Technical Messenger

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Fluctuating temperatures in direct-shift transmissions: Why it gets colder when going downhill

When fluctuations in the coolant temperature occur in vehicles with a direct-shift transmission, a defective transmission oil thermostat may be the cause.

Such temperature fluctuations frequently occur in overrun mode during longer downhill runs or at low engine load. If coolant and engine oil fall below the usual operating temperatures in these situations, the transmission oil thermostat is most likely defective.

Possible cause

The thermostat regulates the transmission oil temperature via the vehicle's coolant circuit. The transmission oil dissipates the heat from the direct-shift transmission to the coolant via a heat exchanger. If the thermostat malfunctions—by getting stuck in the open position, for example—the engine requires considerably more time to reach its normal operating temperature, or may not reach it at all.

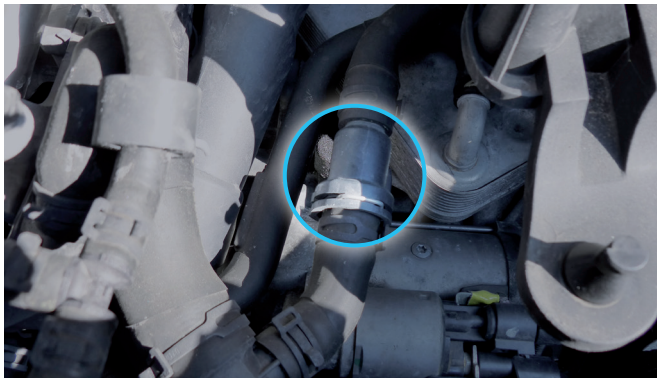

Figure 1: The thermostat is usually integrated beneath the water tank, in the hose to the heat exchanger.

Figure 1: Always note the installation direction (marked with an arrow) when installing the thermostat.

Important!

Modern cooling circuits are very complex systems and must therefore be repaired with due care. When installing a new thermostat, it is essential to ensure the flow or installation direction is correct and the system is correctly ventilated.