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Boeing pleads guilty to criminal fraud: the continuing 737 Max saga

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Boeing has agreed to plead guilty to a criminal fraud charge regarding the two crashes of 737 Max airplanes that caused the death of 346 passengers on two flights: a Lion Air flight out of Indonesia in October 2018 and an Ethiopian Airlines flight in March 2019. Though Boeing had [tried hard](#) to convince the world that these accidents occurred due to poorly trained pilots in the third world, there was overwhelming evidence that Boeing had made significant changes to the flight control systems while hiding them from the U.S. Federal Aviation Administration and the concerned airlines.

The [Seattle Times](#), which has done the most work in detailing the cause of the

crashes and the failure of Boeing and the federal aviation regulator, described the settlement, “The plea deal... calls for Boeing to pay an additional \$243.6 million fine. That was the same amount it paid under the 2021 settlement that the Justice Department said the company breached.” This is apart from the \$1.77 billion in damages to airline customers and a \$500 million crash-victim beneficiaries fund. The lawyers of some of the families who lost their members in the accidents have asked the Federal judge to reject the settlement. In a statement, Paul Cassel, a lawyer for some of the families, said, “This sweetheart deal fails to recognize that because of Boeing’s conspiracy, 346 people died. Through crafty lawyering between Boeing and [the Department of Justice], the deadly consequences of Boeing’s crime are being hidden.”

Leaving aside the question of Boeing’s good faith in instituting changes in its engineering and manufacturing practices, which have been further dented by engineering defects such as [doors/panels blowing off in flights](#) and various other mishaps recently, this acceptance by Boeing finally puts to bed the initial campaign of [blaming the pilots](#) for the accidents. CEO David Calhoun said, “When designing the Max, the company made a ‘fatal mistake’ by assuming pilots would immediately counteract a failure of new software on the plane that played a role in the Lion Air and Ethiopian Airlines accidents.” But he implied that the pilots from Indonesia and Ethiopia, “where pilots don’t have anywhere near the experience that they have here in the U.S., were the cause of the accidents” The third-world pilots—an Indian and an Indonesian for the Lion Air flight and the two Ethiopians for the Ethiopian Airlines—were simply not good enough unlike the good old American pilots.

Boeing had insisted that it had disclosed all the details of the changes it had made to the flight control system to the companies buying the Boeing 737, and its blaming of third-world pilots was also repeated by [major news organizations](#), all of course located in the West. It was a repetition of what we in India heard after the Bhopal Gas tragedy, that it was not criminal cost-cutting that led to the leak of poisonous

methyl isocyanate in Bhopal. It has taken six years for Boeing to finally admit that the accidents that took down the two Boeing 737s were the result of a culture that prized profits over human lives.

What went wrong in the Boeing 737's two flights is now [well established](#). Boeing had redesigned its aircraft for the new Boeing 737 Max such that the engines, much larger than the original versions, had to be mounted higher and more forward on its wings than its older versions. This led to the plane pointing its nose up under some conditions and the possibility of stalling the aircraft. To address this problem, Boeing decided to add a piece of software called the Maneuvering Characteristics Augmentation System (MCAS) that would "correct" this tendency automatically. This is the infamous MCAS that overrode what the pilot was doing. More importantly, Boeing did not inform the pilots about this piece of software. They had no clue that, under certain conditions, the software could override what they were doing, introducing a ghost in the machine.

Worse, the action of overriding the pilot was taken based on a single sensor that measured the angle at which the plane was flying (the angle of attack). In the Lion Air flight, the sensor from which the MCAS took its input was off by 30 degrees. This led to the ghost in the machine: the MCAS continuously overrode whatever the pilots did, leading to the plane's dive into the sea.

After a second [accident, of the Ethiopian Airlines](#) flight, within five months of the Lion Air flight, the recovery of its flight recorder and leaks from within the company made clear that Boeing had lied to the Federal Aviation Authority. It had actively misled them about the amount of change between the 737 Max and its earlier version, the 737 NG. A frank account of the change had implications not only for the price of the aircraft but also for the extra hours pilots would have to spend on flight simulators. All these would have meant slower sales and higher costs for the new 737s, which would have turned many buyers to the Airbus A320.

For those who deal with control systems, any automation that hides what is happening and why it is happening from the operator—in this case, the pilots—is a cardinal sin. This is especially the case in case the automation systems fail, and they can due to sensor error. In the cases of the Lion Air and Ethiopian Airlines flights, a miscalculation of how much correction should be done, and that the automation software did not indicate to the pilots meant that the pilots were completely blind to what was happening to the aircraft. Having worked on control systems for most of my working life, I know that any deviation from this principle is asking for a disaster, as all machines have the potential for failure. No system is foolproof. Or, as the engineers say, it may be foolproof but not bloody foolproof!

So why did Boeing, one of the engineering leaders in the U.S., violate the fundamentals of their discipline? The answer is very simple: profits. This is also why the U.S. needs to improve its manufacturing. It believes that profits drive share price, and the value of a company is its market capitalization. Under its then-CEO Dennis Muilenburg, Boeing went from an engineering giant to a Wall Street darling. Its profits jumped by 67 percent, and Boeing's share price almost tripled during Muilenburg's tenure. In [*Flying Blind: The 737 Max Tragedy and the Fall of Boeing*](#), Peter Robinson writes, "Boeing's chief financial officer, Greg Smith, told colleagues in one meeting that [share price] could top \$800 or \$900 if the company kept doing what had made shareholders happy: raising the dividend, buying back shares, and keeping expenses low." For Boeing, aircraft engineering was no longer the key; it was the financial engineering of its balance sheet. This is what neoliberalism is all about, where finance capital rules supreme.

Boeing was and still is one of the largest aerospace and defense contractors in the world. Just as it is trying to put to bed what went wrong in the company and its engineering culture leading to its repeated failures, its new Boeing [*CST-100 Starliner spacecraft*](#) has discovered problems, delaying the return of two NASA astronauts, Sunita Williams and Barry Wilmore, back to earth. While NASA and

Boeing both are playing down the problem of the Boeing spacecraft, the problem of why five out of 28 helium thrusters developed leaks and misfired has yet to be publicly explained. Boeing pushed back the return date from 7 days in the space station to now at least 35 days, if not longer. Boeing's CST-100 Starliner is meant to compete with Elon Musk's SpaceX spacecraft. Boeing's engineering culture is obviously focused on its balance sheet and not on what it produces. As it is a major defense supplier to the U.S. military, the American people pay the price of its shoddy engineering.

This article was produced in partnership by [Newsclick](#) and [Globetrotter](#). Prabir Purkayastha is the founding editor of Newsclick.in, a digital media platform. He is an activist for science and the free software movement.

