

In any industry, technological advancements have allowed engineers and scientists to enhance the way everyone performs their day-to-day activities. With developments in product technology, the discovery of new materials and improvements in production methods, consumers have gone from stocky AM/FM radios to iPods the size of credit cards. The automotive world, including the aftermarket, is no exception to this transformation. Vehicles are becoming ever more sophisticated and the aftermarket has delivered a number of new product advancements to make them even better. From dealing with the ongoing fuel debate to increasing vehicle safety, here are just a few of the most interesting innovations. ■

By Casey Clapper
Associate Editor



Fuel to market

The national average for unleaded gasoline at the end of September was \$2.37 per gallon — a definite decrease from the \$3 per gallon that consumers saw earlier this year. But Americans are still concerned about fuel costs.

The Fitch Fuel Catalyst from Advanced Power Systems is a poly-metallic alloy housed in a canister that connects into an engine's fuel system between the fuel tank and the engine after the fuel filter and prior to the high pressure fuel pump, explains Chris Wright, chief operating officer with Advanced Power Systems.

According to Wright, the catalyst's purpose is to reformulate fuel on board the vehicle prior to combustion. "Most fuel when it leaves the refinery tends to oxygenate — it gets water in it, grows bacteria, etc. All these things destroy fuel quality." He adds that the catalyst not only kills this bacteria, it can reverse the damage caused by it.

"The Fitch Fuel Catalyst is not a fuel additive," he continues. "It is a special alloy that does not dissolve in fuel. The fuel is reformulated by the alloy catalyst to a state where it is capable of a more complete combustion. As a result, an engine converts the chemical energy in the fuel to mechan-

ical energy in a more efficient manner. The engine power is increased as a result and the toxic exhaust emissions are decreased."

Wright says the Environmental Protection Agency's (EPA) new fuel requirements are reducing how many additives can be put in fuel, therefore impacting fuel shelf life.

Although the Fitch Fuel Catalyst has been in other markets for several years, the product is just starting to reach the traditional aftermarket. "(For the aftermarket) we can help older equipment and older vehicles stay in compliance and stay in the marketplace longer."

As for fuel economy, Wright states Advanced Power Systems has done tests that show anywhere from 5 percent to 12 percent better fuel economy. "Better fuel and better combustion gets more power out of the fuel. It's going to run cleaner, longer and have lower emissions."

Alternative fuel vehicles are another way the industry is responding to the fuel problem. As we've noted in the past, automakers are fighting the environmental battle, and the aftermarket is going to need products that are compatible with different fuel types.

The Fitch Fuel Catalyst fits between the fuel tank and the engine, after the fuel filter but before the fuel pump.



Delphi's Modular Reservoir Assembly (MRA) is a drop-in unit that goes in the gas tank and is designed to pump fuel from the tank to the engine.

Gary Abusamra, director of Engineering and Quality, Delphi Product & Service Solutions, says Delphi's position as a Tier 1 supplier has helped them bring innovative technologies to the aftermarket.

"This is a technology where the fuel pump, the sensor, the fuel pressure regulator, are incorporated together into one assembly and easily installed into a vehicle," he notes. "We've made changes in our plastics formulation and material changes for ethanol compatibility. Some of the features of the part have been developed to help reduce evaporative emissions, and configurations of this part have changed over the last 10 years to keep up to date in terms of government emissions regulations and diagnostic information."

Delphi's MRA, which covers applications back to 1993, is validated up to 25 percent ethanol, and about one-third of the applications are E85 or flex fuel capable. E85 is a blend of 85 percent ethanol and

15 percent gas. "That covers over 7.5 million vehicles on the road today," Abusamra says. "Translated back to the customer and technician, that basically means the car isn't going to come back. They can have the confidence of that validation and experience behind the product, and they're not going to have failures due to the product being exposed to a high percentage of ethanol or damage to the sensor due to sulfur."

Abusamra explains that one of the technological issues with a product like the MRA is that it sits in the fuel tank and is exposed to fuel all the time, so they needed to create a product with long-term durability.

"Another feature of the product is that it has a reservoir that is constantly replenished, so even if there is not a lot of fuel in the tank, there's still enough around the pump to make sure it's providing enough fuel to the engine," Abusamra notes. ■

Continued on page 50