



ENGINE OIL PRESSURE CHARACTERISTICS AND AERATION

1 Purpose

- a) Determination of critical driving conditions at which the oil pressure drops due to shifts in oil level in combination with minimum oil filling with the aim to limit or fully avoid shifts in oil level.
- b) Determination of maximum permissible oil level at which no performance drop or rise of oil temperature occurs due to oil aeration.

2 Equipment

- Tachometer
- Oil pressure gage (precision instrument 0 ... 10 bar)
- Calibrated oil pressure switch (switching range 0.3 ... 0.5 bar)
- Thermocouple in oil sump drain plug + line + digitemp for oil temperature
- Thermocouple for engine coolant temperature
- Accelerometer
- Stop watch
- Scales to weigh the oil to be added or drained

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only English



3 Procedure

3.1 Preparation

3.1.1 Check release status of

- Wheels and tires (select sports type)
- Brake system
- Shock absorbers and stabilizers and chassis variants (e.g. S or GTE version)
- Engine mounts
- Oil pan and oil intake pipe
- Engine - general (performance levels)

3.1.2 Inspect the engine for

- Correct idle speed and carburetor adjustment
- Drain engine oil and use fresh oil for every test (for strongest aeration)
Oil viscosity: gasoline engines Shell S 3 10 W - 40
diesel turbo special oil to release
- Measure blowby values of engine. These must be within the specified tolerances (observe latest design status!)

3.1.3 Install instrumentation

- Install tachometer
- Install oil pressure gage
Sense oil pressure via adapter at main oil gallery (oil pressure switch)
- Oil pressure warning lamp must be operable
- Oil thermometer: Sense the temperature at the oil sump drain plug with a NI-CR-NI thermocouple 10 to 15 mm above the oil drain plug
- Install coolant temperature gage in the temperature sensing plug
- Install accelerometer

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3.2 Performance

3.2.1 General

In order to obtain reproducible test results, tests must always be made on dry roads on the Dudenhofen Proving Ground. Driving maneuvers which cannot be performed on the Dudenhofen Proving Ground or which can be performed there only under certain conditions (e.g. driving downhill through alternating turns or combinations of turns in rapid succession), it may be considered to run the tests on racing tracks such as the Nürburgring or Hockenheimring which are closed to the public. Long autobahn curves and autobahn access and exit roads may be driven under customer conditions to round off the experience gathered on the proving ground. Vehicles should not be loaded with more than two persons. Adjust tire pressure to values preferred for fast and sporty driving.

3.2.2 Objectives (January 1983 status)

- 3.2.2.1 On the mountain track, the oil warning lamp must not come on under any condition.
- 3.2.2.2 Under extreme conditions the oil warning lamp may come on for a maximum of 5 seconds. Reason: This indicates the driver to add oil now.
- 3.2.2.3 The objective is to assure a minimum oil pressure of ≥ 100 kPa under any condition.
- 3.2.2.4 The difference in the amount of oil between add and full mark should be ≥ 1.0 L for 4 cyl. engines and ≥ 1.5 L for 6 cyl. engines

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