SpaceX still doesn’t know why its spacecraft exploded last month



Investigators are still trying to pin down exactly why a SpaceX vehicle exploded during testing on April 20th. A SpaceX official confirmed today that the explosion destroyed the test version of the company’s passenger vehicle known as Crew Dragon.

“There was an anomaly and the vehicle was destroyed.”
The company launched an investigation into the incident soon after it happened, and it’s still combing through evidence from the accident. The safety and performance of the Crew Dragon are of particular concern for NASA as well as SpaceX. NASA commissioned SpaceX to build the vehicle as part of its Commercial Crew program, which aims to reduce the space agency’s reliance on the Russian Soyuz rocket. Currently, the Soyuz is the only vehicle carrying people to and from the International Space Station.

Before the explosion, the test was proceeding according to

plan, Hans Koenigsmann, SpaceX's vice president of Mission Assurance, said at a press conference about SpaceX's upcoming resupply mission to the ISS. The capsule was tethered in place for the test, which was designed to make sure that the system's thrusters were working properly. Koenigsmann said that the capsule powered up "as expected" and then sets of smaller thrusters on either side of the vehicle called Dracos fired for five seconds each. Those tests "went very well" said Koenigsmann.

Then it was time to test the SuperDracos, the thrusters designed to carry the Crew Dragon and its passengers away from its rocket in case something went wrong on the pad or during launch. Approximately a half-second before the SuperDraco thrusters were supposed to fire, something went wrong. "There was an anomaly and the vehicle was destroyed," Koenigsmann helpfully elaborated.

"We have no reason to believe that there's an issue with the SuperDracos themselves."
While it's still too early to name a cause, the early data suggests that whatever happened occurred when the SuperDraco system was activated, Koenigsmann said. "We have no reason to believe that there's an issue with the SuperDracos themselves," he said.

The SuperDraco thrusters had been tested thoroughly, including being put through their paces over 600 times at SpaceX's Texas facility, Koenigsmann said. "We continue to have high confidence in that particular thruster."

Figuring out the cause of the problem — and then fixing it — is critical to the future of the Crew Dragon program. Luckily, SpaceX has already started production on other Crew Dragon capsules, so it won't have to build a replacement test vehicle from scratch. SpaceX had planned to test its vehicle's abort system (which involves the SuperDraco thrusters) in June, followed by another test run to the ISS in July. That now

appears very unlikely, but it’s not clear how delayed the testing schedule will be.

It’s not unusual for investigations to take time. When a SpaceX rocket exploded midflight on June 28th, 2015, it took until July 20th of that year for the company to announce that the disaster was caused by a failed strut. After a SpaceX Falcon 9 rocket exploded on the launchpad on September 1st, 2016, it also took the company 22 days to issue an update identifying a suspected cause, which was a breach of the rocket’s helium system. The joint investigation took roughly four months to conclude.

“If this has to happen, I’d rather It happens on the ground in the development program,” Koenigsmann said of the explosion. “We will take the lessons learned from this, and I’m convinced it will help us to ensure that Crew Dragon is one of the safest human spaceflight vehicles ever built.”

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