The benefits of moving to a condition based maintenance programme.

Discover how taking a proactive approach to fleet maintenance can reduce costs, while ensuring systems run safely and reliably.
The day-to-day demands placed on the commercial transport industry should not be underestimated. 4.53 billion journeys are made by buses in England every year, while operator costs for local bus services outside London have increased from £2.19 billion in 2004/05 to £3.05 billion in 2015/16.

It’s a similar story for the UK’s road freight industry. Between the beginning of July 2015 and the end of June 2016, the amount of goods moved by GB-registered heavy goods vehicles reached 156 billion tonnes, an increase of 6% on the previous 12-month period. Furthermore, these goods travelled a total distance of 18.6 billion kilometres. Hauling heavy freight can put significant pressure on engine components, while the need to meet strict deadlines for increasingly more complex supply chains means the impact of any potential maintenance issues can be considerable.

All of this is set against a backdrop where commercial vehicle companies are, understandably, trying to ensure operations and maintenance costs are kept to a minimum, while meeting stringent emissions requirements and improving life cycles.

These challenges are the same across the industry, whether you’re operating a fleet of on-highway heavy haulage trucks, light or medium-duty commercial vehicles or bus services.

Reducing operational expenditure is a key aim for the commercial transport sector. Therefore, it is essential that the condition of vital fluids, such as oil, fuel and coolants, be monitored, to ensure all components are operating as expected. Failure to do this could potentially result in systems falling victim to mechanical problems, or breaking down completely. Effective fluid analysis means any issues can be remedied before failure.

Many commercial vehicle operators try to prevent this by implementing a scheduled maintenance programme. However, this rigid approach to servicing fails to offer a predictive approach to potential maintenance issues, anticipating any problems that could reveal themselves in the future.

Fluid analysis can help operators achieve considerable cost savings by taking a condition-based approach to maintenance, while reducing downtime and improving fleet service and availability.

It can also allow fleet operators to monitor which depots are performing maintenance as intended, as an engine can be mapped across a fleet – the only difference will be the maintenance it receives.

The question is, what price are you willing to put on the efficient operation of your fleet? Implementing a condition based maintenance programme can help save critical costs, while ensuring fleets operate safely and reliably.
Common commercial vehicle issues

Fuel Dilution
Should unburned fuel mix with the lubricant in the sump of an engine, the result is a drop in viscosity, which creates friction-related wear due to the oil’s reduced film strength.

Coolant Matrix Leaks
Approximately 50% of all engine downtime can be attributed to problems with coolant.

Given the high power density of modern engines, there is a need to protect the coolant against boiling, as well as freezing. Should a leak go undetected for an extended period of time, the result is an overheated engine, and potential engine failure.

Oil Contamination
Typically due to dirt ingress through a vehicle’s air induction system, once oil is contaminated it can have a significant impact on the engine, causing excessive wear to reciprocating and rotating parts such as bearings, piston liners and shafts.

Use of Unspecified Oil
Often due to poor depot practices and the temptation to only consider cost per litre, the use of unspecified oil can have serious consequences for overall efficiency levels.
The benefits of fluid analysis

Fluid analysis provides visibility of vital asset performance and component health.

Not only does this improve the reliability and availability of commercial vehicle fleets, but it also helps realise a range of efficiency and cost benefits that can make a big impact on your business.

These include:

- **Reducing maintenance costs**
  Servicing equipment when necessary, rather than adhering to a rigid maintenance schedule, considerably reduces total cost of ownership.

- **Minimising the risk of failure in traffic**
  Identifying potential faults early reduces the risk of vital component failure and developing issues, plus avoids the associated costs of roadside repair and recovery.

- **Optimising equipment life**
  Protects vital components from unnecessary wear and tear, prolonging equipment life.

- **Scheduling repair and maintenance**
  Keep a close eye on the condition of vital equipment and schedule repairs and maintenance at a time convenient to you, avoiding unscheduled downtime.

- **Limiting waste and its environmental impact**
  Only changing fluids when they need replacing maximises depot efficiency and reduces the cost of waste.

- **Extending oil life**
  Replacing oil based on its condition guarantees maximum value for every litre used and minimises the cost of disposal.
Fluid monitoring

There are three key fluids that are essential to monitor.

1. Engine Oil
   Oil sampling will test for metal and water contamination, abrasive wear, viscosity, acidity and cleanliness. This enables the oil drain interval to be optimised and highlights any changes in component condition.

2. Coolants
   Around 50% of all engine downtime is due to problems with the cooling system. These issues can then spread to the transmission and hydraulic systems, which are cooled by heat exchangers, potentially leading to engine failure.

3. Diesel Fuel
   Modern engines demand the highest quality fuel. Efficiency can be seriously compromised by poor fuel or water contamination, which is why a detailed analysis will identify impurities or organic contaminants, such as fungi, yeast or bacteria.
What does implementing a fluid analysis programme with Finning involve?

- **Samples need to be taken on a regular basis**
  Taking a regular sample ensures an accurate picture of performance history and trends can be established. Many modern technologies allow operators to take a ‘live’ sample, to provide an even more accurate insight as it is taken directly from an operational working part.

- **Results are reported within 48 hours**
  Results and recommendations for oil and coolant testing are sent to customers within 48 hours of the sample arriving at our laboratory. If there is an urgent need to feedback on a fluid sample more quickly, Finning can accommodate for this requirement too.

- **Findings are reported via Infotrak**
  Sample data can be viewed in real-time with our Infotrak system, an online portal that can be accessed at any time. It provides live, up-to-date analysis of all fluid samples, and features a range of practical recommendations that will help you to take preventative action before any issues arise. Results are also sent out via email.

- **A clear, practical recommendation will be made**
  Finning’s specialists will be able to identify wear patterns for components, forecast long-term equipment requirements, predict the frequency of problems and optimise the oil drain interval, ensuring valuable recommendations can be made.

**Expertise**

Featuring a dedicated team for the commercial transport sector, Finning works closely with hauliers, service providers and fleet hire companies to understand their individual needs and requirements. The team will advise on which fluids can and should be analysed and make practical, cost-effective and helpful recommendations based on their findings.
Finning in action

Example 1
A major UK on-highway operator using our services was able to act quickly and remove an asset - a Volvo B7 ALX400 - from service that had been identified as requiring attention. Our readings indicated a sudden coolant leak and, upon closer inspection, it was discovered that the asset’s compressor head gasket had been damaged, with the result being coolant leaking into the engine oil.

Fluid analysis from Finning meant the operator could react quickly to an issue that could have resulted in significant costs further down the line if it had not been dealt with.

Example 2
Courtesy of engine oil sampling from Finning, a leading operator of Dennis Trident buses was able to action repairs before failure, reducing replacements by 50%.

By limiting common problems - such as coolant matrix leaks, fuel dilution and injector issues - this generated a cost-saving of more than £250,000.

About Finning:
Every year, we test 225,000 fluid samples for customers worldwide at our state-of-the-art laboratory in West Yorkshire. Our partners at Leeds University ensure we’re delivering the most advanced fluid analysis techniques available on the market.

With nearly 40 years of experience and a team of sector-specific and regional support specialists available, Finning is well positioned to expertly analyse equipment and make recommendations.

For more information, visit www.fluid-analysis.com.

References:
