# Lockheed Martin-Built Phoenix Mars Lander Primed For Landing At The Red Planet

PRNewswire-FirstCall
DENVER

As the Phoenix Mars Lander nears its final destination -- the planet Mars -- Lockheed Martin and NASA's Jet Propulsion Laboratory are in final preparations to land the spacecraft on the surface. Phoenix was launched aboard a United Launch Alliance Delta II rocket on Aug. 4, 2007. Nine-and-a-half months later on Sunday, May 25, the robotic spacecraft will go through a multi-stage transformation from a 1,460-pound capsule to a 770-pound lander, and attempt to land on the high northern planes of Mars at 68 degrees north latitude.

Lockheed Martin Space Systems Company designed and built the Phoenix spacecraft for NASA, and has been controlling the spacecraft's flight operations from the company's Mission Support Area near Denver, Colo. The Denver flight team works seamlessly with the navigation and mission management team at JPL, Pasadena, Calif.

"Phoenix has performed extremely well over the past nine months. We've had a nearly flawless cruise which has given the spacecraft team time to prepare, train and test for landing day. We know once we get there our work supporting the surface science team has just begun," said Ed Sedivy, Lockheed Martin's Phoenix program manager.

The mission, valued at $420 million, includes the spacecraft development, science instruments, the Delta II launch vehicle, mission operations and science operations. The University of Arizona leads this first Mars Scout mission for NASA from its Lunar and Planetary Laboratory in Tucson. Most of the scientific study for the mission will be performed out of the university's Science Operations Center.

"Principal investigator-lead missions such as Phoenix are very exciting. Back when we bid this mission with the University of Arizona and JPL, we knew it had inherent risk. We also knew the potential rewards could far out weigh these risks," said Jim Crocker, vice president of Sensing & Exploration Systems at Lockheed Martin Space Systems Company. "Phoenix is going to be a superb addition to the fleet of spacecraft that are revealing the mysteries of our neighboring planet. I can't wait to see what discoveries it will dig up."

Before the science can begin, the spacecraft has to go through a nerve-racking seven minute descent onto the surface of Mars -- a task that has produced some failures in the past. "Designing a spacecraft to autonomously land on Mars is probably the hardest things we do in robotic planetary exploration. Phoenix takes it up a notch by using descent thrusters during the final 37 seconds before touchdown. The last time the United States did this successfully was in 1976 with the powered-landing of the twin Lockheed Martin-built Viking landers," said Sedivy.

Two NASA orbiters, Mars Reconnaissance Orbiter and 2001 Mars Odyssey are playing major roles in getting Phoenix safely to the ground. Odyssey will provide the communications data link between Phoenix and Earth throughout the entire entry, descent and landing phase. This data will provide an important insight into the performance and health of Phoenix on its way to the surface. MRO's powerful HiRISE camera took unprecedented high-resolution images of multiple landing site options. The images gave analysts a preview of the potential landing sites, allowing them to determine which area was the least risky. MRO will also receive Phoenix data during its journey to the surface, but the orbiter will record the data and send it back to Earth at a later time. Both MRO and Odyssey spacecraft were built by Lockheed Martin and both are operated for JPL by the company.

Lockheed Martin Space Systems Company, a major operating unit of Lockheed Martin Corporation, designs, develops, tests, manufactures and operates a full spectrum of advanced-technology systems for national security, civil and commercial customers. Chief products include human space flight systems; a full range of remote sensing, navigation, meteorological and communications satellites and instruments; space observatories and interplanetary spacecraft; laser radar; fleet ballistic missiles; and missile defense systems.

Headquartered in Bethesda, Md., Lockheed Martin employs about 140,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services. The Corporation reported 2007 sales of $41.9 billion.

NOTE TO EDITORS: Photographs of Phoenix being built and tested at Lockheed Martin's facilities

are available at: http://www.lockheedmartin.com/phoenix

MEDIA CONTACT:
Gary Napier, Lockheed Martin Space Systems Company; (303) 971-4012;
gary.p.napier@lmco.com

First Call Analyst:
FCMN Contact:

SOURCE: Lockheed Martin

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