

JUNE 30, 2025

Mission Possible: Re-Entry Milestone Achieved for Europe's Reusable Spaceflight



First European private capsule de-orbited and re-entered successfully in operational conditions.

Key systems proven with vehicle performing nominally during launch and orbit along with successful controlled re-entry;

Investigation underway to better understand loss of communication and loss of the capsule after controlled re-entry and just before splash-down.

On 23 June 2025, The Exploration Company (TEC) launched its Mission Possible capsule from Vandenberg Space Force Base. The flight marks TEC's second spacecraft to reach orbit in under four years. During the mission, the spacecraft **powered all 25 payloads (300 kg) on and off, maintained stable communications in orbit, performed attitude control maneuvers, and oriented its heatshield correctly for re-entry, validating every major system before the final descent.** From an orbital altitude of 550km, **the capsule re-entered successfully in a controlled manner, with communication established post re-entry;** communications were, however, lost at 26km altitude, just before the transonic phase preceding the opening of the parachutes. The TEC team, along with an independent board, are still analyzing the data available to best understand the outcomes thereafter.

"Mission Possible makes us stronger. We all hoped for full success; partial success is often part of the road for those who take risks and push boundaries to change the world positively," said Hélène Huby, Founder & CEO. "I take full responsibility and present my apologies to our customers for not achieving full success."

TEC Making History

With Mission Possible, TEC has made European space history. This flight sets the record as the first private European capsule to de-orbit and perform controlled re-entry and is only the third guided re-entry vehicle in the history of European spaceflight. In addition, before Mission Possible, TEC's first re-entry demonstrator, named Bikini, was the first European private space capsule to be sent to space.

Mission Possible has also broken new ground in its development. It was conceived, developed, qualified, and launched within three years (July 2022 - June 2025). TEC worked with 45 suppliers across 11 European nations and delivered the project for €30 million - launch costs included, breaking cost and speed records worldwide.

During this short period of time, the team designed and qualified an onboard computer, wrote guidance-navigation-control and flight software entirely in-house, verified avionics on a hardware-in-the-loop platform, bonded and qualified the thermal-protection system, and obtained both a CNES re-entry license and an FAA payload recommendation letter.

The affordability and speed of Mission Possible came from conscious design trade-offs that carry higher risk: the parachute system was not drop-tested; critical subsystems ran single-string (one onboard computer, one IMU, one parachute); propulsion testing stopped at thruster-level hot-firing; and the flight computer was built in-house from commercial off-the-shelf components. TEC accepts these higher risks because they lower costs, shorten development time, and yield a deeper understanding of the vehicle with each flight.

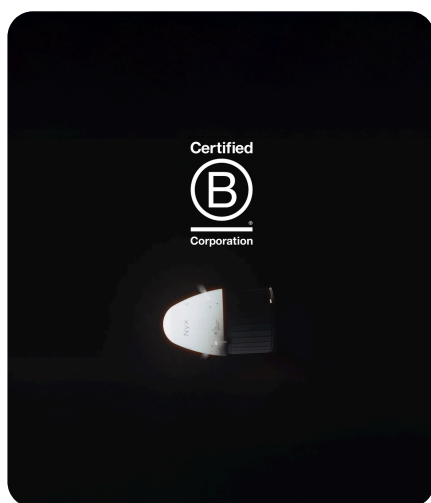
"We are continuing our journey, eager to implement these learnings in our next vehicle," adds Huby "We will learn from Mission Possible and improve, together as a team. I express my profound gratitude to The Exploration Company's team members who are demonstrating outstanding solidarity, resilience, and commitment to the success of our mission."

Looking ahead, the team is shifting its momentum toward its next generation programs, including bringing its full-size capsule, Nyx Earth, to flight in 2028.

Media contact: media@exploration.space

Image Credit: SpaceX

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