## After two crashes that killed 346 people

## Boeing rejects pilot simulator training for 737 Max 8

## Bryan Dyne 4 June 2019

Aerospace giant Boeing is proposing to proceed with new pilot training for its 737 Max 8 aircraft without the use of hands-on flight simulators. This cost-cutting measure continues the policy that led to the crashes of Lion Air Flight 610 last October and Ethiopian Airlines Flight 302 in March, which killed a combined total of 346 passengers and crew.

According to CNN, part of Boeing's plan to bring the grounded 737 Max 8 back into service is a computerbased training program which, like the company's recommended pilot training on the aircraft before the two crashes, does not involve any time in an actual flight simulator. The Federal Aviation Administration (FAA), which must ultimately approve any retraining regimen for the jet, has not yet announced its official training requirements.

Boeing's proposal comes amidst mounting evidence of shoddy construction of its commercial jets, including its 737 Max line, which was brought into service in 2017 and quickly became the company's biggestselling aircraft and pushed Boeing's stock price and profits to record highs. The FAA said Sunday that more than 300 Boeing 737 jets, including the Max, may have faulty wing parts that do not meet strength and durability standards. The FAA said it plans to order airlines to remove and replace the parts on impacted aircraft. It added that as many as 148 parts made by a Boeing supplier could be "susceptible to premature failure or cracks."

The affected parts are slat tracks, which sit on the front of the wing and move along a track to create lift. They play an important role during take-off and landing.

Boeing's proposal to skip flight simulator training for

pilots when its grounded fleet of 737 Maxes is cleared to resume service is not an innocent one. Much of the criticism the company has faced is that the original training for the Max 8 for pilots who had flown previous versions of the 737 aircraft was an hour-long course on a tablet. This was part of a scheme by the company to reduce the cost of the new plane for airlines and minimize the time needed to get it into the air. Corners were cut in order to beat back a challenge from Boeing's European-based rival Airbus, whose new short- and mid-range commercial jet was threatening to capture lucrative markets long dominated by the US giant as well as the rapidly growing Asian market.

At the time, the company, the FAA and the pilots unions all agreed that the minimal training was adequate.

The airplane manufacturer is proposing more of the same in order to hold onto market share for its most profitable aircraft. Flight simulators cost upwards of \$15 million each and pilots typically train for hundreds of hours before they even get inside a real cockpit.

The CNN report came only one day after Boeing CEO Dennis Muilenburg gave an interview to CBS News in which he admitted that the company did not correctly implement the installation of its new Maneuvering Characteristics Augmentation System (MCAS), an automated anti-stall system that is believed to have been responsible for both crashes. Muilenburg also acknowledged that "our engineers discovered" the problem, but the company kept it hidden from the airlines, pilots and regulatory agencies until it was exposed by the crashes, both of which occurred within minutes of takeoff when MCAS was triggered by a faulty sensor and repeatedly forced the nose of the plane sharply downward.

In the same interview, Muilenburg attempted to shift scrutiny from Boeing's leadership onto the workers, claiming that "there appears to have been a maintenance issue with" the angle-of-attack sensor, which fed data to MCAS that made the software force the two planes into a lethal nosedive. In previous comments, Boeing spokespeople have attempted to blame the pilots.

Muilenburg's comments are further undercut by new reports revealing that Boeing changed how the MCAS software worked without informing those who knew about the system. The program was originally installed on the 737 Max 8 to compensate for the plane's tendency to stall, a consequence of mounting a larger engine on the same body design as earlier 737s—another decision driven by Boeing's desire to produce its answer to Airbus as quickly and cheaply as possible.

Originally, MCAS was capable of changing the pitch of a plane by only 0.6 degrees and it relied on input from two different sensors. However, Boeing changed the software to make it more aggressive, giving it the ability to automatically pitch the plane upward by 2.5 degrees, and allowing it to be triggered by input from a single sensor—one of the plane's two angle-of-attack sensors.

FAA officials were not even directly aware of the existence of MCAS. An internal FAA review of its jetliner certification process found that no senior agency official participated in crucial assessments of the MCAS system, instead relying on Boeing employees to perform safety tests and analyses of potential hazards, under the terms of the 2005 Organization Designation Authorization program—a measure designed to further weaken federal oversight of the company.

Those that did sign off on MCAS were not made aware of the changes in the system because of FAA rules declaring that since the system had been certified, the changes did not warrant additional safety tests. This meant that the officials in charge of pilot training were not alerted to the change.

Mike Sinnett, a Boeing vice president, defending these decisions last November in response to the outcry over the Lion Air crash, said, "It's been reported that it's a single point failure, but it is not considered by design or certification a single point." He added that this was so "because the function and the trained pilot work side by side and are part of the system," ignoring the fact that many if not most of the pilots flying the 737 Max 8 did not know of the existence of MCAS.

What is absent from the press reports, however, is any suggestion that Muilenburg, Sinnett or any of Boeing's leadership should be prosecuted in connection with the deaths of 346 people. Muilenburg was paid \$23 million last year in compensation for Boeing's accelerating rise on the stock market, achieved by a brutal cost-cutting drive, including the elimination of thousands of jobs. He was also rewarded for enriching big investors and speculators by overseeing billions in stock buybacks and dividend increases.



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