Testing a right angle TXV – Removed from the vehicle A/C system

The TXV operates by sensing temperature and pressure all TX Valves have a temperature sensing capillary tube, this is the long tube with a sensing bulb on the end that is attached to the evaporator outlet pipe. The TXV internal metering device opens (more refrigerant flow) and closes (less refrigerant flow) depending on the temperature of the refrigerant contained within this capillary tube.

The TXV is removed and in your hand, Inspect the overall condition:

- If any of the capillary tubes (pressure or temperature) are cracked / broken, **replace the TXV do not continue with test**.

- View the inlet and outlet ports of the TXV. If the ports have signs of contamination such as aluminum particles, burnt oil residue and dirt. **Replace the TXV do not continue with test**.
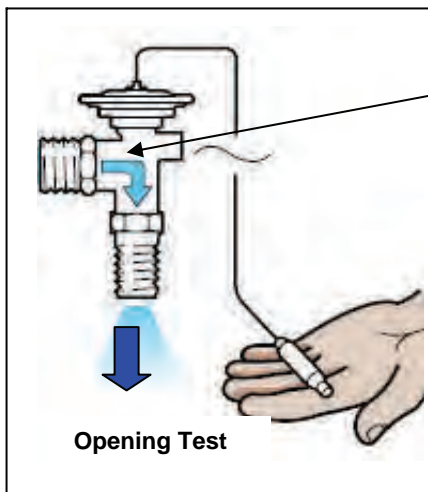
Function test – Opening

⚠️ The TXV should be in the open position once it has been removed for the vehicle and is in ambient temperature.

1. Hold your hand around the TXV temperature capillary tube to warm it up.

2. Using dry compressed air or nitrogen blow though the inlet of the TXV and feel for air or nitrogen exiting through the outlet.

3. If you feel air or nitrogen exiting the TXV this would indicate that the valve has opened (refer illustration below). **Continue to the closing test.**

4. If no air or nitrogen is felt the TXV is blocked. **Replace the TXV**
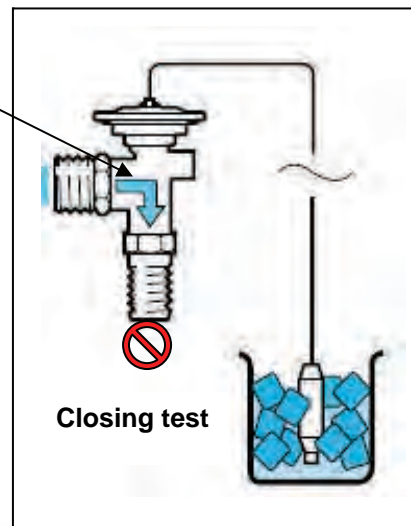
Function test – Closing

1. Create an ice "slurry" in a container. The "slurry" is made by crushing some ice into very small sections then adding it to a container filled with water.

2. Stir the TXV temperature capillary tube sensing bulb (connected to the top of sensing disc) around in the ice "slurry" for approximately 2 minutes. With the TXV capillary tube still in the ice "slurry" blow dry compressed air or nitrogen through the TXV inlet and feel for any air or nitrogen exiting through the TXV outlet.

3. If you feel the compressed air or nitrogen exiting the TXV this would indicate that the valve is still open (refer illustration below) and the TXV is faulty. **Replace the TXV**

An arrow on the TXV body indicates the refrigerant flow direction.

Opening Test

⚠️ **Not**e: Care must be taken if the capillary tube is being bent as it contains refrigerant. If a "hiss" is heard while bending the capillary tube, replace the TXV.

Closing test

Subject:	THERMAL EXPANSION VALVE (TXV) TESTING ON AND OFF VEHICLE (Revision B)	TSB #:	5 3-08
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Initial Once Read:						

Testing a accessible block type TXV – "On vehicle" function test

With vehicles such as the Holden Commodore and some Mitsubishi vehicles you can access the TXV from the engine bay area. This means that a quick and simply TXV function test can be performed as outlined below.

Tools required

- High and low side pressure gauge.

- Purchase a spray can of electrical freeze spray or a similar spray that can produce a very low temperature (read all product safety precautions and do not spray on exposed skin)

Carrying out functional test for opening and closing of the TXV:

1. Connect the pressure gauges to the High and Low side charging ports.

2. Locate the sensing disc on the top section of the TXV (flying saucer shape)

3. Start the engine and engage the A/C. Select maximum cold and highest blower speed.

4. Once the pressure gauge needles are stabilized (no longer moving) record the pressure readings on the high and low side pressure gauges.

5. Spray the "Freeze" spray onto the top of the sensing disc of the TXV until it is frosted over. The High pressure reading should reduce by 50 to 150kpa, then as the sensing disc takes on heat and the frosting melts the reading should return to the original recorded value (step D)

6. If the TXV *did* operate as described in step E, this would mean that the TXV is functioning correctly. If the High side needle *did not* move or only by 10 – 20 kpa this would indicate that the TXV was faulty (sticking pin, sensor disc refrigerant leak, rusted metering ball). *Replace the TXV*.

Sensing disc

Block type TXV

Example - Holden VT V6 engine bay