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SpaceX's first crewed flight is a go

Social distancing measures will allow the test mission to launch as planned

Leah Crane

DESPITE the coronavirus pandemic, NASA and SpaceX are gearing up for a historic flight. On 27 May, the US space agency and the private space-flight firm plan to launch astronauts from the US for the first time since the last space shuttle flight in 2011 – a key step towards revisiting the moon.

In press conferences on 1 May, NASA and SpaceX shared details about the upcoming flight, which will be the first time astronauts go to space on a commercial craft.

Nearly everything about this mission is new, including the touchscreen-laden Crew Dragon spacecraft built by SpaceX, the

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Lunar lander concepts were chosen by NASA for future missions

sleek white spacesuits and the life support systems. It will also be led from mission control rooms that have been reorganised so that the desks are 2 metres apart from one another to allow the support staff to maintain coronavirus social distancing protocols.

NASA astronauts Douglas Hurley and Robert Behnken make up the crew. They have undertaken thousands of hours of training for the mission to the International Space Station (ISS), but they said that despite this, the first crewed flight on a new spacecraft carries more risk than flying on a flight-tested craft.

“The big difference for us [between past missions and this one] is that the vehicle that we’re going on has never flown before with crew,” said Behnken. “It’s all been walked through, but never with any real danger.”

Blue Origin's lunar lander is one contender to take humans back to the moon

“I’ll feel a little relief in orbit, I’ll feel more relief when they get to station and I’ll start sleeping again when they’re back safely on the planet,” said SpaceX president Gwynne Shotwell.

To the space station...

As this is a test flight, much of the mission involves running through procedures for various emergency scenarios to ensure Crew Dragon can handle them all.

Hurley and Behnken will manually steer the spacecraft on the way to and from the ISS, and test its capabilities for use as a lifeboat for ISS astronauts.

Behnken compared it with his past experiences as a test pilot for the US Air Force: everything needs to be checked so that future astronauts won’t have to do any emergency procedures for the first time during an actual crisis.

It hasn’t yet been decided exactly how long Hurley and Behnken will remain on the ISS before heading home. It could last anywhere from about a month to

nearly four months, said Steve Stich at NASA’s Commercial Crew Program. The duration will depend on how long it takes to prepare SpaceX’s craft for its next crewed mission, which will ideally launch as soon as possible after this one returns.

... and beyond

NASA officials hope that there will eventually be many private companies operating in space, providing rides and maybe even private space stations with services that the agency can purchase.

“The goal is for NASA to be a customer [of private spacefaring companies], and we want a very robust commercial marketplace in low Earth orbit,” said NASA administrator Jim Bridenstine at a press conference on 30 April.

To that end, NASA recently awarded three US companies – Blue Origin, Dynetics and SpaceX – a combined \$967 million to make and test lunar landers that will bring humans to the moon as part of the Artemis programme.

“The United States has not had a human landing system since 1972,” said Bridenstine. “This is the last piece that we need in order to get to the moon.”

Each company will develop its own lunar lander. Blue Origin’s Integrated Lander Vehicle will be designed to launch aboard either the company’s own New Glenn rocket or the United Launch Alliance’s Vulcan rocket.

The Dynetics Human Landing System is also intended to be carried by the Vulcan rocket. SpaceX’s contract will go towards developing its Starship lander, designed to launch aboard the company’s Super Heavy rocket.

Blue Origin’s lander has three sections: a transfer stage to move it into a lower orbit around the moon from where it is first dropped, a descent stage to land and an ascent stage to return into lunar orbit. The landers from Dynetics and SpaceX are both intended to be single structures that can perform all three of those manoeuvres.

For the first mission of the Artemis programme, which aims to send astronauts to the moon by 2024, the plan is to launch one of the landers on a separate rocket to NASA’s astronauts, who are set to travel on the Space Launch System rocket that the agency is developing. Then, the astronauts will rendezvous with their lander in orbit around the moon before lowering down to its surface. The other two landers may be used on subsequent missions.

While the specifics are currently undecided, these crafts will be tested without astronauts before the first crewed launch to the moon. “We won’t just send them up there and let them enter the spacecraft for the first time without tests,” said Lisa Watson-Morgan at NASA. ■



BLUE ORIGIN