

SI B11 03 08
Engine
December 2010
Technical Service

This Service Information bulletin supersedes SI B11 03 08 dated September 2010.

[NEW] designates changes to this revision

SUBJECT
Crankcase Ventilation System Diagnosis and Measurement
MODEL
All

[NEW] 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 (underpressure) 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 Underpressure (Vacuum)

- ^ Defective pressure control valve

Results of Excessive Underpressure

- ^ 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

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 2.0 mBar.

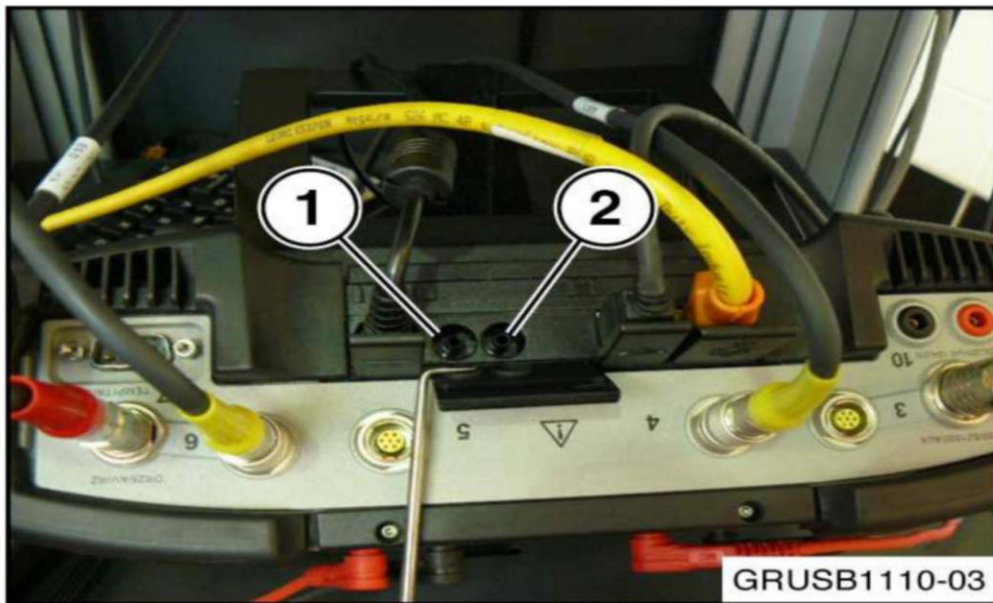
Engine Variant	Specification (mBar)
M42, M44, M52, M52TU, S52 ,M54, M60, M62, M62TU, M73	13
S54	0.0 +- 1.0
S62	0.0 +- 1.0
S65	0.0 +- 2.0
S63	3
S85	0.0 +- 1.0
N52	26
N51 and N52K	28.5
N54	9
N55	35
N62	22
N62TU	25
N63	9
N73	26

Measuring Crankcase Pressure Using IMIB Low Pressure Sensor Function

Preparing ISID and IMIB for Low Pressure Measurement:

