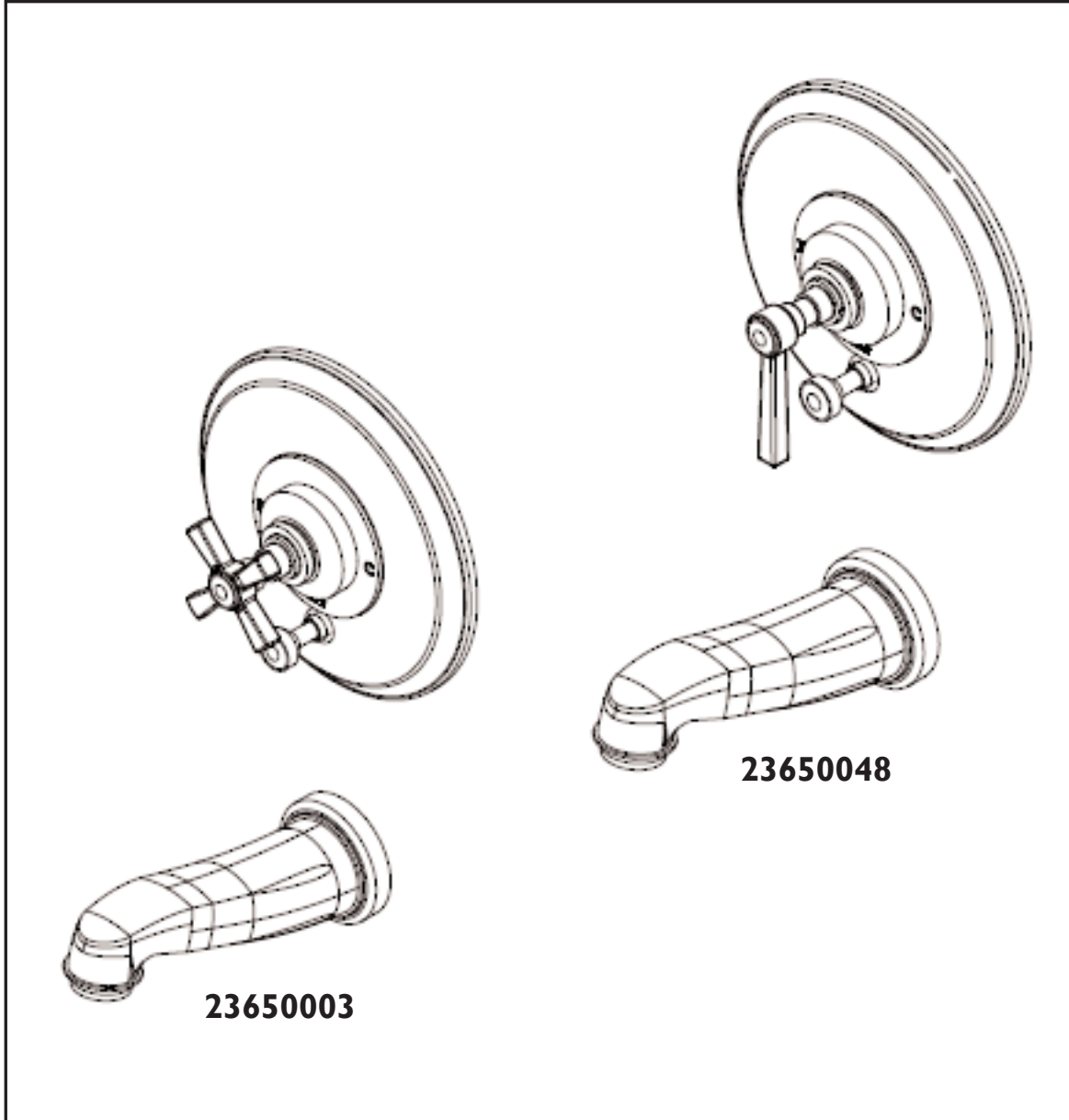


RH

RESTORATION HARDWARE

INSTALLATION INSTRUCTIONS



MODEL: GRAFTON

23650003 (RH-5120)

23650048 (RH-5120L)

