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GM and Honda Share Research on Hydrogen Fuel Cell

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has accumulated nearly 3 million miles, more than any other automaker, Flores said. By GM's calculations, the fleet has saved 157,894 gallons of gasoline – more than $552,631 in avoided fuel costs.

During Project Driveway, the 100,000-mile Fuel Cell Equinox operated as a fleet vehicle at Walt Disney Company's studio in Burbank, Calif., said Flores. After Project Driveway, it became an engineering development vehicle driven by as many as 10 GM engineers.

Todd Goldstein, from GM's Advanced Technology Demonstration Program, was behind the wheel of the fuel cell vehicle when its odometer reached 100,000 miles, Flores said.

The senior project engineer routinely drives the vehicle between the Los Angeles suburb of Torrance and outlying communities of Oxnard, Santa Clarita, Victorville, Palm Springs and San Diego.

"The Fuel Cell Equinox is an attention-getter everywhere I go," Goldstein said. "The people who ask me about it are very enthusiastic about the technology."

Flores said GM is an acknowledged leader in fuel cell technology.

According to Clean Energy Patent Growth Index, GM ranked number one in total fuel cell patents filed between 2002 and 2012.

The company is currently building a new Fuel Cell Development Laboratory in Pontiac, where the majority of the automaker's future fuel cell development work will take place, Flores said.

And in July, GM and Honda announced a long-term, definitive master agreement to co-develop a next-generation fuel cell system and hydrogen storage technologies, aiming for the 2020 time frame.

In September, GM and the U.S. Army Tank Automotive Research, Development & Engineering Center (TARDEC) said they are expanding their co-development of hydrogen fuel cell technology.

The reason for collaboration is simple, Flores said. It comes down to cost. Developing a practical hydrogen fuel cell is expensive. Both GM and Honda are leaders in the field, and by sharing their research, both companies can save money while being able to push ahead with their research, he said.

"We believe hydrogen fuel cell technology holds tremendous potential to one day help reduce our dependence on petroleum," said Charlie Freese, executive director of GM's Global Fuel Cell Engineering activities. "The resilience of our test fleet and new research partnerships are helping us reach this goal."

Flores said that Honda has a stated goal of having a hydrogen-powered vehicle for sale in the commercial marketplace by 2015. GM's stated goal is a little more modest, Flores said. The company wants to have a viable hydrogen-fuel cell system ready for the marketplace by 2020, he said.

But, Flores added, that doesn't automatically translate into having a hydrogen-powered vehicle for sale in 2020.

By teaming up with Honda, it is hoped that the two companies will be able to reduce the cost of such a system to the point where it's affordable to the average consumer.

"There are two big problems standing in the way of hydrogen-fuel technology," Flores said. "One is the cost of the technology and the second is infrastructure."

It does no one any good if the cost of a hydrogen-powered car is, say, $100,000, Flores said. Car buyers are practical. And even if you have a hydrogen-powered car that costs, say $30,000, said Flores, no one is going to buy it if there is no place to fill the vehicle up.

"GM and Honda are doing their part in terms of reducing the cost of the technology," Flores said. "But the infrastructure part is out of our hands."

GM and other companies will have to work with state and local governments to help create the infrastructure needed for hydrogen-powered vehicles, Flores said.

"Ultimately, there is no single silver bullet that solves the propulsion system needs of every customer in every circumstance," Flores said.

"For some, it might be a hybrid, for others an EV. For others, hydrogen," Flores said. "Time will tell."

BorgWarner is On Pace for Another Award

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Vehicles with stop/start systems shut the engine off when the vehicle stops, increasing fuel economy 3 to 10 percent, depending on driving patterns, Verrier said. However, when the driver accelerates from the stop mode, current stop/start systems can cause vehicles with automatic transmissions to lurch or roll back, he said.

Verrier pointed out that BorgWarner's solenoid experts developed an exceptionally low-noise, high-flow, low-leak solenoid valve with a hydraulic accumulator to prime the transmission in as little as 0.33 seconds, achieving quick hydraulic pressure for smooth launches when the engine restarts.

For automatic transmission designs that currently offer stop/start capability, Eco-Launch solenoid valves offer better performance at significantly lower cost than alternative systems, Verrier said.

Specifically designed for easy integration, he said, the technology also allows automakers to upgrade existing automatic transmissions – including dual-clutch, stepped automatic and continuously variable transmissions – to expand stop/start capabilities across their vehicle fleet.

Several patents are pending for the innovation, and a major automaker has already committed to using the technology in several of its transmissions, said Verrier.

Sponsored by *Automotive News*, Ernst & Young and the Transportation Research Center Inc., the 20th annual PACE Awards honor superior innovation, technological advancement and business performance among automotive suppliers.

Known around the world as the industry symbol of innovation, PACE stands for Premier Automotive Suppliers' Contribution to Excellence.

Winners are selected by an independent panel of judges and will be announced in Detroit on April 7, 2014.

Since 2005, BorgWarner has received seven PACE Awards, four PACE Innovation Partnership Awards and one PACE Environmental Award.

A 2013 Silverado being tested at Milford Proving Grounds.

Chevy Trucks Prove Grit in Rugged, All-Weather Tests

When it comes to trucks, durability counts.

That's why each of the Silverados in Chevrolet dealerships benefits from 12.5 million miles of durability testing before the first customer ever receives the keys, said Tom Wilkinson, spokesman for Chevrolet Trucks.

From the scorching hot desert of Yuma, Ariz., to the sub-zero cold temperatures of Kapuskasing, Ontario, and the outdoor torture tests of General Motors' Milford Proving Ground, the new full-size trucks completed more than 4 million miles of combined vehicle durability testing.

