

## **Ball Aerospace/NASA Achieve Key Technology Milestone for James Webb Space Telescope**

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A team of engineers from Ball Aerospace & Technologies Corp. and NASA have successfully met the criteria needed to demonstrate Technology Readiness Level 6 (TRL-6) for the Wavefront Sensing and Control for the James Webb Space Telescope, a measure used by NASA to assess the maturity of evolving technologies.

(Photo: <http://www.newscom.com/cgi-bin/prnh/20070111/LATH081>)

The Ball Aerospace-built one-meter James Webb Space Telescope Testbed, designed to mature the telescope's critical subsystems and reduce risk, was used to demonstrate the critical end-to-end Wavefront Sensing and Control (WFS&C) process. A TRL-6 level rating means a system has been tested successfully in a relevant operational environment. This milestone proves the maturity of sophisticated image process and control software that will be needed to bring JWST into alignment following launch.

Ball Aerospace is the principal optical subcontractor for the JWST program, led by prime contractor Northrop Grumman Space Technology, under a contract from the NASA Goddard Space Flight Center, in Greenbelt, MD. The software and algorithm technology that achieved this major milestone was developed by a team of engineers from Ball Aerospace, NASA's Goddard Space Flight Center, and the Jet Propulsion Laboratory.

The size of the JWST telescope requires that it be launched in a stowed or folded configuration and unfolded following space deployment. As a result, the primary and secondary mirrors will be aligned on orbit, making the accuracy of JWST's WFS&C all the more critical. Once on orbit, imagery from a science camera aboard JWST is down-linked to Earth, where algorithms determine the optimal positions for the 19-mirror segments (18 primary mirror segments plus the secondary mirror). Resultant commands are then up-linked to phase the telescope.

"The same technological ingenuity Ball Aerospace applied to correcting the Hubble Space Telescope's primary mirror in 2002 is being applied to advancing the optics for the JWST observatory," said David L. Taylor, president and chief executive officer of Ball Aerospace & Technologies Corp.

The 6.6-meter JWST is designed to study infrared light from objects that formed in the beginning of the universe. It will be the first civilian space-based observatory to use an actively controlled, segmented mirror architecture when launched in 2013. The primary mirror segment assembly passed the milestone necessary to demonstrate Technology Readiness Review (TRL) 6 in 2006.

Ball Aerospace celebrated its 50th year in business in 2006. The company began building pointing controls for military rockets in 1956, and later won a contract to build one of NASA's first spacecraft, the Orbiting Solar Observatory. Over the years, the company has been responsible for numerous technological and scientific 'firsts' and now acts as a technology innovator for important national missions.

Ball Corporation is a supplier of high-quality metal and plastic packaging products and owns Ball Aerospace & Technologies Corp. Ball reported 2005 sales of \$5.8 billion and employs 15,600 people.

### Forward-Looking Statements

This release contains "forward-looking" statements concerning future events and financial performance. Words such as "expects," "anticipates," "estimates" and similar expressions are intended to identify forward-looking statements. Such statements are subject to risks and uncertainties which could cause actual results to differ materially from those expressed or implied. The company undertakes no obligation to publicly update or revise any forward-looking statements, whether as a result of new information, future events or otherwise. Key risks and uncertainties are summarized in filings with the Securities and Exchange Commission, including Exhibit 99.2 in our Form 10-K, which are available at our Web site and at [www.sec.gov](http://www.sec.gov). Factors that might affect our packaging segments include fluctuation in consumer and customer demand and preferences; availability and cost of raw materials, including recent significant increases in resin, steel, aluminum and energy costs, and the ability to pass such increases on to customers; competitive packaging availability, pricing and substitution; changes in climate and weather; fruit, vegetable and fishing yields; industry productive capacity and competitive activity; failure to achieve anticipated productivity improvements or production cost reductions, including those associated with our beverage can end project; the German mandatory deposit or other restrictive packaging laws; changes in major customer or supplier contracts or loss of a major customer or supplier; changes in foreign exchange rates, tax rates and activities of foreign subsidiaries; the effect of LIFO

accounting; and any changes to such accounting. Factors that might affect our aerospace segment include: funding, authorization, availability and returns of government and commercial contracts; and delays, extensions and technical uncertainties affecting segment contracts. Factors that might affect the company as a whole include those listed plus: accounting changes; successful or unsuccessful acquisitions, joint ventures or divestitures; integration of recently acquired businesses; regulatory action or laws including tax, environmental and workplace safety; governmental investigations; technological developments and innovations; goodwill impairment; antitrust, patent and other litigation; strikes; labor cost changes; rates of return projected and earned on assets of the company's defined benefit retirement plans; pension changes; reduced cash flow; interest rates affecting our debt; and changes to unaudited results due to statutory audits or other effects.

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