(Keall, C., 2023)

Rocket Lab's 41st mission launch fails, Capella Space satellite lost

By Chris Keall

20 Sep, 2023 06:07 AM 4 mins to read

Rocket Lab has confirmed the failure of its 41st mission, and the loss on the Earth-observation satellite its Electron rocket was carrying to orbit for Capella Space.

The firm's shares - held by tens of thousands of Kiwis through platforms like Stake and Sharesies - were down 6.75 per cent to US$4.70 (for a market cap of US$2.3 billion) in late Nasdaq trading after falling as low as US$4.22 during the session.

Two and half minutes after its launch from Mahia last night, a livestream appeared to show the rocket's upper stage failing to properly ignite after separation.

Founder and CEO Peter Beck posted to X: "Tough day. My deepest apologies to our mission partners Capella Space. Team is already working on root cause. We'll find it, fix it and be back on the pad quickly."

It was Rocket Lab's fourth failure in 41 flights and followed a run of 20 successful launches.

The Electron - with grim irony, named "We Will Never Desert You" - took off from Launch Complex 1 in Mahia at 6.55pm last night, following a half-hour delay due to elevated levels of solar activity.

In the video above, the launch is at 47.30. At 50.00, the commentary says the separation of the lower and upper stages has been successful.

At that point, an onscreen graphic shows the Electron travelling at 7859km/h at an altitude of 75.1km - but there is then rapid deceleration over the next few seconds to less than 7500km/h before the stats box is whipped offscreen.

The livestream then freezes, and Mission Control says "All stations, we have experienced an anomaly ... we will investigate and action the anomaly plan."

"The launch vehicle and payload would have entered the Pacific Ocean several hundred kilometres southeast of the launch site," Rocket Lab communications director Morgan Rae told the Herald.

5th

An onboard camera showed sparks around the upper stage engine as it was supposed to ignite (see still above), but Rocket Lab has yet to comment in any detail.

"We are working closely with the FAA [US Federal Aviation Commission] and supporting agencies as the investigation into the root cause commences. The Electron rocket has previously delivered 171 satellites to orbit across 37 successful orbital missions. We will identify the issue swiftly and implement corrective actions and return to the pad shortly," Rocket Lab said in a brief statement.

"Our next mission, currently scheduled before the end of the third quarter, will be postponed while we implement corrective actions. We anticipate providing revised third-quarter revenue guidance in the coming days."

Rocket Lab's maiden Electron launch in May 2017 - a test flight - was purposefully destroyed at an altitude of 224km after a safety officer - incorrectly, it turned out - thought a ground tracking system had failed.

Faulty wiring was blamed for a failed second-stage burn in July 2020.

And in May 2021, an Electron and its cargo were lost after the second-stage burn ended prematurely.

Bigger stakes

For Rocket Lab, the stakes are about to get a lot higher.

The Kiwi-American firm currently charges around US$7.5 million per flight.

It will charge customers US$50 million to US$55 million per flight for its much larger Neutron rocket, still on track for its first launch next year.

And while Electron's payload tops out around 300kg, the Neutron will be able to carry up to 15 tonnes of satellites to orbit - meaning a much more valuable cargo.

"Typically launch customers will carry insurance for their spacecraft," Rocket Lab's Bailey said.

Chris Keall is an Auckland-based member of the Herald's business team. He joined the Herald in 2018 and is the technology editor and a senior business writer.