

# TII Enhanced Flow Pressure Balancing Cartridge

## Installation Instruction

### Description

This product is precision engineered to provide superior performance provided it is installed and operated in accordance with our recommendations contained in this manual. In order to fully enjoy the comfort, safety and the reliability of this cartridge, be certain to familiarize yourself with the contents of this manual.

### Operation

The pressure balancing cartridge compensates for pressure fluctuations in the supply system through a diaphragm connected pressure balancing mechanism (Fig.1) which minimizes any temperature change. Even if cold water pressure fails completely, the anti-scald design will reduce the flow rate to a safe level ensuring reliable protection against scalding.

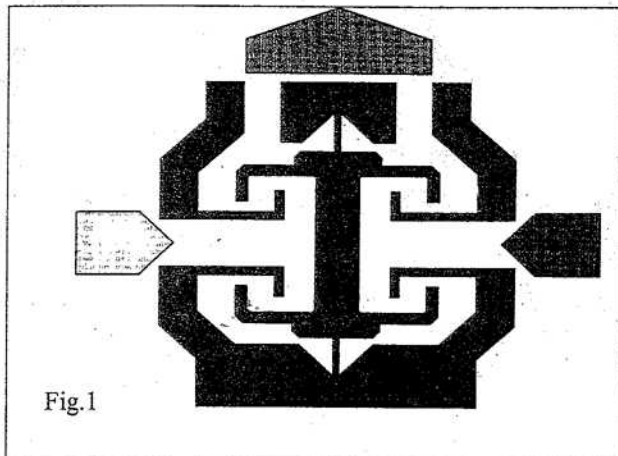


Fig.1

### Installing the cartridge

**Note: Failure to follow these instructions may cause damage or improper operation and nullify the warranty!**

- Remove the handle and escutcheon.
- If the valve body is equipped with service stop valves (Pos.1), close them. Otherwise, turn off hot and cold water supplies at the nearest source.
- Remove the screw (Pos. 2) and the plastic valve stem driver (Pos. 3). Pay close attention to location setting of the mechanical stop (Pos.4) before removing.
- Remove four corner screws (Pos.5), remove the valve cover (Pos.6) and O-ring (Pos.7).
- The cartridge assembly is now exposed.

