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P1127**Oxygen Sensing Adaptation Range 2 (Cylinders 1 - 3) Lean Limit****P1129****Oxygen Sensing Adaptation Range 2 (Cylinders 4 - 6) Lean Limit****Function**

The adaptive oxygen sensing corrects longer lasting deviations of the fuel/air mixture from $\lambda = 1$ through changes of the calculated pilot control within the engine control module and with that the injection time.

Should the correction factor through adaptation exceed a predetermined value, the diagnosis will detect the adaptation limit.

Range 2 covers the engine operating state close to full load.

Diagnosis conditions

- Oxygen sensing active.
- Time elapsed after engine start-up 250 to 350 seconds.
- Engine temperature > 90°C.
- Intake air temperature < 90°C.
- Air mass flow > 48 kg/h.
- Load signal > 1.15 ms.

DTC No.	Fault conditions	Fault area
P1127 P1129	Fuel/air mixture so rich that the control is up to the lean limit.	– Fuel pressure too high. – Fuel injector leaking.

Note

If DTC P1127 or P1129 (oxygen sensing at lean limit) is stored in the memory, this means that the fuel/air mixture is too rich.

Diagnostic procedure

1 Check fuel pressure.	
	OK
2 Check fuel pressure regulator, vacuum connection and fuel return line.	
	OK
Check fuel injector for leaks.	
End	

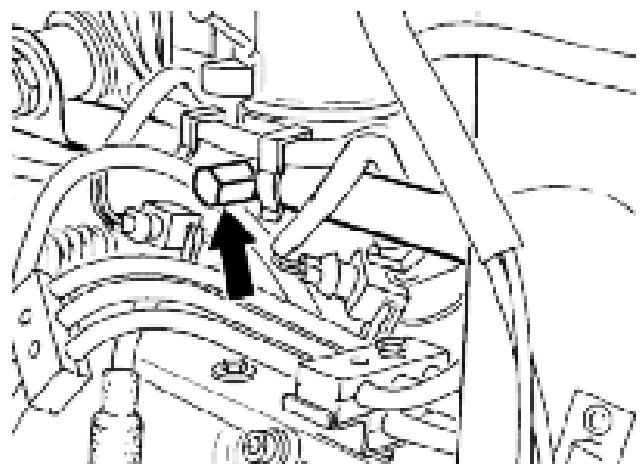
1 Check fuel pressure.

1. Remove heater fan at rear left of engine compartment.
2. Remove valve cover at test connection of fuel distributor line.

Note

The valve cover must be used only **once**.
 Tightening torque: **2.5 + 0.5 Nm**

3. Connect pressure gauge P 378 or VW 1318 with attachment line 9559 and connect to test connection.



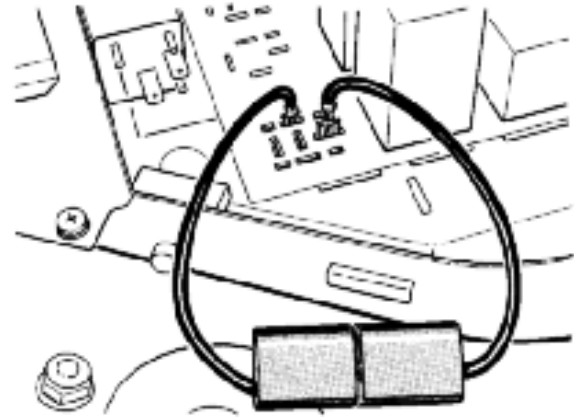
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4. Remove ECM relay (R53) from fuse/relay panel and connect terminals 30 and 87 b with locally manufactured fused jumper cable and trigger fuel pump with system tester.

The fuel pump must work now.

5. Test values:

Engine not running	3.8 ± 0.2 bar
Engine at idle	3.3 ± 0.2 bar



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2 Check fuel pressure regulator, vacuum connection and fuel return line.

1. Remove vacuum hose at fuel pressure regulator.
2. Connect special tool 9103/2 to vacuum hose.
3. Start engine.
Display: **0.4 - 0.6** bar

If the value is not attained, check the air intake system for leaks and check vacuum line to fuel pressure regulator for restrictions.

4. Check housing of fuel pressure regulator for outside damage.

Replace the fuel pressure regulator if it is damaged with the result that the spring pre-tensioning is increased.