

A Deeper Look At Motor Oil Consumption

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Have you ever met people who have simplistic answers to complex questions and never want to take time to think a little more deeply about the subject? To be honest with you, I think we all fit that description from time to time. Many issues are so complicated that we just don't have the time to really study them in depth. So we opt out for the simple answer. For example, let's talk about motor oil consumption.

Ever had a car where you had to top off your oil now and then? Who hasn't? In my case, I always assumed that this was due to the oil's volatility. That is, when the engine was hot, the oil's lighter molecules would vaporize. I once attended two days of training at a quick lube (part of a major oil company chain) wherein they showed how their conventional oil lost up to 30 percent and their synthetic only 12 percent in a volatility test. It sank home the message I'd already adopted, that synthetics were more resistant to oil loss than conventional oils.

While this may be true to a large extent it is not the end of the discussion.

I saw a Technical Service Bulletin called The Reasons for Motor Oil Consumption, and seven pages later I could no longer stand on my simple one sentence answer to the problem. The problem of abnormal oil usage is far more complicated and, in fact, most of the causes are mechanical, not lubricant related at all.

Here are just the first of 40 explanations for oil consumption: External Oil Leaks.

"Some of the many points where external oil leaks may occur include, oil lines, crankcase drain plug, oil pan gasket, valve cover gaskets, oil pump gasket, fuel pump gasket, timing case cover and camshaft bearing seal. 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. One way to check for external leaks is to road test the vehicle with a large piece of light-colored cloth tied under the engine. Oil on the cloth will indicate a leak which should be traced to its source."

But the list goes on. The problem may be front or rear main bearing seals, worn or damaged main bearings, worn or damaged connecting rod bearings, worn or damaged camshaft bearings, worn crankshaft journals, distorted cylinders, honing abrasive, worn ring grooves, cracked or broken ring lands, problems with the wrist pins, clogged oil passages, or even unequal tightening of various bolts.

Item 20 on the list had to do with the radiator, and I initially thought this was just a bit much. Until I read the explanation. A defective cooling system can cause overheating of the engine which may result in the development of localized hot spots in some of the cylinders which can lead to scuffing and scoring of cylinders, pistons and rings resulting in high oil consumption.

And the list goes on. Dirty oil, too much oil in the crankcase, worn or broken piston rings, improper valve timing, incorrect oil pressure, piston slap, internal gasket intake breach, spark knock, aftermarket performance chips and modifications, lugging engines, inappropriate operation of overdrive, leaking turbocharger seals, restricted air intakes and fuel dilution can all contribute in various ways to oil consumption.

In short, few things are as simple as they might initially appear. When all is said and done, however, even though there may be multiple reasons for oil loss, in a mechanically sound engine it boils down to one: the volatility issue. In this, synthetic motor oils make a difference. For this reason, if your customers' vehicles are mechanically sound they should be using synthetics to reduce their oil consumption. Benefits include reduced oil usage, reduced emissions and improved fuel economy.

Here's another simple answer that is more complicated than it looks, the cost of synthetics. People who say synthetic motor oils are too expensive have often never gone into depth analyzing the real life cycle costs of a premium synthetic motor oil versus conventional petroleum. The initial cost appears quite a bit higher, but the life cycle cost is the true measure. The annual cost of a premium extended drain synthetic is comparable to or even less than conventional oils these days, and the benefits too numerous for this short summation. When your customer is driving a vehicle with a mechanically sound engine, I always recommend a synthetic solution.