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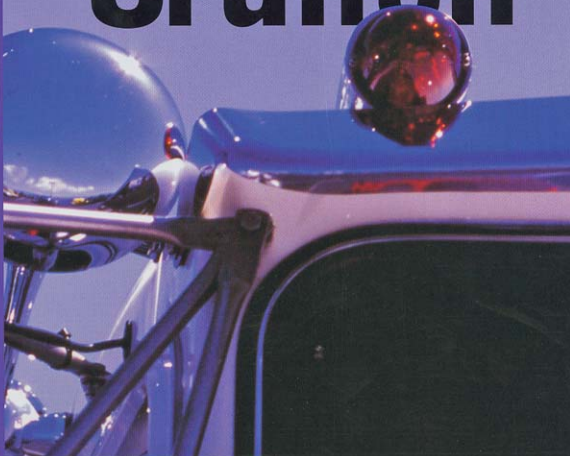
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EXTENDING

Properly done, you can save money on maintenance and keep the wheels turning and producing revenue.

Should owner-operators follow the big fleets and extend oil drain intervals beyond what the factory recommends? Done correctly, an extended oil drain program can save money on maintenance costs – fewer oil changes, less oil, fewer filters, more uptime for earning revenue.

Kevin Kroger, president of Puradyn, which makes bypass filters, says owner-operators may have even more to gain in direct, immediate savings than fleets. "Their service intervals are done by a premium labor rate source, like a truckstop, so their out-of-pocket expense is probably a lot higher on the average than an over-the-road fleet that does its own maintenance."

But if it's not done correctly, excessive wear on the engine caused by oil that's no longer doing its job can end up costing you more down the road.

"I think the biggest drawback to extended oil drains is making sure you don't extend it so much that you start causing engine wear, because then you're going in the wrong direction," says Miguel Sanchez, brand manager, BP Lubricants Americas (Castrol). "You're going to spend more money on overhauls or other big repairs – not only for the cost of the repairs but also for the large amount of downtime."

There are several things to consider when deciding if extended drain inter-

vals are right for you.

"People must really understand their operation before they attempt to move forward with an extended service interval program," says John Cleveland, global product manager for Fleetguard.

"A light-duty cycle operation (i.e. 6.5 or 7 mpg, less than 20% idle time, 80,000-pound

loads) has the greatest opportunity for interval extensions."

You can probably disqualify your operation from extended drains if you do a lot of stop-and-go driving, have a lot of idling time, low fuel economy or dirty and dusty conditions that are more likely to get contaminants into the oil. New low-emissions engines (sold since

Deborah Lockridge
Senior Editor



OIL DRAINS



October 2002) are also harder on the oil, which may make it harder to extend drain intervals.

One of the biggest factors in whether you can successfully extend oil drain intervals is a good preventive maintenance program. Oil drains must be done on schedule. Improperly managed oil drain intervals can lead to accelerated engine wear and costly engine rebuilds, erasing any savings

you realized by extending the drains in the first place.

"There's inherent risk with extended service intervals," says Gary Parsons, manager of commercial automotive at ChevronTexaco. "Say you're changing the oil every 20,000 miles, and you know the oil has the capability of going out to 40,000 or 45,000 miles. If you happen to miss an oil change, you're still OK. If you're doing

extended drains, and you miss that oil change, then you're running that oil right out to the end of its useful life."

Once you've looked at these factors and have a goal in mind for extended oil drains, it's time to talk to your engine manufacturer, oil supplier and filter maker. OEM warranty and guarantees are based on following their recommended drain intervals.

"When considering extending ser-

vice intervals, don't try to penny pinch," says Cleverger. "Use the best quality oil and filtration, because they work together and are very important. Do your research about both the oil and the filtration. Consult your engine company about their recommendations and what they will warranty and stand behind."

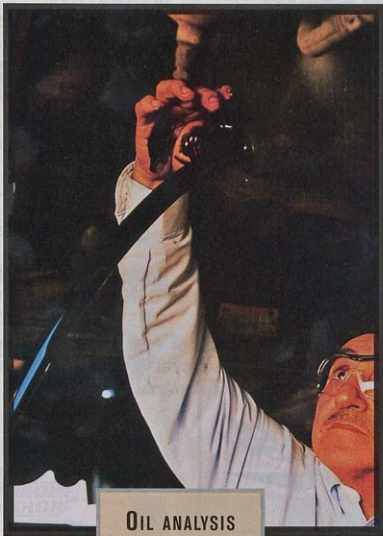
OIL ANALYSIS

Oil analysis is an absolute must if you want to extend your drain intervals. It should be checked at every oil change at the minimum. Most engine oil providers offer oil analysis in one form or another, and there are independent labs, as well. Who you choose may hinge on how well they can help you in setting up your oil analysis program and interpreting the results.

If you have not done oil analysis in the past, you need to develop a baseline before you start experimenting with longer drain intervals. Establishing a trend and history should be done with several oil samples taken consistently and accurately over several engine oil drain intervals.

If these baseline tests show abnormal or critical levels of contaminants such as dirt, coolant, fuel or soot, you need to do some work on your preventive maintenance practices before you can even think about extending oil drains.

"Otherwise, you're living in the danger zone," says Mark Betner, heavy duty product manager for CITGO. "These contaminants are a result of inadequate air induction, cooling system and fueling system maintenance, which can be corrected. No oil - no matter how good - can overcome



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these contaminants when abnormal or critical levels of contaminant are reported."

