High-Blend Ethanol Burns Cleaner, Reduces Engine Wear & Increases Vehicle Lifespan

Lake Area Auto students dissect E-85 cars to prove it!

When Lake Area Technical Institute tore apart two E-85 vehicles to test the long-term affects of ethanol on engines, the proof was in the pistons.

"We expected there would be no abnormal wear of the critical engine components, but the results were even better," said Al Kaspelson, Department Supervisor for Automotive Technology at LATI. "Compared to parts from engines burning regular gasoline, the E-85 pistons almost looked new, like they just came out of the box."

The vehicles, a 1990 Pontiac 6000 with a 2.5 liter engine, and 1988 Chevrolet Corsica with a 2.0 liter engine, were converted to operate on high blends of ethanol in what is called an "after-market" conversion. The conversion made the vehicles able to run on any combination of ethanol/gasoline up to an 85% ethanol blend. Today, auto dealerships offer factory-converted Flexible Fuel vehicles for little or no extra charge.

The Pontiac had been in service at LATI since 1990 and detailed service records have been kept. The Corsica was originally placed in service by the South Dakota Corn Utilization Council (SDCUC) and used in a variety of demonstrations and public events.

Once converted to handle E-85, the SDCUC says the cars operated almost exclusively on fuels with an ethanol content ranging from 50% to 85%. E-85 fuel is available at 11 stations in Minnesota and 6 stations across SD. Records show each vehicle had recorded more than 125,000 miles of strictly ethanol use.

"I drove both of these cars for a number of years as part of our motor pool and we were not easy on them," said Trevor Guthmiller, executive director of the American Coalition for Ethanol. "For Al to say that these engines were in such good shape internally is a testament to the clean burning aspects of ethanol fuel. The studies show ethanol may extend the life of your car."

"Basically, these vehicles would have completed their useful lives if they had operated on regular gasoline," said Robert Reynolds, president of Downstream Alternatives, Inc., a fuels consulting firm. "I'm not surprised at the cleanliness and low levels of deposits because deposits are caused by olefins and heavy aromatics in gasoline. Using E-85 fuel, such components are only present in the small, 15% portion of gasoline in the combined fuel."

Kaspelson and representatives from the SDCUC are preparing a complete report on the results of the E-85 engine inspection and vehicle demonstration project for release in the coming months.

Lisa Richardson of the SDCUC said they are very pleased with the outcome of the project, stating this just adds more evidence to ethanol's viability as a premium alternative fuel.

Kaspelson is also excited about the results. Because of the importance of the data gleaned from the cars, he made sure that students performed the disassembly and inspection strictly according to the book. Primary engine components were visually inspected for deposits and wear, and measurements were taken in accordance with Automotive Rebuilders Association guidelines.

The inspection revealed that engine parts of the ethanol-burning cars, such as the valves, didn't have as much carbon deposits, the pistons did not have the varnished look seen in straight gasoline engines, and after 125,000 miles using strictly ethanol fuel there was no abnormal wear of critical engine components.

"It was better than I expected for any vehicles with mileage that high," said Kaspelson. "All of the engine parts of the E-85 cars were extremely clean."