Restoration Hardware

Balance Pressure Tub /Shower Set

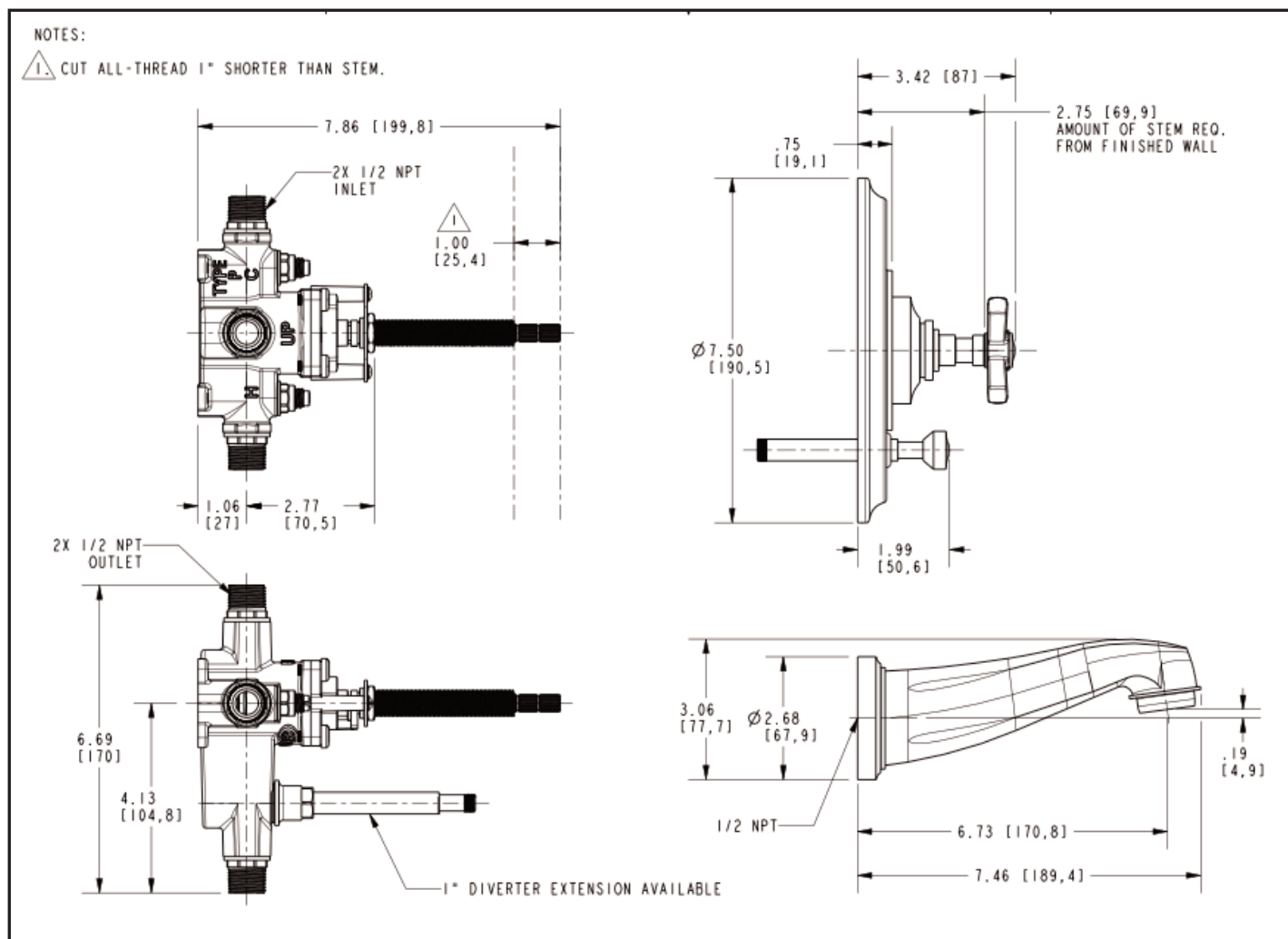
Specification Diagram

SPECIFICATIONS

Min. Operating Pressure :	20 psi [140 KPa]
Max. Operating Pressure :	125 psi [860 KPa]
Max. Burst pressure :	500 psi [3450 KPa]
Max. Hot water temp :	180 °F [80 °C]
Flow rate in UGSPM [1/min] @ 50 psi [345 KPa]	

