

WHY DO ENGINES FAIL? - PART 1

David Eszenyi, Commercial Director of leading engine remanufacturer Ivor Searle, examines a few of the primary causes of engine failure in the first instalment of a two-part article...

The engine is the heart of a vehicle and, just as with human beings, it needs to be properly cared for in order for it to function properly. A neglected engine will ultimately fail, resulting in the need for repair, replacement or, in the worst-case scenario, the vehicle being scrapped should the cost of repair or replacement become economically unviable.

If we examine the causes of failure in both petrol and diesel engines, it's clear that there are several causes and most likely combination of causes, that lead to failure. These include a lack of maintenance, component wear, contamination of the fuel, lubrication and exhaust system issues, head gasket failure, insufficient lubrication, misfuelling and overheating. The symptoms of these problems are equally varied and include poor running, excessive emissions,

high oil consumption, knocking sounds from the engine and low oil pressure, as well as low compression and oil mixing with coolant. Other common causes of engine failure include 'hydraulic' contamination when a vehicle is driven into water which is then ingested into the engine, or when a timing belt or chain breaks.

Contamination

Contamination is a root cause of engine failure and is not just confined to within the engine itself, but also to components beyond the combustion chamber, such as problems with the vanes sticking on the variable geometry turbochargers fitted to diesel engines. Today's engines are equipped with various technologies to ensure they produce low emissions and the best possible fuel economy. This, paired with the increasing use of biodiesel and ethanol based fuels, has led to increased levels of contamination in the fuel, lubrication and exhaust systems. Filters, such as DPFs (Diesel Particulate Filters) in the exhaust system, add a restriction and therefore increase back



pressure and the potential for contamination to flow upstream into the engine and create problems in the fuel and lubrication systems, as well as the exhaust. The latest cars still produce the same amount of soot and carbon deposits as their predecessors emitted two decades ago.

Look out for part 2 in issue 140.

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