

DOC'S BLOCKS
AUTOMOTIVE AIR CONDITIONING REPAIR

Question:

How does an expansion valve work?

Answer:

- Expansion valves can be fully open, fully closed, or modulating in between the two.
- An expansion valve, out of the unit, on the bench, should be fully open. Blowing through one to see if it is good proves you can breathe. It doesn't prove it can modulate or close.
- An expansion valve, in a full system at rest, the valve should be closed. When the system is running, the valve modulates.
- An expansion valve, stuck closed or restricted, will read lower than normal low side pressure, possibly freeze up, and the high side pressure will read lower than normal. (possibly as low as 150 lbs)
- A valve stuck open, the low side pressure will read higher than normal, (35-40 lbs). The high side pressure will read near normal. This could be diagnosed as a bad expansion valve, a bad reed valve, head gaskets, or o-rings in the compressor.
- To test for an expansion valve stuck open, the engine should have to be running at 1500 rpm to make the test. Watch the gauges and increase the rpm upward to about 2500 RPM. If the low side pressure drops slightly, the expansion valve is bad. If the low side pressure increases slightly, the problem is in the compressor.
- Over the past few years, we have been retrofitting units or using valves which are designed to work with both R-12 and R-134a.
- Expansion valves, designed for R-12, will work well with both refrigerants.
- On R134a valves, the super heat settings are less than R-12 valves and the low side pressure will be higher than normal with poor cooling. May require adjustment.