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COZEN O'CONNOR

Reflections on Boeing's Exposure Following the 737 MAX Crashes

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One cannot open a newspaper or see a news report without hearing about the two horrific crashes of the brand new Boeing 737 MAX that occurred on a Lion Air flight on October 28, 2018, and, most recently, on an Ethiopian Airlines flight on March 10, 2019. As a result of the 300 plus fatalities on these flights, virtually every airline flying the Boeing 737 MAX has grounded that aircraft at substantial cost and inconvenience to the airlines. Recently, a number of airlines have extended the grounding for several months and cut orders for future purchases of the 737 MAX.

Recent news reports point to a problem with the software of the Maneuvering Characteristics Augmentation System (MCAS), which is suggested to have caused or at least played a role in these terrible incidents. Essentially, MCAS was a new system installed on all 737 MAX aircraft to compensate for a design issue that arose when Boeing fitted the 737 MAX with newer and larger engines. Supposedly, the MCAS is meant to compensate for the possible stall of the aircraft due to the increased size of the engines and their more forward placement, by automatically lowering the Angle of Attack (AOA). This results in the nose being lowered, which, it is speculated, may have caused the aircraft to dive since the pilots involved were not able to compensate for or disable the MCAS in order to raise the nose angle to a safe level. In one case, reports suggest that the pilots actually disabled the system but that it came back on.

Again, this theory is all speculative at this point and there will obviously be significant additional information provided once the investigations of the causes of these incidents have been completed.

Significantly, however, Boeing just recently released a "software fix" to the MCAS that is intended to be activated by two Angle of Attack sensors (rather than just one on the earlier version of the system) and, if these sensors disagree by more than 5.5 degrees, the MCAS system will be disabled and will not push the nose of the plane lower. Further, Boeing intends to add an indicator to the flight control display to alert pilots when the Angle of Attack sensors disagree. There has also been some discussion of a much more user-friendly ability to disable the system entirely, which was not in place on earlier versions of the aircraft.

With this in mind, what potential theories of civil liability could Boeing be subject to by passengers and airlines who have suffered significant losses, including losses of revenue, or tragic loss of life as a result of what appears to have been a design flaw in the software, if not the MCAS itself? Further, what theories could allow for criminal liability?

Civil Liability

There are numerous theories of liability that may be able to be asserted against Boeing and possibly other vendors assuming, of course, the cause of the crashes is identified to be at least, in part, related to the design of the software and MCAS system. These would include:

- Simple negligence (i.e. breach of a duty of care);
- Breach of warranty (running to the airlines as purchaser and lessor) assuming that the purchase or lease agreements involving this aircraft contain standard warranty clauses that, in most cases, limit any claim to breach of warranty and expressly waive claims for negligence;
- Strict product liability;
- Defective design and/or manufacture;
- Failure to warn;
- Inadequate manuals and/or training;
- Economic loss (due to grounded aircraft);

- Engaging in an unreasonably or inherently dangerous activity; and, finally
- Gross negligence (resulting in exposure for punitive damages).

Many of these theories are based on state law, but the ones that would appear to me to be of most significance involve strict product liability and failure to warn.

The basic categories of a product liability claim are threefold:

1. Manufacturing defect;
2. Design defect;
3. What is known as the “Risk Utility Test”.

With regard to a manufacturing defect in the software, the plaintiffs would have to prove that the product, in this case the aircraft or one of its systems, does not meet intended specifications set by the manufacturer. In other words, the product contains an unintended defect. That is a probably unlikely basis for a product liability claim here. However, it is much more likely that exposure may exist for a design defect, which requires proof that the product was designed in an unreasonably dangerous manner, meaning that it is “dangerous to an extent beyond that which would be contemplated by the ordinary consumer who purchases it.”[1]

A court might also apply what the Restatement of Torts terms the “Risk Utility Test” that essentially balances the foreseeable risk of harm of the product, which could be reduced or avoided by adopting a reasonable alternative design, and, failing to adopt such a design, “renders the product not reasonably safe …”[2]

This test would appear to be most applicable to the Boeing exposure based on what appears to be a design defect in the MCAS, which could perhaps have been designed in an alternatively safer manner or with more failsafe features.

Another strong predicate for potential liability would be a claim for failure to warn, which would probably be most effective if brought by an airline who was leasing or purchasing the 737 MAX. In a failure to warn case, the plaintiff must show that the defendant knew about the danger of the product, had a duty to warn of the danger, was negligent with regard to its duty to warn, the failure to warn caused injury, and the warning was not visible. It would seem that if there was an inherent defect or issue with respect to the MCAS system of which Boeing was aware, the failure to advise the purchaser of this danger could very clearly create liability on Boeing’s part. This claim could be coupled with one for inadequate or defective training and shortcomings in the manuals describing the system and its risks. It might also be claimed that a safety or failsafe system was, in fact, available, but as we understand it, was an option that had to be purchased. Rendering a safety system optional, rather than required could be considered highly unreasonable, perhaps even reckless. It would, however, be difficult for the estate of a passenger who was killed as a result of the defective system to make a claim for failure to warn, since it would not be expected that passengers would either be aware of or be concerned with issues relating to aircraft systems in general.

