PRODEMAND

2008 BMW 528i 3.0L Eng

CRANKCASE VENTILATION SYSTEM DIAGNOSIS AND MEASUREMENT

TECHNICAL SERVICE BULLETIN

Reference Number(s): SI B11 03 08, Date of Issue: October, 2013
BMW: All
GROUP: Engine
Superceded Bulletin(s): SI B11 03 08, Date of Issue: March, 2013

NOTE: This Service Information bulletin supersedes SI B11 03 08 ***dated March 2013.***

SUBJECT

Crankcase Ventilation System Diagnosis and Measurement

INFORMATION

All current BMW engines incorporate a pressure-controlled crankcase ventilation system. The crankcase ventilation systems use various different crankcase ventilation valves, depending on the engine type. Although the valves all look different, they function similarly, using a spring and diaphragm assembly to control the crankcase pressure. A properly functioning pressure control valve is designed to maintain a slight vacuum (under-pressure) in the crankcase, which assures reliable crankcase venting during all engine operating conditions. Some of the causes and results of a malfunctioning crankcase ventilation system are listed below.

Causes of Excessive Overpressure (Pressure)

- Internal engine damage/wear
- Obstruction in the crankcase ventilation system
- Defective pressure control valve(s)

Results of Excessive Overpressure

- Damage to the engine oil seals
- Increased engine oil consumption (can be misdiagnosed as a defective turbocharger)
- Excessive engine oil in the intake system
- Excessive engine oil in the charged intake tubes or the intercooler on turbocharged engines (can be misdiagnosed as a defective turbocharger)
- Engine oil dip stick is dislodged from the guide tube (if equipped)

Cause of Excessive Under-pressure (Vacuum)

- Defective pressure control valve

Results of Excessive Under-pressure

- Damage to the engine oil seals
- Increased engine oil consumption
- Excessive engine oil in the intake system
- Rough engine idling or engine misfire
- Whistling or howling noise from the engine (can be misdiagnosed as a defective turbocharger)
- Increased mixture adaptation values

N63, N63T, N74, S63 And S63T Equipped Vehicles

The crankcase ventilation system utilized in these engines cannot be measured with consistency because the system does not incorporate a regulating valve (spring with diaphragm). The crankcase pressure is regulated by an orifice in the crankcase ventilation tubes, and the vacuum will vary with crankcase pressure changes. Checking the operation of this unregulated system can only be performed by visually inspecting for loose connections or cranks in the system components. Generally active leakages will have an oily residue surrounding that affected area. The use of a smoke machine may also be helpful when trying to locate leakages in this system.

All Other Engines

Attached to this Service Information bulletin is a procedure for measuring the crankcase ventilation system, using the ISID and IMIB diagnostic equipment.

Specification and actual readings from the vehicle may vary by up to ±10%, but not more than 5.0 mBar. Various measuring tools may provide results that are not within specification. All measurements below were recorded using the IMIB. See the attachment for IMIB connection hints.

Engine Variant	Specification (mBar)
M42, M44, M52, M52TU, S52, M54, M60, M62, M62TU, M73	16
M57Y	0.0 +- 1.0
S54	0.0 +- 1.0
S62	0.0 +- 1.0
S65	0.0 +- 2.0
S85	0.0 +- 1.0
N20 and N26	35
N52	30

N51 and N52K	33
N52T	21
N54	17
N54T	14
N55	50.0 +/- 8.0
N62	22
N62TU	40
N73	30

WARRANTY INFORMATION

Not applicable.

ATTACHMENTS

B110308_Attachment

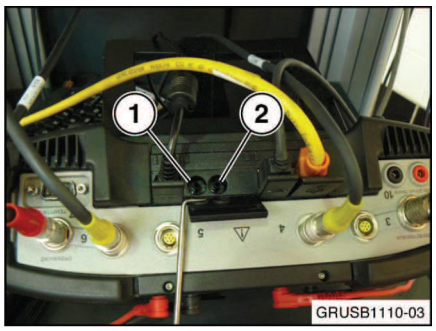
Measuring Crankcase Pressure Using the IMIB Low-pressure Sensor Function

Preparing ISID and IMIB for Low-pressure Measurement:

1. Select "Activities".
2. Select "Measuring Devices".
3. Select "Measuring Device".
4. Select "OK".
5. Select the appropriate IMIB when the Connection Manager screen is shown.
6. Select "Set Up Connection".
7. When the multimeter screen is shown, select "Low Pressure 1".
8. Connect the pressure measurement hose, P/N A5E0134072, to the left port on the IMIB (1). Two measurement hoses were shipped with the IMIB to every center. See the illustration below. Refer to SI B04 35 09 for more information regarding the equipment shipped to all centers with the IMIB.

   Port 1 = (1)
   Port 2 = (2)

Attachment to SI B11 03 08 October 2013



9. Low pressure 1 (1) should be highlighted in green. Observe and record the current ambient pressure (2).

   Note: The illustration is only an example of what will be seen on the screen. This is based on center elevation and weather patterns. This value must be recorded each time the pressure test is conducted.

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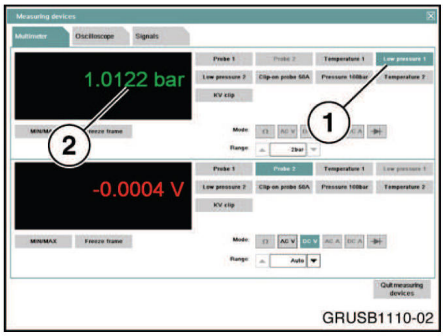

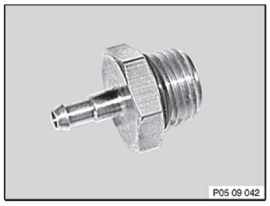

Diagnostic Tool Adapter P/N 81 29 2 158 850.

The adapter will be used to adapt the 2G quick disconnect equipment during low-pressure measurements (up to 3 bar; see the user's guide), and is attached to the IMIB using the low-pressure rubber hose (Siemens P/N A5E01034072), supplied with the IMIB. For additional information, refer to Service Information B04 15 10.

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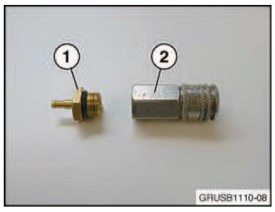
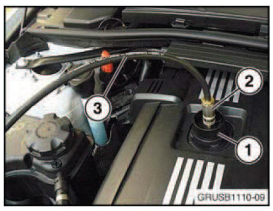
Option 1:

Remove the quick disconnect coupler (1) from the 2G equipment 25 bar pressure transducer (2).



Install the Diagnostic Tool Adapter, P/N 81 29 2 158 850 (1), on to the quick disconnect coupler (2).



Remove the engine oil cap and install the special pressure tester adapter, P/N 83 30 0 496 326 (1). Connect the quick disconnect coupler (2) onto the pressure tester adaptor. Connect the IMIB pressure measurement hose, P/N A5E0134072 (3).

Refer to the table located on SIB 11 08 03 for specifications.

Alternative Measurement/Connection Solution

Remove the oil cap adaptor from the existing Slack Tube Manometer.

Remove the engine oil cap and install the oil cap adapter (1). Connect the IMIB pressure measurement hose, P/N A5E0134072 (2).

Refer to the table located on SIB 11 08 03 for specifications.