



**FOR IMMEDIATE RELEASE:**

**May 15, 2017**

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## **LIFT to Investigate Technology Aimed at Automotive Frame Mass and Weight Reduction**

*Initiative seeks to demonstrate effectiveness of new method for extruding lightweight metallic tubing using friction stir welding rather than traditional extrusion press*

**DETROIT** – LIFT – Lightweight Innovations For Tomorrow, along with industry and research partners, has announced a new project to investigate the use of new friction stir extrusion processing technology to manufacture automotive frames.

Compared to the traditional extrusion press method in which a metal is forced through a die at a consistent speed and temperature, the new process is expected to drastically reduce the mass and weight of automotive frames.

Based on friction stir welding principles, in which the rotation of a tool generates heat and softens the workpiece to create a weld, friction stir extrusion technology includes a rotating rod, which stirs the material in a container and forces it between the rod and hollow die creating a tube.

Friction stir welding technology allows the formation of enhanced tubular structure with higher strength and ductility, which enable mass reduction of hydroformed vehicle structures by eliminating weld flanges, reducing wall thickness, and forming tubes with more efficient profiles.

Industry members working on the project include project lead Lockheed Martin, as well as Comau, and MTI. Research partners include: the University of Notre Dame; University of Michigan; University of Tennessee-Knoxville; the Ohio State University, Southwest Research Institute and Oakridge National Laboratory.

“The results of this project will have a major impact on the commercial and military transportation industry,” said Alan Taub, chief technology officer, LIFT. “By reducing the weight and cost of materials used in auto frame production land-based vehicles will be able to operate more efficiently,” added Taub.

In two phases, the project aims to demonstrate friction stir extruded tubing has improved corrosion-resistant properties over conventionally extruded tubing, and that friction stir extruded tubing can be representative of a production part for a commercial vehicle.

The project is expected to be completed in the Fall of 2018.

LIFT, one of the founding [Manufacturing USA](#) institutes, and a part of the National Network of Manufacturing Innovation program, is a Detroit-based public-private partnership dedicated to developing and deploying advanced lightweight metal manufacturing technologies, and implementing education and training programs to better prepare the workforce today and in the future.

#### **ABOUT LIFT**

*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 on Twitter [@NewsFromLIFT](https://twitter.com/NewsFromLIFT) to learn more.*