	Tub		Shower	
1-685(Automatic)	5.8	22	5.8	22

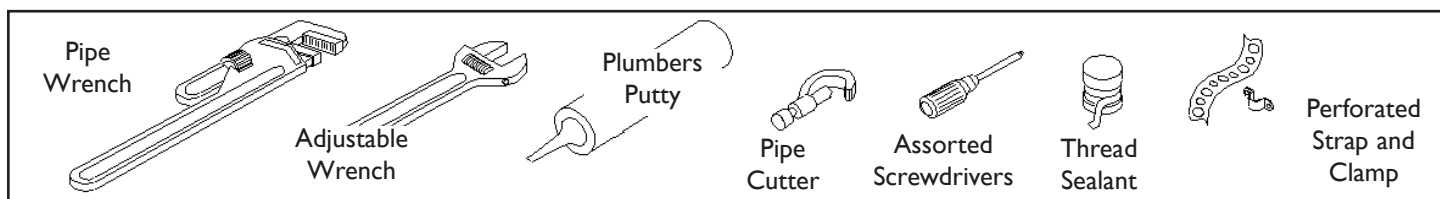
Note: This valve is designed to fit in a 2" X 4" stud wall (or thicker) installation. Use stem extension kit #1-249 (sold separately) if valve installed is too far away from finished wall).



All Threaded Connections are $\frac{1}{2}$ " NPT

Dimensions are in Inches and Approximation of a Typical Installation

Common tools needed:

