

# News – NASA lunar mission gets off the ground

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By Howard Witt

Chicago Tribune

CLEVELAND – With its heavy cranes, arc welders and steel rolling machines, the nondescript metalworking shop in a hangar hard by the runways at Cleveland's Hopkins Airport looks like countless other industrial factories in this rustiest of Rust Belt cities.

But there's no mistaking the distinctive, white–painted, 5–ton steel cylinder, 6 feet high and 18 feet across, that rests in the center of the shop floor. It's a segment of a rocket, the first piece of a prototype for America's newest launch vehicle – a rocket that is to take astronauts back to the moon.

Swiftly, aggressively and largely unnoticed by the rest of the nation, NASA has begun its next great manned spaceflight mission, the one that is scheduled to revisit the moon by 2020 and establish a long–term outpost there to serve as a stepping stone for an even bolder human journey to Mars.

Here at NASA's Glenn Research Center and others across the country, a new crew capsule is under development, new rocket engines are being designed and new moon rovers are being created. The first test flight of the new rocket is set to launch in just 30 months.

It has been more than a generation since America first lofted humans to the moon and the nation's space agency had a mission capable of capturing the public's imagination as the Apollo program did. But for most Americans younger than 35, NASA has stood for little more than a balky and dangerous space truck flying back and forth to a half–built space station that methodically circles Earth every 90 minutes.

The National Aeronautics and Space Administration is still committed to flying the aging shuttles until their scheduled retirement in 2010 so

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that construction on the long–delayed international space station can be completed. But the real passion at the agency these days is the Constellation program to return astronauts to the moon, a goal set by President Bush in 2004 and given its initial funding by Congress a year later. About 10 percent of the space agency's current budget, or \$1.7 billion, and an estimated 20 percent of its brainpower are now devoted to the Constellation program.

"This is where the excitement is," said Tony Lavoie, manager of the Lunar Precursor and Robotic Program at NASA's Marshall Space Flight Center in Alabama. "This is where the best minds in NASA want to be."

The project is moving remarkably fast, in part because it borrows from designs and concepts proven during the Apollo and space shuttle programs.

NASA has already determined, for example, that the new Orion crew capsule, due to be flown for the first time by around 2012, will look a lot like its Apollo predecessor, although it will be larger to accommodate as many as six astronauts instead of three. The Ares rocket that will launch it resembles one of the solid rocket boosters used to launch the shuttle.

A second, larger cargo launch rocket, which will take aloft a new lunar lander that will mate with the Orion capsule in Earth orbit before heading on to the moon, is about the size of the Saturn V rockets of the Apollo era but will make use of two shuttle–type solid rocket boosters strapped on either side.

The main contract to build the crew capsule was awarded in August to Lockheed Martin Corp., and astronauts are working with prototypes at Houston's Johnson Space Center.

But despite the resemblance of some components to earlier missions, Constellation is something very new – a program not merely to revisit the moon but to establish a long–term, self–sustaining base there where NASA can learn what it will take to send humans on even more dangerous, years–long missions to Mars.

"We're not going to the moon just to do footprints again," said Tom Sutliff, a manager at the Glenn Research Center in Cleveland. "We're going to live off the land. It's much, much more than Apollo."

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