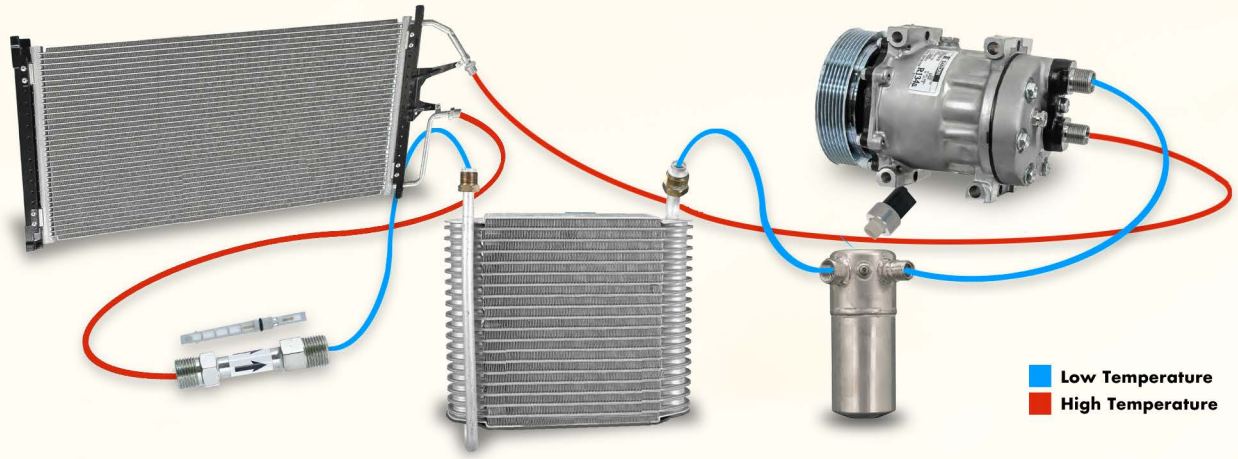
HERE COMES THE HEAT!

Diagnosis and Troubleshooting – A/C Systems

Proper A/C system performance is achieved with many components working together to provide cab comfort for the driver and passengers. The item that receives the most attention is the Compressor. The compressor operates as the "pump" of the system, keeping the refrigerant circulating and increasing the refrigerant's pressure. All compressors have two sides: Suction and Discharge. The refrigerant is drawn into the compressor's suction side as a cold – low pressure vapor and then is compressed, thus raising the refrigerant pressure and temperature. The high pressure – high temperature vapor refrigerant is then pumped out of the compressor's discharge side to the condenser. As the compressor moves the refrigerant through the system, the refrigerant oil also moves with the refrigerant.



Typical Orifice Tube/Accumulator A/C System

Why are compressors removed?

1) Loss of a refrigerant charge - Cold refrigerant entering the compressor on the suction side coming from the evaporator provides cooling to the compressor. With a loss of refrigerant, the compressor overheats. Also, with a loss of refrigerant, the oil is not returned back into the compressor and eventually the compressor will run dry.

2) Contamination – Particles found inside the system will cause internal damage to your system. These particles can cause blockage at the condenser, expansion valve or damage to the internal parts of your compressor. Contamination must be removed from the system by using the correct flushing procedures.

3) Misdiagnosis – Change the wrong part is a common procedure in repair A/C failures. The system must be properly diagnosed before changing parts and pieces.

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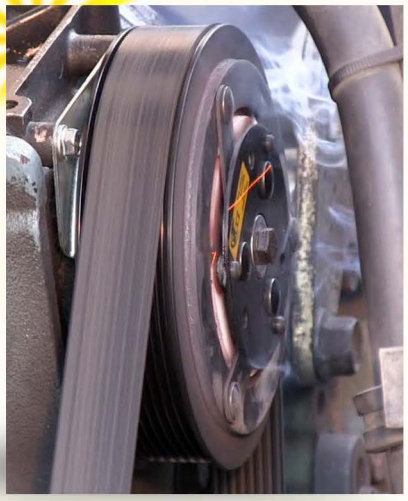
What are the most common causes of compressor failures?

1) Low Refrigerant Charge
2) Leaks with the System
3) Contamination in the System
4) Lack of Lubrication
5) Clutch Failure due to System Failure
6) Blockage or Restriction within the system
7) Insufficient Condenser Cooling

What happens if a compressor continues to run under a low refrigerant charge?



1) Overheating of the compressor occurs.

2) Refrigerant oil circulation slows down and returns very little back to the compressor

3) Without proper lubricant and refrigerant charge, the compressor will "lock-up" and destroy the compressor

4) The critical low charge point is reached when the system has 50% or less of the recommended refrigerant charge.

5) Disabled or Malfunctioning switches that allow the compressor to run in a low charge situation.

ALL MAKES AIR CONDITIONING AND HEATING

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