



Committee on Transportation and Infrastructure
U.S. House of Representatives
Washington, DC 20515

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Dear Colleague:

Last week at the Transportation and Infrastructure Committee's fourth hearing on the Boeing 737 MAX, we received testimony from Boeing CEO and President Dennis Muilenburg, who was accompanied by Vice President and Chief Engineer of Boeing's Commercial Airplanes division, John Hamilton. This hearing was a key step in our Committee's investigation into the design, development, and certification of the Boeing 737 MAX, an investigation that began three days after the second deadly crash involving this particular airplane model.

At our hearing, the Committee revealed some of the new information, emails, and records that our investigation has uncovered over the last seven months:

MCAS Design

- A preliminary design of Boeing's 737 MAX included an MCAS alert in the cockpit but was later removed.
- The actual operation of MCAS on the two deadly flights violated Boeing's own design criteria for MCAS which required that, "MCAS shall not interfere with dive recovery," and "MCAS shall not have any objectionable interaction with the piloting of the airplane."
- Boeing officials knew that if it took a pilot more than 10 seconds to react to erroneous MCAS activation, the result could be "catastrophic."
- In December 2015, a Boeing engineer in the division that designed MCAS asked, "Are we vulnerable to single [angle-of-attack] sensor failures with the MCAS implementation?"

Pilot Training:

- Beginning in 2013, Boeing leadership had a clear plan to ensure the MAX did not require "simulator training" for pilots that is expensive and time consuming for airline customers. In 2014, Boeing marketed the MAX to airlines as a "[n]o simulator required" plane, years before the Federal Aviation Administration (FAA) made a decision on what kind of pilot training was required.
- Boeing officials told the FAA at least twice that MCAS didn't need to be in the Flight Crew Operating Manual or training and asked to have it removed from these training manuals because they claimed MCAS only operated, "way outside of the normal operating envelope." However,

MCAS activated within the normal operating envelope on Lion Air flight 610 and Ethiopian Airlines flight 302.

Undue Pressure

- A November 2016 internal Boeing employee survey found 39 percent of respondents perceived undue pressure and 29 percent were concerned about the consequences of reporting undue pressure.
- A former Boeing supervisor working on the 737 MAX final assembly line raised serious safety issues with senior Boeing management in June 2018, four months before the Lion Air crash. The employee specifically raised the issues of “schedule pressure” and wrote in an email: “Frankly right now all my internal warning bells are going off. And for the first time in my life, I’m sorry to say that I’m hesitant about putting my family on a Boeing airplane.” The employee wrote that he was so concerned that he recommended shutting down the production line. “I don’t make this recommendation lightly,” he wrote. “I know this would take a lot of planning, but the alternative of rushing the build is far riskier...Nothing we do is so important that it is worth hurting someone.” A few months after he left Boeing, the employee wrote to Boeing CEO Dennis Muilenburg after the Lion Air crash about his concerns.

Our hearing last week was an important step in our investigation, but it certainly did not mark the end. Based on what we heard from Mr. Muilenburg and Mr. Hamilton in front of our Committee, we have a litany of new questions for both Boeing and the FAA about the failures that led to the tragic and unnecessary deaths of 346 innocent people.

To summarize our key concerns, our investigation shows that from almost the start, Boeing had a bad design on MCAS with a single point of failure. Then, Boeing couldn’t even meet its own design requirements. MCAS was fundamentally flawed, and according to Boeing’s own analysis, could result in catastrophic consequences in certain cases. What’s more, Mr. Muilenburg’s answers to our questions were consistent with a culture of concealment and opaqueness and reflected the immense pressure exerted on Boeing employees during the development and production of the 737 MAX. Boeing leadership has said that if company officials knew during the design of the MAX what they know now about some of the technical flaws and other issues, they would have done things differently. Our investigation has already shown that Boeing leadership was aware of many of the problems that engineers are now attempting to fix during the design and development phase of the 737 MAX.

We were surprised by Mr. Muilenburg’s apparent lack of awareness of rather critical decisions being made within his own company, including something that concerns us deeply, which is Boeing’s attempt to move legal proceedings related to the MAX overseas and out of the U.S. court system.

The bottom line is that there are a lot of unanswered questions, and our investigation has a long way to go to get the answers everyone deserves, especially the families of the crash victims. We are grateful that during the hearing, many Members stopped to recognize the family members who were in attendance. That small gesture is important, because we can’t lose sight of the human toll of the mistakes that were made on the Boeing 737 MAX. The victims’ loved ones deserve a thorough

investigation from our Committee about how the regulatory system and the law failed, and that's exactly what our Committee intends to do.

In the coming days and weeks, our Committee will push ahead on our investigation and we will keep you updated on the next hearing.

Sincerely,

PETER A. DeFAZIO
Chair

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