

The Iceman Cometh, Seeking Ways To Improve Terrain's Interior Comfort

DETROIT – General Motors' climate control engineers call him The Iceman – a high-tech top gun whose team created a way to make vehicle passengers feel much warmer or cooler than the cabin temperature in which they are seated. The result: more precise comfort control on the 2012 GMC Terrain.

The Iceman – his real name is Jeff Bozeman – says an instinctive sense of frugality drives him to find ways to make heating and cooling systems more efficient.

"Maybe it's my Dutch heritage, but I'm hyper-focused on finding ways to improve driver and passenger comfort while using the absolute minimum amount of energy possible," said Bozeman.

His team conducts testing in GM's Climatic Wind Tunnel at the Warren Technical Center, where environmental chambers can mimic temperatures ranging from minus-40 to 140 degrees Fahrenheit.

Bozeman and his team use both real and digital dummies to pinpoint exactly where climate control air streams will



In the 2012 GMC Terrain, GM engineers were challenged to balance highly styled vents and the aesthetics of the cabin design with the function of heating and air conditioning vents.

provide maximum comfort without blasting cold or hot air where it is unneeded.

The Iceman and his colleagues created Monika, a manikin wired with nickel-chromium sensors that provide detailed comfort feedback to engineers. If Monika is too hot or too cold, she lets engineers know.

GMC also created a sophisticated digital "dummy" that

is a better physiological model of the human anatomy, said Bozeman.

"We can better understand things like skin temperature and perspiration and can get a read on a wide range of shapes and sizes of GMC customers," he said.

Virtual testing speeds vehicle development, allowing climate control innovations to reach customers faster.



In the Climatic Wind Tunnel at the GM Technical Center in Warren, environmental chambers can mimic temperatures ranging from minus-40 to 140 degrees Fahrenheit.

In the Terrain, engineers were challenged to balance highly styled vents and the aesthetics of the cabin design with the function of heating and air conditioning vents.

"We had to work a lot on the directing ability of the outlets," Bozeman said. "The first impression of the vehicle is the interior, and it's where people spend most of their

time. Our job is to make the vehicle feel as good as it looks inside."

The Iceman foresees a host of new comfort-enhancing and fuel-saving technologies, such as targeted jets of air similar to those on commercial aircraft, that will use far less energy than today's entire-cabin cooling systems.

The Iceman's cutting-edge

research is a collaborative effort among innovators in government, business and research sectors. Bozeman and his team work with the U.S. Department of Energy, the California Energy Commission, Delphi Automotive and the University of California, Berkeley.

Cadillac Tickets For Super Bowl Fight Duchenne Child Disorder

DETROIT – Cadillac will again support CureDuchenne and its fight against muscular dystrophy in young boys by donating its corporate Super Bowl XLVI tickets in a charity auction to raise awareness and money for the organization.

CureDuchenne, a nonprofit based in Newport Beach, Calif., will auction 19 Super Bowl XLVI packages provided by Cadillac.

Each package includes hotel accommodations and a pair of tickets to Super Bowl XLVI, scheduled to be played Sunday, Feb. 5, at Lucas Oil Stadium in Indianapolis.

The auction runs on the charity auction website charitybuzz.com through Jan. 25.

Proceeds will benefit leading-edge research to eventually find a cure for Duchenne, a progressive form of Muscular Dystrophy.

Last week, Cadillac debuted a series of announcements featuring NFL linebacker Clay Matthews to promote the auction.

"This is a meaningful way to support this great innovative organization for this year's Super Bowl," said Don Butler, Cadillac vice president of Global Marketing.

"This is a disease that knows no boundaries and deeply affects families." Matthews, a member of the Super Bowl XLV champion Green Bay Packers and three-time Pro Bowl nominee, says he is proud to lend his time and support. "I consider myself very fortunate to be a voice for Duchenne and the CureDuchenne organization," he said.

