

## **Mitsubishi Heavy Industries and Boeing Complete MB-XX Cryogenic Upper Stage Rocket Engine Thrust Chamber Assembly Test Program**

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Mitsubishi Heavy Industries, Ltd (MHI) and the Rocketdyne Propulsion & Power unit of The Boeing Company (NYSE: BA) have successfully completed the preliminary MB-XX full-scale Combustion Chamber / Injector Assembly test program.

Flight-like hardware was tested at the MHI Tashiro Test Facility in Japan at full operating pressure and temperatures in multiple test series conducted over a two-year period. Key performance parameters, heat loads, combustion stability and hardware durability was verified.

"Validation of MB-XX combustion chamber and injector design is a major development milestone and helps solidly position our team as a leading supplier for the next-generation upper stage engine," said Byron Wood, vice president and general manager for Boeing Rocketdyne. "The MB-XX program is a major business initiative for Boeing and MHI and represents a significant commitment by both companies to the future of rocket propulsion."

"The successful Boeing-MHI MB-XX cryogenic upper stage engine team is a good example of an excellent Boeing-MHI working relationship," said Junichi Maezawa, general manager for MHI Aerospace Headquarters. "Completion of MB-XX thrust chamber assembly testing represents significant progress in the development of the MB-XX engine".

The team of MHI and Boeing Rocketdyne has been commercially developing the MB-XX since 1999 in response to future upper stage engine requirements. The MB-XX will provide improved reliability, operating margins and performance over existing upper stage engines. The MB-XX design features proven and reliable technology drawn from Boeing Rocketdyne's and MHI's combined decades of propulsion development and innovation, including industry leadership in the use of leading-edge engineering tools.

Rocketdyne Propulsion & Power is a unit of Boeing Integrated Defense Systems (IDS). Boeing IDS is one of the world's largest space and defense businesses. Headquartered in St. Louis, Boeing Integrated Defense Systems is a \$23 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.

Mitsubishi Heavy Industries, Ltd. (MHI), headquartered in Tokyo, Japan, is one of the world's leading global heavy machinery manufacturers, with fiscal 2001 (ended March 31, 2002) consolidated sales of 2,864 billion yen (\$21.5 billion). MHI's diverse line-up of products and services encompasses shipbuilding, steel structures, power plants, chemical plants, steel plants, environmental equipment, machinery for industrial and general use, aircraft, space rocketry, forklift trucks, engines and air-conditioning systems.

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