Make sure your oil analysis includes TBN, or BN, or a newer test called TAN. This indicates the ability of the oil to neutralize acids. Some standard oil analysis packages do not include this, but it's especially important with the newer engines.

Soot levels and wear metals are also important areas to keep an eye on, especially with the new engines. Check the viscosity of the oil. If it's thickening quickly, the soot level may be too high, and can lead to increased wear rates.

Alex

Bolkhovsky, commercial vehicle lubricant technical adviser at ExxonMobil, recommends taking a step-by-step approach to extending oil drain intervals.

"Let's say you're going out to 40,000 miles as your targeted goal for oil drain extension and you're currently at 20,000 miles," he says. "You probably don't want to move from 20,000 to 40,000 in one step, taking a big risk with your equipment. You move to 30,000 miles and look at what the data is telling you, then your next step would probably be to 40,000."

As you look at oil analysis results, keep in mind that you're looking for trends. Make sure none of the potential problem areas suddenly start taking off.

CITGO's Betner notes that an

increasing level of contaminants, such as wear metals, is normal due to the amount of time the oil's been in the engine.

"Say you doubled your drain interval," Betner explains. "As long as the increase in wear metals is proportional – say it's 10 at drain interval A and 20 at drain interval B – that's OK, because it means the rate of wear is constant. But if it jumped to 100 when you went to B, that's an indication the oil is not providing the same level of wear protection."

CHOICE OF OIL

If you're going to extend oil drain intervals, you need to pay close attention to the oil you use.

API CI-4 Plus is the newest oil designation, designed to work with the new low-emission engines. If you're extending drain intervals, you should look to "premium" oils.

"The premium oils definitely have the capability of going extended drains," says Dan Arcy, technical marketing manager at Shell Lubricants. "For instance, we test Shell Rotella T to way beyond your standard drain intervals. If you're wanting to go out to 50,000 miles, buy from a company that has actually tested out to 50,000 miles."

There is some evidence that synthetic oils can help extend oil drain intervals, but you have to carefully balance the price premium against expected savings.

"Try to use the same oil every time, regardless of the location of the maintenance," says Fleetguard's Clevenger. "Try to use a reputable consistent quick-lube bay or maintenance facility. This way you are sure to get more consistent oil, filtration and maintenance practices."

FILTRATION

Your filter is an important part of any plan to extend oil drain intervals. You need to make sure your filter warranty isn't voided by longer intervals. You may even need a different filter. For instance, Baldwin makes a severe service filter that offers extra efficiency

and capacity to handle extended drain intervals.

You also might want to consider adding bypass filtration, for two reasons.

One, they add capacity. The more oil there is in your system, the more it can dilute the soot, acid and other harmful contaminants. Adding more lubricant to the system also helps dissipate some of the additional heat generated when cooling the exhaust gases on EGR engines.

Two, they help keep the oil cleaner.

"Because it's a slow flow area, you can use all types of medias to do a better job of cleaning the oil of contamination, moisture and sludge," says Chris Greeson, senior technical service manager at Wix Filters.

There are two types of bypass filters. There are ones that work much like a traditional filter, putting oil through filter media to trap contaminants. This can include surface layer filtration – your standard pleated media made of various materials, or depth filtration, which uses a very thick media to take out contaminants.

The second type are centrifugal filters, which "spin out" contaminants and are said to remove soot better than other types of filtration. Some centrifugal filters also have special chambers that are designed to evaporate water out of the oil.

Several filter makers now offer products that help replenish the depleted additives in the oil.

Puradyn features time-release additives in its bypass filter that help keep the TBN (the oil's ability to neutralize acid) at the proper level.

"We can't eliminate 100% of the acid, but what we can do is help neutralize that by keeping the TBN additive at a level that was designed by the

oil companies," says Puradyn's Kroger.

Last year, both Luber-Finer and Donaldson announced new filters that also replenish oil additives.

Luber-Finer's Zgard filter cartridge uses zinc to neutralize the acids in lube oil to protect and extend the TBN. A zinc sheet is laminated to a high efficiency cellulose and synthetic composite media, explains Brent Birch, laboratory manager with Champion Laboratories, which makes Luber-Finer products.

"The zinc reacts with the acids in the oil and supports the oil additive package, giving the oil extra abilities to handle the acids for extended drains," Birch said. The Zgard cartridge promises to extend oil drain intervals as much as 75%.

Unlike the Puradyn and Luber-Finer products – both of which involve bypass filtration – Donaldson's new Endurance Plus filter is a full-flow filter that uses a gel to slowly release oil additives automatically. Company officials say the technology can safely double drain intervals. The filter also uses Donaldson's Synteq synthetic filter media for longer filter life.

Oil makers traditionally have been wary of filters that put additives back into the oil.

"Once that oil is in the can, don't mess with it," CITGO's Betner says. "We spent \$15 million on CI-4 alone creating a formula that would be licensed and approved by the American Petroleum Institute. If it were so easy to change that formula by putting something in after the fact by way of a filter, then we spent a lot of money on nothing. These oils are balanced to get them as far as you can possibly go."

Puradyn's Kroger defends their product. "You can't just dump additives back into the oil; that's not going to work," he says. "That's why we've done some painstaking work on maintaining the formulation of our additive package and the method by which the additives are added back into the oil. We are talking to several different oil companies, so it's not like we're doing this blindly." ★