FCA, Toyota, Faurecia and AP&T Win the 5th Altair Enlighten Awards for Innovation in Automotive Lightweighting

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Honda and Constellium were runners-up in the Full Vehicle and Module categories, respectively

TROY, Mich., July 31, 2017 – Altair and the Center for Automotive Research (CAR) have announced the winners of the 5th annual Altair Enlighten Award, which strives to promote and celebrate innovation in automotive lightweighting. The winner of the Full Vehicle category was the 2017 Chrysler Pacifica, which is an impressive 249 pounds (113 kilograms) lighter than its predecessor. Toyota's carbon fiber closure panels for the 2017 Prius Prime and Lexus LC500, and Faurecia's Adaptive ValveTM for exhaust systems employed on the 2017 Chevrolet Silverado took the top honors for the module category. Swedish metal forming specialist AP&T claimed the Enabling Technology category for its innovative aluminum forming technology used on several European vehicles. The awards were presented today at the 2017 CAR Management Briefing Seminars (MBS) in Traverse City, Mich., US.

"For the 5th year, our expanding field of global entries demonstrates an incredibly impressive range of innovations helping to meet the worldwide weight reduction challenges of modern automotive manufacturing," said judging chair Dr. Jay Baron, President and CEO of CAR, and director of CAR's Coalition for Automotive Lightweighting Materials. "FCA, Toyota, Faurecia and AP&T and all our 2017 finalists are contributing to reductions in weight, fuel consumption, and CO2 emissions. The Enlighten Award is an excellent way to highlight and recognize these achievements."

The FCA team built the 2017 Chrysler Pacifica from the ground up to achieve a lighter vehicle with improved safety, better NVH performance and superior interior space and comfort. The body system, which shed 168 pounds (76 kilograms), utilized high strength steels and large amounts of dual phase and hot stamped material grades for improved impact protection at reduced weight. Aluminum and cast magnesium were used for the rear sliding door, liftgate and the instrument panel beam, while the front-end module is a steel-plastic overmold to improve part integration and stiffness. Simulation methodologies including topology optimization studies were used throughout the vehicle's development to ensure a material efficient design.

"The 2017 Chrysler Pacifica is our engineering response to the rapidly changing industry climate," says Phil Jansen, Head of Product Development – FCA North America. "Customers are in need of ever-greater efficiency, but not at the expense of functionality. The Pacifica's spacious package, delivered with a reduction in mass, allows us to exceed expectations."

For the module category, which focuses on vehicle systems, subsystems and components, the international judging panel could not split the winners, opting to award the top prize to both Toyota and Faurecia. Toyota's winning entry concerned the side and luggage doors of the 2017 Lexus LC and the liftgate of the 2017 Toyota Prius Prime which feature carbon fiber reinforced plastic (CFRP) inner panels, combined with aluminum, glass-fiber reinforced plastic (GFRP) and polypropylene outers for components that are 47% lighter than conventional metal structures.

"Toyota is excited to offer closure systems that are optimized to the unique mission of each vehicle," said JP Flaharty, Executive Program Manager at Toyota Motor North America R&D. "With CFRP applied to the Prius Prime liftgate and the Lexus LC side and luggage doors, our customers can recognize the light touch and high tech appearance of these sophisticated, lightweight door systems. Our entire development team is honored to receive the Altair Enlighten Award in the module category."

Faurecia's winning entry was the Adaptive ValveTM, an offset shaft spring return butterfly valve located in the intermediate pipe of the exhaust system. Its specific purpose is to address NVH concerns caused by cylinder deactivation by presenting the gas flow with a variable restriction. The valve requires less package space than traditional systems and its innovative design reduced the muffler weight of the 2017 Chevrolet Silverado by 26.5 pounds (12 kilograms).

"We are honored to receive Altair's Enlighten Award for the FCM Adaptive Valve," said Dave DeGraaf, President of Faurecia Clean Mobility North America. "We are also extremely proud of our Adaptive Valve team for their hard work on this project. This recognition is a testament to their creativity and dedication."

Finally, the Enabling Technology category, a new award introduced in 2017 to recognize technological advances that enable manufacturers to save weight, was claimed by AP&T. The company's aluminum forming technology is the world's first multipurpose production line for high strength aluminum sheet metal, enabling flexibility in the forming of high strength car body components with complex shapes, leading to weight savings between 30-50%.

"It is truly a great honor for AP&T to receive the 2017 Enlighten Award," said Christian Koroschetz, CTO, Technology Development at AP&T. "Winning this award is a big accomplishment for the whole AP&T team, who is dedicated to help our customers constantly produce lighter, safer and more energy-efficient products with a low climate and environmental impact. The multipurpose production line we developed enables outstanding flexibility in the forming of high-strength aluminum components (AA6xxx and AA7xxx) as well as an enhancement in freedom of design, making function and part integration possible in new ways."

The runner-up for this year's Full Vehicle award was Honda for the multi-material space frame used to make the 2017 Acura NSX 48.5 pounds (22 kilograms) lighter. Constellium claimed the second place title in the Enabling Technology category for the HSA6TM aluminum alloys, which support the development of vehicles that are 15-30% lighter than those produced using conventional 6000-series aluminum alloys.

"I'd like to personally thank all of our nominees, finalists, runners up and winners for taking part in this year's Altair Enlighten Award," said Richard Yen, Senior Vice-President, Automotive and Global Markets Team at Altair. "Sharing knowledge and experiences through the award helps us all to collectively meet the challenges of weight and CO2 reduction. It's clear that simulation software is playing a central role in this effort, with almost all of the full vehicle and module entries citing the use of design optimization technologies to generate innovative, material efficient products."

The Altair Enlighten Award honors the greatest achievements in vehicle weight saving each year to inspire interest from policymakers, educators, students and the public, to create further competition for new ideas in the industry and to provide an incentive to share technological advances. The award is judged by a combination of automotive experts from industry, academia and the engineering media from across the world who debated the merits of each of the 29 finalists.

About Altair

Founded in 1985, Altair is focused on the development and application of simulation technology to synthesize and optimize designs, processes and decisions for improved business performance. Privately held with more than 2,600 employees, Altair is headquartered in Troy, Michigan, USA with more than 67 offices throughout 23 countries, and serves more than 5,000 corporate clients across broad industry segments. To learn more, please visit www.altair.com.

About CAR

The Center for Automotive Research is a non-profit organization based in Ann Arbor, Michigan. Its mission is to conduct research on significant issues related to the future direction of the global automotive industry, organize and conduct forums of value to the automotive community and foster industry relationships. For more information, visit the CAR website: www.cargroup.org.

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