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## Michigan Manufacturing Technology Center Leads Collaborative Unveiling of New Lightweight Frame for Specialty Cars at 2017 SEMA Show

Plymouth, Mich. — The [Michigan Manufacturing Technology Center](#) has announced plans to unveil newly engineered lightweight aftermarket frames at the 2017 SEMA Show in Las Vegas, Oct. 31-Nov. 3. Show attendees will be the first to see models of the lightweight alternative for replacing frames on nearly any specialty vehicle. Although not yet in production, this forward-looking engineering could give specialty car owners access to an affordable, stiffer and safer car frame option in the future.

The Center, a representative of the MEP National Network, collaborated with [Lightweight Innovations for Tomorrow](#), [The Institute for Advanced Composites Manufacturing Innovation](#) and the [University of Tennessee, Center for Industrial Services Institute for Public Service](#) to create the frame. “This process has been a tremendous example of the synergies among the Manufacturing Extension Partnership centers and the Manufacturing USA institutes,” said Mike Coast, President of the Michigan Manufacturing Technology Center. “The group demonstrated the design, engineering, manufacturing and commercialization possibilities that can be created through such partnerships. We chose to introduce these lightweight frames and this process at the SEMA Show as a way to gauge industry interest as we look to commercialize the design next year,” said Coast.

SEMA Show attendees can visit **booth 51734** to see a small-scale model of a C2 Corvette (1963 to 1967) lightweight alternative frame. Engineers chose the C2 Corvette as a baseline because of its popular body style and well-engineered original frame. Engineers involved with the project use morphing software to allow the lightweight frame to be configured to fit virtually any body width and length.

“The frame’s construction is not only strong and cost-efficient, it’s nearly 90 pounds lighter than the C2 Corvette baseline,” Gregg Peterson, Principle Materials Engineer, Michigan Manufacturing Technology Center embedded at LIFT. “We look forward to bringing this innovative design to specialty car manufacturers and restorers in the future and showcasing models to industry peers at SEMA this year.”

Although multiple lightweight materials are integrated into the frame’s design, the engineering and design team was able to keep the cost comparable to current production steel frames.

“Mixed materials are the future of the lightweighting industry, and we are thrilled to be working with IACMI, The Center and the University of Tennessee to bring a real-world application like this frame to fruition,” said Lawrence E. Brown, executive director, LIFT. “Collaborations among Manufacturing USA institutes and our MEP, academic and industry partners are critical to solve our lightweighting needs going forward.”

The C2 Corvette alternative lightweight frame is 150 percent stiffer in torsion and 450 percent stiffer in bending than the baseline C2 production frame. It requires no welding so the parent material is not weakened during assembly and allows for thinner section material, reducing material cost. The frame is joined using structural adhesives and mechanical fasteners; the adhesive bonds 100 percent of the flange which spreads the loads out over a larger area than a typical spot weld. This uniformly distributes the forces and reduces local stresses, meaning thinner wall materials, further reducing material weight and cost. The self-fixturing design also eliminates the need for jig fixtures.

To learn more about the lightweight aftermarket frames, visit:

[www.the-center.org/lightweight-frames](http://www.the-center.org/lightweight-frames).

### **About the Michigan Manufacturing Technology Center**

The Michigan Manufacturing Technology Center is an organization dedicated to supporting Michigan manufacturers to work smarter, to compete and to prosper. The Center offers personalized services to meet the needs of clients in virtually every aspect of their businesses. The Center's consulting services include: Growth, Cybersecurity, Operational Excellence, Leadership Development, Skill Development, Accelerating Technology, Research Services and Food Processing. Over the past year, 377 of The Center's clients achieved \$139.4 million in new sales, \$537.5 million in retained sales, \$70.7 million in cost savings, \$195.8 million investments made and 3,771 jobs created or retained. In effect, every \$1 a company spent with The Center returned \$106 back in financial improvements. The Center is affiliated with the National Institute of Standards and Technology (NIST) and is part of the Hollings Manufacturing Extension Partnership (MEP Program). The Center also is closely affiliated with the Michigan Economic Development Corporation (MEDC) with the shared goal of making Michigan businesses vibrant, driving GDP growth, and creating new and lasting jobs. For more information, visit [www.the-center.org](http://www.the-center.org).

### **About LIFT-Lightweight Innovations for Tomorrow**

LIFT is a Detroit-based, public-private partnership committed to the development and deployment of advanced lightweight metal manufacturing technologies, and implementing education and training initiatives to better prepare the workforce today and in the future. LIFT is one of the founding institutes of Manufacturing USA, and is funded in part by the Department of Defense with management through the Office of Naval Research. Visit [www.lift.technology](http://www.lift.technology) or follow us at @NewsfromLIFT to learn more.

### **About IACMI-The Composites Institute**

The Institute for Advanced Composites Manufacturing Innovation (IACMI), managed by the Collaborative Composite Solutions Corporation (CCS), is a partnership of industry, universities, national laboratories, and federal, state and local governments working together to benefit the nation's energy and economic security by sharing existing resources and co-investing to accelerate innovative research and development in the advanced composites field. CCS is a not-for-profit organization established by The University of Tennessee Research Foundation. The national Manufacturing USA institute is supported by a \$70 million commitment from the U.S. Department of Energy's Advanced Manufacturing Office, and over \$180 million committed from IACMI's partners. Find out more at [IACMI.org](http://IACMI.org).

### **About the University of Tennessee Center for Industrial Services**

The University of Tennessee Center for Industrial Services (UTCIS) helps companies and communities succeed, grow and create high quality jobs by providing consulting, training and connecting services across the state. Whether you want to improve productivity on the plant floor, comply with safety or environmental regulations, navigate the federal procurement process, introduce a new product or improve your economic development potential, UTCIS has the expertise to help you succeed.

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