

In first, SpaceX's megarocket Starship nails ocean splashdown

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Sparks and debris came flying off SpaceX's starship as it descended over the Indian Ocean northwest of Australia, dramatic video footage from on an onboard camera showed.

SpaceX's massive Starship rocket achieved its first ever splashdown during a test flight Thursday, in a major milestone for the prototype system that may one day send humans to Mars.

Scraps of fiery debris came flying off the spaceship as it descended over the Indian Ocean northwest of Australia, dramatic video from an onboard camera showed, but it ultimately held together and survived atmospheric reentry.

"Despite loss of many tiles and a damaged flap, Starship made it all the way to a soft landing in the ocean!" SpaceX CEO Elon Musk wrote on X.

"Today was a great day for humanity's future as a spacefaring civilization!" he added.

The most powerful rocket ever built blasted off from the company's Starbase in Boca Chica, Texas, at 7:50 am (1250 GMT), before soaring to space and coasting halfway across the globe, for a journey that lasted around an hour and six minutes.

With its fully reusable design, Starship is essential to fulfilling Musk's ambitious vision of colonizing the Red Planet and making humankind a multiplanetary species.

NASA meanwhile has contracted a modified version of Starship to act as the final vehicle that will take astronauts down to the surface of the moon under the Artemis program later this decade.



The most powerful launch system ever built blasted off from Starbase in Boca Chica, Texas at 7:50 am (1250 GMT), with more than two million people following along on a live stream on X .

Trial-and-error approach

Three previous test flights had ended in Starship's destruction, all part of what the company says is an acceptable cost in its rapid trial-and-error approach to development.

"The payload for these flight tests is data," SpaceX said on X, a mantra repeated by the commentary team throughout the flight.

The next challenge is to develop a "fully and immediately reusable orbital heat shield," said Musk, vowing further tests to learn how to make Starship better withstand careening into the atmosphere at around

27,000 kilometers per hour (nearly 17,000 mph).

About seven-and-a-half minutes after liftoff, the first stage booster, called Super Heavy, succeeded in an upright splashdown in the Gulf of Mexico, to massive applause from engineers at mission control in Hawthorne, California.

The cheers grew even louder in the flight's final minutes. Ground teams whooped and hollered as the upper stage glowed a fiery red, the result of a plasma field generated by the friction of the vehicle streaking through the atmosphere.

Space fans around the world watched in awe, thanks to a live broadcast powered by SpaceX's vast constellation of Starlink internet satellites.

A chunk of flying debris even cracked the camera lens, but in the end, Starship stuck the landing.

"Congratulations SpaceX on Starship's successful test flight this morning!" NASA chief Bill Nelson wrote on X. "We are another step closer to returning humanity to the moon through #Artemis—then looking onward to Mars."



Designed to eventually be fully reusable, Starship stands 397 feet (121 meters) tall with both stages combined -- 90 feet taller than the Statue of Liberty.

Twice as powerful as Apollo rocket

Starship stands 397 feet (121 meters) tall with both stages combined—90 feet taller than the Statue of Liberty.

Its Super Heavy booster produces 16.7 million pounds (74.3 Meganewtons) of thrust, about twice as powerful as the Saturn V rockets used during the Apollo missions, and later versions should be more powerful still.

SpaceX's strategy of carrying out tests in the real world rather than in

labs has paid off in the past.

Its Falcon 9 rockets have come to be workhorses for NASA and the commercial sector, its Dragon capsule sends astronauts and cargo to the International Space Station, and its Starlink internet satellite constellation now covers dozens of countries.

But the clock is ticking for SpaceX to be ready for NASA's planned return of astronauts to the moon in 2026.

To do this, SpaceX will need to first place a primary Starship in orbit, then use multiple "Starship tankers" to fill it up with supercooled fuel for the onward journey—a complex engineering feat that has never before been accomplished.

China is planning its own crewed lunar mission in 2030, and has recently had a better track record than the United States of adhering to its timelines.

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