

TECHNICAL INFORMATION

COOLING SYSTEMS SPECIALIST

Radiator Fault Diagnostic Guide

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Leakage

1 The Symptom

The radiator leaks on fitment or in-situ. Commonly found on Mechanically Assembled Aluminium radiators.

2 The Cause

The vehicle has previously been involved in a front end accident. The radiator has been forced into position on its mounting points. The radiator end plates distort out of alignment due to the mounting points being out of the line from the accident.

3 The Cure

Ensure radiator mounting points are in the correct position before vehicle is refinished.

Corrosion

1 The Symptom

The cooling system frequently overheats, or the radiator leaks. Removal of the radiator reveals heavily stained coolant with reddish brown or grey coloured sludge.

2 The Cause

The coolant has not been maintained to the recommended standard. This has resulted in an excess build up of sludge within the core and potentially blocking the coolant flow.

1. Vehicle run with no coolant.
2. Vehicle run with incorrect coolant.
3. Vehicle run with insufficient coolant (anti-freeze).
Recommendation of 50/50 coolant and water at all times to maintain corrosion protection.
4. Coolant has not been changed at the recommended intervals - every 2 years.
5. Inadequate flushing of the cooling system.

3 The Cure

Replace radiator if it is blocked. Flush cooling system through to remove all traces of old coolant, sludge and debris. Ensure system is filled with recommended coolant. Replace coolant every 2 years for maximum corrosion protection. A coolant conditioner is recommended with aluminium core radiators.

Blown Tanks

1 The Symptom

The radiator has suffered from excess pressure resulting in expansion causing the radiator to rupture.

2 The Cause

1. There is an air lock that has remained in the cooling system when it has been refilled following an engine repair or maintenance. The air rapidly expands as the temperature rises and the radiator cannot cope with the sudden rise in gas volume and pressure.
2. There has been a sudden failure of the cylinder head gasket, allowing combustion pressure to pressurise the cooling system.

3 The Cure

1. Ensure that the system has been filled correctly purging all air from the engine before securing the pressure cap. We recommend to re-fill the loop by using the Valeo Fastfill (698798). It will eliminate airlocks and allow you to complete the job efficiently and safely.
2. Replace the cylinder head gasket and skim cylinder head if necessary.

Electrolysis

1 The Symptom

The radiator shows white powder in the bosses and at header plates as well as greenish fins and tubes. The oil cooler shows a greenish layer.

2 The Cause

Electrolysis is an electrochemical reaction which systematically removes the protective layer on the inside of the radiator tubes and causes these to leak.

An electrical current passing through the coolant can cause system component failures, due to electrical earth problems. Electrical

grounding problems can stem from poor installation of accessories or incorrect vehicle repairs following collision damage. Electrolysis can also be due to incorrect or low anti-freeze content through a poorly flushed cooling system. Depending upon conditions degradation of the radiator can be as quick as within 60 days.

3 The Cure

The only way it can be stopped is to correct the electrical problem causing the current. Damage resulting from an electrical current can be extreme corrosion within the oil coolers, aluminium radiators, cylinder liners and abnormal water pump and head gasket failure.