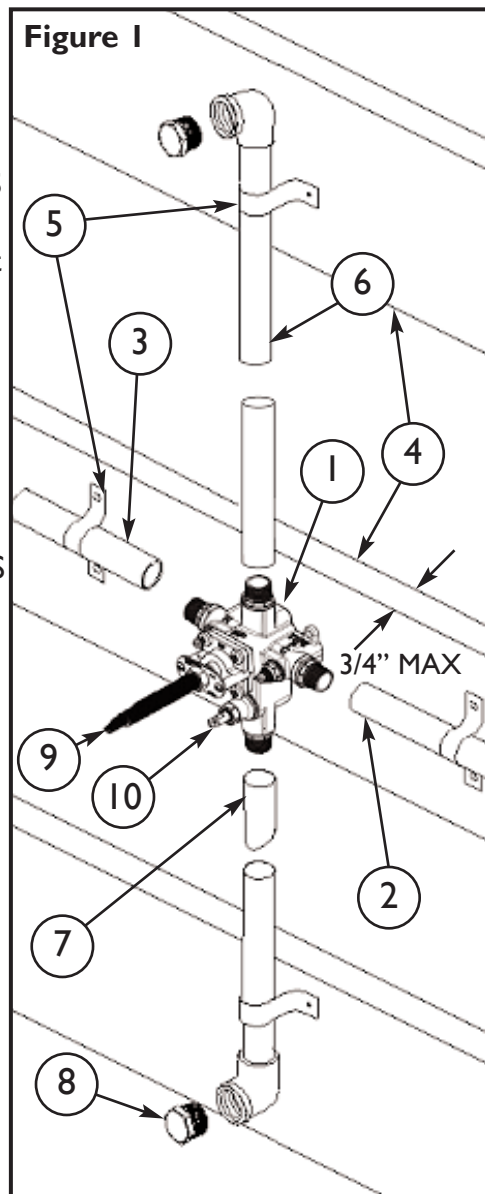


Installation Instructions

We Recommend Installation by a Licensed Plumbing Professional

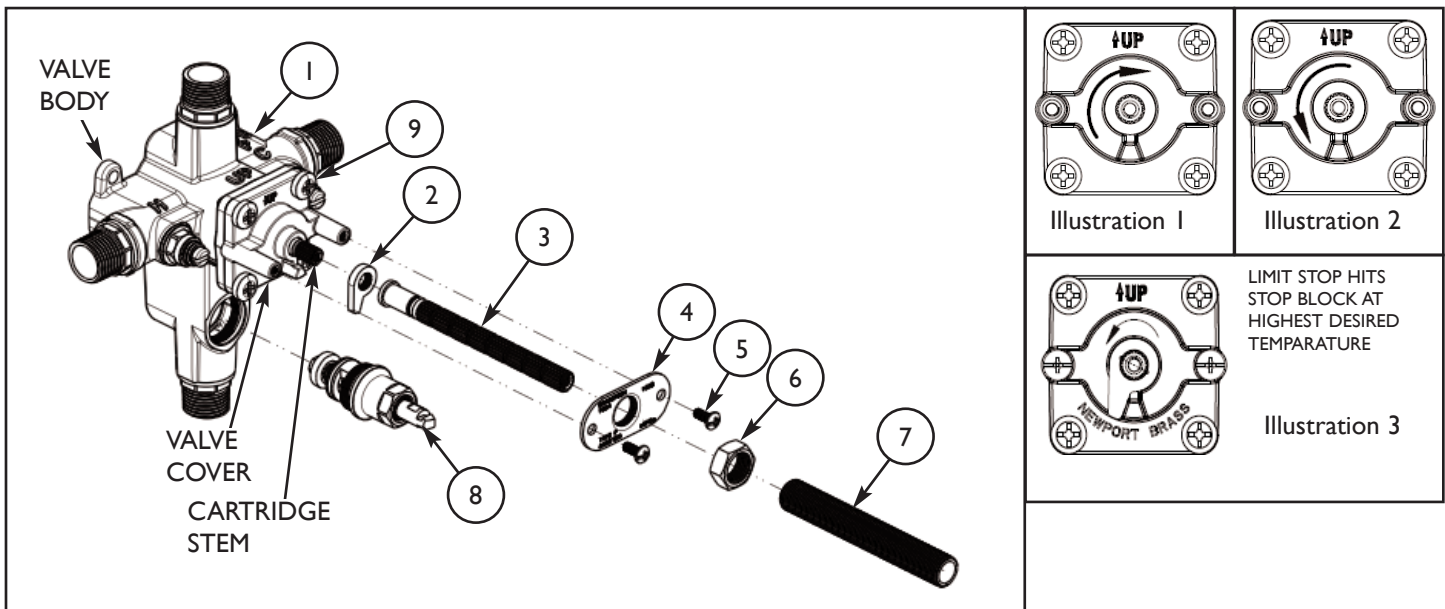
I. Valve Assembly

- Construct a 3/4" MAX thick CROSS BRACE (4) and use screws to position and secure VALVE (1) as shown in Figure 1
- Solder Hot (3) & Cold (2) water supply to female adapter FITTINGS (not included / shown). Then apply thread sealant to the FITTINGS and firmly tighten into VALVE (1) inlets. Whenever possible, it is best to perform all solder/brazing operations prior to attachment to VALVE (1).
- Use PERFORATED STRAP (5) or equivalent to secure SUPPLY (2,3) to CROSS BRACE (4).
- Solder SHOWER RISER (6) and TUB SUPPLY (7) to female adapter FITTINGS (not included). Then apply thread sealant to the FITTINGS and firmly tighten into VALVE (1) shower outlet port (top) and tub outlet port (bottom) respectively.
- Use PERFORATED STRAP (5) to secure SHOWER RISER (6) and TUB SUPPLY (7) to CROSS BRACE (4).
- Use PLUG (8) to cap the outlets. Turn on both water supplies, turn valve STEM (9) counterclockwise to open, pull out the DIVERTER (10) and check for leaks. Note: Water pressure **must** be applied to both hot and cold inlet ports for proper valve operation.
- After inspection turn off water supply.



2. Setting The Temperature Limit Stop

- Unscrew two SCREWS (5) to remove the all-thread NIPPLE (7), HEX NUT (6) and STEM PLATE (4).
- Remove the STEM (3) and the LIMIT STOP (2).
- Close the valve by turning the CARTRIDGE STEM clockwise until it stops, (Illustration 1). From the CLOSED position, rotate the CARTRIDGE STEM counter-clockwise until the desired temperature is achieved. (Illustration 2). Note: CARTRIDGE STEM will rotate approx. 90 degrees counterclockwise from CLOSED to full HOT position.
- Place the LIMIT STOP (2) on the CARTRIDGE STEM against the stop block (Illustration 3). Rotate several times to make sure the stop is at the desired temperature setting.
- Re-install the STEM (3), STEM PLATE (4), SCREWS (5) all thread NIPPLE (7), and HEX NUT (6).



