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Flushing the cooling system to avoid consequential damage

If the coolant contains oil, deposits, or foreign objects, not only should the cause be eliminated, but the cooling system should also be thoroughly cleaned.

Contamination and leakage are among the most common types of damage to the cooling circuit. If there are leaks to the outside, the source of the defect is relatively quick and easy to locate. But if leakage occurs on the inside—as in the case of a leaky coolant-cooled oil cooler—troubleshooting is more complicated and time-consuming. Once the root cause has been dealt with, it's important that the cooling system is cleaned thoroughly, especially if there has been any mixing of oil and coolant.

Oil in the cooling system

If the two consumables mix in the cooling system, rubber seals and other components made of elastomers can be damaged and may even disintegrate. This can trigger various problems, including causing the seal to the plastic housing of the water tank in some radiators to swell, resulting in leaks.

Deposits in the cooling circuit

Deposits and contamination, such as corrosion, limescale, sealant, or other foreign objects, can also damage components in the cooling circuit. Foreign matter can block the narrow pipework in the radiator, corrode materials, or lead to increased wear on the mechanical seal of the coolant pump, for example.

Flush the system properly

If oil, foreign matter, or deposits are discovered in the coolant, the first thing to do is to identify the cause and deal with it. In the next step, the entire cooling system must be flushed several times with a special cooling system cleaner while the engine is at operating temperature. The specifications of the vehicle manufacturer and flushing agent producer should be followed at all times. Finally, when no more residues or foreign objects are present, the system must be flushed with warm water until only clear water runs out.



Figure 1: Rubber seals degraded by oil



Figure 2: Deposits like rust, limescale, sealant, or other foreign objects cause blockages and reduce cooling performance.

Important!

After cleaning the cooling circuit, the system must be refilled with fresh coolant in the correct ratio of water to antifreeze. The most effective way to do this is with a vacuum-venting device that reliably prevents air traps from forming (see TM 06/2016).