AUTOMOTIVE AIR CONDITIONING REPAIR

Question:

What is a variable orifice valve or more commonly referred to as a VOV?

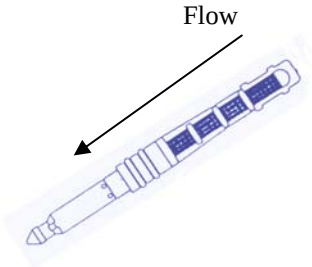
Answer:

The orifice tube system is a fixed orifice that meters flow of refrigerant into the evaporator. There are about six different size orifice tubes commonly used. The heavy-duty orifice tube inside diameter varies from .047 to .067 inches.

This system does not use a receiver dryer like an expansion valve system does. It uses an accumulator, which is mounted on the outlet of the evaporator. It works similar to a muffler. It crates a restriction, which puts back pressure into the evaporator and orifice tube to reduce flow. This means that the faster the compressor turns, the better the system works. Hence, the slower the compressor turns, the less efficient the system is.

This means that the system works from a flooded evaporator concept. That is why, when there is extended idle periods, the air delivery temperature will rise.

The system requires about 2000 RPM for the refrigerant to be pulled through the accumulator to create enough backpressure to slow down the flow.



The VOV was designed to provide better cooling at idle and slow speed driving. Under this condition, the VOV is restricted to reduce the size of the orifice, which in turn, slows down the flow of refrigerant, and reduces flooding. The refrigerant has slowed down and can absorb more heat and as a result, has less temperature delivery change. A standard orifice tube meters between .052 inches and .067 inches.

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When testing a VOV for performance, the engine must be run at 2000 RPM. The VOV can replace any standard orifice tube on both domestic and import vehicles.

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