

Astrobotic successfully powers on all payloads on damaged Peregrine lander

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Astrobotic's damaged Peregrine lander managed to send data back from all nine of its interfacing payloads over the three days it's been hurtling through space, the company said.

An additional payload received power, making for a full demonstration of the startup's first lander, aside from the fact that none of the instruments are being tested on their ideal target, the moon.

The information will likely be a huge asset for Astrobotic as it plans for its next moon mission, Griffin, later this year. It also offers some assistance to NASA, which paid \$108 million to get its first Commercial Lunar Payload Services partner into space.

Peregrine blasted off flawlessly from Cape Canaveral early Monday aboard a United Launch Alliance Vulcan Centaur rocket, but suffered a propulsion failure hours into the mission.

Despite nonstop efforts from its [mission control](#) in Pittsburgh, Astrobotic has determined there is "no chance" of a soft landing on the moon.

Late Wednesday, Peregrine reached 200,000 miles from Earth in an orbit intended to slingshot it to the moon. It will likely run out of fuel Friday morning, ten days before it was scheduled to enter [lunar orbit](#), the company said.

Among the data received back from Peregrine was a photo of its Iris rover, developed by students at Carnegie Mellon University. Working largely from a vacation rental in Cape Canaveral on Wednesday, the students were still hoping for a chance to spin the rover's wheels or receive a photo from its own onboard camera.

The team's first hourlong window showed "unambiguously that Iris was operational," said Red Whittaker, the CMU robotics professor overseeing Iris.

NASA began working with Astrobotic shortly after the propulsion

failure to see if any of its five instruments on the lander could still function.

All five of those scientific payloads—four spectrometers and a lidar system—powered on and sent data.

NASA was optimistic but said interpreting the results will take some time.

One instrument, the laser retroreflector array, cannot conduct any operations in transit, the agency said.

But two others are measuring radiation between the Earth and the moon, which could yield insights for both humans and electronics.

"Measurements and operations of the NASA-provided science instruments on board will provide valuable experience, [technical knowledge](#), and [scientific data](#) to future CLPS lunar deliveries," Joel Kearns, deputy associate administrator for exploration with NASA's Science Mission Directorate, said in a statement.

The Mexican and German space agencies were thought to still be processing data from their payloads and did not immediately publish updates.

Peregrine is carrying a total of 20 payloads, which include objects like an amusement park token from Kennywood, an art piece curated by CMU, and a controversial set of cremated human remains that the Navajo Nation worried would "desecrate" the moon.

Jay Apt, a former NASA astronaut and business professor at CMU, said Astrobotic was doing "a very impressive job" of balancing the needs of each of its paying customers on its first mission.

"A lot of folks would have just hunkered down and said, "Well, OK, our engineering team needs to work on our own spacecraft," and they went far beyond that," he said.

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