Alliance Spacesystems Scores Hat Trick with Phoenix Robotic Arm

Now Three Robotic Arms Are Operating on Mars, All Courtesy of Alliance Spacesystems

June 2, 2008 – Successfully deployed and digging on Mars, the robotic arm on NASA's Phoenix lander becomes the third such robotic device from Alliance Spacesystems now operating on the Red Planet.

Alliance Spacesystems, LLC, an MDA company located in Pasadena, California, designed, developed and constructed the robotic arms on the newly landed Phoenix mission. Alliance Spacesystems previously delivered the robotic arms on the long-lived Mars Exploration Rovers, Spirit and Opportunity, now in their fourth years of operation.

"With three robotic arms operating on Mars, we've accomplished a unique achievement in the space robotics industry," said Alliance Spacesystems president René Fradet.

The lander successfully touched down on Mars May 25. The three-month mission seeks new clues to the history of water on Mars and whether the environment was ever conducive to life.

Phoenix's robotic arm works like a mini-backhoe and was designed by Alliance to dig a two-foot (60-centimeter) deep trench in the tundra-like crust of Mars' north-polar region. It is the key device for feeding samples to onboard instruments for scientific analysis. The camera mounted on the arm is providing unique views under and around the lander, and is ultimately designed to show layers in the trench wall.

Strong and agile, the arm's business end has a scoop about the size of a garden trowel. The arm is endowed with a long reach (7.5 feet or 2.3 meters) and four degrees-of-freedom. The aluminum and titanium device weighs less than 22 pounds (9.7 kg).

The arm was delivered to NASA's Jet Propulsion Laboratory (JPL), Pasadena, Calif., in April 2006, and the spacecraft was launched in August 2007.

It is the first trenching device to visit Mars since Viking in 1976 and has a very different capability than the robotic arms on Spirit and Opportunity, which were designed primarily for precise positioning of scientific instruments. Alliance is currently developing another Mars-bound robotic system -- a highly capable 2-meter long robotic arm with five flexible joints for NASA's Mars Science Laboratory, planned for launch in 2009.

For more information on the Phoenix mission, see http http://www.nasa.gov/phoenix and http://phoenix.lpl.arizona.edu. Alliance Spacesystems, LLC, an MDA company, provides customers with world-class aerospace engineering expertise in a small, customer-focused business environment. In addition to robotic arms, the company is a leading provider of mechanical systems engineering, custom design and fabrication in composites structures, robotics and mechanisms, and mechanical analyses for systems operating in extreme environments. Alliance Spacesystems' innovative products are in use on interplanetary spacecraft, telecommunications and scientific satellites and in many challenging terrestrial applications.

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