

Critics Say NASA's New Rocket Ares, Which is to Take Astronauts to the Moon, is Flawed

Ares is supposed to take astronauts to the moon, but early reports raise concerns

Orlando Sentinel Exclusive

February 6, 2008

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CAPE CANAVERAL

The rocket that NASA is betting on to return humans to space after the space shuttle retires is in trouble.

Assailed by a loud chorus of critics, hobbled by a lack of money and beset by technical problems, the Ares I launch vehicle is suffering from a growing perception that it is another NASA project that will never get off the ground.

In particular, some critics have urged that NASA ditch the untested Ares, a so-called "stick" rocket powered by five segments of the solid rocket boosters used on the shuttle, in favor of the Atlas V401, which is already used by the military and CIA to reliably launch spy satellites into orbit.

Their arguments got a big boost Tuesday when a private startup space company, Bigelow Aerospace, announced that it is pursuing plans to use the Atlas V to put humans into space by 2012, three years before NASA plans to send its first manned Ares flight into low Earth orbit.

According to Bigelow spokesman Chris Reed, if everything goes according to plan, the company will launch 12 manned and unmanned missions from Cape Canaveral in 2012 to build an orbiting hotel from inflatable modules and fly space tourists to it.

NASA argues that the Atlas V as it stands is not robust enough to lift its 25-ton Orion crew capsule into space. Nonetheless, the news that entrepreneurs intend to employ an off-the-shelf rocket -- one that NASA rejected as being too expensive and unsafe to modify for its purposes -- was immediately seized on by Ares I critics.

James Muncy, a Virginia-based space-policy consultant, said Bigelow's move means that commercial operators are going to be putting people into orbit years before NASA finishes developing Ares I.

"That's great news for Americans worried about a gap in human spaceflight, but it could undercut some of the rationale for NASA's rocket plans." The announcement came at a critical time for the Ares I, which NASA is developing at its Marshall Space Flight Center in Huntsville, Ala. The rocket is the heart of the Constellation program, which is supposed to also build a new Orion crew capsule that will get astronauts back to the moon by 2020.

Congress is monitoring reports that tests show the rocket would shake so much during liftoff that it would be unsafe for astronauts. This "oscillation" is apparently caused by vibrations of its multiple solid rocket boosters that combine into a potentially deadly shaking.

And some senior officials inside NASA say privately that the oscillation is just one of many problems with Ares I; the others have yet to make the news.

Meanwhile, top space scientists and exploration advocates are preparing for a conference at Stanford University next week to question whether Constellation is on the right track.

Ares' biggest champion, NASA Administrator Michael Griffin, has dismissed reports about the rocket's vibrations and other technical difficulties as nothing more than the normal engineering problems encountered when designing new rockets.

"I've rarely seen more of a mountain made out of less of a molehill," he told the Space Transportation Association in Washington, D.C., last month.

But dissenting engineers and scientists -- many of whom have opposed the Ares project from Day One -- are unmoved by Griffin's arguments and are lobbying presidential candidates hard to abandon Ares if they get into the White House.

Space-policy experts say that there are currently two to four Atlas V launches a year. If Bigelow's deal goes through, the increased number of launches could drastically lower per-launch costs and change the price structure of the U.S. commercial-launch market. Atlas V is made by United Launch Alliance, a joint venture of Lockheed Martin and Boeing Co.

Robert T. Bigelow, the founder of the Budget Suites of America hotel chain, has committed \$500 million of his own money toward building a commercial space station by 2015.

In 2006 and 2007, his company launched into orbit two unmanned blimplike pods -- called Genesis 1 and Genesis 2 -- using Dnepr boosters from Russia's Kosmotras Yasny Cosmodrome. The company went to Lockheed last year looking to lower its costs.

"I don't think anyone could deny the excellent record and pedigree of the Atlas V401 as a quality choice to be upgraded to carry human passengers," Bigelow said Tuesday.

David Markham, president of Lockheed Martin Commercial Launch Services, added that: "The Atlas V is ideal to provide commercial crew and cargo transportation for this pioneering commercial space venture."

Still, much remains to be done before the deal is a reality.

Bigelow has yet to build a crew capsule capable of taking tourists into space. And Lockheed needs to modify its rocket -- which until now has lifted only satellites and robots -- to be able to carry people.

But Lockheed insists its studies, including one done in 2004 for NASA, show that the Atlas V can be fitted with the necessary escape systems and safety devices at a modest cost.

NASA considered, and rejected, the use of Atlas V to replace the space shuttle, which is scheduled to be retired in 2010. The agency concluded that modifying the rocket to carry the heavy Orion crew capsule into space would be more costly and less safe than the Ares design.

Experts expect that the capsule Bigelow will end up using will be much smaller and lighter than Orion.

NASA officials say the agency does not see the private sector's use of Atlas V as either a condemnation of Ares or a threat. Griffin has, in fact, welcomed Bigelow's efforts.

In his speech last month defending Ares, he said that if a private company can lift humans into low Earth orbit, NASA will adjust its plans and use Ares primarily to get to the moon. But senior NASA officials acknowledge that the political support for the Constellation program is fragile. Its budgeted cost is \$26.3 billion between 2009 and 2013 -- including \$7.5 billion for Ares I -- and money is increasingly hard to come by.

That means Ares is vulnerable.

One former NASA official said the rocket faces the perception problems that have dogged NASA throughout its history. Politicians and the public are skeptical the agency can complete its program on time and on budget, said the former official, who asked not to be named.

News of the oscillation woes, "kind of shook the program," he said. "It's a horrible pun, but it's true. It really didn't help the public-relations side of things."

The developments are worrying John Logsdon, the director of the Space Policy Institute at George Washington University, who is concerned that the criticism of Ares I -- some legitimate, some driven by ego and profit -- could end up destroying Constellation and with it the first new vision of space exploration in 35 years.

"It's not a bad plan," he said, "We just need to adjust it some."