Boeing EDD Wins NASA Contracts for Advanced Electric Propulsion Technology

Boeing [NYSE:BA] has been awarded three new contracts under NASA's In-Space Propulsion Technologies program for the development of advanced xenon ion propulsion technologies.

NASA awarded the projects to Boeing Electronic Dynamic Devices, Inc., or EDD, located in Torrance, Calif., a leading provider of high reliability products to space and defense customers. The projects include the Carbon-Based Ion Optics project; the NASA Evolutionary Xenon Thruster system; and the High Power Electric Propulsion project.

The goal of the In-Space Propulsion Technologies program is to provide funding for the development of advanced propulsion technologies for use beyond Earth's orbit. These technologies will reduce trip times, mass, and/or cost associated with NASA science missions to the outer planets, satellites, small bodies, and other solar system destinations.

"EDD is proud to support NASA on this leading edge technology," said Chris Stephens, vice president and general manager. "These awards are a positive reflection on the dedication and capability of our engineering team and the investments we have made."

EDD will lead a team in the development of advanced Carbon-Based Ion Optics, or CBIO. These are the critical components of high-power gridded xenon ion thrusters that have a traditionally limited lifetime. A two-phase effort, the first phase entails a 16-month effort to design, fabricate and test ion optics made from carbon-carbon composites and pyrolytic graphite. The CBIO project also includes the development and validation of an Ion Optics Lifetime Computer Model to predict the performance and lifetime of candidate grid designs.

The second phase is a 12 1/2-month extension period to develop and test carbon based ion optics designs for possible use on the next generation ion engine. EDD is teamed with the Jet Propulsion Laboratory (JPL) and NASA Glenn Research Center on the CBIO Project.

EDD also was awarded a contract to support NASA Glenn Research Center on the NASA Evolutionary Xenon Thruster system, or NEXT. The NEXT project is also a two-phase effort to develop a next generation high power ion propulsion system for new space science missions. The first phase is a one-year effort to design, build and test initial Ion Thrusters, Propellant Systems and Power Processing Units. EDD has sole responsibility for the design and development of the power processing units as well as being a member of the thruster and propellant system team. The second phase is a 2 1/2-year option to complete hardware development, integrate the components into a full-scale system and perform thruster wear tests.

The third award named EDD as a member of the NASA Glenn Research Center team for the High Power Electric Propulsion project. This program will develop and test technologies for high specific impulse, 25 to 30 kilowatt, gridded xenon ion thrusters, two-stage Hall thrusters, power processing units and propellant control systems. EDD will perform the power processing unit design and analysis for the project system and participate in the thruster and propellant system technologies.

The designs that will be developed and demonstrated on these three programs over the next 2 1/2-years are the critical technologies needed for development of very high power (100kW to 250kW) nuclear electric propulsion systems for NASA's future deep space missions.

"Participation in these exciting new programs will allow EDD to assist NASA in the development new electric propulsion products with significant performance improvements," said Andrew King, Electric Propulsion product line director at EDD. "These next generation products will enable NASA to perform further exploration of the solar system."

A unit of The Boeing Company, Boeing Integrated Defense Systems is one of the world's largest space and defense businesses. Headquartered in St. Louis, Boeing Integrated Defense Systems is a $25 billion business. It provides systems solutions to its global military, government and commercial customers. It is a leading provider of intelligence, surveillance and reconnaissance; the world's largest military aircraft manufacturer; the world's largest satellite manufacturer and a leading provider of space-based communications; the primary systems integrator for U.S. missile defense; NASA's largest contractor; and a global leader in launch services.

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