**"Without care, problems are pre-programmed"**

Hybrid technology means dangers for the integrated combustion motor, knows David Kaiser of LIQUI MOLY

**October 2017 – Vehicles with a hybrid drive combine two different power sources in one car: An electric and a combustion motor.** **Unlike with conventional vehicles, which are powered exclusively by gasoline or diesel fuel, the combustion motor of a hybrid car only runs in certain situations and then often under a low load.** **David Kaiser, head of Research & Development at the German oil and additive specialist LIQUI MOLY, explains what problems that can lead to and how car drivers and garages can avoid them.**

**What are the differences between the requirements of a combustion motor in a hybrid car compared to a conventional vehicle?**

**David Kaiser:** In a hybrid vehicle the combustion motor is not permanently used. When starting, in urban traffic and on short routes the energy comes from the electric drive. Only over long distances, from medium speeds or in the event of an empty battery does the combustion motor switch on. To summarize, this is a very one-sided driving profile.

**But long distances are less wearing than short journeys, aren't they?**

**David Kaiser:** That's right. Compared to conventional cars, hybrid vehicles have a significantly shorter range and play to their strengths in the short and medium range. The combustion motor is therefore usually only used for short periods. This is good for the environment, but bad for the motor.

**How come?**

**David Kaiser:** Due to the low consumption of hybrids, the fuel remains in the tank for longer and therefore ages more. Gasoline and diesel fuel change their configuration with the effect of air or the oxygen, moisture and temperature therein. This worsens cold start and driving behavior in the longer warm-up of the motors in hybrid vehicles. The fuels are subjected to a natural aging and oxidation because of this. By adding oxygen, the fuel oxidizes. And this can lead to deposits. Overall, the properties of the fuel are worsened by this. In extreme situations, it will eventually become unusable by the motor.

**How can car drivers act against this?**

**David Kaiser:** The quality of the fuel can be stabilized with additives. LIQUI MOLY has developed such an additive especially for hybrid vehicles. One of the tasks of the additive is to slow down the aging process of the gasoline and therefore keep its quality stable.

**Can the deposits mentioned in the tank also cause problems?**

**David Kaiser:** The requirements for a well-functioning motor are motor oil, electricity, air, coolant and fuel. If one of these components is impaired, a failure of the motor is possible. Tank deposits can block the fuel filter. However, this many deposits are only formed in exceptional circumstances. The core problem with deposits lies somewhere else.

**Where exactly?**

**David Kaiser:** The latest developments in motor technology are flowing into hybrid vehicles. These modern and efficient motors present the greatest of demands on fuel quality. Particularly in the case of irregular and short-term use of the combustion motor the risk is great that deposits will be formed in the injection system. These worsen the injector spray and the fuel combustion and this ultimately leads to a worse motor performance. Uncombusted fuel can get into the motor oil and thin it. That's why a clean fuel system is so important.

**How is this kept clean?**

**David Kaiser:** A steady and consistent motor operation helps a lot, but is not the only salvation and is an exception in combustion motors in hybrid vehicles. Special cleaning additives in our hybrid additives dissolve existing deposits and prevent new sticky, paint or resin-like deposits from forming. This means I can use the additive for prophylaxis or in the event of existing problems. For prevention, it has to be regularly added to the gasoline in the tank.

**About LIQUI MOLY**

With around 4,000 items, LIQUI MOLY offers a global, uniquely broad range of automotive chemicals: Motor oils and additives, greases and pastes, sprays and car care, glues and sealants. Founded in 1957, LIQUI MOLY develops and produces exclusively in Germany. There it is the undisputed market leader for additives and is repeatedly voted the best oil brand. The company led by Ernst Prost sells its products in more than 120 countries and generated 489m euros in sales in 2016.

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