



Lubrication

By Paul Hartley

Maximize oil, save money

Understanding the components of good oil economy — optimum drain intervals, oil analysis and bypass filtration — helps save you money and time.

Not every long-haul trucker changes his oil at ideal intervals. Many either drop it too soon — 12,000 miles remains a popular number — or push it to distances that make engine manufacturers cringe. Both types of miscalculation can result in needless expense.

Under normal conditions, engine oil is usable until it has lost its lubricating consistency or its additive package is depleted, whichever comes first. Oil companies fortify their products with a number of additives that are designed to neutralize acids, keep internal parts clean, reduce foaming and suspend contaminants such as soot. Once these chemicals are gone, however, or the base oil breaks down, engine components receive little protection from wear. Obviously you should change oil way before complete additive depletion is reached.

Several secondary-market vendors sell products that supposedly extend the life of additive packages. You should avoid these. Additive chemistry differs among oil brands. The formula used in each is carefully balanced and critical to its performance. An unmatched grab bag of chemicals will do nothing to fortify your oil, and it could even cause damage.

Drain intervals

Acceptable drain intervals have nearly doubled during the past 10 to 15 years as the quality of engine oil has improved. A lot of people expect this trend to reverse when cooled exhaust gas recirculation, or EGR, becomes a reality for the trucking industry. Nobody yet knows all of the effects of EGR, but those who've seen oil samples from prototype engines say that increased soot generation isn't as high as earlier feared. They also say that today's best oils, such as Chevron Delo® 400 Multigrade, should enable truckers to stay with manufacturers' current maintenance recommendations and prudent experience.

Whether you're buying an engine built in 2002 or holding on to one from 1992, there is only one way to determine its ideal drain interval for your application: regular oil analysis.

Did You Know

- Standard spin-on oil filters typically clean down to between 20 and 40 microns, but bypass systems can snare bits as small as 2 microns, the smallest size that can be accurately measured.
- Standard spin-on oil filters can "flow," or handle, 20 to 30 gallons per minute.
- While many owner-operators still change oil at 10,000 to 15,000 miles, their fleet counterparts are running 25,000 to 30,000 miles between changes. The average fleet drain interval is about 22,000 miles.
- Labs that do oil analysis reportedly find that 12 to 18 percent of the samples they encounter are considered "abnormal" or "critical."
- Synthetic oils are best suited for extreme cold temperature conditions, but tests have shown that ISOSYN® mineral-based oils, such as Delo® 400 Multigrade, can potentially save you money. These modern mineral-oil formulations give equal fuel economy and engine protection performance when compared to modern synthetic oils.



Oil analysis

Oil analysis technology, first used by the railroads and military 40 years ago, provides valuable information about numerous engine conditions. A good analysis can reveal excessive metal wear, the presence of fuel or glycol, the condition of additives and the amount of combustion byproducts, like soot.

The cost of analysis, usually \$8 to \$18 per report, is cheap compared with that of road service charges if a looming failure sidelines your truck in the middle of the night, in the middle of nowhere. The cost turns into a profit if, through an ongoing analysis program, you're able to extend your drain intervals by 50 percent, a reasonable expectation for any long-haul trucker still changing oil at 10,000 to 15,000 miles. Extended service means less service cost and more equipment availability.

There are thousands of labs across the country doing oil analysis today. They range widely in size and capability. You should ask a reputable oil distributor to recommend a good lab. The better facilities are staffed with technicians who will interpret reports for you and indicate what any trend means. They'll also compare your results with a database of other similar engine-and-oil combinations to help assess the data.

The key to successful oil analysis is consistency: sampling at every drain interval, or more frequently if you're extending drains past an engine manufacturer's guidelines. Intermittent analysis will provide the numbers, but not the reference that enables you to detect troublesome trends.

A growing number of truckers, looking for ways to shave maintenance costs, are stretching their drain cycles beyond "normal" limits, using bypass filtration. Oil analysis is a critical component of this practice.

Bypass filtration

Bypass filtration is just what its name suggests: A small portion of an engine's oil is routed through some type of deep-cleaning process — either a media barrier or a centrifugal system — then returned to the sump. These devices handle only a fraction of the amount pushed through the main spin-on filter, but all of the oil is eventually deep-cleaned. The idea is that cleaner oil lasts longer.

Despite its potential benefits, the technology has critics. Engine company officials claim that bypass filtration is often used as a substitute for proper maintenance, and that the manufacturers of these devices encourage truckers to risk engine damage for the sake of record-breaking drain intervals.

Such concerns are probably based on actual, worst-case situations, but this doesn't mean that bypass filtration is inherently harmful. In fact, if used correctly — and combined with oil analysis — it can offer superior protection and help squeeze more miles from each gallon of oil. Before adding a bypass system to your truck, however, you should talk with an engine dealer to find out which systems are approved and which are not. The difference could be significant, should you ever need to file a warranty claim.

The intent of bypass filtration, like that of oil analysis and optimal drain intervals, is simply better oil economy. Pursuing all three together provides you a way to save money and down time. Only you can decide how much to invest now for a payoff in the long run.