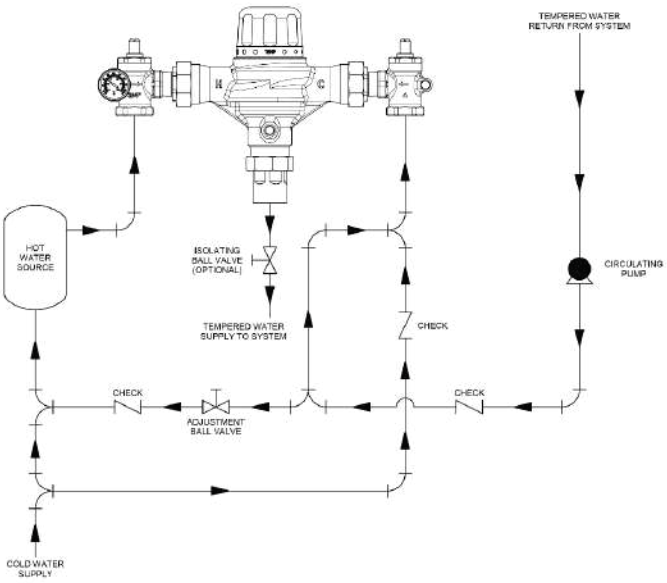
1. Remove the securing screw.
2. If adjusting knob is currently locked in the locked position, remove the adjusting knob and replace it in a new position that allows it to rotate freely. The locking ring may require removal to adjust to the outer limits of the range.
3. Set the desired outlet temperature to the maximum required temperature. Replace the locking ring if necessary. Replace the adjusting knob with the Locking Tab to the RIGHT of the Locking Ring Lugs but not in the engaged position.

*This represents the maximum position of the knob. From this point the temperature can be adjusted lower, but not higher. To adjust lower, turn the adjusting knob clockwise. If it is possible to turn the knob anticlockwise, (i.e. to a higher temperature), the step 3 needs to be repeated to set the knob in the correct position.

4. Replace the securing screw.
5. If desired, use adjusting knob to set the temperature lower than the maximum.

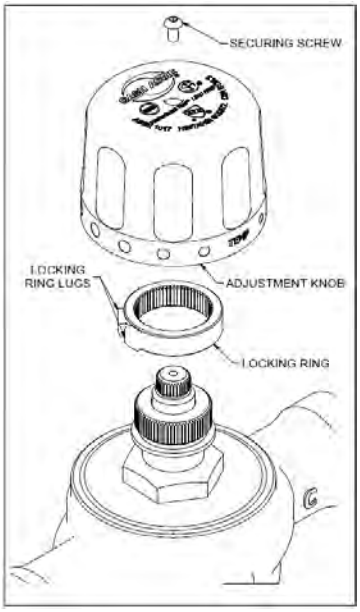
b) LOCKED TEMPERATURE

1. Remove the securing screw.
2. If adjusting knob is currently locked in the locked position, remove the adjusting knob and replace it in a new position that allows it to rotate freely. The locking ring may require removal to adjust to the outer limits of the range
3. Set the outlet temperature as desired.
4. Replace the locking ring if necessary. Reposition the adjusting knob so the Locking Tab and the Locking Ring Lugs are engaged.
5. Replace the securing screw.



RECIRCULATION PIPING DIAGRAM

NOTE: When installing the MasterGuard Plus in an environment that experiences large seasonal temperature changes through the year, it may be necessary to make minor adjustments to the Adjustment Ball Valve to maintain consistent temperatures.



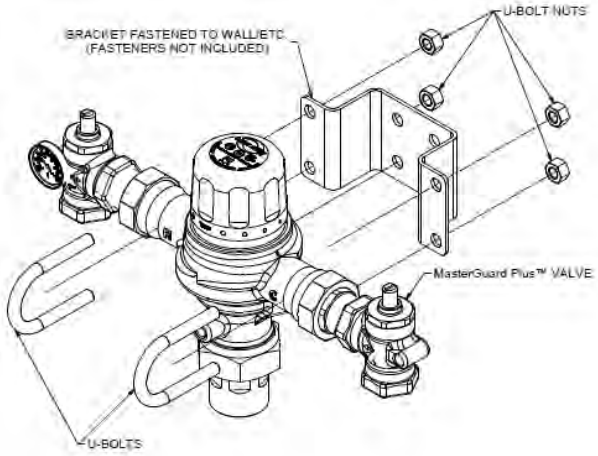
Recirculation Troubleshooting

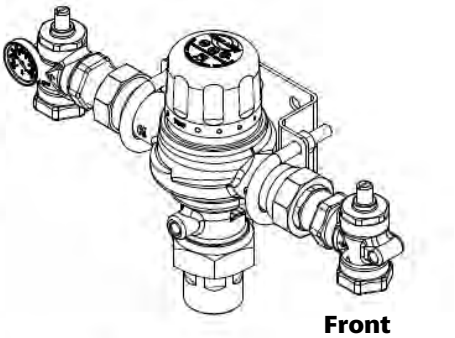
PROBLEM	CAUSE	SOLUTION
1. Recirculating water temperature hotter than desired.	Ball valve incorrectly set.	Close ball valve slightly.
2. Recirculating water temperature colder than desired.	Ball valve incorrectly set.	Open ball valve slightly.
3. Recirculating water cools down with ball valve fully open.	Recirculating pump too small. Recirculating pump not operating. System not piped correctly.	Obtain larger pump. Rectify pump problem. Check piping against supplied diagram and correct if necessary.

Mounting the MasterGuard Plus

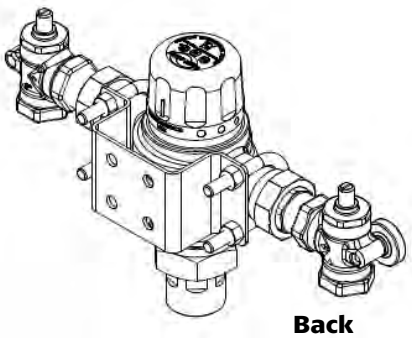
The MasterGuard Plus should be secured upon installation to reduce valve and system stress from water thrust as well as the valve's weight. The mounting bracket included with each valve installs quickly and provides substantial support.

1. Once the installation spot is determined, hold the bracket up to the wall in the correct position. Mark the interior mounting holes of the bracket where the wall fasteners will go. Create pilot holes for the wall fasteners.
2. Using proper wall fasteners (not included), secure the bracket to the wall.
3. Place the valve up to the bracket and push the U-bolts around the Hot and Cold Inlets and through the bracket. Tighten the U-bolt nuts until snug.



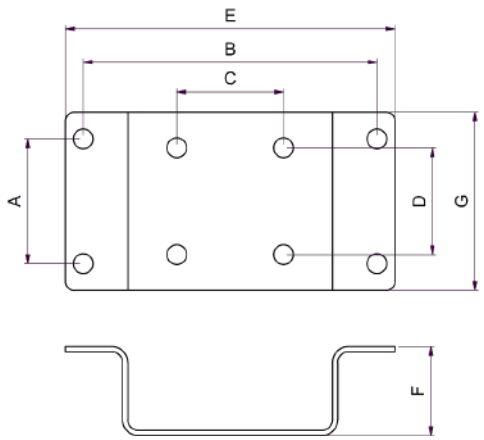


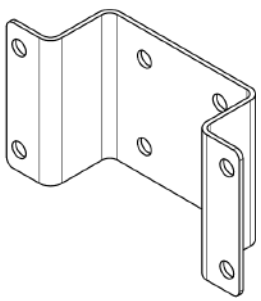
Front



Back

Bracket Specifications:





25763, 25764, 25765, 25766
U-bolt threads: M10
Bracket Holes: 11mm

25767, 25768
U-bolt threads: M12
Bracket Holes: 13mm

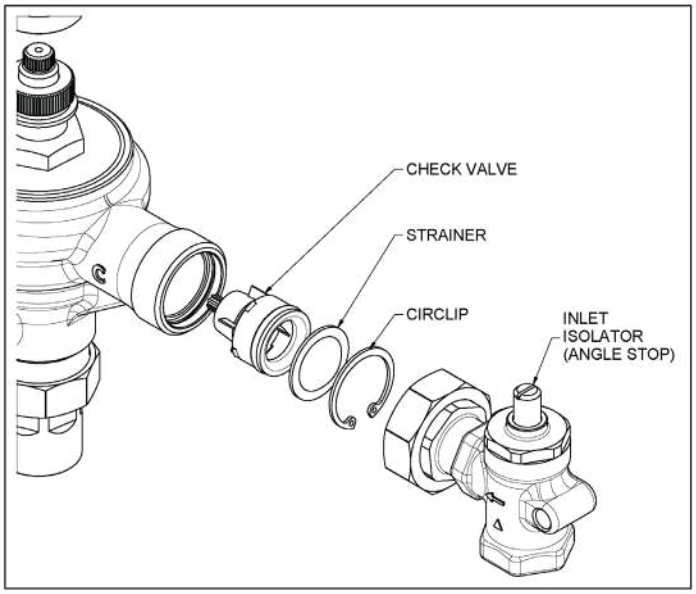
PART NUMBER	INLET	OULET	DIMENSIONS (approximate)													
			A		B		C		D		E		F		G	
			in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	In.	mm
25763	3/4"	1"	2.1	53	5.4	138	1.6	40	1.5	39	3.7	94	2.0	50	3.0	75
25764	1"	1-1/4"														
25765	1-1/4"	1-1/2"	2.8	70	6.5	165	2.4	60	2.4	60	7.3	185	2.0	50	3.9	100
25766	1-1/2"	1-1/2"														
25767	1-1/2"	2"	3.5	88	8.3	210	3.9	100	3.1	80	9.4	240	2.6	65	4.7	120
25768	2"	2"														

Maintenance

It is recommended that the MasterGuard Plus be serviced at regular intervals not exceeding 12 months to maintain safe and reliable operation.

If the valve is not functioning correctly, proceed to the trouble-shooting section for assistance.

1. Shut off the Hot and Cold Inlet Isolators and the Outlet Isolator (if fitted). It is recommended that the valve be allowed to cool before continuing to prevent scalding from the hot water and any hot parts.
2. Using a suitable sized wrench, undo the union nuts and remove the valve from the line.
3. Carefully remove the circlip and strainer.
4. Using either compressed air or water, remove all foreign material from the strainer. If the strainer is heavily blocked it may be necessary to increase service frequency or install a separate line strainer down stream from the valve. If Calcium build up is visible, soak the strainers in an acceptable de-liming agent. Rinse strainer thoroughly in water after soaking.
5. Remove check modules from the body. Inspect seat and seal ring for debris or damage. Clean and reinstall the check modules. If any damaged is observed the checks will need to be replaced.
6. Observe the outlets of the isolators. No water should flow out of either of the fittings. If water does flow from one or both of the fittings the isolators will need to be replaced.
7. Reposition the strainer in the body, again being careful not to deform the strainer in any way, and reinstall the circlip.
8. Replace the valve back in-line and tighten the union nuts with a wrench.
9. Open the Hot and Cold Isolators and the Outlet Isolator (If fitted).
10. Following the steps outlined in the Temperature Adjustment Section, measure the outlet water temperature and adjust as necessary.
11. It is recommended the valve be tested to verify that valve's internals are clear from build up and free to move.
    a. Open the nearest hot water outlet supplied by the valve to a flow between 2 and 3 gallons per minute.
    b. Using the Cold Inlet Isolator quickly shut off the cold supply to the valve.
    c. The flow from the outlet should reduce to a fast trickle (0.25 Gallon per Minute) within 5 seconds.
    d. Restore the Cold Supply.
    e. Allow the water to flow for 1 minute. Using the Hot Inlet Isolator, quickly shut off the hot supply to the valve.
    f. The flow from the outlet should reduce to a fast trickle (0.25GPM) within 5 seconds.
    g. Restore the Hot Supply.
    h. Allow the water to flow for 1 minute before repeating steps **b** through **g**.
    i. Allow the valve to flow for several minutes to allow the outlet temperature to stabilize before measuring it.
12. If the valve is unable to reduce the flow to less than 0.25 GPM or the final outlet temperature is greater than ±5°F, the valve is not operating correctly and the internals should be replaced immediately.

