

KATZ BANKS KUMIN

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By Electronic and First-Class Mail
January 19, 2024

Mr. Michael Whitaker, Administrator
U.S. Department of Transportation
Federal Aviation Administration
800 Independence Avenue, SW
Washington, DC 20591

RE: Safety Issues Regarding the Manufacture of Boeing 787 and Boeing 777 Airplanes

Dear Mr. Whitaker:

Our law firm represents a veteran Quality Engineer of Boeing Company (“Boeing” or “the Company”) who has become aware of serious safety issues related to Boeing’s 787 and 777 airplanes.¹ Our client has over four decades of experience in aerospace engineering. He learned of these issues in the course of his employment, where his responsibilities include monitoring Boeing’s production activities to investigate and analyze defects and their root causes and developing processes and corrective actions to address and prevent those defects. He has repeatedly reported to Boeing management serious concerns about Boeing’s current production and quality control processes, which he believes are creating potentially catastrophic safety risks. In his work on the 787, he observed shortcuts taken by Boeing in the shimming process during assembly, resulting in drilling debris left in interfaces and deformation of composite material. This shortcut has resulted in decreased fatigue performance of the airplanes. He has also observed that Boeing’s implementation of a new process in assembling the 777 without the necessary redesign of relevant parts has led to misalignments of parts, which Boeing engineers are pressured to overlook. This too has resulted in serious safety risks. As a result of reporting these concerns, he has been subjected to unlawful retaliation in violation of the Wendell H. Ford Aviation Investment and Reform Act for the 21st Century, 49 U.S.C. § 42121 (“AIR 21”). Boeing has dismissed and ignored his safety complaints, a response which is reflective of a company-wide pattern of prioritizing speed of production and delivery over the investigation and remediation of significant safety risks and of discouraging employees from raising safety concerns.

Our client fears continued retaliation from Boeing as a result of his legally protected complaints, including this report to the Federal Aviation Administration (“FAA”). He is deeply concerned that this culture of cutting corners in internal processes, particularly in the critical area of quality control, at the expense of safety and suppressing complaints about structural defects

¹ Our client wishes to remain anonymous until appropriate confidentiality protections are agreed upon. As noted later in this letter, he has already faced escalating harassment and retaliation from Boeing officials in response to the safety concerns detailed in this letter.

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poses a serious threat to public safety. Our client's concerns about the "schedule over safety" culture at Boeing have been made all the more urgent as a result the recent incidents involving defects in Boeing's 737 MAX 9 airplanes, as well as other recent incidents involving Boeing aircrafts which have resulted in the death of 346 passengers. While Boeing's internal quality controls have come under increased scrutiny as a result of public attention to the 737, our client's experience in observing and attempting to report serious safety issues demonstrates that any response to from Boeing and the FAA should not be limited to any particular model but should encompass a broad review of Boeing's company-wide approach to quality control and safety reporting.

The core issue our client wishes to address in bringing these issues to light is the apparent discrepancy between Boeing's stated commitment to "100% First -Pass Quality" and major lapses in the company's quality control process, which are evident in the recent public incidents and our client's own observations working at Boeing. Our client has personally observed that Boeing's normal quality control processes miss about 33% of defects, a figure that is deeply troubling when dealing with critical defects in the airplane manufacturing, and that rate may be as high as 60% in some of Boeing's programs. It is crucial that the FAA investigate this fully with scrutiny of how Boeing responds to employee complaints about safety. Our client has experienced over and over a company culture which permits retaliation against those who speak up about defects. We urge you to take these matters seriously.

While working on the 787 in early 2021, our client learned that Boeing had begun taking shortcuts with respect to fit-up force (FUF) and one up assembly (OUA) in an attempt to reduce bottlenecks in the production of 787s. Boeing adopted these shortcuts in its production processes with faulty engineering and faulty evaluation of the data, which has allowed potentially defective parts and installations in 787 fleets. Boeing previously shimmed gaps exceeding .005 inches with 10 pounds of FUF, the minimum force required to hold two parts together while measuring the gap opening between them for shimming purposes, per linear foot. Industry engineering standards require Boeing to shim these gaps using minimal force to avoid causing deformities, but contrary to these requirements, Boeing has increased the FUF used in the shimming process to 165 times the recommended level of force. While Boeing represents that it follows industry standards, the company's own internal reports revealed that up to 98.7% of gaps over .005 inches have not been shimmed at all in some sections. This omission, affecting more than 1,000 787 airplanes in service, is likely to cause premature fatigue failure over time in two major airplane joints. Installation of fasteners with gaps exceeding .005 inches without proper shimming (or in some cases, any shimming at all) puts excessive stress on these fasteners and can cause significant fatigue in important airplane components, especially in joint areas where large fuselage barrels are connected. Because these defects weaken fatigue performance in composite material and they are generally not detectable through visual inspection, they could ultimately cause a premature fatigue failure without any warning, thus creating unsafe conditions for the aircraft with potentially catastrophic accidents and passenger fatalities.

