Department of the Navy SBIR/STTR Transition Program

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MCSC-PRR-4096

Topic # N162-079

Advanced composite materials for Energy Regeneration for Improved Vehicle Efficiency

Pacific Engineering, Inc

WHO

SYSCOM: MARCOR

Sponsoring Program: PM Ground Based Air Defense

Transition Target: Joint Light Tactical Vehicle (JLTV), Light-Marine Air Defense Integrated System (L-MADIS), Ultra Lightweight Tactical Vehicle (Polaris MRZR)

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Other transition opportunities: PEI composite technology can be applied to many DoD and Department of Homeland Security (DHS) programs, such as Department of the Army tactical vehicles.

Notes: ATV - All-Terrain Vehicle
GBAD - Ground Based Air Defense
JLTV - Joint Light Tactical Vehicle
L-MADIS - Light-Marine Aire Defense Integrated System
Polaris MRZR - MRZR is a designator and not an acronym

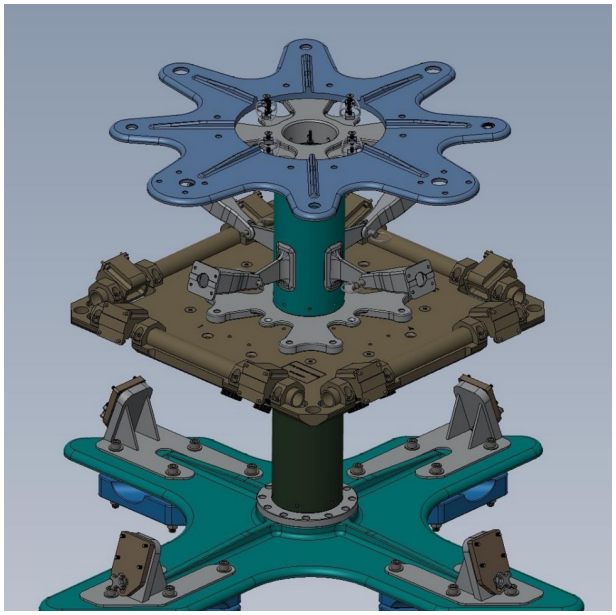

Image courtesy of Pacific Engineering Inc.

WHAT

Operational Need and Improvement: The primary goal of the SBIR Phase II project is to evaluate the Marine Corps Ground Based Air Defense (GBAD) systems to identify components that can be designed and manufactured using composites to reduce weight, lower the system center of gravity, and allow additional payloads to be integrated into the system without overloading the host vehicle.

Specifications Required: Reduce vehicle center of gravity, reduce vehicle weight, and increase vehicle range.

Technology Developed: Composite filament winding for various components using specific resin and fiber selections unique to meet all performance requirements.

Warfighter Value: Preliminary analysis shows a weight reduction by 50%, lowers the center of gravity, and removes the need for preservation due to the implementation of non-corrosive materials. Significant weight reduction from high in the vehicle allows for more payload carrying capability.

WHEN

Contract Number: M67854-20-C-6506 **Ending on:** June 27, 2022

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Composite Design and Verification		Lab Tested	4	2nd QTR FY22
Vehicle Integration		GBAD System Integration	5	2nd QTR FY22
Integrated Testing		Engineering Development Model Test	6	2nd QTR FY22

HOW

Projected Business Model: PEI has the in-house capability to build composite shafts, torsion bars, platforms, and enclosures and can transition products to the fleet. PEI will work with prime integrators for insertion of the products into their products which the various programs of record. PEI is working with integrators (now) as the technology is being developed. This approach increases the probability of a smooth transition.

Company Objectives: Find ways to reduce weight, increase range and payload, and lower the platform center of gravity to improve vehicle stability. Additionally, leverage other technology gains to provide an evolutionary approach to improving and introduction of products into the fleet.

Potential Commercial Applications: The commercial applications represent a large market. For example, All-terrain vehicles (ATVs), or commercial equivalent of the JLTV; army larger combat vehicles (like Bradley and its replacement). There is direct application of the roll bar technology for the farming industry.

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