WIRED

<< Back to Article

Vroom, Vroom: Formula 1 Orders Teams to Go Green

By Chuck Squatriglia 11.01.07 | 12:00 AM

Honda's Formula 1 racing team has made environmental consciousness the centerpiece of its image, shunning the sponsorship logos that typically cover race cars in favor of a picture of Earth. F1 hopes to adopt a similar image, and is forcing race teams to adopt greener technology -- which many say will bring rapid innovation to the technology found in road cars.

Photo: Honda F1 Racing

In the hypercompetitive world of Formula 1 motor racing, the only thing greater than the level of technology is the money spent developing it, and a lot of that money is about to be invested in green technology that will appear in cars the rest of us drive.

The biggest teams -- Ferrari, Mercedes-Benz, Honda and Toyota among them -- each spend $200 million or more a year on fossil-fuel technology with little real-world application. But now the sport's ruling body has said, "Enough," and banned further investment in F1 engines. Teams must now focus on hybrid systems and other eco-friendly means of producing power.

"For Formula 1 to do this is a big step forward," said Ron Cogan, editor and publisher of Green Car Journal. "It will bring a lot of new technology to street cars. The old adage is, 'Race on Sunday, sell on Monday.'"

Fuel injection, traction control and semi-automatic transmissions are just some of the innovations developed in race cars, and the racetrack will become a valuable proving ground for emerging automotive technology, experts said.

The 10-year "total freeze" on engine development announced in Paris Oct. 24 is a stunning move. It shows the *Federation Internationale de l'Automobile* -- the Paris-based organization that governs much of the world's auto racing -- is serious about having F1 lead the way to a greener future. More importantly, it will spur rapid innovation in hybrid and alternative fuel systems.

Auto racing in recent years has recognized the need to be more environmentally friendly, experimenting with biofuels, hydrogen fuel cells and even hybrids. FIA's president, Max Mosley, is determined to make F1 cars more energy-efficient and the engineering behind them more relevant to road cars.

The sport, he has said, is "moving away from the technology of the 20th century to the technology of the 21st. It is only by doing that that we can prevent Formula 1 starting to be labeled as a dinosaur."

Mosley has long sought to rein in the stratospheric sums F1 teams spend each year. Honda, by one estimate, spent $250 million just on engine development in 2006. Mosley has said spending even a fraction of such amounts to develop hybrid and alternative-fuel technology would bring "the most spectacular leaps."

Advocates of green car technology agree, and said such investment by F1 teams -- and the automakers behind them -- would pay big dividends as demand for hybrid and alternative fuel vehicles grows.

"Motorsport, including F1, has a role to play in showcasing what can be achieved with alternatives," said Alan Mercer of Energy Efficient Motorsport, a division of Britain's Department of Trade and Industry that works with the country's racing industry to develop green tech. "Motorsport is a shop window for the automotive manufacturers."

Kinetic-energy recovery systems, which make their F1 debut in 2009, are one area where F1 is already advancing green car technology.

These systems use a flywheel in the transmission to capture the energy generated during braking and store it for use during acceleration. It improves the current technology used in hybrid cars, which rely on heavy batteries to store recovered energy.

At least one F1 team -- no one will say which, citing the sport's intensely competitive and highly secretive atmosphere -- has ordered a kinetic-energy recovery system developed by the British firms Torotrak, Xtrac and Flybrid Systems. The system will generate as much as 80 horsepower without burning an additional drop of fuel.

"This is a significant step toward acceptance of Torotrak's technology for use in mainstream road cars to provide improvements in performance, fuel economy and greenhouse-gas emissions," Dick Elsy, chief executive of Torotrak, said in a statement.

F1 will begin experimenting with biofuels next year, when at least 5.75 percent of the fuel used in racing must come from renewable sources. Looking ahead to 2011, the FIA wants exhaust gases and heat generated by the cars' 2.4 liter, eight-cylinder engines captured and used for propulsion.

Despite the recent push, F1 is behind the curve with regard to green technology. The Indy Racing League, which includes the legendary Indianapolis 500 race, already uses 100-percent ethanol, and General Motors has been pushing NASCAR to adopt a similar rule.

In August, the Ford Fusion Hydrogen 999 set a world record, when it hit 207.279 mph at the Bonneville Salt Flats in Utah. That record came three years after a Toyota Prius topped 130 mph there. Another hybrid Toyota, the Supra HV-R, handily won Japan's Tokachi 24-hour endurance race, and a British team has done well racing Honda hybrids in the Formula 1000 rally series.

"We're seeing a lot of inroads being made in motor sports," Cogan said. "We're going to see more and more alternative-fuel and emerging-technology vehicles in racing. It's the way forward."