

Rockets vie in simulated lunar landing contest

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This image provided by the X Prize Foundation shows a rocket built by Armadillo Aerospace fueling up in the Northrop Grumman Lunar Lander Challenge at Caddo Mills, Texas, Saturday Sept. 12, 2009. The rocket qualified for a \$1 million prize with flights from a launch pad to a landing pad with a simulated lunar surface and then back to the starting point. The craft had to rise to a certain height and stay aloft for 180 seconds on each flight. The challenge is funded by NASA and presented by the X Prize Foundation.(AP Photo/X Prize Foundation, Willaim Pomerantz)

(AP) -- A privately built rocket vying for NASA prize money lifted off in the Mojave Desert and flew half of a simulated lunar lander mission Wednesday before an engine problem forced its developers to call off the attempt until next month.



The flight of Masten Space Systems' unmanned "Xombie" at Mojave Air and Space Port comes just days after another competitor, Armadillo Aerospace, qualified for the \$1 million top prize with two flights in Texas.

The Northrop Grumman Lunar Lander Challenge is funded by NASA and presented by the X Prize Foundation, the group behind the \$10 million <u>competition</u> won in 2004 by SpaceShipOne, the first privately developed manned <u>rocket</u> to reach space and prototype for a fleet of space tourism rockets.

The remotely controlled Xombie is competing for second-place in the first level of the competition, which requires a flight from one pad to another and back within two hours and 15 minutes. Each flight must rise 164 feet and last 90 seconds. How close the rocket lands to the pad's center is also a factor.

Level 2 requires 180-second flights and a rocky moonlike landing pad. The energy used is equivalent to that needed for a real descent from lunar orbit to the surface of the <u>moon</u> and a return to orbit, said Peter Diamandis, founder of the X Prize.

The Xombie made one 93-second flight and landed within 8 inches of the pad's center, according to Tom Dietz, a competition spokesman.

David Masten, president and chief executive of Masten Space Systems, said the first leg of the flight was perfect but an internal engine leak was detected during an inspection before the return flight.

"We saw a little bit of an issue ... in the engine and decided that the engine probably would not survive through another 90-second flight," he said.



The problem had occurred previously, usually after three or four engine firings, but was believed to have been fixed. Masten said the engine had been through a dozen firings without problems prior to Wednesday.

Masten nonetheless considered the flight a success.

"Other than that engine problem the vehicle was very well behaved," he said.

The rockets in the lander competition look like plumber's playthings - all pipes and tanks without the sleek fairings, fancy paint and decals seen on launch vehicles that carry satellites into orbit.

"If a rocket doesn't look like a flying propellant tank it's actually not a very efficient rocket," said John Carmack, the Armadillo Aerospace founder whose "Scorpius" rocket holds the lead in the lander challenge.

On Sept. 12, the Scorpius successfully made two flights in the Level 2 competition and will win the \$1 million top prize if no other contender does better.

Last year, Armadillo won first place and \$350,000 in the Level 1 competition.

In early October, Masten will try again to win the Level 1 second-place prize of \$150,000 and, if possible, try to outdo Armadillo's performance in Level 2.

Still to be heard from is a team that calls itself Unreasonable Rocket. It and any other contenders have until Oct. 31 to attempt flights.

Diamandis said it remains a competition despite Armadillo's lead.



"I think that Armadillo has a number of years ahead of Masten and other companies in terms of their development, but it's not over till it's over," he said.

The real winners, he said, will be the public and NASA, which will have new technologies and development strategies to choose from.

"We're seeing the Apple and Microsoft of the rocket generation being developed right now," he said. "You have to remember these are companies that are building these rocket vehicles with a half a dozen people for pennies on the dollar."

Northrop Grumman is providing operational funding for the competition.

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