

Issue no. 9/2016: Corrosion damage on thermostats

If the engine starts overheating or won't warm up, the cooling circuit is often the culprit. In addition to the water pump, radiator, and fan, the thermostat plays a key role, since the slightest malfunction here (due to corrosion, for example) immediately makes itself noticeable.

This may occur, for example if the wrong coolant additive is used. Not all additives can be mixed together, and they can even corrode aluminium components (see Figures 1 and 2). The use of tap water containing minerals can also have a negative effect, and a defective earthing cable accelerates damage due to electrolysis.

To prevent this phenomenon, fill the cooling circuit with manufacturer-approved coolant additives only, taking care to use the proper ratio of coolant to water. Some vehicle manufacturers also prescribe the use of distilled water. Equipotential bonding between the engine and car body must also be ensured: earthing cables must not show signs of damage (see Figure 3).



Figure 1: Obvious signs of corrosion on a map-controlled thermostat (Type TM).



Figure 2: The aluminium has been completely eaten away due to the use of non-approved coolant additives.



Figure 3: Check the earthing cable to ensure it is properly connected and free of damage.

IMPORTANT! Coolant ages too! Regular coolant changes prevent sludge accumulating in the cooling circuit. Always follow the vehicle manufacturer's instructions!