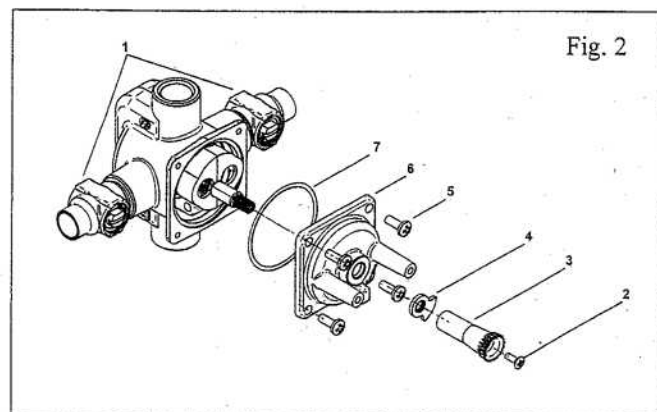


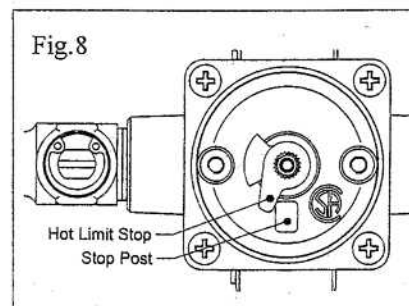
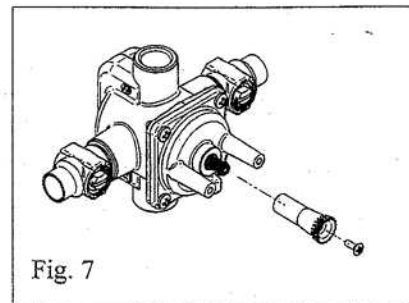
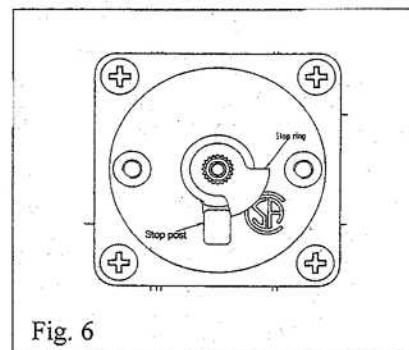
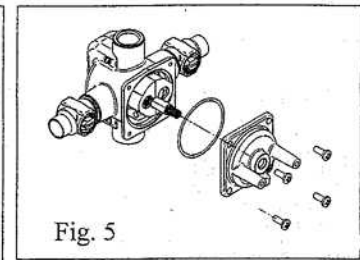
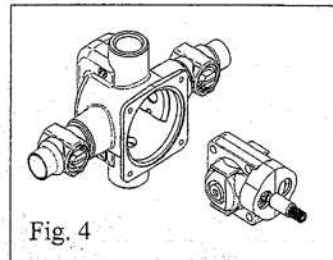
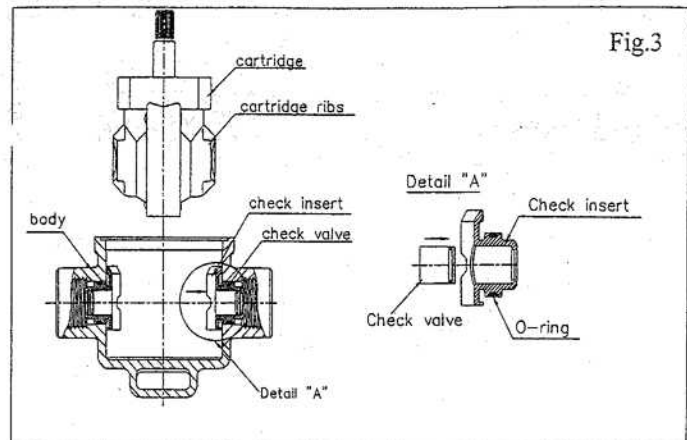
Fig. 2

Valve type shown may vary from actual valve installed.

- Pull the cartridge out. Notice the location of hot "H" and cold "C" markings on the old cartridge. Hot water connection is normally on the left and cold water connection is on the right.
- To clean check valves in the body, remove check inserts by slightly rotating them, which allows them to be easily pulled out (Fig.3).
- All debris can now be easily flushed from the check valves.
- Apply grease to o-ring of check insert.
- Place the insert into the valve body, making sure the beveled edge of the insert faces out. The insert should sit flush against the wall of the valve body when properly installed.
- Be sure the inner walls of the valve body are clean and free of the grit and debris. Clean all o-rings and coat with special grease provided.
- Insert the new cartridge into the valve body, making sure the "H" and "C" markings are on the same sides as removed (Fig. 4). Slide cartridge into the body so that check insert fits between two alignment ribs located on cartridge sides.
- Put the O-ring on the valve cover. Make sure the surface of the valve cover, on which the O-ring will sit and the O-ring are both clean.
- Position the valve cover with the stop post facing down (Fig.5). Seat the cover to the body. Do not pinch the O-ring. The assembly should fit together with a minimum of pressing force.
- Install the cover screws. Tighten lightly in a diagonal pattern, then firmly.
- Close the valve by turning the cartridge stem fully clockwise. The stem driver can be used to turn the stem.
- Position the stop ring as shown in Fig.6 on the stem.
- Install plastic stem driver with screw (Fig.7).
- Turn on the hot and cold water supplies. The service stop valves must both be fully open.

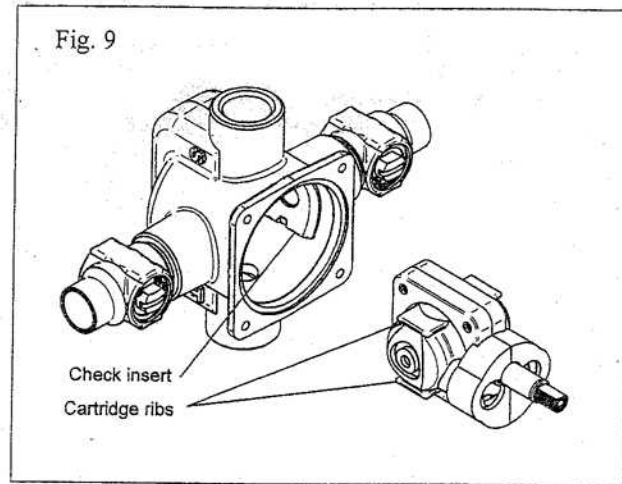
### Setting Hot Limit stop

- When stop ring is installed (Fig. 6) turn the cartridge stem to desired temperature and install hot limit stop against the stop post on the valve (Fig. 8).
- Close the valve by turning the cartridge stem fully clockwise. The stem driver can be used to turn the stem.