"With the help and support of Cadillac, and so many great people across the globe, CureDuchenne is getting closer to finding a cure for this devastating disease."

Currently, 20,000 boys and young men are affected in the United States. It is a genetic disease that occurs in one of 3,500 boys worldwide.

Boys with Duchenne are usually diagnosed by the age of five, in a wheelchair by age 12, and may be completely paralyzed by their late teens. Historically, most Duchenne patients do not live to see adulthood.

BAE's System Upgrade Will Aid U.S. Army Howitzer Vehicle Program

ARLINGTON, Va. – BAE Systems received a \$313 million contract modification for additional engineering design, logistics development and test evaluation support to complete the Engineering and Manufacturing Development phase of the U.S. Army's Paladin Integrated Management (PIM) program. PIM is the latest howitzer in the M109 family of vehicles.

"The PIM program will ensure that the self-propelled howitzer fleet is sustainable in the long term and provides significant growth potential for our customer," said Joe McCarthy, vice president and general manager of Combat Vehicles at BAE Systems.

"Since we built and delivered the seven PIM prototype vehicles last year, we have completed all contractor tests,

as well as Phase One of the Army's Developmental Test.

"The additional funding that we are receiving through this contract will allow us to support the remainder of the Army's rigorous test program and complete the production planning efforts in support of the low-rate initial production decision."

BAE Systems was awarded a \$63.9 million research and development contract in August 2009 to produce five Self Propelled Howitzers and two Carrier, Ammunition, Tracked vehicles. The seven prototypes were delivered to the U.S. Army, on schedule, in May 2011.

Work under this contract will be performed at various BAE Systems facilities, including: York, Pa.; Johnson City, N.Y.; Minneapolis, Minn.; San-

ta Clara, Calif., and Sterling Heights, Mich.

The contract was awarded by U.S. Army TACOM and is expected to begin in February 2012 with anticipated completion in January 2015.

The Paladin Integrated Management howitzer uses the existing main armament and cab structure of a Paladin M109A6 and replaces unique vehicle chassis components with modern components common to the Bradley family of vehicles incorporated in an improved and more survivable chassis structure.

PIM incorporates a state-of-the-art "digital backbone" and power generation capability and integrates electric elevation and traverse drives, electric rammer and digital fire control system.

The upgrade of the PIM ensures commonality with existing systems in the Heavy Brigade Combat Team, and reduces its logistical footprint and operational sustainability costs by replacing obsolete components.

PIM is equipped with the company's enhanced on-board power management capability, representing the first implementation of the U.S. Army's



Work under a new contract will be performed on this howitzer at various BAE Systems facilities, including in Sterling Heights. The \$313 million contract was awarded by TACOM and the upgrade is expected to begin in February 2012 and completed in January 2015. The weapon is a PIM, Paladin Integration Management.

On Board Power Management requirement.

BAE Systems' enhanced on-board power management solution will double the electrical power of most military vehicles, producing 70KW, significantly increasing the mission effectiveness of ground

forces in theatre.

BAE Systems has approximately 100,000 employees across its home markets, delivering a full range of systems and services for U.S. air, land and naval forces. BAE also has a major facility under construction in Sterling Hts.

Faurecia Selects Design Intern

College for Creative Studies MFA student Brook Banham was selected by Faurecia as its internship winner based on his work provided for the General Motors Interactive Design Competition.

Brook focused his concepts on the GMC brand and for his efforts gets to choose an internship at Faurecia's design studio in North America, Europe or Asia.

When looking at all the submissions, Faurecia focused on the entrants' care for details, color and material solutions, research of perceived value,

problem-solving ability, ingenuity, innovation, surprise, presentation quality and story-telling.

"We choose Brook as our internship winner based on his exceptional rendering technique, his ability to tell a story through his design and his successful integration of the GMC brand," said Faurecia Industrial Design Manager for North and South America, Olivier Boinais. "Brook was very receptive to the feedback given to him during the competition and was able to advance his designs."

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