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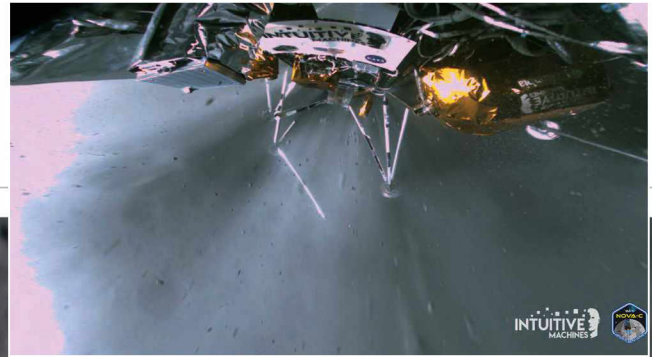
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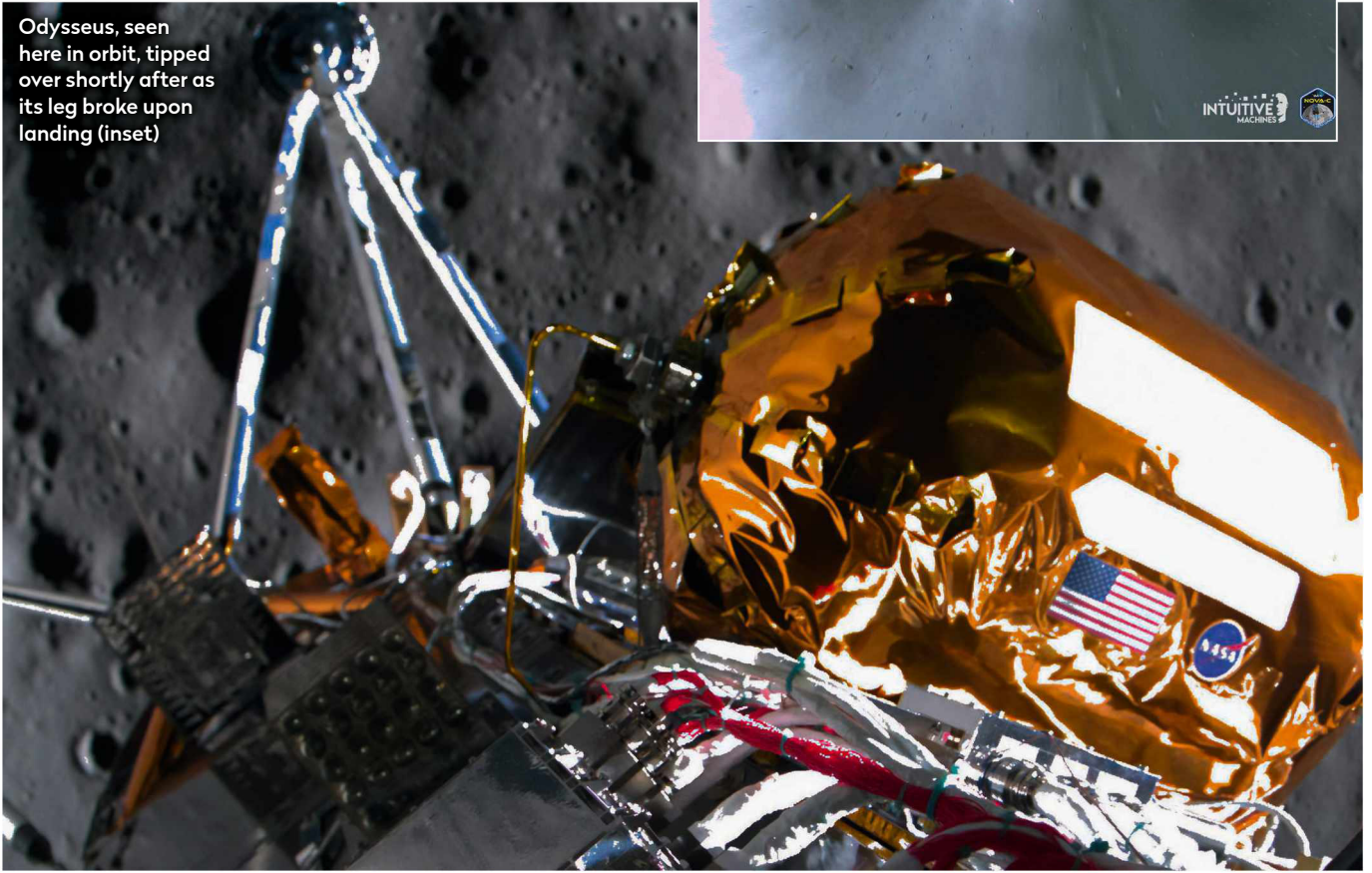
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Odysseus, seen here in orbit, tipped over shortly after as its leg broke upon landing (inset)



Odysseus makes historic landing on the Moon

The spacecraft came down on its side, but is still operating well

In the first US venture to the lunar surface since the Apollo 17 landing in 1972, the Odysseus lunar lander touched down on the Moon at 23:23 UTC on 22 February. The lander appears to have tipped over during the landing, but is operating well regardless.

Odysseus was built and is operated by US private spaceflight company Intuitive Machines as part of the IM-1 lunar mission, making this the first-ever soft landing on the Moon by a private spacecraft. The mission launched from the Kennedy Space Center at 06:05 UTC on 15 February, on board a SpaceX Falcon 9 rocket, with a target landing site of crater Malapert A, located around 300km from the lunar south pole.

Unfortunately, the landing was far from straightforward. Problems with the primary navigation equipment forced Odysseus to switch to using a NASA

Lidar experiment that was initially just intended as a technology demonstration. Then, after the craft touched down, mission control conducted several hours of troubleshooting before successfully establishing communications using the back-up, much slower, low-gain antenna.

“I know this was a nail-biter, but we are on the surface and transmitting,” said Stephen Altemus, president of Intuitive Machines. “Welcome to the Moon.”

A few days later, Intuitive Machines announced the spacecraft had tipped on its side due to a broken leg strut. Fortunately, the solar panels were still able to charge the lander for several days and the only payload on the ground-facing side is an art project, so Odysseus could still conduct its scientific objectives.

“We have quite a bit of operational capability even though we’re tipped over. And so that’s really exciting for us, and we

are continuing the surface operations mission as a result of it,” said Altemus.

The mission is part of NASA’s Commercial Lunar Payload Service (CLPS) programme, which commissions private companies to transport hardware to the surface of the Moon to support its upcoming Artemis human lunar missions. These missions will also be heading to the Moon’s south pole, where signs of water have been detected. February’s Odysseus landing carried six NASA experiments, including a radio observatory to measure how space weather interacts with Moon dust.

The success comes as a relief for lunar explorers, after two previous spacecraft – Japan’s SLIM and fellow CLPS mission, Peregrine from Astrobotic – both failed their own landing attempts just a month earlier in January.

www.intuitivemachines.com