



Frank Massey, Autoinform

Problems from poor fuel quality

Ahead of the Autoinform Live training event in Cork in April, Frank Massey wants to get you thinking about problems you are facing in your own garage. This month Frank discusses fuel quality, and how it can be the cause of some failures and poor running problems.

I have often written about many subjects that effect and relate to the repair of vehicle fuel systems. Recently, comments were posted on our Facebook site relating to a joint promotion with MANN filters. The purpose and intention of the joint venture, a video that is still hosted on the Autoinform web site, is intended to draw attention to the difference in filtration performance. It's not my intention to name and shame, but to provide educated choice. In keeping with that statement, my chosen subject for this topic is fuel quality. I always conduct what we call client profiling prior to conducting a repair. This is intended to establish how the vehicle is serviced, and what fuel is commonly used.

There is, in my opinion, a direct and obvious link between certain failures and fuel quality. Notwithstanding filtration failures, fuel structure and contamination is a major and understated cause of system failure.

The diesel bug

Diesel is an organic fuel, ideal for microscopic fungi, yeast, and bacteria to feed and grow. It provides the ideal environment: dissolved water for germination, carbon for food, oxygen and sulphur for respiration, trace elements for growth and propagation.

These bugs do not grow in fuel, but are found in the water found in fuel tanks. Water vapour and the resulting condensation is unavoidable due to compression and cooling of diesel in the fuel tank. An absence of water in the fuel tank will eliminate bacterial growth.

The presence of water does not automatically precede bacterial growth, but its removal will, however, prevent germination and sporeling. Fuel tanks and filter housing design often prevents efficient draining and water removal. You

may have noticed an electronic water trap sensor in the latest diesel systems. EU governments are becoming more favourable to higher levels of bio content in all fuels.

Ultra low sulphur diesel

This EU directive is intended to reduce sulphur related emissions. Sulphur acts as a pesticide, so it's reduction increases the chance of bacterial growth in diesel. The introduction of bio-diesel has introduced an even more fertile environment for bacterial growth, small quantities of water are sufficient to promote bacterial growth.

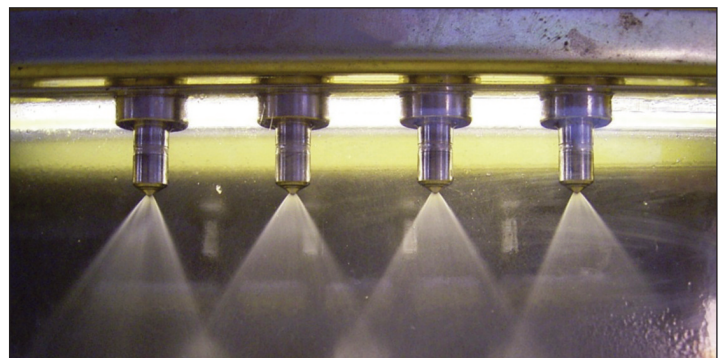
Prevention comes with choice

Purchase fuel from reliable sources, ensure filtration maintenance is in accordance with manufacturers specifications, consider periodic fuel sampling, maintain fuel tanks as full as possible to help reduce water condensation and avoiding excessive fuel temperatures.

With diesel delivery pressures above 2000 bar and gasoline direct injection currently at 1000 bar, quality fuels are not an option, they are a must.



Poor fuel quality can cause running problems, such as these bad spray patterns



The spray pattern on these injectors is normal

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