

Boeing's Starliner under extra scrutiny in wake of 737 Max crashes

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Boeing's Starliner crew capsule atop an Atlas V rocket lifts off from Cape Canaveral Air Force station early Friday morning. This launch is the first test flight for the vehicle to the International Space Station. (Photo: Craig Bailey/FLORIDA TODAY)

MELBOURNE, Fla. – In the wake of Boeing's 737 Max fiasco and resulting 346 deaths, the company's Starliner crew capsule is coming under extra scrutiny.

The spacecraft failed to reach the International Space Station during a pivotal test flight in December. The company said a software glitch caused some of Starliner's thrusters to fire at the wrong time.

Software issues were behind the crashes of two 737 Max aircraft as well. The plane has been grounded since March while Boeing works to correct the problems.

Last week, an independent government review found that Starliner suffered from additional software issues that could have resulted in a catastrophic failure of the spacecraft had they not been detected.

"We don't know how many software errors we've got. We don't know if we have just two or we have many hundred, said Doug Loverro, NASA's Head of Human Spaceflight.

NASA is now conducting a full organizational safety assessment of Boeing. Loverro said the decision to look into Boeing's safety culture was based on "press reports that we've seen from other parts of Boeing," the software issues and the failed orbital flight test, or OFT.

"It looks as if there are, could possibly be, process issues at Boeing so we want to understand what the culture is at Boeing that may have led to that. This will be information that will help inform our go-forward plan," Loverro said.

NASA is still deciding whether it will require Boeing to re-do the orbital flight test but may make a decision by the end of February.

Regardless, the problems likely have cost Boeing a spot at being the first to return U.S. astronauts to space from American soil, allowing their upstart competitor, SpaceX, to pull ahead.

It remains unclear what impact that second-place status would, ultimately, have on Boeing but it's indisputable that the aerospace giant is having a tough time.

Some downplay the comparison of Starliner and 737 Max, pointing out they come from two completely separate divisions of the company, with distinct workforces and day-to-day management structures.

"I don't see the 737 Max issues with Boeing in any way linked to Starliner. Within companies as big as Boeing those are really just completely different companies. They share a capital structure and maybe a board and the CEO, but it's really run in a very distinct way," Dylan Taylor, investor and CEO of Voyager Space Holdings, said.

Others say a company's corporate culture tends to be dictated by the CEO and permeates throughout all of the company's divisions.

"Culture can change performance," said Chet Wade, crisis communication and corporate culture expert. "So you see this at Boeing. You see reports about their culture and what was going on and maybe it was because they just wanted to win. Because winning is what they want to do so they start to cut corners, they started to make assumptions that maybe were a little optimistic, not lies, not deception but just making errors and judgment and that starts to feed into your

culture and ultimately, people who would have made decisions differently start to go along with the culture.”

Recently released employee emails show executives covered up 737 Max safety problems to deceive Federal Aviation Administration regulators. One employee even commented they wouldn't want their family to fly on the plane.

In January, the company replaced Dennis Muilenburg with David Calhoun as the new CEO. That move was seen as an effort to restore the public's trust in the company.

"I know we've got things to work on and changes to make," Calhoun said in a fourth-quarter earnings call to investors Jan. 29.

"I treasure my relationship across the industry with customers, and with regulators and others. And when they tell me something, I believe them. I always fault to believing them. And so the work we have to do internally to restore all those confidences, and yes, modify our culture, you can bet, I'm working on it."

Boeing employs more than 150,000 people and while the space and commercial aviation divisions are separate parts of the company, Boeing employees often transfer from one division to the other.

“Boeing has brought people over from commercial aircraft, I know, to work on things like (NASA's Space Launch System rocket) and I suspect they’re probably some people that have come there working on Starliner,” said Andy Aldrin, Director of the Aldrin Space Institute at Florida Tech.

During a recent Starliner event at Boeing’s factory in Cape Canaveral, Ramon Sanchez, Starliner Senior Operations Lead, shared that he started as a mechanic working on Boeing military airplanes. He says the aviation heritage is what gives Boeing an edge over other space manufacturers.



