

MAF sensor

The correct relationship between air mass and fuel quantity is of significance with respect to compliance with emission standards. The purpose of an MAF sensor is to determine the air mass and pass on the values to the engine management system.

Environmental protection

Precise matching of the intake air and the quantity of fuel injected can help to ensure economical, low-emission engine operation. The MAF sensor thus plays a part in reducing the environmental impact of the combustion process. A contaminated or defective MAF sensor will lead to an increase in fuel consumption and exhaust emissions, as the optimum quantity of fuel required can no longer be correctly determined.

Depreciation

MAF sensors are extremely sensitive components. They can be damaged by contamination such as splashwater, oil mist and any dust particles not retained by the air filter. Regular expert checking is therefore necessary. Problems with or faults in the MAF sensor may cause the engine warning light to come on and it may be possible to read out the fault with a diagnostic unit. The actual source of the fault may however be a clogged measurement duct and in this case no diagnostic trouble code may be supplied. Faulty operation of other components or leakage in the intake system can also lead to the sensor supplying incorrect signals. The possibility of faults in other components should therefore always be ruled out before replacing the MAF sensor.

Extreme caution is required if an MAF sensor has to be replaced: Although the procedure is extremely simple, the MAF sensor can easily be damaged on installation.

Safety

The quantity of fuel to be injected is determined from the information provided by the MAF sensor. Proper functioning of the MAF sensor is therefore important for reliable, ecological engine operation. A defective or contaminated MAF sensor will only supply inaccurate measured values. Consequence: Excess fuel or air in the engine. This can lead to the following:

- High, low or unstable idling speed
- Misfiring
- Delayed acceleration
- Abnormal knocking
- Black smoke
- Stalling of engine immediately after starting

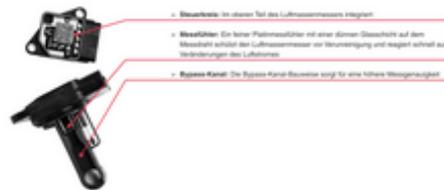
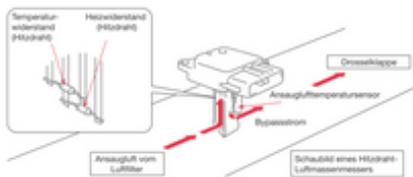
Function

The MAF sensor is part of the intake system of [modern diesel and petrol engines](#). This component is important for ensuring an efficient, low-emission combustion process. Its task is to obtain precise information on the

- Mass,
- Temperature and
- Pressure

of the intake air available for use in the combustion process. The values determined are reported to the [engine management system](#) in the form of an electrical signal. The engine management system calculates the optimum fuel quantity to be injected from these values. On diesel vehicles the MAF sensor is also used to control exhaust gas recirculation.

Images





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