

Senator Maria Cantwell

Q&A at Commerce Committee, Science & Transportation Hearing titled, "Aviation Safety and the Future of Boeing's 737 MAX"

Witnesses: Mr. Dennis Muilenburg, President and Chief Executive Officer, The Boeing Company, accompanied by: Mr. John Hamilton, Vice President and Chief Engineer, Boeing Commercial Airplanes; The Honorable Robert Sumwalt, Chairman, National Transportation Safety Board; The Honorable Christopher Hart, Chairman, Joint Authorities Technical Review

October 29, 2019

CANTWELL: Thank you, Mr. Chairman. And if you could, I have a lot to go through, so we're going to try to move quickly through it.

Was Boeing aware of the defects in the MCAS system, which it failed to disclose to the FAA at the time the aircraft was in development and certification?

MUILENBURG: Senator, as you know, the MCAS development occurred over a lengthy time period, about a 6 year development program of the MAX. We have learned from both accidents, and we've identified changes that need to be made to MCAS. We did, during the development process, follow our certification standards and long-standing industry standards behind the MCAS design, but clearly we've learned. There are things we need to improve on MCAS—

CANTWELL: Are you saying—

WICKER: Answer the question, Mr. Muilenburg.

MUILENBURG: Senator, can I ask you to—

CANTWELL: Was Boeing aware of the defects in the MCAS system, which it failed to disclose to the FAA at the time the aircraft was in development and certification?

MUILENBURG: Senator, I just have to question the—I'll say the premise of the question. So we, as part of our development process, we do identify hazards and failure modes—

CANTWELL: And they were disclosed?

MUILENBURG: That was part of the failure mode analysis that we shared as part of the certification process during that time period.

CANTWELL: So you think everything that you were aware of was disclosed to the FAA as it relates to defects in the MCAS system?

MUILENBURG: Senator, as we get to defects, things we need to fix, we've identified three areas that we've talked about needing to address. One was the single sensor feed – that was a piece of the architecture that was shared with the FAA. The fact that the system would operate more than once

during a flight – that was also a part of the design description. And the control authority of the system at various parts of the—

CANTWELL: Do you know what Mr. Forkner is referring to when he says, “...unknowingly lied to the FAA” or “Jedi mind-tricking?”

MUILENBURG: Senator, I’m not sure what he meant by that. We haven’t been able to talk to him. He doesn’t work for Boeing anymore. We’ve been trying to—

CANTWELL: Here’s my concern: that if you don’t know what he meant, then you also don’t know what wasn’t disclosed. So, we don’t know if there are things in the MCAS system that were defects that he or someone else knew about that weren’t disclosed. So I hear what you’re saying, that there’s a lot to discover in a process, but I’d like to go over some of the very specifics about what was tested. And did Boeing test the consequences of the MCAS reliance on a single AOA sensor? Did it test that?

MUILENBURG: Senator, we tested a broad array of different aspects of the MCAS system, a set of failure modes, we did thorough flight testing. John, if you want to comment on the details there.

HAMILTON: Senator, the 737 NG is one of the safest airplanes that—

CANTWELL: Okay, look. We’re trying to understand what got tested. So, did you test the reliability of the AOA sensors in general? Did you test the reliability on a single sensor? Did you consult with the pilots on the lack of guidance on MCAS in the the flight manuals? Did you test the AOA sensors degree alert to ensure reliability? Did you test the human factor response? These are all things from the Lion Air report, and my guess is you didn’t test those. And that’s at the heart of this. But if you did, and you have data on that, and it was provided to the FAA, that’s what we want to see.

HAMILTON: Senator, we did test the MCAS uncommanded inputs to the stabilizer system, due to whatever causes was driving it, not specifically to an AOA sensor. We assessed that hazard level, we talked about—

CANTWELL: Which now do you think is wrong?

HAMILTON: In hindsight, Senator, yes.

CANTWELL: Thank you, because I agree.

HAMILTON: Yeah.

MUILENBURG: Senator if I could just add a point to that, because as John pointed out, we relied on these long-standing industry standards as part of our evaluation of response time behind MCAS, and that is one of the areas that we found shortfall—

CANTWELL: Here’s the thing I’m very confused about. Which is this larger issue. And look, we want to get this right, because we do want to go forward. And we know there is going to be automation in many aspects of our lives. But this robust testing that must occur and third party validation, there were just—I just don’t understand how you have sensors on the outside of a plane, and you are going to let that send a command to the inside of the plane, that basically says trim the plane 2.5 degrees.

And then all of a sudden, you're going to be yelled at from the cockpit, from somebody saying, "Pull up," and then at the same time, you're being forced down in your nose and you have seconds to respond because you're in takeoff. That doesn't seem like a lot of robust testing was done to me. Because if it was, then the Lion Air incident wouldn't have happened.

Okay so I see my time, I have a few seconds left. I want to just bring up—look. I think this whole issue of air speed is a major issue writ large for all of us to get right. The sector--those crashes about automation, even the Air France crash is related to a faulty pitot tube. I don't know how much we should be trusting things on the outside of the planes to give commands to the inside of the plane when they can be damaged.

But I do want to know that you are improving the safety culture. This issue of both reporting, people not being able to talk to FAA oversight people, and this issue of some of the machinist Boeing quality inspectors – their work being taken over. I want to understand that a safety culture is going to exist.

MUILENBURG: Senator, if anything I can leave with you today, I want to reinforce the culture of safety at Boeing. We know we can improve. We encourage our employees to speak up when there are issues, and some of those have been public recently. We accept and respect those inputs. We take action following on those. We have recently made a number of improvement that includes restructuring our safety review boards, elevating them to increase transparency and focus on safety. We've moved all 50,000 Boeing engineers to now report directly to our chief engineer, separating them from—

CANTWELL: Okay I'm going to ask you to come back on the SPEEA and Boeing quality inspectors, two different issues, with a written response. Thank you, Mr. Chairman, I know I went over my time.