

2009 TIGUAN 2.0L FUEL PRESSURE ERROR

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WVGAV75N29Wxxxxxx

Engine Controller Part
Number: 06J 997 026 L

Component:
MED17.5 TFSI 2.0

2 faults found

008213 - Intake Manifold
Flap Position Sensor (Bank 1)

P2015 - 000 -
Implausible Signal - MIL ON

000135 -
Fuel Rail/System Pressure

P0087 - 000 -
Too Low - MIL ON

HISTORY

The episode with the Audi A6 led to an unfortunate incident with a Tiguan at the same facility. After completing the autoscan, it was difficult to start, at times stalled, and by “feathering” the throttle had stable enough RPMs to acquire live running data for a few moments.

GO BACKWARDS

The primary complaint was an oil leak at the high pressure fuel pump. The facility opted to repair the pump with a new

seal. The engine was very difficult to start and often didn’t or repeatedly stalled.

STOP RIGHT HERE

For the uninitiated technicians that work on any Direct Injection engine, **NEVER** open the fuel system running or not running.

STEPS AND HOW TO

1. Find a wiring schematic (the VW in this case).
2. Find the **correct** fuse to disable the fuel pump control module at or near the fuel tank.
3. With the engine running, monitor the fuel pressure at group 140.

4. Wait until pressure is “approx 8 bar” and switch the ignition OFF.

5. Leave the fuse out until the repairs are completed.

(This will maintain fuel in the rail and not starve the high pressure pump.)

WHY DO YOU ASK??

Hot soak condition and fuel vaporizing 101.

Many vehicles in the market and especially FSI (Fuel Stratified Injection) models will energize the fuel pump control module, engaging the fuel pump when the driver’s door is opened. Let’s call it pre-prime.

An interesting fact (tested and proven) concerns engine coolant temperature.

The hotter the engine, the longer the fuel pump remains ON and vice versa.

So imagine an engine at operating temperature, inadvertently operating the fuel system. Imagine opening the driver’s door with the fuel system opened to the environment. Therefore keeping the pressure up minimizes vapor lock on hot engines ie: hot soak.

BACK TO THE TIGUAN

At idle and with the engine complaining (noisy as well), the images were captured at groups 106 and 002.

For this short running time and viewing the screen capture after the engine was shut down, there are some questions about the replacement high pressure fuel pump.

TOOLS USED

90 amp clean and stable power supply

Ross-Tech VCDS with screen capturing software

The screenshot shows the VCDS Measuring Blocks interface. The top bar indicates 'Sample Rate: 3.5' and 'Turbo!'. The 'Label File' is 'USER\06J-997-026-L.LBL'. There are three groups of measuring blocks:

- Group 106: Fuel Injection - Fuel Supply**
 - Fuel rail Pressure Spec: 40.00 bar
 - Fuel rail Pressure Act.: 6.50 bar
 - Fuel Pump Duty Cycle: 64.7 %
 - Calculated Fuel Temperature: 88.0°C
- Group 002: General Engine Data**
 - Relative Engine Speed G28*: 780 /min
 - Engine Load Calculated: 14.3 %
 - Mean time Injection: 3.57 ms
 - Intake Mass Air Flow G70*: 2.33 g/s
- Group 003:** All values are blank.

Buttons at the bottom include 'Refer to Service Manual!', 'Add to Log', 'Switch To Basic Settings', 'Done, Go Back', 'Graph', and 'Log'.

Defective pump

The screenshot shows the VCDS Measuring Blocks interface. The top bar indicates 'Sample Rate: 3.5' and 'Turbo!'. The 'Label File' is 'USER\06J-997-026-L.LBL'. There are three groups of measuring blocks:

- Group 106: Fuel Injection - Fuel Supply**
 - Fuel rail Pressure Spec: 40.00 bar
 - Fuel rail Pressure Act.: 40.20 bar
 - Fuel Pump Duty Cycle: 47.5 %
 - Calculated Fuel Temperature: 54.0°C
- Group 002: General Engine Data**
 - Relative Engine Speed G28*: 720 /min
 - Engine Load Calculated: 15.8 %
 - Mean time Injection: 1.28 ms
 - Intake Mass Air Flow G70*: 2.67 g/s
- Group 003:** All values are blank.

