



Intake manifold pressure error at idle

Troubleshooting in vehicles with MAP sensors



Potential complaints

- Fluctuating idle speed
- Loss of power
- Jerking on acceleration
- Malfunction indicator lamp lights up
- Diagnostic trouble code P0105 – P0109

Situation

Error messages relating to the intake manifold pressure often appear in petrol engines that have intake manifold pressure measurement via a MAP sensor (MAP = Manifold Air Pressure). Deviation from the set-point values does not, however, lead to the diagnostic trouble code being stored in all operating states.

Determining the source

A scan tool can be used to compare the actual values with the set point values. If the intake manifold pressure measured by the system deviates from the set-point value, the actual value must be checked using a separate vacuum manometer.

- If the measured intake manifold pressure is within the set-point values, the MAP sensor and the electrical lines must be checked (see also PIERBURG Service Information SI 0102).
- If the measured intake manifold pressure is outside of the set-point values, the reason for the loss of pressure in the engine must be established (see test instruction that follows).

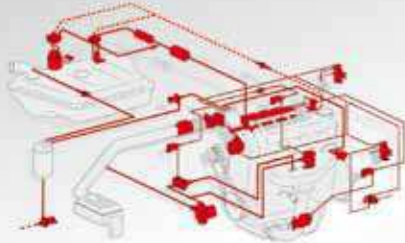


Fig. 1 Intake manifold pressure sensor/MAP sensor (MAP = Manifold Air Pressure)



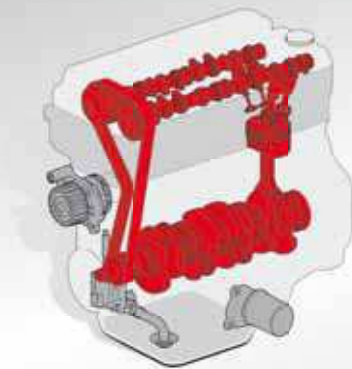
Fig. 2 Intake manifold pressure sensors (red) in a VW Golf IV

The right of changes and deviating pictures is reserved. Assignment and usage, refer to the each case current catalogues, TecDoc CD respectively systems based on TecDoc.


Possible fault sources in the engine periphery


Leaking intake manifolds downstream of the throttle valve (e.g. due to defective intake manifold gaskets, hoses, etc.)
Defective engine exhaust valves/hoses
Leaking brake boosters
Leakages in the vacuum system (e.g. vacuum-operated actuators, brake boosters, lines, etc.)
Defective EGR valves (permanently open)
Defective idling actuators
Idling status of the engine is not recognised by the control unit (defective throttle potentiometer, throttle switch)
Defective or dirty throttle valves
Incorrect or faulty air filter inserts
Carbon deposits or other blockages in the intake manifold

If the problem is not found in the engine periphery, it must be assumed that there is a mechanical problem with the engine.

Possible fault sources in the engine mechanics


Piston ring wear or piston damage (piston seizure, fusion and and similar damage) – a further sign of this is high blow-by gas emission during idling with the oil filler cap open.
Leaking intake and exhaust valves
Insufficient valve clearance
Worn valve seat inserts (especially in engines with gas conversion)
Incorrect function of the hydraulic valve clearance compensating elements (hydraulic tappet)
Incorrectly set valve timing or skipped toothed belt
Leaking cylinder head gaskets
Incorrect or worn camshafts

Inspections to be carried out

- Valve clearance
- Valve timing check
- Compression test
- Cylinder compression test