



**Steve Banner finds that truck manufacturers are offering extended diesel engine oil drain intervals in a bid to cut the total cost of ownership of their vehicles and reduce their environmental impact**

**E**xtended oil drain intervals are only appropriate for certain types of duty cycle. Recognising this to be the case, truck builders have devised matrices to help them determine when they might be acceptable, says Adrian Hill, technology manager at Morris Lubricants.

Suitability tends to involve long-haul work, he says. "Cruising down a motorway is a lot easier on both the engine and the oil than local stop-start work," he points out. Regular multi-drop runs around big cities mean that the lubricant endures a heavier soot loading and may be diluted by unburnt fuel, causing it to lose viscosity and reducing its effective working life.

If a truck tackles regular runs from one end of the UK to the other, however, then 150,000km drain intervals using an oil whose specifications show that it can cope with them are perfectly feasible; and without components suffering any ill-effects or the engine's life being shortened. "Some manufacturers are looking at 200,000km," he adds.



# Longer life

And that's all to the good, as used engine lubricant, a carcinogen, is classed as a hazardous waste, and its disposal is regulated accordingly.

Says Alan Outhwaite, chair of the Verification of Lubricant Specifications (VLS) technical review panel: "Extended oil drain intervals have been under discussion for many years now; and if there were any risk, it has been significantly reduced." Any problems would be rapidly picked up by the onboard telemetry fitted to modern trucks, he adds.

A subsidiary of the UK Lubricants Association, the VLS responds to complaints about lubricants by independently investigating and checking compliance with industry standards and performance claims.

Much depends on the type of long-

haul work the truck is on, however, cautions Simon Matthews, product development manager at Exol Lubricants. Extended drain intervals may be inappropriate if the truck is regularly running fully laden and in hilly terrain, he says, with the engine being worked hard.

Longer intervals are possible, says Hill, because of the huge strides lubricant technology has made in recent years. "These days we're looking at long-drain products that use a Group 3 base oil with an element of Group 4," he explains. The former is a highly refined base oil with reconstructed molecules and a sulphur content below 0.03%. The latter is a polyalphaolefin, a synthetic hydrocarbon that offers good stability and performance at both high and low temperatures.

Some oil producers contend that a combination of Group 2 and Group 3

***“Extended oil drain intervals have been under discussion for many years now; and if there were any risk, it has been significantly reduced”***

Alan Outhwaite

base oils can cope with the majority of requirements, and that going to Group 4 is not always necessary. Whichever route is chosen, the base oils have to be supplemented by what Hill describes as “a casserole of chemicals”.

That consists of additives which do everything from acting as detergents to inhibiting corrosion and reducing the risk of the oil oxidising. Oxidation results in the lubricant thickening and the formation of sludge and other harmful deposits.

The standards truck engine lubricants are expected to meet continue to rise, a trend which is reflected in the latest oil sequences laid down by ACEA, the European Automobile Manufacturers’ Association. They set out new requirements governing everything from shear stability and evaporative loss to high-temperature foaming tendency and low-temperature pumpability.

Oil producers have had to upgrade their blends accordingly. Exol’s Taurus Euro Plus 10W-40 and Taurus Euro FE Plus 5W-30, for instance, now meet ACEA’s new E8 and E11 sequences, says the company, and have been formulated to meet the latest low SAPS (sulphated ash, phosphorus and sulphur) criteria.

E8 and E11 mean among other things that they are suitable for extended drain intervals in line with manufacturers’ recommendations. “The majority of standard lubricants are suitable, though, because of the extent to which they are over-engineered,” contends one lubricants industry executive. “The deciding factor isn’t so much the oil as the work the truck is on.”

#### **WHAT YOU PAY FOR**

Continued improvements in lubricant formulation cost money, and are reflected in the price the operator pays. Refilling a truck engine with an oil capacity of 40 to 45 litres with a high-quality 5W-20 lubricant could cost from £215 to £250 plus VAT, so it is scarcely surprising that hauliers want it to last as



long as possible; especially given that the oil filter has to be changed (and the old one disposed of), too.

Dave Woodman, general manager of Rossmore Lubricants, the official UK distributor for Gulf Lubricants, makes the point that truck makers test lubricants intensively before they pass them as being suitable for long-drain use. The regime includes field evaluations as well as bench-testing, he says.

“For example, Scania’s field trial procedure involves testing an oil in three of its trucks on European roads,” he says. “It typically takes 18 months to two years to run, and each truck will cover around 150,000km to 200,000km.

“After testing, the engine is taken apart and assessed by experts for wear and tear,” Woodman continues. “The oil is analysed at regular intervals during the course of the trial – every 10,000km, for example. Wear metals in the oil can be monitored and oxidation over time can be assessed in this way.”

The never-ending drive for improved fuel efficiency means that lubricants have become progressively thinner as their viscosity has fallen, in a bid to reduce the drag on the engine’s components. As a consequence, the protective film they provide has been reinforced using polymers, says Hill.

Unfortunately, these newer lubricants are not backwards-compatible, he says; they cannot be used in older trucks.

Meanwhile, Outhwaite stresses that

the lubricant chosen should always meet the truck manufacturer’s stipulations. The new low-viscosity Morris Lubricants Versimax HD18 5W-20, for example, matches both Scania’s LDF-5 and MAN’s M3977 specifications. Approvals for Texaco’s Delo 400 XSP-SD 5W-30 include MAN’s 3677, Mercedes-Benz’s 228.51 and 228.52, and Scania’s LDF-4 (LDF stands for long drain field test).

Matthews advises operators to talk to their oil suppliers so that they have a clear understanding of the duty cycles of their trucks and can advise on a suitably rationalised range of lubricants. Regular in-service testing of engine oil – when the truck comes in for its periodic statutory inspection, for instance – makes sense too, he adds.

That may be especially important if the truck is being run on a fuel such as HVO – hydrotreated vegetable oil – with extended drain intervals. Some lubricant suppliers say that this is unlikely to lead to problems. Others advise caution, especially if the fuel chosen is a traditional FAME (fatty acid methyl ester) biodiesel produced using vegetable oils or fats.

#### **FINAL THOUGHTS**

Could the trend towards long drain intervals eventually lead to truck engines being sealed for life? Unlikely, says one senior industry figure.

“Remember that an engine relies on combustion; some of the combustion materials get into the lubricant, acidification gradually increases, the anti-oxidants deplete, and the oil starts to thicken,” he comments. “It’s not the same as a sealed-for-life transmission.”

“Bear in mind though that no key components are really sealed for life,” observes Andy Brown, UK automotive technical manager at Fuchs Lubricants. “When manufacturers say they are, it usually means sealed for ten years; because that’s the lifetime of the item so far as the manufacturer is concerned.” 