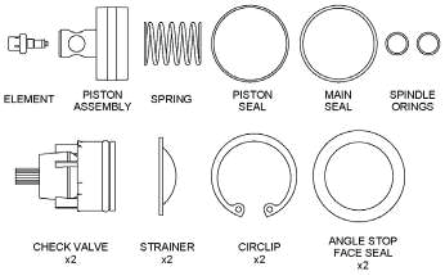


Repair Kits

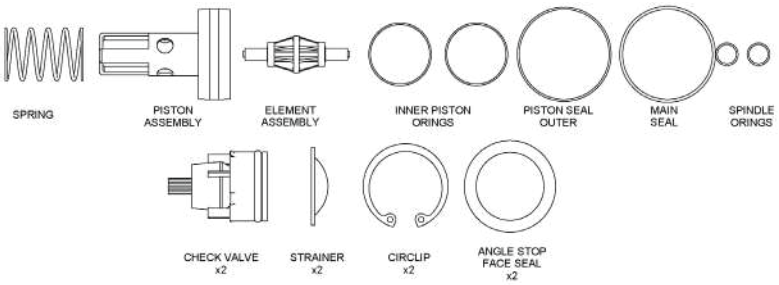
Five Repair Kits are available for the MasterGuard Plus.

1. Internal Components Replacement Kit

This kit contains all the parts that are likely to wear or malfunction during normal operation.



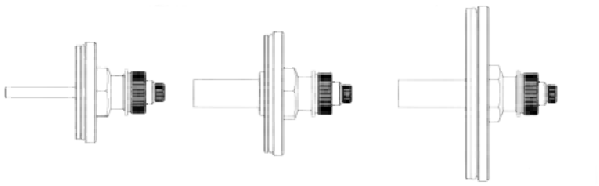
25763/25764 – MS301



25765/25766 – MS302
25767/25768 – MS303

2. Head Work Replacement Kit

This kit contains a complete new head assembly.



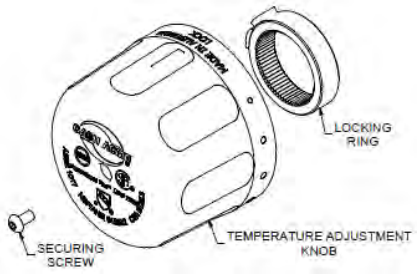
25763/25764 – MS287

25765/25766 – MS288

25767/25768 – MS289

3. Knob Replacement Kit

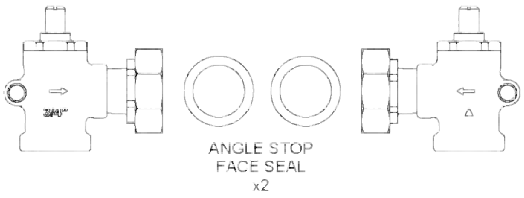
This kit contains a replacement knob and screw.



MS286

4. Angle Stop Replacement Kit

This kit contains both a hot and cold inlet fitting with non-return check stops installed. The kit also contains two replacement face seals.

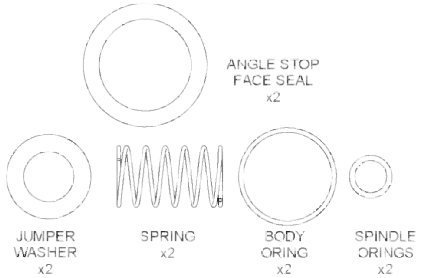


25763 – MS290
25764 – MS291
25765 – MS292

25766 – MS293
25767 – MS294
25768 – MS295

5. Internal Components Replacement Kit

The Seal Kit contains all the O-rings and Seals used in the Angle Stop valves.



