Technical Service Bulletin

20 MIL on (DTC P045600 - EVAP System Leak Detected NVLD (very small leak))

20 13 27 2035073/1 October 16, 2013.

Model(s)	Year	VIN Range	Vehicle-Specific Equipment
A4	2013 - 2014	All	NVLD
A5	2013 - 2014		
A5 Cab	2013 - 2014		
A6	2012 - 2014		
A7	2012 - 2014		

Condition

- MIL on.
- **DTC P045600** (EVAP System Leak Detected NVLD (very small leak)) is stored in the engine control module (ECM), J623 (address word 01).
- Drivability is not affected.

Technical Background

After the engine is switched off, the fuel system creates a natural vacuum as the fuel in the fuel tank cools off. If the natural vacuum leak detection (NVLD) system cannot detect this natural vacuum during the system self-test, the DTC will be stored in the ECM.

System self-test background:

- The NVLD system checks the natural vacuum that is created in the fuel tank as the fuel cools after the engine has been switched off.
- The fuel tank pressure sensor, G400, senses the vacuum in the bleed line near the EVAP canister. The fuel tank leak detection control module, J909, monitors the temperature inside the fuel tank.
- The fuel system is considered to be closed (leak-free) if the measured vacuum is 2.5 mbar (0.04 PSI).
- If no vacuum is detected, there is a vacuum leak in the EVAP system, and the DTC will be stored.

System self-test requirements:

- For the self-test to initiate, the following requirements must be met:
- Ignition is off.
- Ambient air temperature is greater than -10°C (14°F).

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- Fuel temperature drops for more than one hour by more than 6°C (11°F). This varies by model; see *Elsa >>Engine >> Generic Scan Tool >> ST Generic Scan Tool >> Diagnosis and Testing >> DTC Tables*.
  - Example of a 6°C (11°F) drop: From 10°C (50ºF) to 4°C (39ºF) within one hour (Figure 1).

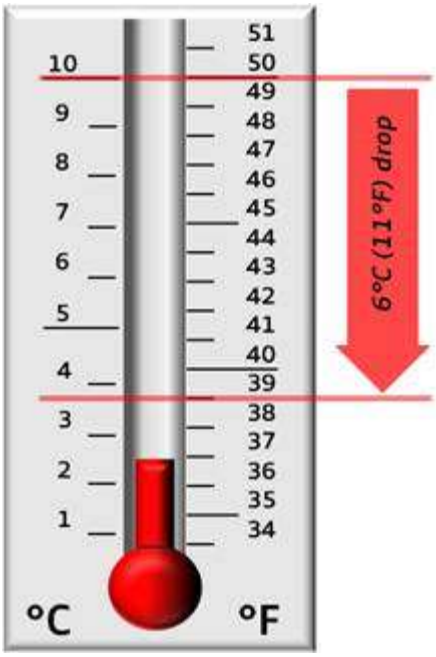

***Figure 1**. Example of a 6°C (11°F) drop: From 10°C (50ºF) to 4°C (39ºF) within one hour.*

- Altitude is less than 2700 m (8858 ft.).
- Ambient pressure is greater than 730.04 hPa (10.6 PSI).
- Time since ignition has been off is more than 1.5 hours but less than 10 hours.
- Difference between ambient pressure at stop and ambient pressure at start is less than 6.47 hPa (0.09 PSI).

Production Solution

New pressure sensors in production:

- For vehicles with a fuel tank pressure sensor, G400, and a fuel tank leak detection control module, J909, that are separate (two components): part numbers 8K0906253 and 8K0906253B are superseded to **8K0906253D**.
- For vehicles with a fuel tank pressure sensor, G400, and a fuel tank leak detection control module, J909, which are integrated (one component): part numbers 8K0906253A and 8K0906253C are superseded to **8K0906253E**.

Note: Always use a VIN to search parts in ETKA.

Service

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Use the images below to determine the type of EVAP system:

- Separate fuel tank pressure sensor, G400, and fuel tank leak detection control module, J909 (Figure 2).

