Vehicle Analysis Log: Evaluating Overspeed Events (911 Turbo) (6/09)

Vehicle Type: **911 Turbo (996)**

Model year 2001 to 2006

Vehicle Type: **911 Turbo (997)**

Model year 2007 to 2009

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. Using the values entered in the VAL, you can also evaluate the assignment of **“Porsche Approved Warranties”** better and check entitlement for processing repairs under warranty and goodwill, for example.

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 [1] , **and**,
- Status of the **hourmeter** during the **last** overspeed event [2] .

[1] 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'.

[2] 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 - 996 TOP:

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

Rev range 1: 6,740 $^{-1}$ ... to 7,340 $^{-1}$
⇒ Maximum permitted engine speed exceeded; engine damage **possible**.

Rev range 2: over 7,340 $^{-1}$
⇒ Maximum permitted engine speed exceeded; engine damage **probable**.

Information

Before starting engine repairs or granting a pre-owned car warranty:
In the event of overspeed events in **range 2**, 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.

Rev ranges - 997 TOP:

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

Rev range 1: 6,740 $^{-1}$ ... to 6,940 $^{-1}$
⇒ Maximum permitted engine speed exceeded; engine damage **possible**.

Rev range 2: 6,940 $^{-1}$ ... to 7,140 $^{-1}$
⇒ Maximum permitted engine speed exceeded; engine damage **possible**.

Rev range 3: 7,140 $^{-1}$ ... to 7,340 $^{-1}$
⇒ Maximum permitted engine speed exceeded; engine damage **probable**.

Rev range 4: 7,340 $^{-1}$ ... to 7,840 $^{-1}$
⇒ Maximum permitted engine speed **clearly** exceeded; engine damage **probable**.

Rev range 5: 7,840 $^{-1}$ ... to 8,940 $^{-1}$
⇒ Maximum permitted engine speed **very clearly** exceeded; engine damage **very probable**.

Rev range 6: over 8,940 $^{-1}$
⇒ **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)