AMSOIL Service Line
NEWS AND IDEAS FROM AMSOIL

Superior Filtration Plays Important Role in Engine Protection

A great deal of emphasis is placed on the importance of using of the most advanced high-quality lubricants, but superior filtration is often taken for granted. The general attitude displayed by many consumers is to use whatever is cheapest, even when they've invested in superior lubrication. While AMSOIL synthetic motor oils provide unbeatable protection, performance and economy, they require the assistance of filtration. Without filtration, by-products from the combustion process and abrasive materials ingested from the air will ultimately destroy an engine.

Some Contaminants Cause More Damage

The level of damage particles cause to an engine is directly related to the size of the particles. The oil stream within the engine flows between wear-sensitive surfaces that usually have clearances between 2 and 22 microns. It is contaminants in this size range that pose the greatest threat as they can slip between moving components, causing a great deal of wear.

To appreciate how small these particles are, one must first understand the measurements involved in their classification. A micron, or micrometer (µ), is a very small unit of linear measurement. One micron is equal to one millionth of a meter, and 25 microns is equal to 0.001 inch. To better put this in perspective, consider that the diameter of a human hair is 50 - 70 microns.

SAE Testing

In a 1988 technical paper published by the Society of Automotive Engineers (SAE), the relationship between filtration levels and abrasive engine wear was established. Testing determined that wear was reduced by as much as 70 percent by switching from a 40µ filter to a 15µ filter.

The SAE conducted tests on a heavy-duty diesel engine and an automotive gasoline engine, and both provided consistent results. These tests set a new benchmark for filtration performance.

New Technology Provides New Options

The SAE paper on filtration discusses the introduction of synthetic fibers into the oil filter market, which offer "the capability of achieving high levels of filtration without the traditional sacrifice of dirt holding capacity and increased flow restriction." Today, the original synthetic technology is dated and a new pinnacle has been reached with synthetic nanofiber technology and AMSOIL Ea Filters. While today's filters offer even greater performance, the message then was the same as it is now; removal of particles measuring 2 to 25µ is the key to controlling engine wear, and there is a direct correlation between oil filter efficiency and engine wear.

1988 Conclusions

The SAE paper summarizes the test results with the following conclusions:

"Abrasive engine wear can be substantially reduced with an increase in filter single pass efficiency. Compared to a 40µ filter, engine wear was reduced by 50% with 30µ filtration. Likewise, wear was reduced by 70% with 15µ filtration.

"Controlling the abrasive contaminants in the range of 2 to 22µ in the lube oil is necessary for controlling engine wear.

"The micron rating of a filter, as established in a single pass efficiency type test, does an excellent job in indicating the filter's ability to remove abrasive particles in the engine lube oil system."

Today's Most Advanced Filtration Product

Ea Oil Filters have been evaluated using today's benchmark test, the ISO 4548-12 multi-pass test. AMSOIL Ea Oil Filters provide 98.7 percent efficiency at 15µ, and up to 70 percent efficiency at 7µ. Competitive filters range from as low as approximately 85 to 92 percent efficiency at 15µ. When it comes to removing contaminants in the most critical size range (2 to 22µ), AMSOIL Ea Filters greatly outperform competitive filters.

2007 Conclusions

Even with all of the advances in lubrication and engine technology in the past 19 years, filtration is no less important today than it was in 1988. The combustion process still produces by-products that slip into the oil stream, and external contaminants are still introduced into the engine in a variety of ways. The challenge for filter manufacturers has always been balancing flow, efficiency and filter life. In order to stop particles in the 2 to 22µ range, the pores in the cellulose media used in many filters are too small to allow adequate oil flow.

Only AMSOIL Ea Oil Filters feature full-synthetic nanofiber technology. It is the nanofibers that allow Ea Filters to provide greater efficiency than any other filter available. Ea Filters stop more particles, stop smaller particles and last longer than any other oil filter available for auto/light truck applications.

Superior Protection that's Cost Effective

AMSOIL XL Motor Oils provide superior protection for extended drain intervals.
Not only that, but they improve fuel economy, maintain low emissions and keep engines clean.
Choose wisely, choose AMSOIL.

The AMSOIL *Service Line* sent courtesy of your Servicing AMSOIL Dealer.

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