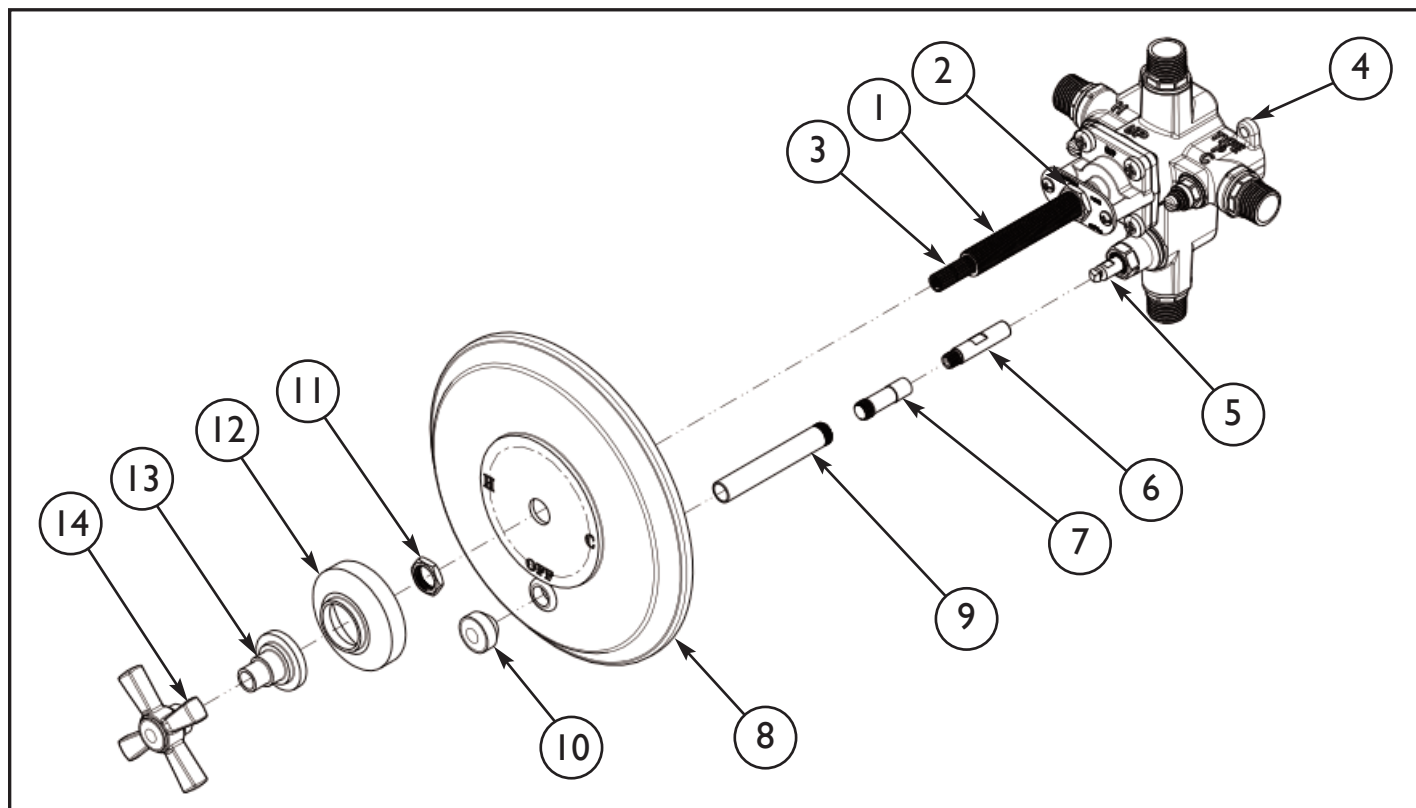
2a. Cartridge Removal And Replacement

- Remove the HEX NUT (6), all-thread NIPPLE (7), SCREWS (5), STEM PLATE (4) and STEM (3).
 - Remove the LIMIT STOP (2).
 - Remove the COVER SCREWS (9), VALVE COVER and compression O-RING (not shown).
 - Carefully slide the CARTRIDGE STEM out of VALVE BODY.
 - Replace CARTRIDGE STEM ensuring that the cartridge's O-RINGS (not shown) are in place and lubricated with plumbers (non-petroleum) grease. The "H" and "C" on the side of the CARTRIDGE STEM indicates the cartridges proper orientation to the appropriate inlet supply line.
 - Once the CARTRIDGE STEM is installed, it is very important to confirm that the cartridges front tabs are correctly locked into the VALVE BODY mating hole.
 - Re-install the compression O-RING (not shown), VALVE COVER and tighten COVER SCREWS (9) firmly into place.
 - Re-install LIMIT STOP (2) as described above in **Setting the Temperature Limit Stop**.
- Warning: Do not forcefully close CARTRIDGE STEM.**

3. Valve Trim Installation

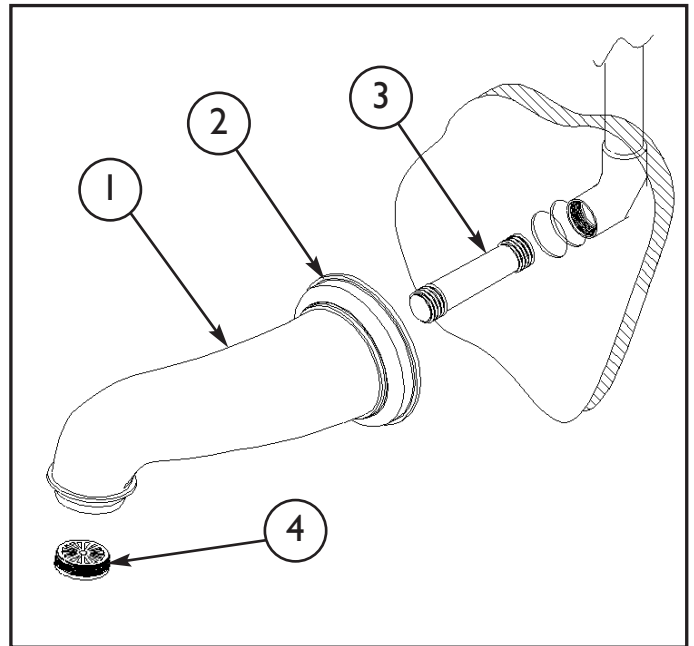
(Perform these steps after finished wall has been completed)

- The STEM (3) must be trimmed to 2 7/8" from finished wall. Remove STEM (3) by loosening NUT (2) and removing NIPPLE (1). Trim STEM (3) to previously mentioned dimension.
- The NIPPLE (1) must be trimmed 3/4" less than STEM (3).
