

*DOC'S BLOCKS*  
**AUTOMOTIVE AIR CONDITIONING REPAIR**

**Question:**

How does an expansion valve fail?

**Answer:**

The expansion valve is referred to as a TXV because it is easier to say. It stands for thermostatic expansion valve. Its purpose is to control the flow of refrigerant into the evaporator. It makes sure it doesn't flood nor starve the evaporator. It is a mechanical device that is controlled by refrigerant filled bellows. The bellows has a capillary tube that is attached to the suction tube and senses its temperature. This action causes the refrigerant in the bellows to expand or contract. The changing of pressure in the bellows controls the movement of the seat in the orifice of the valve. The opening in the valve is about .005 inches for most automotive valves. The valve will modulate between fully open to totally closed.

Normal failures for the valve are stuck closed, stuck open, will not modulate, or are restricted.

Operation of the valve can be read by pressure in the suction sided of the system.(low side) If it can be seen, the valve will frost up when it is stuck closed. The pressure will read lower than normal. If the valve is stuck open the low side pressure will read higher than normal. If the valve will not modulate, the system will not perform correctly. Pressures can also read this condition.

Failure accrues if the bellows loses the charge of refrigerant, the cap tube is not connected properly or corroded at its connection to the suction tube, the pins inside the valve are stuck or restricted as a results of desiccant from the receiver dryer. In any of these cases, the valve would need to be replaced.