



Checking oil level, dry-sump lubrication

Contents: Technical actions

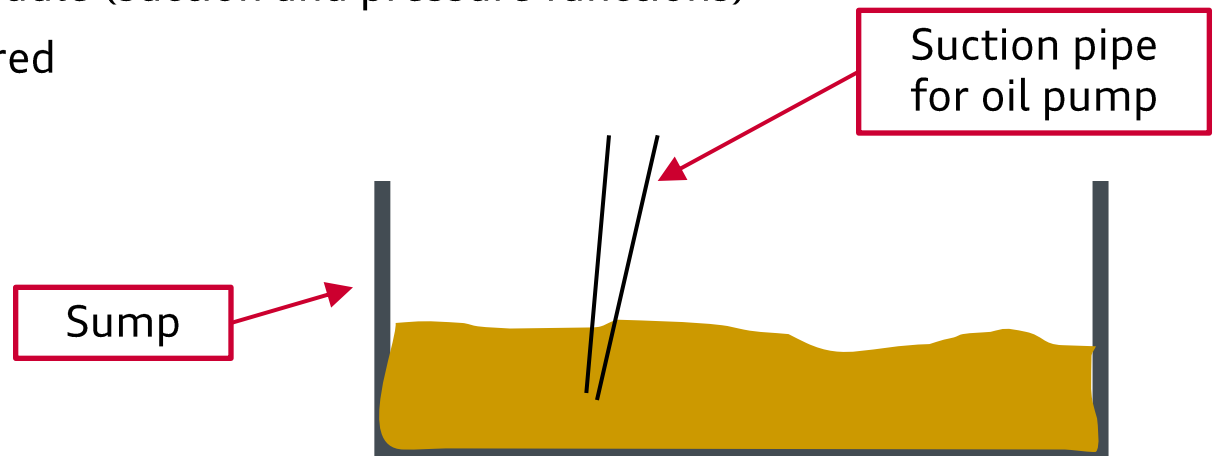
General

No.	Event	Topic	Type/model
1		Oil level measurement Dry sump lubrication system	R8PI (V8&V10)

Oil level measurement – dry sump lubrication system

Principles of the dry sump lubrication system

- ▶ Application area:
 - ▶ Engines that are subjected to high longitudinal and lateral acceleration forces
 - ▶ Motorbikes plus sports vehicles, racing vehicles and off-road vehicles
- ▶ Technical observations:
 - ▶ Oil supply is saved in a separate oil reservoir
 - ▶ Very flat sump
 - ▶ Complex oil pump module (suction and pressure functions)
 - ▶ Several oil lines required



Oil level measurement – dry sump lubrication system

Principles of the dry sump lubrication system

▶ Advantages:

- ▶ A constant oil supply is even guaranteed during extreme acceleration
- ▶ Very flat sump, providing:
 1. An increased clearance height or
 2. A lower installation position for the engine → reduction in the total center of gravity of the vehicle
- ▶ Allows higher oil fill volumes without the size of the sump being increased, leading to:
 1. Enhanced cooling output
 2. Longer oil change intervals

▶ Disadvantages:

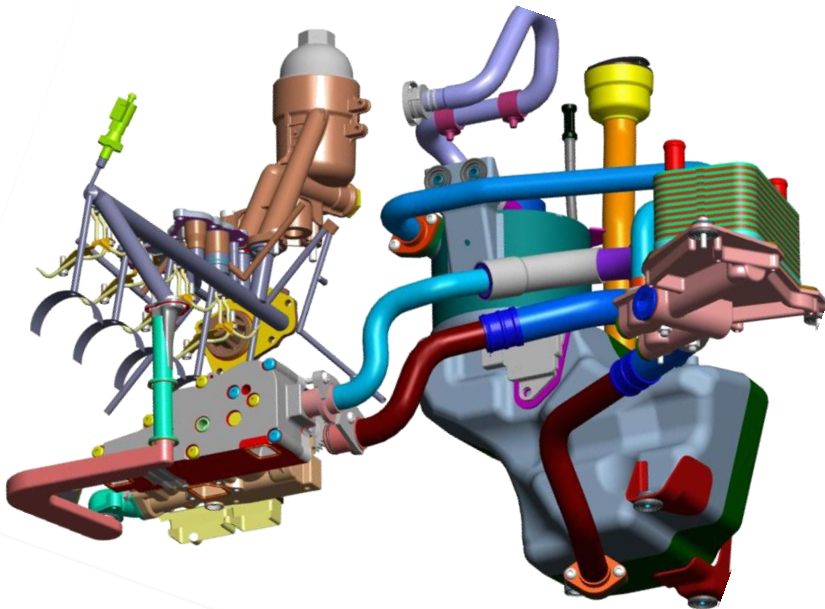
- ▶ Additional parts required → additional costs and installation space
- ▶ More complex process required to determine the current oil level

