

# NEW POWERTRAIN TECHNOLOGIES DEMAND PREMIUM LUBRICANTS

Fuel efficiency has become an increasingly important priority for motorists over the past several years, increasing demand for vehicles able to squeeze maximum mileage from a tank of fuel. Automobile manufacturers have responded by introducing a growing number of fuel efficient vehicles, including hybrids, diesels and alternative fuel vehicles.

## New Fuel Efficient Powertrain Technologies

New powertrain technologies are expected to continue the trend toward fuel efficient vehicle designs. For example, turbocharged direct injection technology is used in the Ford EcoBoost engine for more precise fuel control, delivering a fine mist of fuel directly into each cylinder. Dual turbochargers allow faster throttle response and increased power, while providing the fuel efficiency expected from a smaller engine. In fact, twin-turbocharged direct injection EcoBoost engines boast the power of a V8 and the fuel efficiency of a V6.

## Increased Importance of Quality Lubrication

According to Daniel Kapp, Ford director of powertrain research and advanced engineering, fuel efficient powertrain technologies such as direct injection will

require improved powertrain lubricants, revealing that high quality lubricants can effectively address higher temperatures and loads, friction losses and increased use of ethanol fuels.

"Lubricants can continue to play a very integral role, but maybe some of the challenges are a little bit different," said Kapp. "If we just look at EcoBoosting, we're certainly seeing higher operating temperatures and much higher specific loads. So imagine now very small engines operating at very high combustion temperatures."

Higher engine operating temperatures and loads will increase the importance of viscosity retention. "Because of the higher specific loads, and all the strain on the oil system if you will, we may be looking forward to a 0W-30 as more effective than a 5W-20," said Kapp. "Those are some of the things we're working through."

Lubricants will also play a role in improving vehicle efficiency through friction reduction, while the extended drain intervals pioneered by AMSOIL will continue toward mainstream acceptance. Most major automobile manufacturers have been moving away from the traditional 3,000-mile oil change. Ford currently recommends drain intervals of up to 7,500 miles, and, according to

Kapp, the company will begin recommending 10,000-mile intervals with the 2011 model year.

## Automotive Future

Although automotive technology has progressed rapidly in recent years, it is not entirely clear where the industry will ultimately end up. "In that contest you're seeing different energy-based solutions," said Kapp. "It's obviously not as clear there, but the percentage of internal combustion engines will be dependent on contributions from the fuel side. We'll continue to see obviously much more volume and expansion of hybrid technology. The technology path we're on for conventional engines is also very compatible over the long term with renewable fuels and with hybridization."

## AMSOIL Synthetic Motor Oils

AMSOIL synthetic motor oils are ahead of the curve, providing superior protection and performance for both older and newer engine technologies. Their premium synthetic formulations effectively address increased temperatures and loads by maintaining protective viscosity and reducing friction, heat and wear, keeping vehicles running in top condition for longer periods of time. ■

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*Photo courtesy of Ford Motor Company.*