

Cooling problems - symptom or cause



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Symptom or cause - can you tell the difference? Gates has some tips for mechanics when cooling systems problems arise.

If the temperature gauge on a vehicle is continuously in the red, a new publication from Gates will help. Diagnostics Made Easy takes you on a logical progression through the steps that make up a successful cooling system investigation procedure:

- Check the coolant level, adding more until 'Max' is achieved.
- Make sure there aren't any leaks, and that a pressure relieving cap, if fitted, is opening at the correct pressure, as well as holding pressure as designed.
- Ensure the radiator fan system is operating correctly, by checking the temperature sensor and the wiring.
- Ensure the thermostat is working properly and is opening at the correct temperature and opening fully as designed.
- Consider whether the coolant could be either old or contaminated. If so, this will require a system flush, followed by a refill with new coolant.

Coolant may look clean, but looks can be deceiving. Some contaminants, such as aluminium corrosion particles or mineral content in the water, may be less than obvious. Coolant should be changed every 31,000 miles (50,000 km) to be on the safe side.

If the cooling system on a high-mileage vehicle has never been flushed, for example, contamination is highly probable. A drain, flush and refill should be carried out as part of a preventive maintenance programme - it's not designed to rectify problems.

Colour blind

Mixing different types of coolant can cause further issues - as well as 'voiding' a manufacturer's warranty. Some coolants may be

the same colour, but the ingredients may be different. If in doubt, the manufacturer's recommended specification is always the correct decision.

If all seems fine, proceed to the next phase, intensify and escalate the investigation process. As well as reducing circulation, air bubbles can accelerate the corrosion process. Air bubbles can be eliminated by bleeding the cooling system thoroughly.

Bleed the system

This may be done via the bleeding valve on the upper radiator hose, or some other point at the top of the cooling system, if there is one. On some models, air must be vented from the expansion tank, which may have to be removed. Check the manufacturer's recommended procedure.

If the problem persists, check to see if there is an electrically driven water pump. The average water pump handles 1.7 million litres of coolant in 100,000 km (or every four years). However, failure rates can be quicker.

Water pump wear

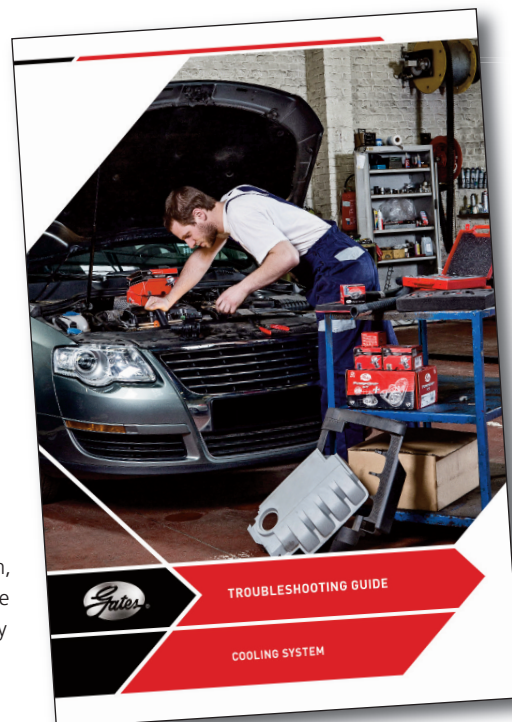
The Gates Troubleshooting Guide for cooling systems identifies the major signs of wear and water pump failure patterns. These include:

- Worn /damaged bearings
- Noise
- Weep hole leaks
- Leaks from the mounting surface
- Corrosion
- Scale and deposits build-up
- Cavitations, caused by thermodynamic pressure

- Broken shaft

If none of these are identified, establish whether the tension of the belt is correct.

If not, the pump may have been running inefficiently for some time, so take no chances. Fit a new drive belt kit and a water pump at the same time.



The Gates Cooling Systems Troubleshooting Guide and Diagnostics Made Easy is available from Gates distributors

It can save you problems, and therefore time and money, to fit a complete kit that has the belt and the water pump. An added value benefit is that all parts are from the same supplier. That means the warranty extends to all of them. In the unlikely event of a future issue, just one supplier means only one inspection.

What's more, the time needed for fitting the belt kit and installing the water pump at the same time are the same as just installing the kit. So the customer drives away happy with the added value and the extra peace of mind.

The Gates Cooling Systems Troubleshooting Guide and Diagnostics Made Easy is available from Gates distributors. Diagnosis Made Easy provides a step-by-step guide to resolving problems. The Troubleshooting Guide includes technical background and takes a more detailed look at the various installation procedures and diagnostic techniques.



Cooling problems can arise from any part of the system, like this leaking water pump