Instruction to remove calcified cartridge in Thermostatic (TH-150 / TH-175) Valve

How to remove a cartridge after the head becomes separated from the cartridge body. **Close hot/cold service stops.** Remove cartridge head from stuck housing, open volume control(s) and drain all residual water in piping.

Screw the cartridge head back into stuck housing and tighten snug (do not over tighten).

Remove showerhead from shower arm and rotate to point upwards (it may be necessary to remove shower arm reapply Teflon tape or thread sealant onto thread to create watertight seal).

If showerhead is ceiling mounted, a container with pump and flexible tubing will be needed. A pump style shampoo bottle and poly flexible tube would serve well for this type of device.

It is necessary that output device (i.e. showerhead) be above valve. Open volume control valve above therm valve to allow the solution (100% undiluted white vinegar) to flow down the piping into valve and breakdown calcium build up.
Use a small funnel and slowly pour vinegar into shower arm until it overflows.

If the shower arm is a ceiling nipple place, flexible tube into ceiling nipple tape in place with duct tape and attach other end to pump with bottle and pump vinegar to fill piping and valve body.

Allow vinegar to soak for 60 minutes. Drain vinegar by removing cartridge head. Repeat this procedure at least twice. Depending on the amount of calcium build up in the body and around the cartridge, this rinse may have to be repeated multiple times.

After the final vinegar soak procedure, remove the cartridge head, to drain vinegar in cartridge. Clean and dry the male threads on cartridge head and female threads on stuck housing. Apply High Strength Loctite or thread locker to both threads and snuggly tighten cartridge head using a crescent wrench. Allow adhesive to cure for at least 6 hours minimum before tying to unscrew stuck cartridge. This is an important waiting period, if too much build up remains and not enough time is allowed for adhesive cure cartridge head will unscrew from cartridge housing again.

Remove the cartridge, and drain out all the vinegar from the valve body and pipes.

Inspect the inside of the body and clean any calcium and mineral build up with a stiff nylon bristle bottlebrush and vinegar solution.
After cleaning, partially opening and closing both the hot and cold service stops to flush valve body.

Before installing a **new replacement cartridge**, apply some plumbers grease to the three (3) O-rings on the cartridge.

Gently push and twist the cartridge into the body, until cartridge threads engage with valve body threads.

Using a crescent wrench, securely tighten cartridge into place. Proper tightening is about 12 ft. lbs...similar to tightening a car spark plug.

Make sure all volume controls are in the closed position before opening the service stops on the valve body.
Carefully open both the hot and cold service stops on the valve body using a small number one (electrician type screwdriver). Do not rotate the slotted head of the service stop screw beyond the flat face of the hexagonal service stop housing.

Remove the shower arm and apply new Teflon tape or thread sealant to all threads to ensure a watertight connection to prevent a leak behind the wall. Apply Silicone sealant or equivalent to backside of shower arm and secure shower arm to wall. Shower arm outlet should be downward.

Refer to installation instructions for Thermostatic valve TH-150 / TH-175 for temperature calibration and trim installation.

Here are examples of calcium build up, debris and sediment that can cause a cartridge to become stuck in a thermostatic valve body.

If hard water is present, the cartridge should be removed and serviced every 1 or 2 years.

Annual service of the cartridge is as follows: Soak cartridge in 100% undiluted white vinegar for 2-6 hours or until all calcium build up is dissolved. Use old toothbrush to remove deposits or debris on stainless steel screens. Avoid excessive pressure on screens as this may cause damage.