25763/25764 – MS296
25765 – MS297
25766 – MS298

25767 – MS299
25768 – MS300

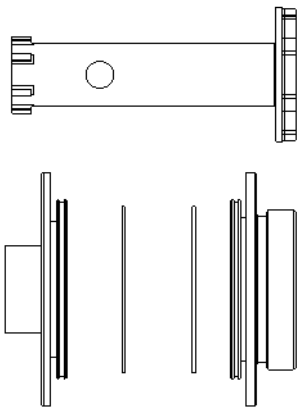
This is a Temperature Control device that must be checked and serviced regularly to ensure correct and safe performance. It should not be necessary to disassemble a new valve on initial installation. However if after following all instructions and trouble shooting guides presented here and you are still having difficulties, please contact Cash Acme for additional guidance and information.

Repair Kits — Cont.

Five Repair Kits are available for the MasterGuard Plus.

6. Seat Replacement Kit

This kit contains hot and cold seats, O–rings and installation tool.



25765/25766 — MS304

25767/25768 — MS305

This is a Temperature Control device that must be checked and serviced regularly to ensure correct and safe performance. It should not be necessary to disassemble a new valve on initial installation. However if after following all instructions and trouble shooting guides presented here and you are still having difficulties, please contact Cash Acme for additional guidance and information.

Troubleshooting

FAULT / SYMPTOM	CAUSE	RECTIFICATION
1) Water leaks from head work.	-O-ring worn or damaged.	-Replace O-ring with suitable part from the Internal Components Replacement Kit.
2) Valve is difficult or impossible to set.	-Inlet temperatures are not within specific limits. -Hot and cold supplies are reversed. -Strainers blocked	-Clean strainers. -Install pressure regulating valves on both hot and cold supplies.
3) Mix temperature unstable or mix temperature changing over time.	-Strainers blocked. -Fluctuating Supply pressures.	-Clean strainers as detailed in maintenance section. -Install pressure regulating valves on hot and cold supplies.
4) Either full hot or full cold water flowing from outlet fixture.	-Valve is incorrectly set. -Hot and cold supplies are reversed -Hot/Cold water has migrated to other inlet.	-Adjust mix temperature as required. -Refit the valve with Hot/Cold supplies fitted to the correct connections. -Check non-return valve is not fouled. Clean if necessary.
5) No flow from the valve outlet.	-Hot or cold water supply failure. -Strainers are blocked.	-Restore inlet supplies and check mix temperature. -Clean strainers as detailed in maintenance section.
6) Flow rate reduced or fluctuating.	-Strainers are blocked. -Fluctuating supply pressures.	-Clean strainers as detailed in Maintenance section. -Install pressure regulating valves on hot and cold supplies.
7) Mixed water temperature does not change when temperature adjuster is altered.	-Hot and cold supplies are reversed.	-Refit the valve with Hot/Cold supplies fitted to the correct connections. -Contact customer service at Reliance Worldwide Corporation.
8) Hot water flows into the cold water system or vice versa.	-Non-return valves fouled.	-Clean non-returns ensuring debris is removed.
8) Valve is noisy.	-Excessive water velocity. -Valve sized incorrectly.	-Reduce water velocity (best achieved by fitting a pressure regulating valve). -Replace with correctly sized valve.

Caution: Installation of water temperature control products must be performed by qualified, licensed personnel. The qualified installer should be sure that the proper device has been selected correctly for the proper installation. A faulty installation can cause scalding, sever injury, or death.
Notice: Annual inspection and maintenance is required of all plumbing system components. To ensure proper performance and maximum life, this product must be subject to regular inspection, testing, and cleaning.
Warning! Water Temperature in Excess of 122°F(50°C) is Dangerous and Will Cause Scalding, Severe Injury or Death! To deliver a safe mixed water temperature at the outlet, the installer must use a thermometer at the outlet to verify the temperature. WARNING! This valve is not be used for point of usage. This valve is not to be used as an Anti-Scald device.

WARNING: This product can expose you to chemicals including lead which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Leave a copy of these instructions with the client for future reference. **Recommend to the client that the valve is checked annually to ensure its continued function.**