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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.**

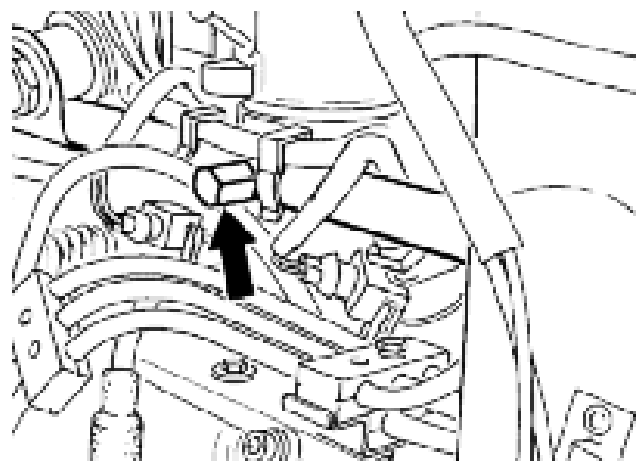
1. Remove heater fan at rear left of engine compartment.
2. Remove valve cover at test connection of fuel distributor line.

**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.



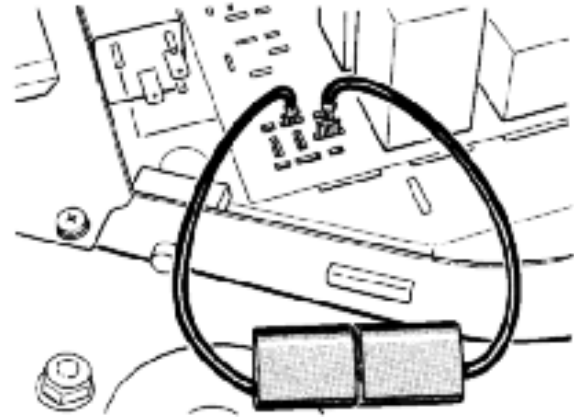
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- Remove ECM relay (R53) from fuse/relay panel and connect terminals 30 and 87 b with locally manufactured fused jumper cable and trigger fuel pump with system tester.

The fuel pump must work now.

- Test values:

Engine not running	$3.8 \pm 0.2$ bar
Engine at idle	$3.3 \pm 0.2$ bar



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

- Remove vacuum hose at fuel pressure regulator.
- Connect special tool 9103/2 to vacuum hose.
- 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.

- 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.