Ramon Sanchez, Senior Operations Lead for Starliner, talks with members of the media about the capsule newly returned to KSC from its December Orbital Flight Test. Engineers are analyzing the data gathered during the test to determine if another flight test will be needed before crewed flight. (Photo: Craig Bailey/FLORIDA TODAY)

“With that heritage, that background in aviation, a lot of things are similar and a lot of things aren’t. But what is similar is the knowledge that comes to us from other folks that may be supporting airplane programs. They kind of get the idea of the systems and electrical systems and the fuel systems and most importantly around the care and feeding that it takes around the spacecraft,” Sanchez said.

Not surprisingly, NASA administrator Jim Bridenstine wants to emphasize the distance between Boeing’s aviation and space divisions.

“I do think in this particular case, it’s really an apples to oranges comparison. What we’re doing here when we fly into space is very different than what a commercial airliner does day in and day out,” Bridenstine said at a press conference before the Starliner orbital flight test in December.



NASA Administrator Jim Bridenstine speaks during a Boeing Starliner pre-launch briefing at Kennedy Space Center on Thursday, Dec. 19, 2019. Astronauts Josh Cassada, Suni Williams, Nicole Mann, Chris Ferguson, and Mike Fincke stand behind him. (Photo: Emre Kelly / FLORIDA TODAY)

But the general public may not make that distinction.

“From the outside world, people don’t see it that way; it’s Boeing,” Wade said. “They all wear that same Boeing logo on their shirts.”

In addition to a culture problem, both divisions of the company are dealing with competition and financial pressure. The aviation division has Airbus hot on its tail as it rapidly expands in the U.S.

“Look at what a presence Airbus has become here in the U.S. and a lot of the competition that’s put on Boeing to reduce operating costs,” said John Boyd, principal at The Boyd Company, a corporate site selection consultant of which Boeing is a client.

The concern is whether cost-cutting translates to safety cuts. In the case of the 737 Max, it’s clear Boeing’s push to lower pilot simulation training requirements saved them millions of dollars and got the plane to market sooner. Boeing stock continues to fall — down more than 20% from its peak last March — as the costs associated with the grounding of the 737 Max rise, now estimated to surpass \$18 billion.

As for Starliner, the challenge is manufacturing a product under a strict government budget. NASA is paying Boeing a fixed rate to design, build and test Starliner.

“When you've got a two-year delay in a fixed-price contract, you have a business problem on your hands because ultimately you've got staff that is supporting a program. And on a fixed-price contract, if that program lasts much longer you have to figure out something to keep control of costs as the program stretches out and that's a challenge,” Aldrin said.

Requiring Boeing to do another uncrewed flight test would mean even more money and more delays and therefore more pressure.

“Industry is in the business of making a profit or staying in business. It's not a charitable contribution to the U.S. government so it's going to be a case where I think ultimately NASA is going to have to make some hard decisions here certainly with Boeing and (orbital flight test) and how they're going to handle it,” Aldrin said.

Maybe Boeing sees the writing on the wall. On Jan. 29, Boeing announced it is budgeting \$410 million of its own money for an additional orbital flight test in case NASA pulls the trigger. The money will cover the cost of another flight test, the investigation into the missed docking, fixing the problems, delays and any other unforeseen work.

If NASA doesn't require Boeing to do another orbital flight test, how will it prove to NASA that Starliner is capable of docking with the ISS? “We're working through what things we need to change and how we prove it but you don't necessarily need a validation test to prove that,” Kathy Lueders, Program Manager for NASA's Commercial Crew Program told FLORIDA TODAY. “We may need to do additional ground testing.”

“I'm confident that if NASA decides to go ahead with a crewed mission it'll be absolutely totally safe because they're not going to make that decision without an incredible amount of insight into everything that happened with OFT,” said Aldrin.

Whatever NASA decides, Wade believes Boeing needs a win to restore the public's confidence in the company. “I don't think they have room for another mistake. There's only so much forgiveness people have. I think people say mistakes happen to everybody but I think they are reaching that critical point where the goodwill has been used up,” Wade said.

Back at the Boeing Starliner facility at the Kennedy Space Center, Sanchez stood in front of the scuffed up spacecraft marred by its brief visit to space. Whatever pressure exists outside of this factory, it's people like Sanchez and his colleagues that live and breathe building Starliner. They've missed holidays with their loved ones because they know the astronauts that will fly in Starliner have families, too.

“Humans are gonna fly in this. You only get one chance on this right? There's zero room for error.”