



For Immediate Release

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Hydrogen Powered UAV Propulsion System Begins Testing in McMinnville

After successful preliminary operational tests, Northwest UAV (NWUAV) and the U.S. Naval Research Laboratory (NRL) are working on further developments towards a test flight of their hydrogen fuel cell propulsion system.

McMinnville, OR: Through a cooperative agreement, NWUAV and NRL have successfully completed a hydrogen fuel cell prototype designed specifically for the high power-to-weight ratio and harsh operational requirements of unmanned systems. After a successful first operational test, NWUAV and NRL plan further developments to their hydrogen fuel cell prototype, with a test flight slated for later this year.

“It is very gratifying to turn research sustained by the Office of Naval Research into a commercial product,” said Dr. Karen Swider-Lyons, Director of the Laboratory of Autonomous Systems Research at the U.S. Naval Research Laboratory. “With new manufacturing support from the Department of Defense Manufacturing Technology Program and a cooperative agreement we are creating a new generation of aerial propulsion technology that will greatly advance the capabilities of our warfighters.”



The Proton Exchange Membrane (PEM) Fuel Cell is compact, reliable, and lightweight. The PEM Fuel Cell creates electricity through the direct electrochemical process of turning hydrogen into water. This design allows for modularity and scalability to meet different power requirements of a broad range of unmanned systems. The PEM system pictured contains 48 cells and is rated for 1400 watts of continuous power. The high efficiency of fuel cells combined with the high

energy of hydrogen creates systems for long-endurance electric propulsion.

“This is the most advanced and efficient hydrogen fuel cell ever produced for unmanned systems applications,” explained Dr. Ben Gould of the U.S. Naval Research Laboratory’s Alternative Energy Section, Chemistry Division. “This particular design is based on a culmination of 15 years of research on



hydrogen fuel cells and dozens of flights on various unmanned aircraft. A stackable design is uniquely scalable and easily customizable to fit various propulsion requirements and can maximize power-to-weight ratio.”

The PEM Fuel Cell has successfully completed initial operations testing and continues development towards its first test flight later this year.

“The unmanned systems industry is rapidly evolving. Qualities like reliability, maintenance, operating cost, and efficiency are becoming increasingly significant to manufacturers and their end users,” explained Jeff Ratcliffe, NWUAV Chief Technical Officer. “Hydrogen fuel cells have very few moving parts resulting in high reliability and low maintenance. They promise the long endurance of an internal combustion system at the low operating costs of battery powered systems, creating a compelling value proposition for the unmanned systems industry.”

About Northwest UAV

As America’s leader in UAV propulsion system design and manufacturing, Northwest UAV is leading the way yet again, as America’s first one-stop-UAV Shop. With a reputation for reliable, cost effective, innovative UAV engine and support system solutions, NWUAV has developed into a company with the ability to design, manufacture, build-to-print, repair, ground test and flight test UAVs in their FAA designated airspace. Founded in 2005 by President and Owner Chris Harris, NWUAV continues to safely and effectively manage all aspects of product development, from initial concept design through production and flight testing and beyond to maintenance and overhauls. When reliability is key, count on the team at NWUAV. AS9100-D/ISO9001-2015 certified and DCAA compliant operation.

Find out more about NWUAV:



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About the U.S. Naval Research Laboratory

NRL is a scientific and engineering command dedicated to research that drives innovative advances for the U.S. Navy and Marine Corps from the seafloor to space and in the information domain. NRL is located in Washington, D.C. with major field sites in Stennis Space Center, Mississippi; Key West, Florida; Monterey, California, and employs approximately 2,500 civilian scientists, engineers and support personnel.

About the Office of the Secretary of Defense Manufacturing Science and Technology Program

The Office of the Secretary of Defense (OSD) Manufacturing Science and Technology Program (MSTP) within the OSD Manufacturing Technology Office is a research and development investment portfolio focused on a set of identified joint, defense-critical, and sometimes high risk manufacturing technology areas. The portfolio focuses on cross-cutting defense manufacturing needs - those that are beyond the ability of a single military Service to address - and stimulates the early development of manufacturing processes and enterprise business practices concurrent with science and technology development to achieve the largest cost-effective impact and facilitate the developments enabling capabilities to our Warfighters.