- Re-install STEM (3) and NIPPLE (1) onto VALVE (4) (Note: hand tighten NIPPLE (1) until it bottomed out against the flanges of STEM (3)). Use NUT (2) to lock NIPPLE (1) into place. Rotate STEM (3) to ensure there is not binding. If binding, loosen NIPPLE (1) until STEM (3) moves freely and does not wobble.
- Tighten diverter trim LINK (6) onto POST (7) and place them onto valve's DIVERTER(5).
- Tighten diverter trim SLEEVE (9) onto DIVERTER (5).
- Align and slide cover PLATE (8) onto the valve NIPPLE (1) and diverter SLEEVE (9) (use water to lubricate the diverter SLEEVE (9) and rubber seal to ease the sliding). Use NUT (11) to secure cover PLATE (8).
- Place ESCUTCHEON (12) and BONNET (13) onto NIPPLE (1) and firmly tighten BONNET (13) in place to secure trim onto VALVE (4).
- Secure diverter KNOB (10) onto POST (7).
- Secure HANDLE (14) into place by tightening setscrews. Note: Allow minimal spacing between HANDLE (13) and BONNET (12).



4. Tub Spout Installation

- Place base RING (2) onto bottom of SPOUT (1).
- Based on finished wall thickness select appropriate size 1/2" NPT NIPPLE (3) for SPOUT (1) installation.
Note: NIPPLE (3) is not included.
- Apply thread sealant to both ends of NIPPLE (3) and thread into fitting inside finished wall.
- Attach SPOUT (1) to protruding NIPPLE (3) and secure into place.
- Using a thin blade screwdriver, temporarily remove stream STRAIGHTNER (4) from SPOUT (1).