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In response to our client's repeated safety concerns, Boeing claimed to perform testing to justify increasing the FUF. However, as our client documented in repeated reports and complaints to Boeing supervisors, the methods used were faulty and insufficient to address these defects for a number of reasons, including the fact that tests were run at 50 pounds and 100 pounds of FUF, rather than the 150 pounds of FUF actually implemented by the Company.

Our client also discovered that a shortcut used to expedite the 787's OUA process, which ensures that parts are held together during drilling operations with sufficient force to ensure that the gap between them is less than the shimming tolerance threshold of .005, relied on inaccurate measurements of edge curve gap dimension. The assumption underlying this process is that if the gap is less than .005 inches, for most practical purposes, drilling debris will not be embedded between the parts, and therefore, the parts do not have to be separated, deburred, cleaned and reassembled. This expedites the assembly process and significantly reduces costs. However, edge curves can only predict the in-hole gaps from the two holes closest to the edge with approximately 20% accuracy, and Boeing's use of this approach has resulted in drilling debris being left in the interfaces of approximately 80% of the 41/43 and 46/47 joints in 787s.

Boeing's own internal statistical analyses revealed that these changes in production were compromising airplane safety by accelerating aircraft fatigue, but when our client escalated his concerns to Boeing management, he was ignored and ultimately transferred out of the 787 program to the 777 program.

Following his transfer to the 777 program, our client began noticing alarming safety concerns in that program almost immediately. Prior to his involvement with the 777, in or around 2017, Boeing adopted a Fuselage Automated Upright Build (FAUB) process in an effort to speed up production by expediting the assembly of the 777's fuselage. The FAUB system, which replaced Floor-mounted Assembly Jigs (FAJ), relied on guided vehicles to assemble the 777's fuselage panels. Normally, implementing such a process would require parts and sub-assemblies to be redesigned to be compatible and provide correct alignment of parts in the initial assembly process. The automated drilling component of the FAUB was ultimately unsuccessful and was abandoned by Boeing. However, Boeing maintained some elements of the FAUB system, in part because the previous system had been prematurely disassembled before the FAUB was proven to be effective, while failing to make necessary changes to the design of relevant parts and subassemblies to accommodate the new processes. This has resulted in significant misalignments between parts in the assembly of at least 400 777 airplanes. Boeing has responded to these defects by using unlimited and unmeasured forces to "Force Align" parts and assemblies that do not align. Critically, the Company has failed to make any meaningful changes to the underlying production processes to avoid defects which could pose serious safety risks. Boeing management involved in the 777 production has also pressured Liaison Engineers (LEs) responsible for addressing defects to work faster, increasing the likelihood that defects will not be identified and addressed. LEs are also pressured to give production permission to continue, despite the presence of defects, without the opportunity to actually see and evaluate those defects.

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Our client has repeatedly raised concerns to management about the chronic defects with the 777 caused by the FAUB process and the grave risks that they pose. Boeing has ignored his concerns and has failed to take remedial action. Instead, it has retaliated against him by sidelining him and excluding him from key meetings. His supervisor has subjected him to repeated threats and Boeing has prevented him from consulting with subject matter experts to implement approaches that would prevent these dangerous defects.

Our client remains committed to bringing these significant safety concerns to light. In reporting these practices through this letter, he requests that the FAA investigate both the specific technical defects he has identified and the underlying processes which have allowed them to continue. He further requests that the FAA take a close look at Boeing's insidious culture of suppressing legitimate safety complaints. This is crucial to prevent further serious incidents that pose a grave risk to the public.

Our client is eager to provide detailed information to the FAA and has a trove of documents substantiating his concerns. He requests an opportunity to meet with FAA representatives in Washington, D.C. to discuss his concerns and review these materials.

Please contact me or Susanna Barron of this firm to schedule a meeting with our client to discuss the matters raised in this letter.

Sincerely,



Debra S. Katz

cc: Marc Nichols, Esq.
Mr. David Boulter
Mr. Pete Buttigieg