



Northrop Grumman, ATK Complete Testing of Backplane for NASA's James Webb Space Telescope

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ATK's delivery of the completed backplane support structure to Northrop Grumman marks a critical path program milestone

REDONDO BEACH, Calif., July 8, 2014 /PRNewswire/ -- Northrop Grumman Corporation (NYSE: NOC) and teammate ATK (NYSE: ATK) have completed static testing of the primary mirror backplane support structure (PMBSS), moving NASA's James Webb Space Telescope one step closer to its 2018 launch. The structure was delivered to Northrop Grumman's facilities in Redondo Beach, completing a critical path program milestone. Static testing demonstrates that the backplane has the structural integrity to withstand the forces and vibrations of launch, and is the final test prior to starting the integration of the backplane with the rest of the telescope.

NORTHROP GRUMMAN

Photos accompanying this release are available at <http://media.globenewswire.com/noc/mediagallery.html?pkgid=26352>.

The PMBSS is one of the most lightweight (given its size and complexity), precision-alignment truss structures ever designed and built. It is the stable platform that holds the telescope's science instruments and the 18 beryllium mirror-segments that form the 21-foot-diameter primary mirror nearly motionless while the telescope peers into deep space. The primary mirror is the largest mirror in the telescope, the one that starlight will hit first.

"This is the largest, most complex cryogenically stable structure humans have ever built," said Scott Texter, Webb optical telescope element manager, Northrop Grumman. "Completion of the static testing verifies that it can hold the weight it is designed to hold. Now the structural backbone of the observatory is officially verified and ready for integration."

Northrop Grumman is under contract to NASA's Goddard Space Flight Center in Greenbelt, Maryland, and leads the industry team that designs and develops the Webb Telescope's optics, sunshield and spacecraft. ATK designed, engineered and constructed the more than 10,000 parts of the entire PMBSS at its facilities in Magna, Utah. They used composite parts, lightweight graphite materials, contemporary material sciences and advanced fabrication techniques to build the structure.

"We are excited to deliver the state-of-the-art Webb structures to our partner Northrop Grumman for the journey into deep space," said David Shanahan, vice president and general manager of ATK's Space Components division. "ATK's composite engineering and manufacturing accomplishments have been a fantastic achievement for all of us. We look forward to the discoveries that await the James Webb Space Telescope."

The highly efficient PMBSS will meet unprecedented thermal stability requirements to minimize changes in the shape of the telescope caused when one side is hotter than the other. While the telescope is operating at a range of extremely cold temperatures from -406 to -343 degrees Fahrenheit, the backplane must not move more than 38 nanometers or approximately 1/1,000 the diameter of a human hair.

Last fall, the structure underwent extreme cryogenic thermal testing at Marshall Space Flight Center in Huntsville, Alabama. Next, Northrop Grumman will integrate the composite structures with the deployment mechanisms to create the overall optical telescope element structure, which will then be shipped to NASA Goddard for integration with the mirrors. NASA and Northrop Grumman will continue cryogenic testing of the PMBSS structure after mirror integration is complete.

The James Webb Space Telescope is the world's next-generation space observatory and successor to the Hubble Space Telescope. The most powerful space telescope ever built, the Webb Telescope will observe the most distant objects in the universe, provide images of the first galaxies formed and see unexplored planets around distant stars. The Webb Telescope is a joint project of NASA, the European Space Agency and the Canadian Space Agency.

About ATK

ATK is an aerospace, defense and commercial products company with operations in 22 states, Puerto Rico and internationally. News and information can be found on the Internet at www.atk.com, on Facebook at www.facebook.com/atk, or on Twitter @ATK.

About Northrop Grumman

Northrop Grumman is a leading global security company providing innovative systems, products and solutions in unmanned systems, cyber, C4ISR, and logistics and modernization to government and commercial customers worldwide. Please visit www.northropgrumman.com for more information.

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