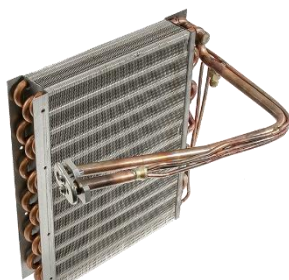


Evaporators

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An evaporator is usually located inside the passenger compartment of your vehicle, under the dashboard. Some vehicles, that have rear air, contain two evaporators: one will be located behind the dashboard area, while the other one will be located at the rear of the vehicle. The primary function of the evaporator is to remove heat and moisture from inside the vehicle. There are three styles of an evaporator: tube and fin, serpentine, and plate and fin.



Tube and Fin Style



Serpentine Style



Plate and Fin Style

How it works:

Low pressure refrigerant enters the evaporator. The blower motor will blow the hot air from inside the vehicle through the evaporator fins. The refrigerant entering the evaporator will absorb the heat coming from the air inside of the vehicle as it touches the fins. At this time the refrigerant changes state from a liquid to a gas. The heated refrigerant will then travel through a hose to the compressor, where the refrigerant is pumped into the condenser. Here, it releases the heat absorbed in the cabin, where it turns back into a liquid and repeats the cycle again.

The evaporator also removes the moisture from the air inside the vehicle, which helps passenger comfort. Moisture forms on the evaporator fins when the heat exchange takes place. The moisture runs down the front, then through a drainage tube to the underneath of the vehicle. When your A/C is on, take a look; there is usually a puddle of water underneath the vehicle.

Even though there are two types of A/C designs, orifice tube system and expansion valve system, the evaporator does the same job in both. It removes the heat from the inside of the vehicle. But if the system is low on refrigerant, it will change state or “boil off” a lot quicker than it should under correct operating conditions, and will not remove all the heat from the cabin or get the oil back to the compressor, which may cause a premature failure.

Excess moisture is not good for an evaporator. An evaporator gets wet and then becomes dry while doing its job. Have you ever wondered what that awful musty smell is when the A/C system is turned on in an older model vehicle? It is dirt and other materials that have become trapped on the evaporator coil that tends to create mold. Combined, they can cause two things: first, they can reduce the performance of the evaporator as the air is unable to reach the fins of the evaporator and transfer the heat correctly. Second, a chemical reaction may occur with the dirt and the evaporator fins could be eaten away. This will impact the performance of the evaporator, and it is common in areas with high humidity to have to replace the evaporator often.

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