The Boeing Starliner: How Did It Get There, Why Is It Still There, and How Long Will It Stay There?

By Nikhil Wuppalapati

Boeing's CST-100 Starliner crew ship approaches the International Space Station
(Image Credit: NASA)

The Crew Flight Test was originally planned for a week. It was a pretty standard mission on paper: Using the Starliner, engineered by Boeing under its contract with NASA, astronauts Sunita "Suni" Williams and Barry "Butch" Wilmore were going to fly up to the International Space Station (ISS) in order to test the spacecraft's viability for future crewed missions. The mission was only supposed to last ten days, and then the two astronauts would return back to Earth.

Unfortunately, the development of the Boeing Starliner, and how the mission ended up playing out in reality, are a far cry from what was on paper.

Boeing's Starliner was originally planned for launch in 2019. However, during that launch, the Starliner failed to reach its expected orbit. Three years later, in 2022, NASA tried again, but during the launch, two thrusters failed to fire. Another year later, in 2023, the launch was scrapped because the tape used to hold some of the wiring presented a fire hazard. Thus, the launch that was supposed to happen five years ago finally reached fruition in 2024.

However, even in the year of 2024, there were some hiccups. First, on May 6th, it was found that there was a stuck valve on the rocket and it was leaking helium. It was later decided that the helium leak didn't present a problem to the launch. However, as a result, the launch was pushed back to June 1st.

Then there was another launch failure on June 1st.

However, on June 5th, to the relief of all the engineers on NASA and Boeing working on the Starliner, the launch from Cape Canaveral in Florida went without a hitch, and, a year behind schedule and $1.5 Billion over budget, the Boeing's Starliner was finally headed to space.

Unfortunately, the headaches the Starliner would cause were not over yet. As the Starliner approached the International Space Station, five of the Starliner's 27 thrusters shut down unexpectedly, forcing the Starliner to dock at the International Space Station for longer than anticipated. Originally planned to stay for a week, NASA extended the mission's length to 45 days. Subsequently, after reviewing the battery life of the Starliner and finding it better than expected, another 45 days were added to the astronauts' stay at the ISS.

The malfunctioning thrusters were found to be caused by additional helium leaks, on top of the one that was discovered earlier. The thrusters have mostly been fixed, with only one of the

twenty-seven still malfunctioning, which NASA states won't be a significant problem for the astronauts' return trip. However, because the Starliner isn't performing as anticipated, NASA and Boeing are acting much more cautious about returning astronauts Williams and Wilmore to Earth safely.

Given that the Starliner's time in Space is extended for an indefinite amount of time, does all this mean that Williams and Wilmore are stranded? This has been a frequent question for Boeing and NASA, and both companies have bristled at the term.

Steve Stich, the Commercial Crew Program Manager at NASA, has stated to Bloomberg, "I want to make it clear that Butch and Suni are not stranded in Space. Our plan is to continue to return them on Starliner and return them home."

Mark Nappi, the vice president of Boeing and an additional overseer of the program, also stated, during a news conference on June 28th, that, "The crew is not in any danger and there's no increased risk when we decide to bring Suni and Butch back to Earth."

In other words, while the Starliner may not return to Earth for a while, the astronauts are not in danger, and they aren't stuck in space. Additionally, if necessary, NASA is able to retrieve Williams and Wilmore with the SpaceX Dragon Capsule, but there don't seem to be any plans to do so yet.

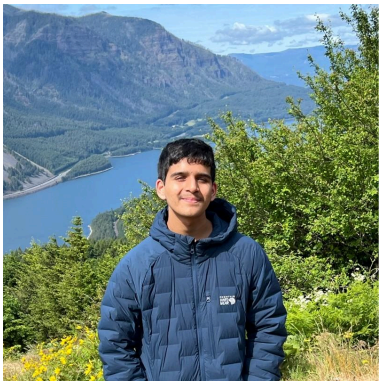
However, while Williams and Wilmore may be relatively secure for the moment, Boeing as a company, and its relationship with NASA, may not be. Boeing's contract with NASA may be jeopardized as a result of the subpar performance of the Starliner. While Boeing has accomplished only two remote missions for NASA, SpaceX has flown half a dozen crews on its Dragon Capsule, and is performing much better. Additionally, NASA is planning on jettisoning (launching into space) the Spaceliner's thrusters during its return trip, which, in addition to the

many ground tests made necessary by the thrusters' malfunctioning, is further indication of Boeing's poor performance.

Ron Epstein, an analyst from Bank of America, speculates that this poor performance may be because of a shift in Boeing's focus. Rather than concentrating on the engineering aspect of the company, Boeing's concern is more focused towards the satisfaction of shareholders. Additionally, there is speculation of whether or not Boeing is still concerned with its space program, although Boeing has stated that it will service the Orbital Reef orbiting station when it is created by Blue Origin, Jeff Bezos' space company.

In summation, after an eventful development and delayed launch, which cost Boeing severely, the Boeing Starliner managed to leave for Space and dock at the ISS, where it will stay for some indefinite amount of time as thruster malfunctions and helium leaks are treated. While astronauts Williams and Wilmore can foresee a longer stay at the ISS than expected, NASA and Boeing are insistent that the two astronauts are not stranded, and there are contingencies in place to retrieve them if the Starliner cannot be repaired. What the performance of the Starliner means for Boeingand its space program, however, remains to be seen.

About the Author



Hi, my name is Nikhil Wuppalapati. I am a rising Junior based in Oregon. I am interested in pursuing a career in STEM, particularly in Biology and BioStatistics. My interests include watching movies, particularly Science Fiction, Fantasy or Action, or reading Sci-Fi, Fantasy, and Horror books. I also enjoy playing

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