

Most important components of the AC system

Air Conditioning Compressor



The AC compressor is the workhorse of the system and is driven by your car's engine via a series of belts and pulleys. Its function is to transfer and compress gas from the low-pressure (intake) side of the ac system to the high pressure (discharge) side of the closed system. The ac compressor draws the refrigerant (while in gas state) from the ac evaporator, where it has gathered heat from your vehicle interior. It then compresses the gas refrigerant under high-pressure and send it off to the ac condenser. Once the hot compressed gas enters the condenser, it begins to cool and expel heat as it travel towards the bottom of the ac condenser where it has reverted back to a cool liquid state. The cooled liquid gas then begins its journey back toward the ac evaporator. This gives a general idea (oversimplified) how the process works.

On average, it takes about 1 minute for refrigerant to complete a cycle within a typical auto AC system. That means, starting as a liquid in the evaporator, the refrigerant changes to vapor, is compressed to high pressure vapor, passes through the condenser, changes back into a liquid, and then moves through the expansion device (orifice tube or expansion valve) back to the evaporator in about 1 minute.

Receiver Drier



Air conditioning systems utilize a receiver drier to extract moisture from the system. The receiver drier is used on ac systems which make use of an expansion valve to control refrigerant flow and is located on the high-pressure side of the system, between compressor and the condenser. The receiver drier stores a portion of the system's refrigerant and contains a moisture absorbing substance to remove any moisture the system may become contaminated with.

Condensor



The ac condenser and your car's radiator often look quite similar in appearance. The compressor of the car generate compressed gas and sends it along to the top of the condenser, where the gas begin to cool. The gas continues to cool and condense as it makes its way through the serpentine-like coil arrangements, before exiting the bottom of the condenser as a high-pressure liquid. The condenser is usually located in front of your car's radiator.

Evaporator



The ac evaporator serves in multiple capacities, but its function is to absorb heat which may have built up on a hot day inside your car's interior. The evaporator contains cold Freon gas. The cold Freon gas passes through the evaporator and makes the evaporator very cold. The ac blower fan is located behind the evaporator and blows air across it and that cold air travels through the dash duct work and out the vents inside the car. The water you see dripping from under the passenger side of the car is coming from condensation at the evaporator core, and is a result of the AC system doing his job.

Condenser Fan



The ac condenser fan's job is to assist in cooling the hot compressed gasses supplied by the compressor as they pass through the condenser. The function of the condenser fan, is also to supply additional cooling to the vehicle's radiator located just behind the condenser. In the event the condenser fan is not operating as intended, or has ceased to function at all, your system will not operate efficiently. Air flow over the condenser and engine radiator is essential. Inoperative fans will always cause higher than normal HI side pressure.

AC Blower motor



The ac blower motor works in conjunction with the evaporator to remove heat and cool your vehicle interior. He is usually located underneath the dash and connected to ducting where it pulls-in the warm air from the interior and pushes it across the cool coils and fins of the evaporator and send the cold air back to the car's interior.

Expansion Valves



Expansion valves regulate the amount of liquid refrigerant flowing from the condenser to the evaporator based upon the evaporator pressure. A thermal expansion valve will include a temperature sensor and meters the amount of refrigerant flowing into the evaporator.