

# Oakland Tech News™

AUBURN HILLS AND ENVIRONS

VOL. 31 NO. 20

News of the Automotive, Technology and Supplier Community

MAY 27, 2013



The 2014 Sierra undergoing wind tunnel tests.

## New GM Sierra Designing Process Uses Latest Tech

The 2014 Sierra full-size pickup truck has spent more development time in a wind tunnel than any GMC pickup before it, resulting in design changes that benefit both fuel efficiency and interior quietness.

To achieve improved airflow, aerodynamic engineers like Diane Bloch examined every millimeter of the truck to find areas of improvement, debunking some popular myths along the way.

To study the way air passes over, under and around the Sierra, engineers used General Motors' Aerodynamics Lab, a 750-foot-long tunnel through which a 43-foot-diameter fan powered by a DC electric motor with the equivalent of 4,500 horsepower can generate winds of up to 138 mph. Aerodynamic advancement is one reason why the 2014 Sierra will be the most fuel-efficient V8 pickup on the market, according to GM officials.

"We can't stop air; we can only

guide it through the path of least resistance. It's like electricity, without the shock," said Bloch, GM aerodynamic performance engineer. "The biggest misconception is that it's all about single components. But a certain side mirror design doesn't create a certain amount of drag – its interaction with the rest of the vehicle does."

For example, a new air dam below the 2014 Sierra's front bumper successfully reduces drag because it directs air toward the ground and away from the truck's rough underbody. And Sierra's ducted flow path between the grille and radiator prevents air from swirling inside the truck's front cavities. Even the top of the Sierra's tailgate and the center high-mounted stoplight are optimized to guide air cleanly around the truck. Because Bloch's team saw unwanted

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## Chrysler Welcomes Robotics FIRST Teams

by Irena Granaas

More than 300 high school and middle school students representing 21 Chrysler Foundation-sponsored robotics teams and 19 Michigan and Canadian schools came to FIRST Robotics Appreciation Day May 17 at Chrysler World Headquarters in Auburn Hills.

Morning and afternoon sessions featured opportunities for the teams to fire up their robots for demonstrations and contests.

The event was held inside the Chrysler Technology Center (CTC), where the company does research and development, design, product development and testing.

"It is our pleasure on behalf of Chrysler to welcome you," said Brian Glowiak, vice president, Chrysler Foundation.

Glowiak went on to note that Chrysler has been supporting schools and student teams in the FIRST Robotics program since 1996, and the Chrysler Foundation has invested more than \$1.7 million to date in support of the program, which is designed to spark young people's interest in careers in the science, technology, engineering and mathematics (STEM) fields where the number of U.S. graduates in these areas is currently outstripped by the demand.

"We do it because this company was founded by Walter P. Chrysler on a strong commitment to engineering technology and automotive design excellence . . . We ushered in the era of aerodynamic design . . . We invented power windows," said Glowiak. "You are the people who will be leading us into the future."

Glowiak said in an interview Chrysler invited all of its local teams out in recognition of their



A member of the Lake Orion Dragons preps his team's robot.

achievements and also to show appreciation for the outstanding work they have done.

"At the same time we are giving them a chance to see this wonderful facility and to see

what goes on here," he said.

Chrysler staff member Rebecca Zaror gave a talk on safety, and also spoke to the students

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## Auburn Hills a Top Center For Engineering Careers

Businesses looking to hire engineers or engineers eager to launch their careers would do well to focus their job hunt efforts in Auburn Hills.

The northern Oakland County city of 21,000 has become a magnet for manufacturing firms and engineers alike. That's according to a recently released survey from Monster Worldwide Inc., which ranks the city as fifth among the nation's top markets for engineering jobs. Houston ranked first, followed by San

Jose, Calif., San Diego, Calif.; and Chicago, followed by Auburn Hills.

The high ranking is based on the city's reputation as a business-friendly manufacturing hub, according to Auburn Hills City Manager Pete Auger.

"Our economic development team and the city as a whole work together to attract and retain the world's leading manufacturers to Auburn Hills," he said.

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## GM, Chrysler and Ford Take Quality Lead Over Imports

by Irena Granaas

For the first time in more than 10 years, domestic automakers had more winning vehicles than the imports in a quality study.

Research-based consultancy Strategic Vision reported that news in its "Best 2013 Total Quality Vehicles" list. GM, Chrysler and Ford all had something to celebrate with the release of the research firm's 18th annual Total Quality Index vehicle winners. America's domestic carmakers competed grille to grille with the best in the industry, and in many cases won their segment.

According to a Strategic Vision news release about the latest results, "It is clear that domestic manufacturers restated their position in some very competitive segments."

GM either bested or tied the competition in seven categories, including Mid-Size Car (Chevrolet Volt, a tie with the Ford Fusion); Premium Coupe (Chevrolet Corvette Coupe); Premium Convertible/Roadster (Chevrolet Corvette Convertible, a tie with the Porsche Boxster); Mid-Size Crossover Utility (Chevrolet Traverse); Large Utility (GMC Yukon); Near Luxury Utility



2013 Chevrolet Traverse

(Buick Enclave); and Full-Size Pickup (Chevrolet Avalanche).

Chrysler was also well-represented in the top placements, including the Small Car segment (Dodge Dart); Convertibles (Chrysler 200 Convertible); Minivan (Chrysler Town & Country); and Mid-Size Traditional Utility (Dodge Durango).

"Dodge Dart's win in the small car segment is extraordinary when you consider how much focus, design and competitive engineering exists within this important segment," said Strategic Vi-

sion VP Christopher Chaney.

"Dart is essentially 'proof of concept' that when you mix super-exceptional versatility, motivating exterior styling and a strong array of high-quality performing components and concepts, customers respond. The challenge then becomes getting the word out."

Ford was a first place co-leader in the Mid-Size Car segment (Fusion, tied with the Chevrolet Volt); and the Dearborn automak-

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2013 Dodge Dart GT



2013 Ford Fusion

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