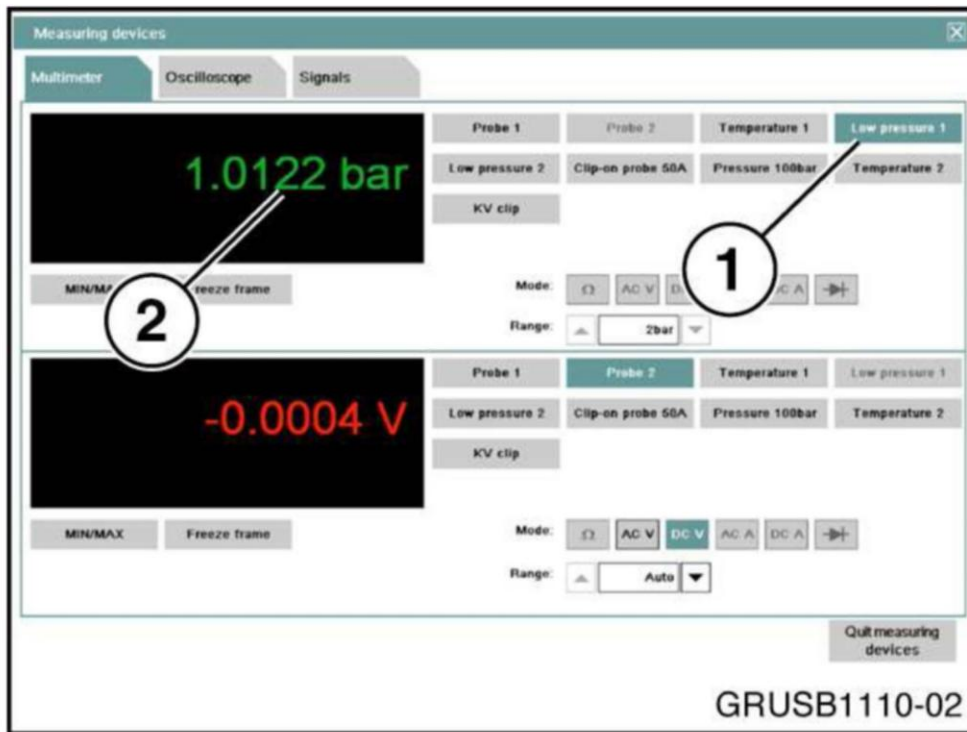
1. Select "Activities"
2. Select "Measuring Devices"
3. Select "Measuring Device"
4. Select "OK"
5. Select the appropriate IMIB when the Connection Manager screen is shown
6. Select "Set Up Connection"
7. When the multimeter screen is shown select "Low Pressure 1"
8. Connect pressure measurement hose PN A5E0134072 to the left port on the IMIB (1). Two measurement hoses were shipped with the IMIB to every center. See 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)



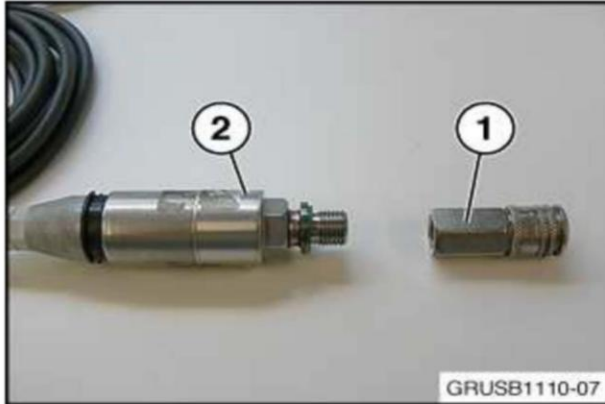
9. Low pressure 1 (1) should be highlighted in green. Observe and record the current ambient pressure (2).

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.



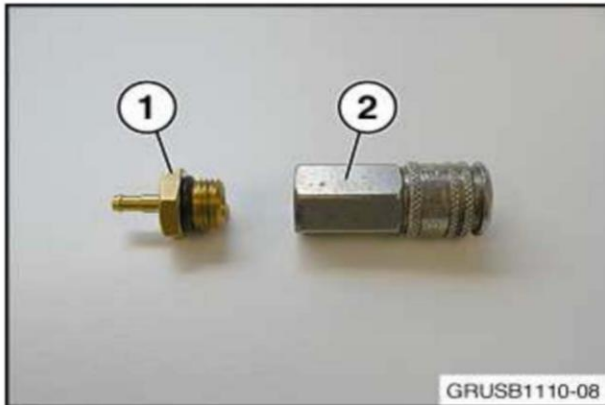
Diagnostic Tool Adapter PN 81 29 2 158 850.

The adapter will be used to adapt the 2G quick disconnect equipment during low pressure measurements (up to 3bar, see users 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



Option 1:

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



Install the Diagnostic Tool Adapter PN 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 PN 83 30 0 496 326 (1). Connect the quick disconnect coupler (2) onto the pressure tester adaptor. Connect the IMIB pressure measurement hose PN A5E0134072 (3).

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

Alternative Measurement/Connection Solution



Remove the oil cap adaptor from the existing Slack Tube Manometer special tool PN 99 00 0 001 410.



Remove the engine oil cap and install oil cap adapter (1). Connect the IMIB pressure measurement hose PN A5E0134072 (2).

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