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TECHNI-GRAM



FROM:

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EXAMINING INCREASED ENGINE OIL CONSUMPTION AT CHANGE OVER

A recent article in a trucking magazine reinforces the uncertainty that many vehicle owners possess regarding the potential for a slight increase in oil consumption when changing brands of engine oil. As we at Southwestern Petroleum have reported for many years, this phenomenon has long been recognized throughout the lubricants industry. Today's newly designed and harder working engines have simply brought more attention to this phenomenon. As emission standards for diesel engines have become more stringent, there have been significant changes in both diesel fuel and diesel engine design.

The following is an excerpt of the article:

"You should also be aware that engines typically go through a period of adjustment when making the transition from one oil to another. Because brands are formulated with different additives, a new brand may act differently from the old one at first. Increased oil consumption and leaking seals are common adjustment problems."

-Tech Team Leader Shell Lubricants

Since piston ring design was a major factor in the new engine designs brought about to meet more stringent emission standards, customers should not be overly concerned if a slight increase in oil consumption is initially noticed when changing from one brand of engine oil to another ... especially when changing from a conventional brand oil to one of higher quality. Positive ring sealing against the cylinder wall is created by built-in ring tension, combustion pressure, and the engine lubricant. The two compression rings create a staged pressure drop which reduces the pressure and friction on the top compression ring against the cylinder wall and improves sealing to reduce blow-by. To seal, rings must be free to move in and out of their grooves to conform to changing cylinder dimensions. Deposits can cause rings to stick. This will lead to oil consumption, increased blow-by, and reduced power. A build-up of deposits behind rings can cause excessive contact pressure and wear. New ring designs demand a cleaner operating environment. If this area does not stay clean, you're not going to get pressure loading on the ring and it is not going to seal properly. All this tightening of engine clearances means there is less room for deposits.

While this phenomenon has been recognized throughout the lubricants industry for years, there is no assured pattern of when or even if this period of adjustment may occur. Customers need to think in terms of piston rings and liners as a "matched set" which can experience a disruption of sealing



... to keep it running

capabilities even from something as slight as the introduction of a different engine oil. Especially in cases where a higher quality oil may actually clean up deposits and the rings and the liner have to "remate", it is possible to experience a temporary slight increase in oil consumption. Field experience has shown this consumption normally levels off after a complete oil change. And, in the case of the higher quality, more thermal stable SWEPCO 306 Supreme Formula Engine Oil, this consumption not only levels off, but an actual reduction of previous consumption levels can be expected.

It should be noted that this article only deals with a slight increase in oil consumption during a period of adjustment when making the transition from one oil to another. Excessive oil consumption, on the other hand, results when the engine wear becomes severe or abnormal engine conditions exist. As covered in a previous Techni-Gram (6/96), these conditions can be mechanical or maintenance defects related.