

**Engine all (CAR)****Overview**

This document contains information on:

- **General**
- **Function requirements**
- **Cooling by airstream**
- **Cooling by fan**
- **Cooling air control via radiator trim flaps**

**General**

The cooling air flow regulates the exchange of heat between the vehicle and its surroundings.

**Function requirements**

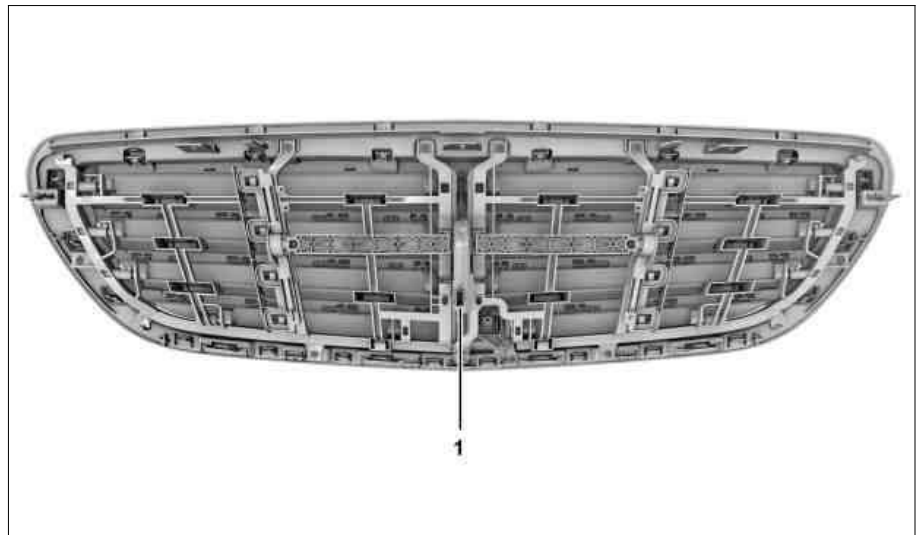
- Engine management ON (circuit 87M)
- Engine runs

Function requirements for delayed fan switch off

- Ignition OFF (circuit 15)

**View of the radiator trim (for code 5U3 AIRPANEL)**

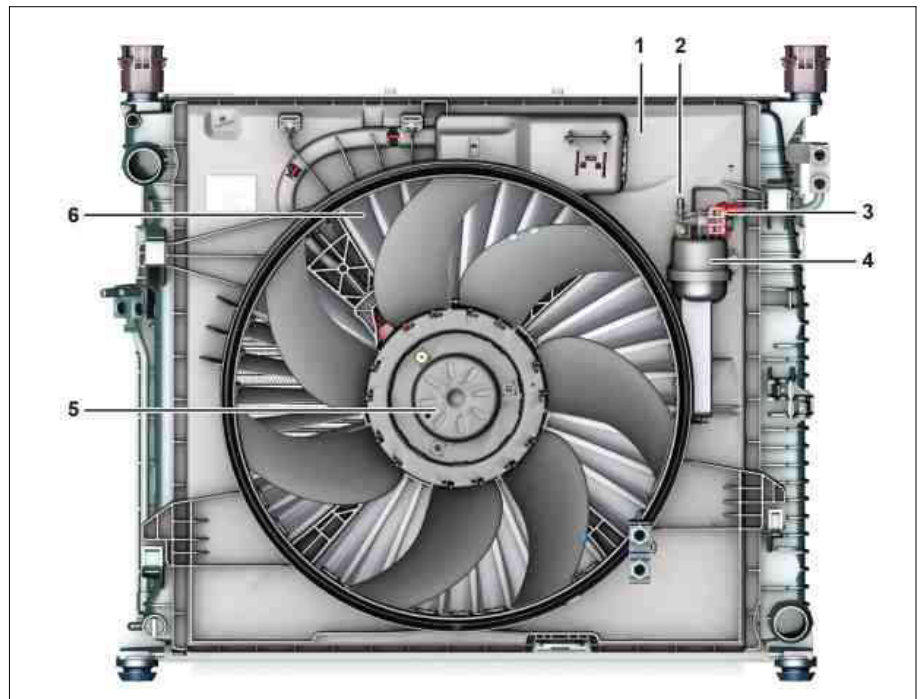
- 1 Radiator trim flap actuator motor



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**View of the radiator shown from the rear on engine 276.9**

- 1 Blower housing
- 2 Vacuum fitting
- 3 Vacuum unit
- 4 Radiator trim flap actuator
- 5 Fan motor
- 6 Radiator shutters



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Depending on the amount of cooled air required, the rate of air flow to the radiator can be controlled via the radiator trim flap actuator motor in the front area. The radiator trim flap actuator motor is actuated by the powertrain control unit after engine start and opens and closes the radiator trim.

The radiator trim flaps open in the following cases:

- Coolant temperature > 106 °C
- Intake air temperature > 34 °C
- Vehicle speed > 180 km/h
- Transmission oil temperature > 100 °C
- Fan output > 30 %

- Coolant temperature during diesel particulate filter regeneration > 100 °C

There is no fault message from the fan motor  
The radiator trim flaps close in the following cases:

- Coolant temperature < 94 °C
- Engine does not run:
- Coolant temperature during diesel particulate filter regeneration < 94 °C

If the radiator trim is closed, the coefficient of drag improves and so does fuel consumption as a result. At the same time, this causes reduced engine compartment cooling off and a dampening of external engine noise emissions.

	<b>Control units</b>	
	Powertrain control unit, basic function	GF54.21-P-9894A