Oil sludge on the oil filter cap

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Dear all,

a customer whose engine we completely overhauled in 2017 complained about the heavy oil sludge that he currently found in his oil filler cap. The fear of renewed #engine damage to his #Porsche #997 #Carrera makes him visibly restless, so I'll write us a few lines about it here.



What is that #sludge in the oil and where does this sludge in the oil cap come from?

The oil sludge that often occurs in the oil filter cover of our Porsche is a result of the #blow #by #gases that also occur in a #Porsche #combustion engine.

During the #combustion processes in the #workstrokes, gases of the #fuel #air mixture, consisting of #hydrocarbons, oil molecules, air and water, get past the #piston rings and into the #crankcase.

Even with optimal #sealing of the #piston rings, 2% of the compressed, partly unburned gases escape into the inner #engine compartment, the crankcase. Ideally, it is around 0.5%.

The following causes are known to us for the formation of oil sludge in the engine:

The heat of the engine combined with the #oxygen in the air cause our oil to oxidize. The #combustion of #fuels forms acids and components that cannot be dissolved in the oil. As a

result, this also leads to oil #sludge formation.

The nitrogen compounds that are also produced during #combustion in the engines, the NOx'se, also pollute our oil in the engine. Most of the #NOx #compounds contained in the #exhaust gas flow out of the exhaust pipe, as listed above, but quite a number of them also get into the crankcase and thus into the #engine oil via the "blow-by" gas.

This makes our #lubricant tough, often even black and can often cause engine damage through the formation of #black sludge. (I will write more about this)

The main causes are:

Frequent #short-distance drives that generate and fuel these #reactions,

because the engine oil rarely reaches the required #operating temperature.

The result is:

The harmful components do not evaporate and the #oil sludge formation progresses continuously. The oil filter cover is the furthest from the #center of #heat, or at least the coolest spot on the engine block, so that's where this squishy oil sludge condenses, making our customers uncomfortable.

There are the most adventurous remedies on the market for removing the mud or really great #ideas for flushing the #engines. Sure, you can do anything to get rid of the sludge, but in the long run it only helps to eliminate the #causes of #sludge formation.

What should I do?

- Adhere to the oil change intervals and use only #high-quality, #synthetic motor oil if possible!
- Do not only drive #short distances where the engine does not reach a sufficient #operating temperature!
- Every now and then let the Porsche fly on the #Autobahn so that the old dirt can evaporate and via the #crankcase ventilation, because that's what it's there for, it's sucked out and comes out where it should: "OVER THE EXHAUST" !

Even better (my idea):

Every now and then drive the Porsche on the racetrack!

I swear, "None of our race cars have ever had oil sludge"!

For questions about this

I am very happy to answer this topic!

Warm greetings

Jurgen Albert

master mechanic