NewsStand - Why is my oil level so low?

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This article appeared in National Oil & Lube News, October 2011

It was a hot week at the iFLEX Expo in Dallas this summer, but that didn't stop us from meeting some pretty cool people. We were lucky. The AOCA Convention required only five days of endurance, whereas a lot of Texas folk had to experience more than 45 days of plus-100 degree heat and no rain throughout. I saw one fellow so thirsty he was drinking water and burping dust.

It has been 14 years since I attended my first convention in Nashville and it's been refreshing to find more and more lube shops promoting synthetic oils and many embracing the extended drain message. Clearly some are responding to motorists' desires for the convenience of fewer oil changes, though there are still quite a few in our industry who see only negatives in this matter.

Invariably the topic of extended drain intervals comes up at these conventions. Almost every year I hear someone say that he sees cars come in that are two quarts low and that this kind of neglect is damaging to engines. The initial conclusion drawn is that if people changed oil more frequently, they would not get into that situation in the first place.

Is the problem caused entirely by the lengthening of drain intervals, or is it something else? I would suggest that the problem is something else, and that the solution is relatively simple.

Leaking
There are essentially two main reasons for low oil levels. Leaking is one. At one time or another we've all had a car that left drips on the garage floor. In an early 2010 column I addressed in the issue of motor oil consumption, with a focus on the variety of ways oil leaks from an engine. At that time I wrote, "Some of the many points where oil leaks may occur include oil lines, crankcase drain plugs, oil pan gaskets, valve cover gaskets, oil pump gaskets, fuel pump gaskets, timing case covers and camshaft bearing seals. No possible source of leakage should be neglected because even a very small leak can cause extremely high oil consumption. For example, it has been estimated that a leak of one drop of oil every 20 feet is approximately equal to a loss of one quart of oil every 100 miles."

It's not my purpose to re-state all the ways an engine can lose oil, only to note that leaking can be a problem.

Volatility
Volatization is a term used to describe what happens to a fluid when it is heated to the point it begins to "boil off." Upon reaching a certain temperature, oil will begin to lose some of its lighter weight molecules as they vaporize and leave heavier weight molecules behind. Not only does this cause higher oil consumption, it causes increased viscosity, making the oil more difficult to circulate through the lubrication system. The thicker oil left behind after volatization contributes to damaging deposits, sticky piston rings and oil blow-by, all of which contribute to reduced engine life, reduced fuel economy and increased air pollution.

At one time it was not uncommon for typical conventional oils to experience 20-30 percent boil-off in the NOACK Volatility Test. Today's API standard for SM and SN oils is 15 percent, putting greater demands on oil manufacturers. Premium synthetic oils are significantly more resistant to these effects, with some of the best in the 4.5 to 6 percent range.

Neglect
We live in an age in which we're inundated with information. Even the most basic devices have become so complex one hardly knows how to operate them without elaborate user guides. Remember how simple a telephone used to be? Cars, too, have become similarly complex. Even Legos have gone robotic.

Electronic sensors, brain boxes and an assortment of wires and hoses can make it difficult for the untrained to figure out where to check their fluid levels even if they were intending to. In short, cars are complex, and a lot of young people have never been trained in the maintenance basics many of us learned when we got our own first set of wheels.

This is not meant to be an excuse or apology for such neglect. It just amplifies the need to train motorists in the simple basics of vehicle maintenance. Taking a minute to teach car owners how to check their oil is a form of empowerment. Cars aren't cheap and people need to learn these essential maintenance matters. In these cases, the solution is not more frequent oil changes, but rather education. If a car is a real oil burner, even three months is too long. Motorists need to know how to take a reading with the dipstick and top off when needed.

Conclusions

Any lube operator who thought it was hot in Dallas this summer knows it's three times hotter inside an engine and the volatility of conventional oils even if improved since the old days is an issue. A mechanically sound engine will still need a top off now and then. That's why it is our jobs as professionals to teach our customers how to find the dipstick and periodically take a reading. Furthermore, we do our customers a disservice by not recommending premium synthetic oils to those who have mechanically sound engines because of their greater resistance to boil-off and thickening.