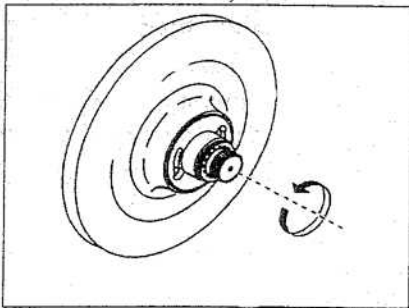


## Back to back installation

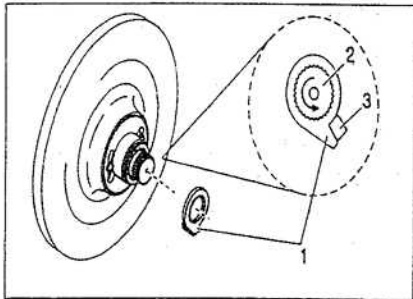
- If cartridge is installed back to back or reversed, note that hot "H" and cold "C" markings on the cartridge are "H" hot on the right and "C" cold on the left. Cartridge must be reinstalled and placed in the same position as it was. Make sure when sliding cartridge into the body that check insert fits between two alignment ribs located on cartridge sides (Fig. 9).
- Rest of procedure is the same as described in regular replacement cartridge.



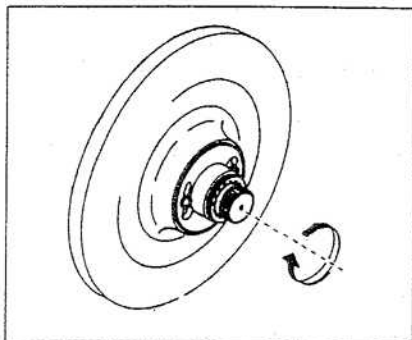
## Trim Installation and Setting Hot Limit Stop



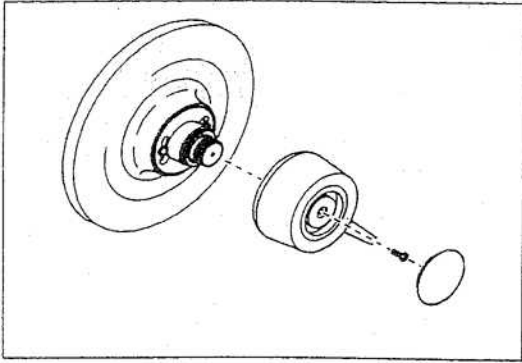
- Fit the escutcheon screws (a few turns) onto posts of valve cover.
- Slide the escutcheon over the screw heads and tighten the screws so the escutcheon is aligned and is tight to the wall so as not to slip or rotate.
- Rotate the intermediate handle counterclockwise until a desired and safe hot water temperature is reached ( recommended maximum is 110 °F / 43.3 °C).



- Place the hot limit stop ring (1) over the splines on the intermediate handle (2) with stop resting against the escutcheon stop post (3).



- Rotate the intermediate handle clockwise until it stops, closing the valve.



- Install handle screw and fasten to the intermediate handle. Gently press the handle button into place.

## Trouble Shooting

MALFUNCTION	CAUSE	REMEDY
Hot and cold reversed.	Hot and cold water supplies have been connected in reverse.	Rotate cartridge as described in "Back-to-back installation".
Tub filler or shower head drips after shutting off the valve.	Water remains in the shower piping . (This is normal).  Incorrect setting of the stop ring causing a partially opened cartridge.  Cartridge inlet o-ring seal is faulty.	Allow approximately 3-5 minutes to drain column, or push lever on tub spout to the tub fill position.* Reset the stop ring as described in rough-in instruction in Fig. 6.  Check the O-ring for cuts or damage and replace if necessary.
Shower insufficiently hot.	Hot limit stop incorrectly set.	Refer to the instructions. Check hot water temperature.
No flow of hot or cold water.	Either the hot or cold side is not fully pressurized. Debris caught inside the inlet of the cartridge.  No engaging between escutcheon and plastic driver.	Be sure service stops are both fully open and system is pressurized. Remove cartridge and flush out or remove any debris lodged inside the hot or cold inlets. Install either the 1/2 " or 3/4 " extension kit.
Valve body too deep in wall.	Improper installation.	Install either the 1/2 " or 3/4 " extension kit.

\*Note: Never try to stop dripping by applying excessive force to the handle when closing the valve!