Oil level measurement – dry sump lubrication system

Design of the dry sump lubrication system in the Audi R8

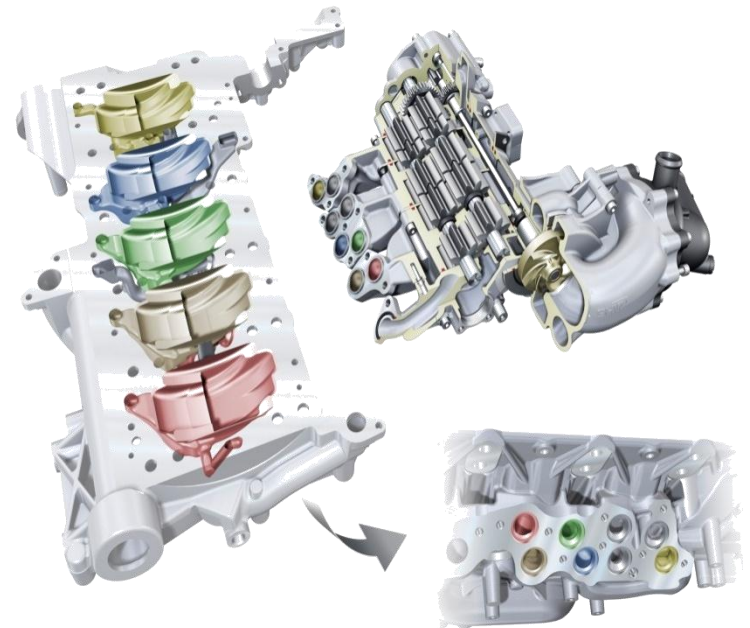
R8 V8

- ▶ The oil pump sits within the engine and is not sealed to the outside
- ▶ Two suction levels (two combined for the crank chambers, chain cases and both cylinder heads)



R8 V10

- ▶ The oil pump module sits on the engine and is sealed to the outside
- ▶ Four suction levels (one for each of the five crank chambers, chain cases and both cylinder heads)



Oil level measurement – dry sump lubrication system

Differing oil systems: manual gearbox vs. S tronic (DSG)

