

SpaceX Starship explodes during test amid string of other failures and explosions

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A prototype for SpaceX's Starship Mars rocket, designated Ship 36, exploded in a massive fireball on June 18 during preparations for a static fire test at the company's Starbase facility in Texas. The explosion occurred around 11 p.m. local time while the vehicle was being loaded with propellant several miles from the main launch pad.

The explosion destroyed the vehicle and caused significant damage to the test facility infrastructure. Video footage showed two distinct explosions in rapid succession, with the first detonation occurring near the vehicle's nose and a second eruption of flames and debris on the left side. The blast created a fireball visible for miles and sent burning debris arcing through the night sky.

Initial data suggest the failure involved a composite overwrapped pressure vessel (COPV) containing nitrogen gas in the vehicle's payload bay. COPVs are lightweight tanks wrapped in carbon fiber that store gases under high pressure. The explosion was reminiscent of a 2016 Falcon 9 failure blamed on COPV rupture.

Ship 36 was intended to serve as the upper stage for Starship's tenth flight test, which had been scheduled for late June. A Federal Aviation Administration (FAA) advisory from June 18 indicated Flight 10 could launch as soon as June 29, though SpaceX still required regulatory approval. The explosion has now thrown those plans into uncertainty.

The latest failure comes amid a series of other disasters that have plagued the Starship program since 2020, when its first attempted launch ended after the rocket exploded 4 minutes after launch.

The program's three previous flights have faced similar failures: Flight 7 in January suffered harmonic vibrations in the propellant system that caused the vehicle to explode after launch, Flight 8 in March faced a cascade of engine failures that again caused a mid-flight explosion and Flight 9 in May had a propellant leak that caused the rocket to tumble and ultimately break apart over the Caribbean.

One industry official at the Paris Air Show, speaking anonymously, argued that SpaceX's development appeared

to be moving backward, noting that such ground explosions had not occurred for years before the first integrated test flights began.

The response from the company's fascist CEO Elon Musk was cynical, claiming the explosion was "just a scratch." And the company itself continued its policy of recording catastrophic disasters as merely "rapid unscheduled disassemblies."

Since 2020, SpaceX has lost nine Starship prototypes to explosions during various phases of development and testing. Early prototypes SN1, SN3, SN4, SN8, SN9, SN10 and SN11 all exploded between 2020 and 2021 during ground tests or flight attempts. The only fully successful mission was the fifth integrated test flight in April 2024, in which Ship 30 successfully splashed down on target in the Indian Ocean and the booster, which separated after launch, returned to the launch site and was successfully caught by the launch tower.

Such failures also represent an enormous amount of public resources literally gone up in smoke. Since its founding in 2003, SpaceX has received over \$22 billion in federal contracts, loans, subsidies and tax credits, with approximately \$15 billion from NASA and \$7.6 billion from the Department of Defense. In recent years, the company has received between \$2 billion and \$4 billion annually in government funding.

The Starship program specifically has received approximately \$4.1 billion in direct federal funding through a Space Force rocket cargo development program and a contract with NASA for the vehicle to serve as the lander for the agency's Artemis program to return humans to the moon. Ironically, NASA has already developed a rocket capable of taking humans to the moon—the Space Launch System, drawn from components left over from the Space Shuttle Program—but the failures of Starship have thus far left the program without a suitable means of landing on its surface.

As the first head of the Department of Government Efficiency (DOGE) under Trump, Elon Musk slashed tens of

thousands of federal jobs and compromised the function of entire departments. At the same time, he sought to use his position for his own personal enrichment, trying to direct NASA and Defense contracts directly to SpaceX.

The repeated Starship failures expose the fundamental contradictions between privatized space flight and the capitalist mode of production. While SpaceX markets Starship to the public as humanity's vehicle for becoming a multiplanetary species and advancing scientific exploration, the company operates as a for-profit enterprise seeking to maximize profits and executive compensation.

As a result, it has prioritized an aggressive testing schedule and public relations campaign to secure investor confidence and government contracts rather than carry out the careful and scientifically rigorous work to really understand the string of explosions.

There is a stark contrast between Starship and NASA's Apollo program development in the 1960s. In the aftermath of the tragic fire during a ground test of Apollo 1 in 1967 which killed three astronauts, the entire test schedule was halted to implement fundamental changes in the design of the Saturn V spacecraft. This included the replacement of flammable materials, a redesign of the command module hatch to open in seconds rather than minutes and the implementation of nitrogen-oxygen atmosphere during ground operations instead of pure oxygen.

Such a rigorous and rational approach led to the first successful crewed flight with Apollo 7 in October 1968, followed by the historic moon landing of Apollo 11 in July 1969. Even Apollo 13, which experienced an in-flight explosion, successfully returned its crew safely to Earth through careful engineering and mission control procedures.

Starship's failures are all the more striking given this history. Musk and SpaceX are not coming into space travel blind, but building off of more than seven decades of space exploration, including the disasters that have occurred and the lessons learned.

Starship and the related Artemis program, which retraces the steps of the Apollo program which ended more than 50 years ago, is weighted down by the drive for the private accumulation of wealth, with Musk at its apex, which prevents anything other than a purely pragmatic approach to space travel.

Put a different way, while the Apollo program represented American capitalism at its height, the string of disasters of the Starship program represents American capitalism in its death spiral.

Musk himself, a total ignoramus, drug addict and deeply unstable individual, has come to personally dominate the American space program (as well as American politics and public life in general) by virtue of having accumulated

hundreds of billions of dollars through the stock market, cryptocurrency and other speculative ventures totally divorced from actual production or industrial technique.

There is a certain money-mad aspect to the whole endeavor, as if throwing cash at the problem can overcome the fundamental difficulties inherent in space travel. But such an approach flows logically from a member of an oligarchy increasingly detached from reality.

While it would be a mistake to remember fondly such ruthless and unprincipled representatives of American capitalism as Lyndon Johnson and Richard Nixon, the emergence of figures such as Musk and Trump also testify to the deep cultural and intellectual decline of the American bourgeoisie.

Faced with this historic decline, American capitalist politics consists more and more of desperate, increasingly reckless improvisations, from attempts to impose dictatorship at home to ever more dangerous new wars.

But just as the launch attempts of the Starship have run up against the laws of physics, so too have the efforts to set up a dictatorship run up against the development of the class struggle. As the ruling elites the world over have moved sharply to the right, the international working class has moved to the left, opposing the attacks on immigrants and democratic rights and marching in their millions against genocide and war.

The stage is being set for a different, more welcome type of explosion, the explosive development of a socialist, anti-capitalist movement based in the working class. That struggle must be armed with an understanding of laws just as objective as the laws of physics—the laws of capitalist development—as part of the fight to overthrow capitalism and establish a truly scientific, rational and socialist society.



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