Buttons at the bottom include 'Refer to Service Manual!', 'Add to Log', 'Switch To Basic Settings', 'Done, Go Back', 'Graph', and 'Log'.

Cold run up

Group 106 field 1	The ECM is requesting 40.00 bar
Group 106 field 2	Actual fuel rail pressure is far too low at 6.50 bar
Group 106 field 3	The in tank fuel pump is commanded at 64.7 percent
Group 002 field 3	Mean injection time is 3.57 ms

(This is looking more like a port injected model.)

WHAT WAS REPLACED?

Where is the original part and where was it purchased? The search was on and within a few minutes the original part was found. The original appeared to be defective where the seal resides, and we also found the original cam follower inside the original fuel pump. The follower or cap rides the camshaft, pushing on the spring loaded shaft that creates high pressure. The four lobe design reduces the piston stroke compared to the earlier three lobe design.

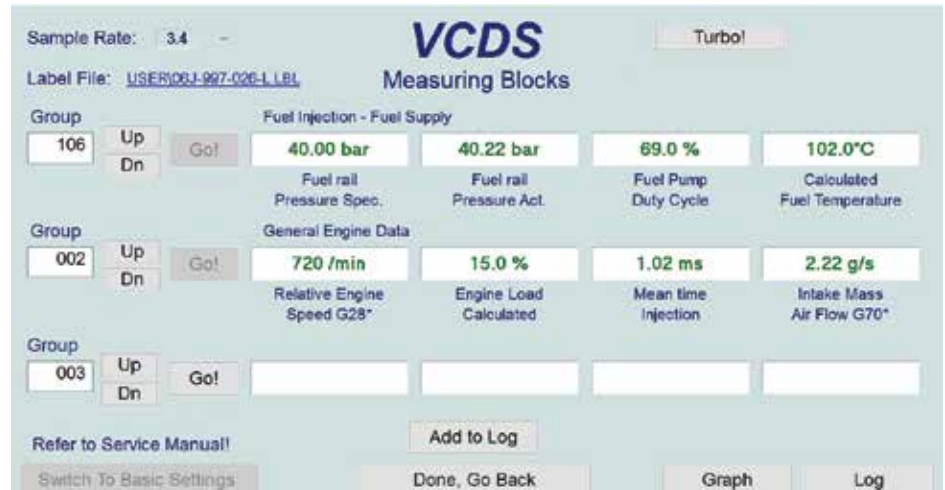
TIME TO INSPECT

The technician was asked to remove the pump following the above instructions and we placed the replacement pump beside the original.

The follower or cap is missing from the replacement. No comment and keeping it clean! Reassemble again with the correct parts and measure.

pulse width is far too wide (fat), then expect the fuel tank control module to try to compensate for the difference between “specified and actual” values.

VCDS is the “go to” tool with many features comparable to a factory version, but one day I was experimenting with an Android device. 572.9 psi or 3880.0 kPa = **dangerous**, plus conversion from degrees C to degrees F. ■



Warm engine

Group 106 field 2	Is close to specification
Group 002 field 3	Looks normal for a cool FSI engine
Group 106 field 4	The warmer engine is demanding more in-tank ON time
Group 002 field 3	Engine management requires less injection time (warm)

There will be many interesting images of damaged cam followers and plunger shafts found with the “Google images” service. Have a look.

Fortunately, there was no camshaft damage found with this model and luckily, because the shop has such difficulty trying to start the engine.

Despite finding this problem quickly, use this article as a guide to narrow other possible FSI related problems or faults.

EXPLANATION AND OPERATION “IF – THEN – ELSE”

If for any reason the ECM is recording fuel pressure faults, and injection



Android psi



Android kPa