BMW
SI B11 01 06

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Technical Service

SUBJECT
S85 Engine Oil Level and Oil Service Information

MODEL
M5, M6

SITUATION
The BMW TIS and Owner's manual state an engine oil capacity specification of 9.3L with filter. Using this quantity during an oil service may result in overfilling. The approximate capacity, when performing an oil service, is closer to 8.8 liters following the procedure outlined below.
The S85 engine is equipped with a quasi-dry sump oil lubrication system. For this reason, the primary oil pump contains two oil pumps and is driven by a chain connected to the high pressure VANOS pump. One of the pumps is a duocentric design which pumps oil from the front oil pan area, ahead of the power steering gear, back into the main rear oil sump. When performing an oil service it is important that the oil in the front oil pan area is pumped into the rear sump before the engine oil is drained. To do this, follow the procedure outlined below.

PROCEDURE
Refer to TIS procedure **RA 00 00 610 Engine Oil Service (S85)** and **follow all safety precautions.**
Important notes!

- Check for overfilling, using the BC function as described below, before draining the engine oil. If the engine is overfilled, additional oil may remain in the front area of the oil pan even after performing the extended idle, as described below. If the engine is found to be overfilled, correct by draining the oil filter housing (approx. 0.4 liters), reinstall housing drain plug, and recheck the oil level. Repeat this procedure, as needed, to obtain a correct oil level **before** beginning the oil service procedure.

The S85 displays the amount of oil above or below the MIN mark. For example: a reading of 1.0 would indicate the maximum allowed oil level which is 1 liter above the minimum. An oil level maintained between the MIN and MAX marks is recommended. Refer to the owner's manual, the ST505 M5 E60 Complete Vehicle training manual, or attachment: S85_Oil_Level.PDF, for a list of possible displays.

1. The engine must be run at idle, while at operating temperature (engine oil temperature greater than 70°C), for one minute with the vehicle stationary in a level workstall. This procedure will pump the majority of the oil from the front oil pan area to the rear sump immediately prior to draining.
2. Follow the repair instructions for draining engine oil and replacing the filter element and sealing rings.
3. Re-fill the engine oil with 8 liters of Castrol TWS Motorsport SAE 10W-60 Synthetic Oil.

4. Start the engine and run until full engine operating temperature is reached (engine oil temperature greater than 70°C). An oil level reading in the instrument display, using the on-board computer button can now be performed. To perform a "Quick Measurement" oil level check using the BC function, press and hold the BC button for greater than two seconds to begin the test.
5. Once a level reading is displayed, correct by adding the calculated the top off quantity, if needed, as described in the repair instructions. Never overfill above the MAX

Additional Information!

Any top off of 0.5 liters or less will not be indicated as a change in the oil level display until the vehicle is driven for an extended time.

The "Long - Term Measurement" is the preferred method to achieve the most accurate oil level reading. This analysis of the oil level signal, by the DME, can take some time to complete depending on various engine operating conditions while driving.

Important!

At the1200 mile running-in inspection, the CBS reset **must** only be performed using the GT1/DISplus. This ensures that the DME changes the oil level calculation algorithm used for the break-in oil to that needed for the Castrol TWS Motorsport SAE 10W-60 Synthetic Oil. Performing this initial CBS reset through the instrument cluster will not make this algorithm change and fluctuations in the displayed oil level may result. This status is displayed in the Diagnosis test module path for the Oil Condition Sensor: Function Selection / Complete Vehicle / Drive / Motor Electronics / Oil Supply / Oil Condition Sensor.

It is also recommended to use this reset procedure for all subsequent Condition Based Oil Services as well.

WARRANTY INFORMATION

Information only.