Boeing-led Team Extends Reach of Space Station Robotic Arm

The International Space Station's robotic arm gets added reach when space shuttle Endeavour delivers the Mobile Base System (MBS) to the orbital outpost later this month.

Boeing [NYSE: BA], through its Human Space Flight & Exploration unit, is NASA's prime contractor for the International Space Station and responsible for design, operation, integration and assembly of the orbital outpost. The company is also responsible for integrating items such as the MBS, built by MD robotics of Canada, with the space station. Integration includes assembling, testing and verifying that different systems are compatible and can work together in space.

The MBS allows the space station's robotic arm to aid in space station construction by riding on the truss system's railcar or Mobile Transporter System (MTS). The MBS also has provisions for storing tools and construction materials along with being a work platform for astronauts.

"Boeing makes sure everything works well together as a system on the space station, no matter who builds the component or sub-system," said Juan L. Carreras, Boeing Mobile Transporter System manager. "The Mobile Base System is a great example of the international partnership between the United States and Canada."

Astronauts will make three spacewalks during Endeavour's mission to install and test the MBS. The space station crew will then move the station's arm to the MBS before the arrival of space shuttle Atlantis in August. The space station arm is required for the installation of the Boeing-built S1 (starboard one) truss segment that will be attached during Atlantis' mission. The arm will also be needed for subsequent missions to install truss segments and to perform maintenance and resupply tasks.

The MBS is the work platform of the Mobile Servicing System (MSS), which also consists of the MTS and the space station's robotic arm. The MBS has four grapple fixtures and two attach systems where payloads are carried. The station arm is designed to grapple and perform robotic operations from any of the MBS grapple fixtures.

MD Robotics, a MacDonald Dettwiler and Associates subsidiary, wrote the software and built the MBS in Brampton, Ontario. Initial testing and integration with the MTS also took place in Brampton. The MBS arrived at Kennedy Space Center, Fla., during summer 2000 for further integration work and processing for space flight by Boeing.

Mobile Base System statistics:

- Weight: 3196.7 lbs. (1,450 kg.)
- Dimensions: 18.7 feet by 14.7 feet by 9.5 feet (5.7 m by 4.5 m by 2.9 m)
- Mass handling capability: 46,077 lbs. (20,900 kg)
- Construction: Primarily aluminum

Boeing Space and Communications (S&C), headquartered in Seal Beach, Calif., is the world's largest space and communications company. A unit of The Boeing Company, S&C provides integrated solutions in launch services, human space flight and exploration, missile defense, and information and communications. It is NASA's largest contractor; a leading provider of space-based communications; the primary systems integrator for U.S. missile defense; and a leading provider of intelligence, surveillance and reconnaissance. The global enterprise has customers worldwide and manufacturing operations throughout the United States and Australia.

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