Manual gearbox

- ▶ Oil dipstick with integrated guide tube



Dual clutch gearbox

- ▶ Oil dipstick integrated in the filler cap of the oil filler neck

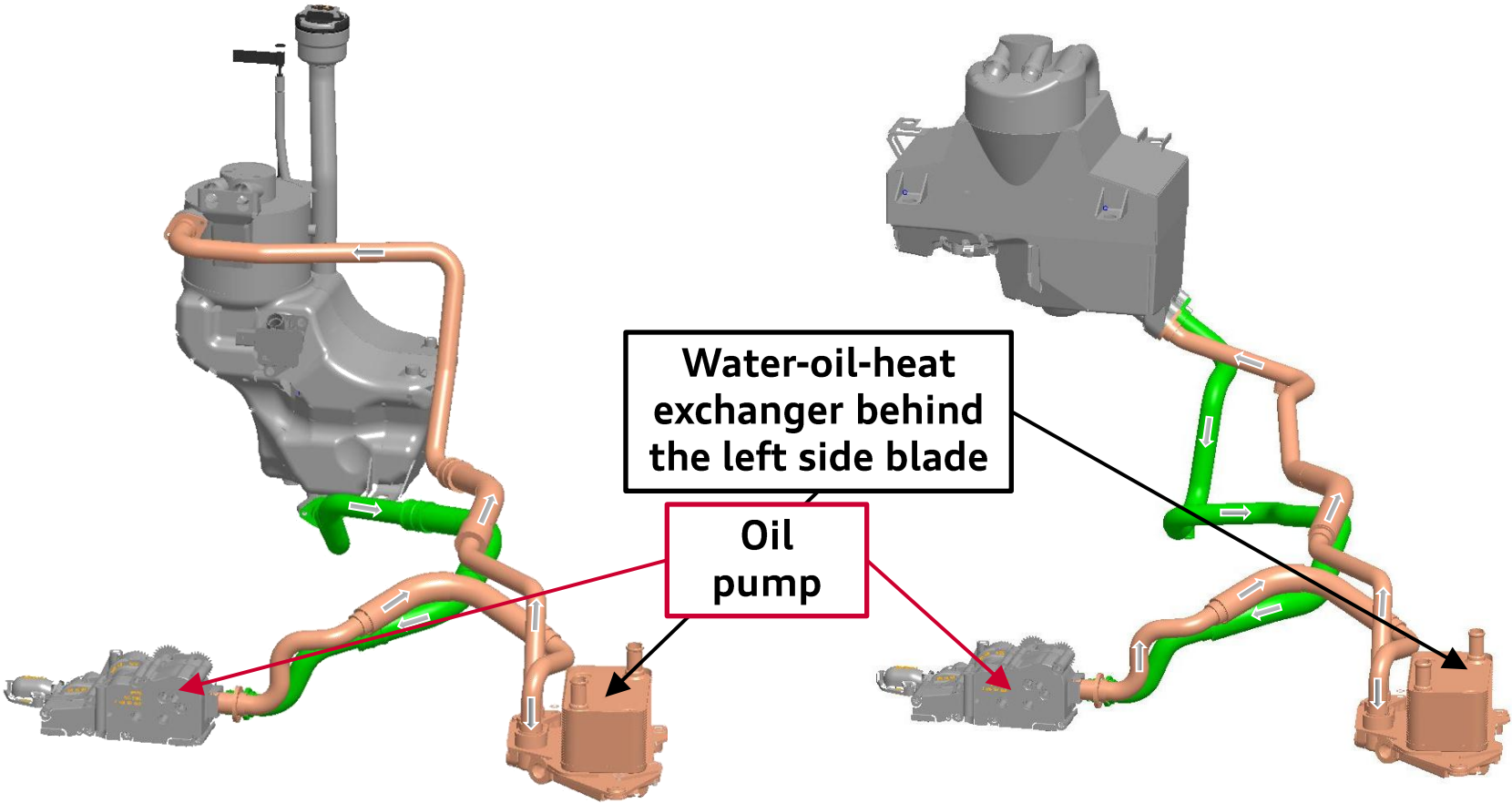


Oil level measurement – dry sump lubrication system

Variants of the R8 V8 oil system

Manual gearbox

Dual clutch gearbox

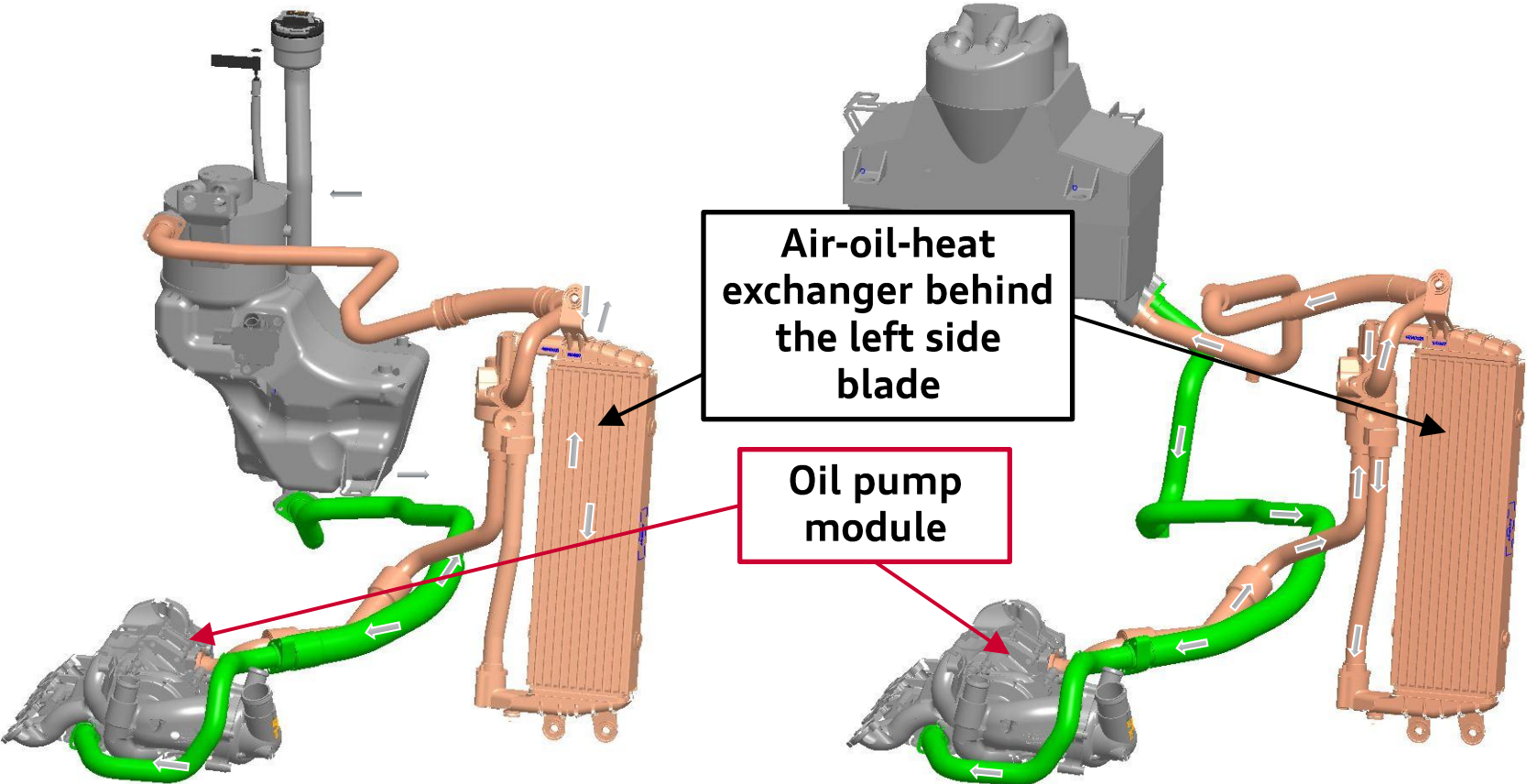


Oil level measurement – dry sump lubrication system

Variants of the R8 V10 oil system

Manual gearbox

Dual clutch gearbox



Oil level measurement – dry sump lubrication system

Checking the oil level

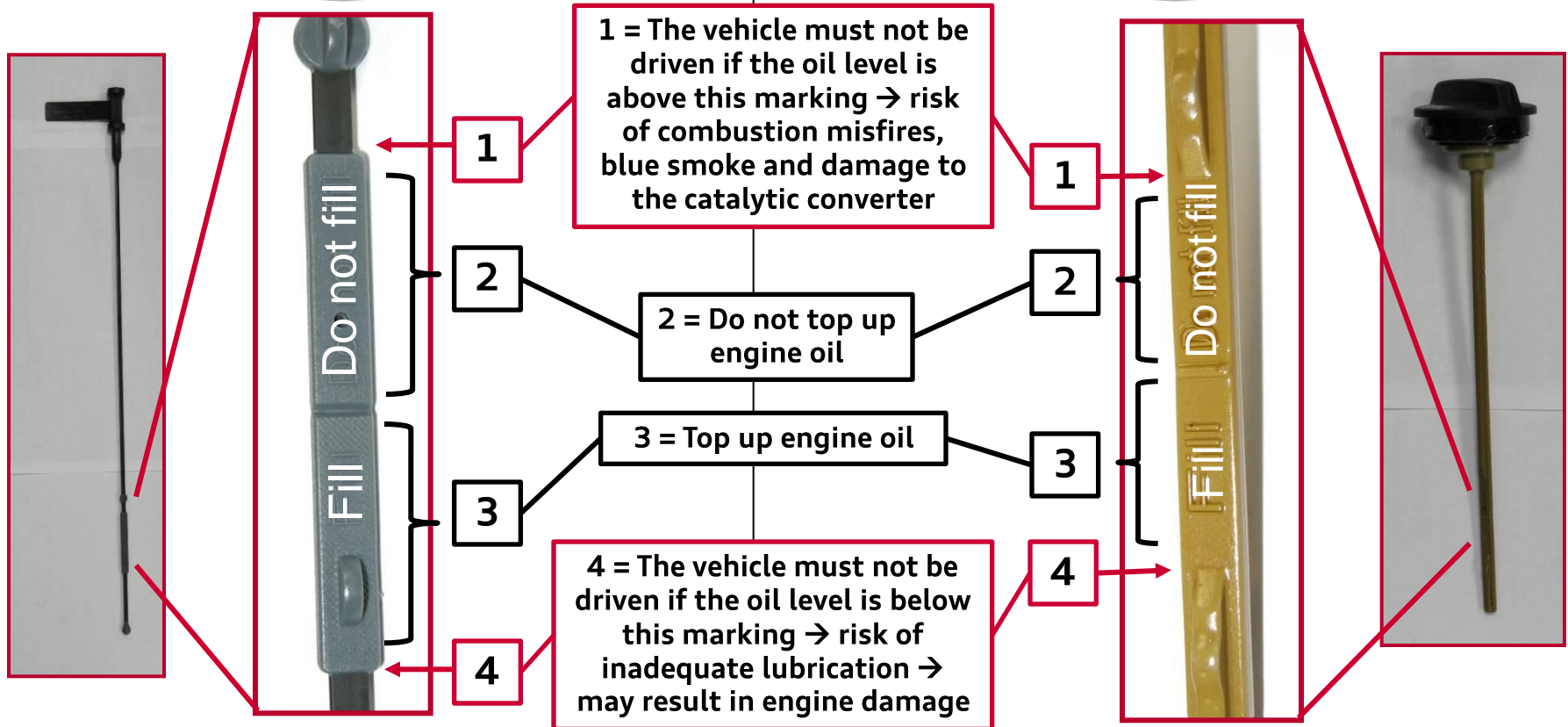
1. Warm up the engine until an engine oil temperature of 100–110°C is displayed in the instrument cluster.
2. Run the engine at operating temperature at idling speed for two minutes (make sure that the vehicle is on a level surface!).
3. Switch off the engine and after two minutes check the oil level using the oil dipstick:
 - a. If the oil level is in the "Do not fill" range → do not add any new engine oil
 - b. If the oil level is in the "Fill" range → top up the oil
Add new engine oil until the oil level reaches the center point in the "Do not fill" range.

Oil level measurement – dry sump lubrication system

Checking the oil level

Manual gearbox

Dual clutch gearbox



- ▶ 1 mm on the oil dipstick corresponds to an oil volume of approx. 0.04 liters
- ▶ Or: 0.5 liters = 12.5 mm (of the 24 mm per range 2 or 3)

- ▶ 1 mm on the oil dipstick corresponds to an oil volume of approx. 0.06 liters
- ▶ Or: 0.5 liters = 8.3 mm (of the 15 mm per range 2 or 3)

Oil level measurement – dry sump lubrication system

Checking the oil level

- ▶ The Audi Service TV program entitled “Audi R8 - Checking engine oil” will be available on the Audi Academy CRC site

