



Cooling System: Cooling Fan



Description: Two different types of cooling fans may be used for the cooling system. Traditionally, cars have used belt-driven, mechanical fans using the engine to turn them. Mechanical fans are still used on some cars and light trucks. These fans now use a temperature-sensitive fan clutch that allows the fan to disengage and engage according to different operating conditions. Electric cooling fans began to emerge around 1980 and only come on when needed. The evolution from mechanical fans to electric fans arose from sideways-mounted (transverse) engines and transmissions, and the need to reduce weight while increasing fuel economy. Some vehicles may use multiple electric fans for better control of the cooling system. Today's cars use electric cooling fans controlled by the same computer that controls the engine.

Purpose: The cooling fan circulates air through the radiator so it can release engine heat into the surrounding air. With the introduction of fan clutches and electric cooling fans, fans have become more efficient by operating only when they need to. Electric cooling fans also improve the operation of the air conditioning system. When traveling down the road, usually at road speeds above 30 mph, mechanical fans basically freewheel and electric fans stay off. Air passing through the radiator because of vehicle movement is all that's needed to ensure heat exchange.

Maintenance Tips/Suggestions: A fan that does not provide sufficient circulation usually causes overheating and poor air conditioning operation. A fan that stays engaged at all times can cause poor fuel economy, unwanted noise and may run the battery dead (electric fans with A/C off). First, inspect the area around the radiator to make sure it's free of leaves and other debris. On cars with mechanical fans, turn the engine off and check to make sure the fan is intact and that the drive belt is tight. On cars with electric fans, check your owner's manual to determine what fuses and relays may be involved in controlling the fan. Replace any bad fuses and make sure that the cooling fan relay is properly seated in its socket. Beyond that, if you suspect a problem with your car's fan, have it inspected right away by a professional service technician.