

**Vehicle Analysis Log: Evaluating Overspeed Events (Cayenne) (6/09)**

Vehicle Type: **Cayenne S/Cayenne GTS/Cayenne Turbo/Cayenne Turbo S**

Model Year: **As of 2008**

Concerns: **Evaluating overspeed events using the Vehicle Analysis Log** (referred to below as "VAL").

Situation: **Damaged unit parts due to high engine speed.**

The information below is intended to help you to evaluate engine damage, which may occur as a result of one or more overspeed events. You can also use the values entered in the VAL to improve the assessment process for granting **pre-owned car warranties**, for example, and to examine entitlements for carrying out repairs under warranty.

Engines are designed to operate at a maximum permitted speed. This engine speed is not exceeded when the vehicle is driven normally. However, **driving and operating problems** (e.g. "changing to the wrong gear" on vehicles with manual transmission) or **manipulation** (e.g. tuning) can cause the maximum permitted engine speed to be exceeded when the vehicle is driven.

Overspeed events are stored in the DME control unit. The following values are also recorded:

- **Number of ignition attempts** in each overspeed range <sup>1</sup>, **and**,
- Status of the **hourmeter** during the **last** overspeed event <sup>2</sup>.

<sup>1</sup> Overspeed range = Defined rev ranges with classification of expected engine damage, e.g. engine damage possible, ... probable, ... very probable, engine damage has generally occurred; see section ⇒ 'Rev ranges'.

<sup>2</sup> For technical reasons, overspeed events are entered in a preset time interval. As a result, there may be entries in a higher rev range (e.g. range 2), while no entries are stored in the lower range.

Typical **faults and symptoms** as a result of overspeed events may include the following:

- Damaged valves and/or pistons (impact marks on the valve, valve impressions on the piston, valve bent).
- Cylinder liner damage (even "piston seizure").
- Damaged or displaced connecting rod bearings.
- Loosened or loose fastening screw(s) on the crankshaft pulley.
- Loosened or loose fastening screw(s) on the camshaft gear.
- Loosened or loose connecting rod bolts.
- Cracked timing chain(s).
- Changed timing.
- Irreparably damaged clutch elements (pressure plate and/or drive plate).
- Vibrations and/or engine imbalance due to irreparably damaged clutch elements.
- Vibrations around the transmission.
- Defective synchronization.



### Information

If such faults or symptoms are present together with engine damage, the **VAL that was created must be checked for overspeed entries**.

If overspeed entries are found and if the **difference between the current hourmeter and the status when the last overspeed event was recorded is less than 50 operating hours**, there is a **high probability that the damage was caused by overspeed event(s)**.

The value "50 operating hours" should be seen as a guide. The possibility of engine damage occurring much later due to previous overspeed event(s) cannot be ruled out.

Rev ranges -  
9PAII:

Create the **VAL before deleting the fault memory**. Overspeed events are documented as follows in the VAL:

**Rev range 1:**  $6,700^{-1}$  ... to  $6,900^{-1}$

⇒ Maximum permitted engine speed exceeded; engine damage **possible**.

**Rev range 2:**  $6,900^{-1}$  ... to  $6,950^{-1}$

⇒ Maximum permitted engine speed exceeded; engine damage **possible**.

**Rev range 3:**  $6,950^{-1}$  ... to  $7,000^{-1}$

⇒ Maximum permitted engine speed exceeded; engine damage **possible**.

**Rev range 4:**  $7,000^{-1}$  ... to  $7,150^{-1}$

⇒ Maximum permitted engine speed **clearly** exceeded; engine damage **probable**.

**Rev range 5:**  $7,150^{-1}$  ... to  $7,200^{-1}$

⇒ Maximum permitted engine speed **very clearly** exceeded; engine damage **very probable**.

**Rev range 6:** over  $7,200^{-1}$

⇒ **Engine damage has generally occurred**.



### Information

**Before starting engine repairs or granting a pre-owned car warranty:**

In the event of overspeed events in **range 4 – 6**, we recommend that you contact the Technical Hotline before starting repairs or granting a pre-owned car warranty in order to find out how to proceed and verify warranty coverage

References: ⇒ *Workshop Manual '03350003 Creating Vehicle Analysis Log (VAL)'*

→ "After Sales News 11/2007" and "Porsche Aktuell": PIWIS Tester: Function for returning Vehicle Analysis Logs (VALs)

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