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Press Release

TÜV SÜD Tip

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What to do if your DPF is blocked?

Munich. The growing number of diesel cars driven mainly on short-haul journeys and in the low-load range (city driving) goes hand in hand with complaints about blocked diesel particulate filters (DPF) and loss of performance. According to a current verdict by the Federal Court of Justice (Ref. No.: VIII ZR 160/08), a non-functioning DPF in diesel cars is not considered a defect. But how do filters become blocked, how can motorists prevent blocking and where did the fairy-tale come from that filters can be cleared by driving at full speed down the motorway? TÜV SÜD's experts give answers.

Why do filters become blocked?

During driving, soot settles on and clogs the pores of the DPF, resulting in a layer of soot known as the "filter cake" which accumulates on the filter surface. This filter cake is burnt off during regeneration, a process which in closed-loop systems is initiated by the engine control unit and runs unnoticed by the driver. Regeneration, however, requires exhaust temperatures between 500 and 600°C. In city driving, diesel cars only reach exhaust temperatures of approx. 200°C. As a consequence, regeneration does not take place and the filter gets blocked. The resulting exhaust back-pressure causes a loss in vehicle performance.

When is a car considered to be used mainly for city driving?

TÜV SÜD experts assume this to be the case when cars cover 200 km on urban roads. Test-rig testing has shown that DPFs are frequently loaded after a car has covered this distance and that regeneration is then initiated.

Does the problem of blocked DPFs occur only in diesel cars, or are petrol-fuelled cars also affected?

This problem does not occur in the catalytic converters of SI engines. In catalytic converters, blocking can only arise if defects in the fuel induction destroy the monolith in the catalytic converter by excessive temperatures or mechanical damage which then obstructs the exhaust-gas flow.

Are there any signs indicating to the motorist that the filter's loading capacity is exhausted?

According to Michael Ebert, exhaust treatment expert at TÜV SÜD Automotive, a distinction must be made between closed-loop and open-loop catalytic converters. Open-loop catalytic converters, which in the majority of cases are retrofitted, do not offer any warning signals. The fact that the filter's loading capacity has been reached is generally noticed through a loss in performance. In closed-loop systems, a signal lamp indicates when regeneration is due.

What to do if there is a loss in performance?

Regeneration must be initiated. Depending on the manufacturer's specifications, regeneration can either be initiated in the repair shop or by means of a defined driving cycle. Ideally, diesel car drivers should study the chapter on DPF in their car manual directly after purchasing their car.

Popular wisdom recommends removing filter blockage by driving at full throttle on a motorway. But what is the experts' opinion?

In the case of vehicles mainly driven in cities, driving on motorways or country roads always helps to clear filter cake. During regeneration, however, increased fuel consumption must be expected. When removing filter cake through a driving cycle, follow the manufacturer's tips and recommendations included in the car manual instead of relying on tips from friends. Some manufacturers also recommend going to a repair shop to have the blockage removed and the electronic memory reset. The recommendation to drive down a motorway at full speed is nothing but an old wives' tale. Motorists deciding to remove DPF blocking by means of a driving cycle should drive their cars at medium speed on country roads or motorways.

Does frequent filter blocking damage the engine?

If the filter becomes clogged, the exhaust back-pressure increases, causing more stress on the engine. As long as cars are not driven over lengthy periods or regularly with blocked DPFs, no damage should be expected.

Against the backdrop of the DPF problem, does it even make sense to buy a diesel car which will be driven mainly on short-haul or low-load journeys (city driving)?

A simple calculation helps to answer this question: Add the higher price of a diesel car plus the higher fixed costs for insurance premiums and taxes on the one hand, and compare them with the lower fuel price and lower fuel consumption in relation to the number of kilometres driven per year. This approach gives you a clear idea as to whether the purchase of a diesel car makes economic sense or not.

Incidentally, the risk of filter blocking can best be minimized by using your bike for short distances as often as possible. After all, according to TÜV SÜD experts short-distance driving not only causes problems with DPFs but also adversely affects fuel consumption, vehicle wear and - last but not least - the environment.

Media Relations:

Frank Volk TÜV SÜD AG Corporate Communications MOBILITY Westendstraße 199, 80686 Munich	Tel. +49 (0) 89 / 57 91 – 16 67 Fax +49 (0) 89 / 57 91 – 22 24 E-mail frank.volk@tuev-sued.de Internet www.tuev-sued.de
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