5. Test Installed Tub / Shower Set

- Turn on the shower valve by rotating the handle counter-clockwise.
Water will start to flow from the tub spout.
- Pull the diverter knob to operate the showerhead.
- Water mixing temperature to handle rotation is as follows:
 - 0 to 1/4 = cold
 - 1/4 to 1/2 = warm
 - 1/2 to 3/4 = hot

6. Troubleshooting

* **WARNING** - Never try to stop dripping by applying extreme force or overtightening the handle.

MALFUNCTION	CAUSE	REMEDY
Opening immediately to hot water.	Hot and cold water supplies have been connected in reverse.	Rotate cartridge 180 degrees. (Illustration 4)
Water drips after shutting off the valve, eventually stop.	Residual water in valve and piping.	Allow approximately 3-8 minutes to drain.
Water drips after shutting off the valve, never stop.	O-ring seal on the inlet of the cartridge is faulty or seat assembly is damaged.	Check the O-ring & seat for cuts or overheating damage during installation. Replace if necessary.
Water insufficiently hot.	Adjustable handle position stop incorrectly set.	Refer to the instruction on "Setting Temperature Limit Stop".
Valve body too deep into wall.	Incorrect rough-in installation	Reset the valve or use Extension Kit# I-249
Diverter will not stay on during shower.	Not enough backpressure between showerhead and diverter valve.	Ensure a 2.5 GPM Max flow restrictor is mounted at the shower head.
No or low flow of hot or cold water.	Either the hot or cold side is not fully pressurized.	Verify that the service stops for both the hot and cold are fully open (turn counterclockwise) and pressurized. (Illustration 5).
	Debris caught inside the inlet of the cartridge.	Remove the cartridge. If debris is lodged in the inlet of the cartridge. The debris can be removed with a straightened paper clip or fine wire. Gently insert the wire and move it in a circular motion to dislodge any debris.

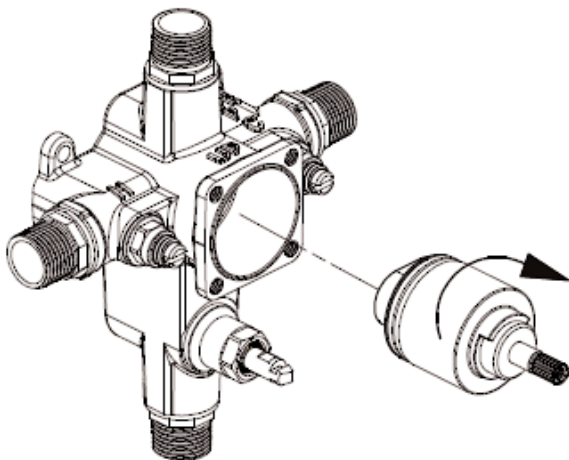


Illustration 4

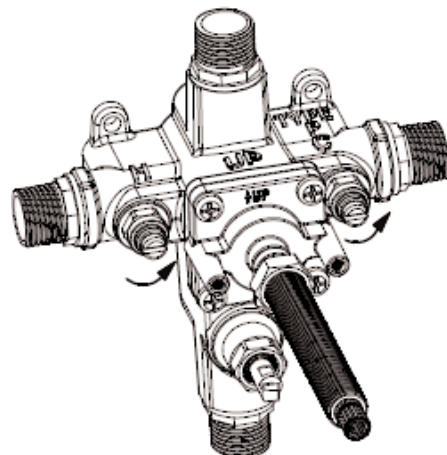


Illustration 5

Care and Cleaning

The lustrous finish on your Restoration Hardware Bathware fixture should be treated with care. Improper handling or cleaning can damage the surface of any metal finish. Use a soft cloth to wipe clean. Avoid harsh abrasive cleaner. Water contains lime and other mineral deposits that will be left on the surface after the water has evaporated. You can prevent these deposits from forming by always wiping the fixture dry immediately after use.

Technical Support and Customer Service

For technical support in the installation of your Restoration Hardware Bathware fixture, please call 1-866-417-5207 weekdays between the hours of 7:00am and 4:00pm PST.

For other questions regarding your order, to order additional components of the Restoration Hardware Bathware Collection, to order replacement parts, or to address warranty issues, please contact Restoration Hardware Customer Service at 1-877-747-4671.