In addition, a fleet of test vehicles racked up 8.2 million miles of real-world mileage, Wilkinson said.

"It takes refinement and testing to build the strength that our customers expect and rely on from their trucks," said Phillip Hubler, vehicle system engineer. "Our philosophy with the 2014 trucks was to improve what needed to be improved and leave alone what was already considered world-class."

Validation and durability testing pushed the trucks to their limits before they went into production in Silao, Mexico, Flint and Fort Wayne, Ind., Hubler said. In many of the tests, the trucks are loaded to gross vehicle weight. While most customers do not drive fully loaded on a regular basis, these tests ensure the Silverado can withstand demanding conditions.

The trucks proved their mettle by traversing Belgian blocks (much like a cobblestone road), splashing through an off-road-simulating grit trough, climbing and descending a 30 percent grade, and driving at high speeds, Wilkinson said.

Grit intrusion is a challenge for any off-road vehicle, Hubler said. The grit trough test ensures the trucks have enough sealing to protect bearings and key suspension points, while a trip along a dusty road helps determine all seals are functioning properly and that dust does not contaminate the bearings or other moving parts.

Some of the key durability improvements from the previous-generation trucks include:

• A frame formed from high-strength steel to ensure it will

Gala Raises $200K For Judson Center

The Judson Center had something to celebrate at its 30th annual gala, thanks to a $50,000 donation from General Motors.

The gala, titled, "A Night to Embrace Our Children and Families," raises money for the Judson Center, said spokesperson Janice Morgan.

The Center stretches back to 1924, when it was called the Detroit Baptist Children's Home. It became the Judson Center in the 1970s and provides comprehensive services to children and families in need in southeast Michigan.

The gala, held in the Townsend Hotel in Birmingham on Oct. 5, raised $200,000, Morgan said.

"A large part of that amount was raised during the 'Take a Stand' portion of the evening, where guests make cash donations to support the individuals Judson Center serves," Morgan said.

GM was a presenting sponsor of the event, Morgan said. Melissa Howell, a GM senior vice president of Global Human Resources, is also a Judson Center board member and chaired the gala. She wrote a $25,000 check – presented by GM's Julie Heisel – as a matching gift to GM's $25,000 sponsorship. ITC of Novi also presented a $10,000 grant check that evening as well, Morgan said. The ITC grant was used to extend a summer program for children with autism.

Julie Heisel of GM

"With one in 88 children being diagnosed with some form of autism, the need for services is great," Morgan said. "This commitment from ITC will have a lasting positive effect in the lives of many families in Michigan."

MADD Donation

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dedicated to the Power of Parents program. This initiative offers materials and workshops to give parents the tools they need to help prevent underage drinking.

"This contribution will help MADD achieve its mission by allowing us to serve more drunk driving victims and prevent underage drinking," said MADD National President Jan Withers.

OU Health Center Urges Flu Vaccine

Each year, it's estimated that more than 200,000 people are hospitalized because of flu-related complications. The annual flu vaccine is the single best way to prevent flu and flu-related complications that could lead to hospitalization and even death, say medical experts at Oakland University's Graham Health Center, where flu shots are available for $20. The vaccine is covered by most insurance plans.

For information on receiving a flu shot at Graham Health Center, call 248-370-2341 or visit the website at oakland.edu/ghc.

Jeep's New 'Polar' Edition Coming Soon to Dealerships

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The "Polar" badge, located on the vehicle's side next to the front fender flares, exhibits the 78-degrees South and 106-degrees East coordinates that correspond to the location of Vostok in Antarctica – the exact point where the absolute severest temperature in the world was recorded at -128.56-degrees Fahrenheit (-89.2-degrees Celsius), Hespen said.

The Jeep Wrangler Polar Edition features exclusive styling cues, 18-inch gloss black alloy wheels, and a body-color hardtop. The Polar Edition will be available in both two- and four-door Unlimited versions, Hespen said.

Based on the Jeep Wrangler Sahara, the exterior of the Wrangler Polar Edition boasts unique features such as the new front grille, Powerdome hood and the body-color hardtop with deep-tint sunscreen glass. A gloss black Jeep logo above the front grille and gloss black 18-inch alloy wheels distinguish the vehicle from others. Completing the exterior appointment of the Polar Edition is the three-color hood decal featuring the outline of mountains and the black fuel-filler door from Mopar.

The interior features black heated leather seats with pearl white accent stitching and "Polar" logo embroidered on the upper portion of the backrests. Standard equipment also includes a black leather-wrapped steering wheel with pearl white stitching and high-gloss ceramic white painted bezels. Pearl white accent stitching is found also on the door armrests and center console lid. The passenger-side dashboard grab bar and dashboard vent rings are finished in high-gloss ceramic white to create the contrasting effect of the light on Antarctic glaciers.

The exclusive cabin of the special edition also features an all-new cluster overlay with rings painted high-gloss ceramic white and surrounding a blue instrument background with "Polar" logo. Mopar tread-pattern slush mats complete the interior appointments of the new Wrangler Polar Edition.

In addition to a new hydro blue, the Jeep Wrangler Polar Edition model is available in billet silver metallic and bright white exterior colors.

The Polar edition is equipped with the Dana 30 front axle and Dana 44 rear axle.

Standard equipment includes automatic climate control, leather-wrapped steering wheel with integrated controls, heated front seats, height-adjustable driver seat, Electronic Vehicle Information Centre (EVIC) and cruise control.

The new model will be powered by the Pentastar 3.6-liter V6 engine that delivers 285 hp and 260 ft.-lb. of torque and is paired to a standard six-speed manual or an available five-speed automatic transmission.