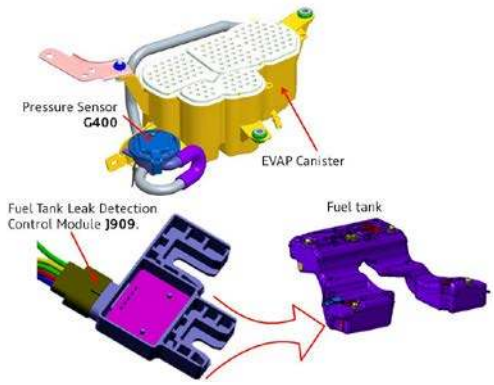

***Figure 2**. Separate sensor and control module.*

- Integrated fuel tank pressure sensor, G400, and fuel tank leak detection control module, J909 (Figure 3).

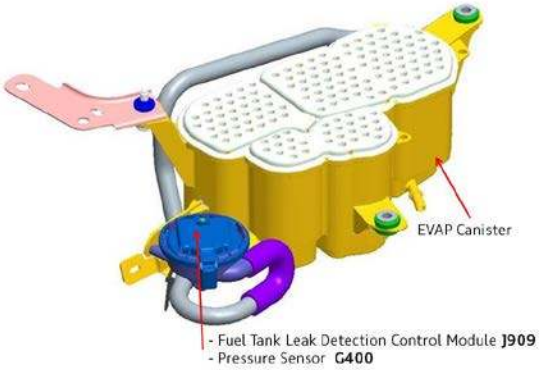

***Figure 3**. Integrated sensor and control module.*

Note:

Due to the functionality of the new tank leak diagnostic system (NVLD), it is not possible to check the system using a basic setting or an output diagnostic test mode like the previously-used LDP system.

Diagnosis

1. Visually inspect the EVAP system for any loose connections or damaged parts:
   - If found, repair the loose connections and replace the damaged parts.
2. Check N80 valve for proper operation (*Engine >> Generic Scan Tool >> ST Generic Scan Tool >> Diagnosis and Testing >> Diagnostic Procedures >>EVAP Purge Regulator Valve, Checking*):
   - Replace the valve if faulty.

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3. Inspect fuel cap and address any issues before advancing to the next step:
   - If the fuel cap is loose / not properly installed, reinstall the cap.
   - If the fuel cap seal is damaged, replace the seal.
   - If foreign objects are obstructing the sealing surface, remove the obstruction.
4. Test the fuel cap using the Evaporative Emissions Tester KLI9210:
   - If necessary, replace the fuel cap seal or fuel cap.
5. Pressurize the EVAP system using the KLI9210 Smoke/Pressure test:
   - Disconnect the air filter hose from the pressure sensor. Seal the pressure sensor opening with a clean plug from the Engine Bung Set VAS 6122, or similar (Figure 4 and Figure 5). The plug must fit securely and not allow any air to leak.
   - Pressurize the EVAP system to 12 inch/water (30mbar), and check pressure loss over time.



Figure 4. *Example of plug inserted* ***inside*** *the pressure sensor filter pipe.*



Figure 5. *Example of plug inserted* ***over*** *the pressure sensor filter pipe*

6. If remaining pressure after 3 minutes is 9 inch/water (22.4 mbar) or *higher*, the system has no leaks:
   - Replace the pressure sensor (G400 or G400/J909) with the latest part number (see parts catalog).

   If remaining pressure after 3 min is *lower* than 9 inch/water (22.4 mbar), the system has a leak.
   - Locate the leak with the smoke generator function of the Evaporative Emissions Tester KLI9210 and repair as necessary.

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Warranty

Claim Type:	Use applicable claim type. If vehicle is outside any warranty, this Technical Service Bulletin is informational only.		
Service Number:	2041		
Damage Code:	0040		
Labor Operations:	EVAP system pressure test	2041 0199	70 TU Max
	NVLD J909 pressure switch replacement	2041 0199	10 TU
	A4/S4, A5/S5, A5/S5 Cabrio, Q5: Activated charcoal filter remove & reinstall	2025 1910	50 TU
	A6/A7: Activated charcoal filter remove & reinstall	2025 1900	40 TU
Diagnostic Time:	GFF – Checking and clearing fault codes included in existing labor operations	0150 0000	Time stated on diagnostic protocol (Max 40 TU)
	Technical diagnosis at dealer's discretion (Refer to Section 2.2.1.2 and Audi Warranty Online for DADP allowance details)		
Claim Comment:	As per TSB #2035073/1		

All warranty claims submitted for payment must be in accordance with the *Audi Warranty Policies and Procedures Manual*. Claims are subject to review or audit by Audi Warranty.

Additional Information

All parts and service references provided in this TSB (2035073) are subject to change and/or removal. Always check with your Parts Department and service manuals for the latest information.

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