

REAL

December 2023

Torque

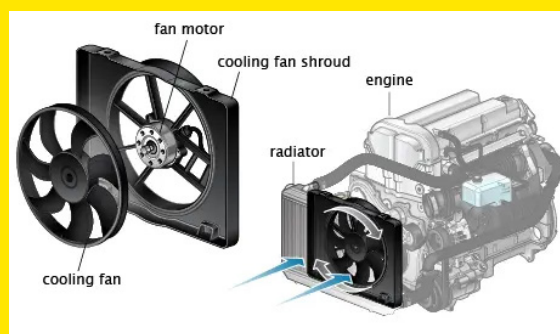
Cooling Systems

Contact maintenance for any questions on 0800 80 80 69

What is a cooling system?

It is a system that is designed to cool down engines and keep them operating at peak performance. The cooling system contains various components that work together and have three main tasks:

- ▶ To remove excess heat build-up in the engine.
- ▶ To maintain engine operating temperature to ensure the engine is performing at its optimum level.
- ▶ To reach the engine's operating temperature as quickly as possible.



The main components and their functions in a cooling system are:

Radiator – Typically made of Aluminium or Copper. Its task is to cool hot engine coolant that flows through its core. It uses ambient air that is drawn through the radiator either when the vehicle is in motion, or by the cooling fan to dissipate the excess heat.

Water pump – This is either a belt-driven or mechanically-driven pump, and its job is to circulate engine coolant throughout the cooling passages in the engine and radiator.

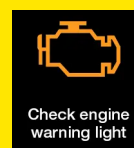
Thermostat – This acts as a valve that, when closed, keeps the coolant circulating in the engine block until it reaches the ideal temperature. Then it will open and allow the coolant to flow through the radiator to be kept cool.

Engine fan – This is typically mounted between the radiator and the engine. Generally belt-driven and activated mechanically or electronically via the engine ECU. These help cooling by assisting in drawing air through the radiator.

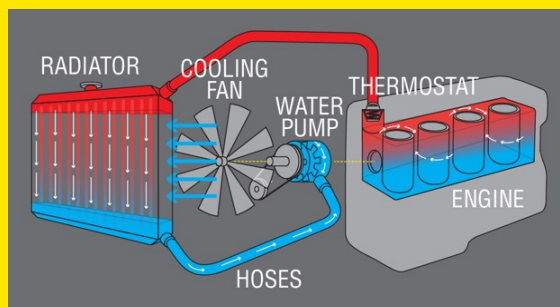
Coolant / Antifreeze – This is the water-based liquid that fills the cooling system. It has a number of qualities and additives designed to help prevent overheating, freezing at low temperatures, and also corrosion inhibitors to prevent internal cooling system damage.

Vehicle heating system – The vehicle's heating system also uses the engine's cooling system to help provide heat to the cabin. It runs hot engine coolant through a heater core with a blower fan to provide hot air. Just another reason the system needs to be well maintained.

Dash warning lights



A cooling system not operating at its best can cause an engine to overheat or, in some cases, not reach operating temperature. In severe cases the engine can overheat and cause a failure. It is important to monitor your temperature gauge and act on any warning lights



Maintenance Tip and Tricks

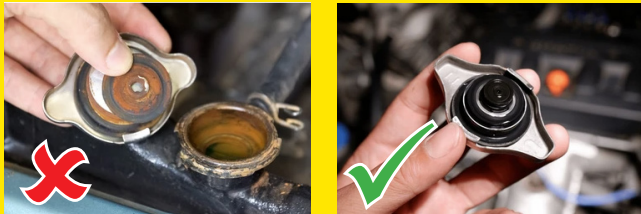
To keep your cooling system working at its optimum, it is important to keep it in tip-top condition. Some of the things that need to be done to ensure this are as follows.

At Pre-Check

TR Tips



- ▶ Check that the front grill and radiator area are free of debris or anything that could restrict or slow airflow through the radiator and A/C condenser.
- ▶ Coolant level and visual condition must be checked to ensure it's not dirty, rusty, or oily.
- ▶ Check that the radiator cap and seal are in good condition. This is important as the cooling system is under pressure when sealed, this helps keep the temperature of the coolant down as it boils at a higher temp when under pressure.



At Vehicle Service Time



An example of a radiator that's had bad coolant and is being inspected at a radiator repair shop.



What the radiator core should look like.



TR Tips

Tips and Tricks

- ▶ Check for leaks in the system.
- ▶ Never mix different types of coolants. This can lead to the cooling system being blocked up as different coolants can react and solidify.
- ▶ Always allow the engine to cool down before removing the radiator cap.
- ▶ Keep a look out for warning lights.
- ▶ Monitor your coolant temp gauge.
- ▶ Check the coolant level as per your daily checks.
- ▶ Keep the grill or protective covers free of dirt and debris.
- ▶ Look out for leaks during your daily checks.
- ▶ If the coolant needs a top up call into a workshop, as there is a reason why the coolant level needs a top up so best to check.

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