As far as economic loss claims are concerned, it is likely that the purchase or lease agreements with the airlines limit remedies to the cost of repair or replacement and exclude pure economic loss claims. However, a close review of the actual agreements would be required to fully evaluate this category of claims.

Another interesting aspect of Boeing’s exposure may relate to the subsequent efforts and attempts to remedy the claimed defect, which it is understood are underway by way of a software patch. Federal Rule of Evidence 407 generally precludes the admission of what are called “Subsequent Remedial Measures” to prove negligence, a defect in the product or its design or a need for a warning or further training, all of which would seem to be theories upon which a claim against Boeing could be brought. However, subsequent measures can be admitted into evidence to impeach, or for providing proof of control or feasibility of precautionary measures. In other words, the current attempts to solve the software problem may be shown to convince a jury that the defect could have been avoided in the first place.

In sum, there are numerous common law theories upon which Boeing could be subject to very significant exposure. Indeed as of April 17, 25 lawsuits have been consolidated in Federal Court in

Chicago on behalf of the survivors of passengers killed in both crashes. There have also been reports of a class action on behalf of shareholders due to the loss in value of Boeing stock as a result of the crashes. It is highly likely numerous other suits will follow.

Criminal Liability

Civil liability isn't the only problem facing Boeing as there are multiple press reports that the Department of Justice has undertaken a criminal investigation that began immediately after the Lion Air crash. One focus of that investigation no doubt is the company's certifications to the Federal Aviation Administration (FAA). Materially false statements in the certifications would be prosecutable under several federal criminal statutes. For example, 49 U.S.C. § 46310 imposes a fine or a term of imprisonment for up to five years, or both, to an air carrier or its officers, agents, or employees, who intentionally falsify or conceal a material fact or induce reliance on a false statement of material fact or falsify a record, in a certification report or record required by the FAA. Other potentially relevant federal statutes include 18 U.S.C. § 1001, which imposes a fine and a term of imprisonment for up to five years to an individual who knowingly and willfully makes false statements or conceals a material fact to any branch of the U.S. government, and, more ominously, the mail and wire fraud statutes, 18 U.S.C. Sections 1341 and 1343, which allow for sentences up to 30 years, thus earning their reputation that one commentator famously described as federal prosecutors' "Stradivarius, our Colt 45."[3]

Briefly described, the aircraft certification process proceeds in two stages, during the design phase and post-production of an aircraft. Because the 737 MAX 8 was considered an upgrade in an existing series, particular attention is likely to be paid to the second phase where Boeing would have been required to receive an approved airworthiness certification for each of its individual planes. Among other matters, that certification requires an aircraft producer to disclose any necessary restrictions required for safe operation of the aircraft and any reasons the aircraft does not meet applicable FAA airworthiness requirements. FAA Order 8130.2J contains the policies and procedures for issuing airworthiness certificates and sheds some light into the FAA's definition of "airworthiness."[4] Aircraft manufacturers who make major modifications or repairs to an existing type certified aircraft or its parts must apply for and receive an FAA-approved supplemental type certificate.

The FAA's decision to allow airline manufacturers to hire qualified designated representatives (either Boeing employees or third parties) to determine compliance with aircraft certification regulations came under severe criticism both in the press and an Inspector General's report issued in 2011.[5] Regardless of the merits of that controversy, it is likely that materially false statements or omissions in the certifications would provide the basis for potential criminal prosecution of Boeing under any or all of the statutes enumerated above. Notwithstanding, the burden of showing falsification or misrepresentations by Boeing on the part of the Department of Justice is very high and it would seem unlikely that Boeing intentionally made false statements or falsified records, given how serious the consequences of doing so would be. However, what is clear is that pending the outcome of the civil and criminal investigations, Boeing will continue to be the subject of intense scrutiny for some time.

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[1] Restatement (Second) of Torts, Section 402(A) (Am. Law Inst. 1979), comment i.

[2] Restatement (Third) of Torts; Product Liability Section 2(b) (Am. Law Inst. 1998).

[3] Jed S. Rakoff, *The Federal Mail Fraud Statute* (Part I), 18 Duq. L. Rev. 771, 771 (1979-1980).

[4] *See* FAA Order 8130.2J, Ch. 2 (July 21, 2017), https://www.faa.gov/documentLibrary/media/Order/FAA_Order_8130.2J.pdf.

[5] *See* U.S. Department of Transportation, AV-2011-136, Office of Inspector General Audit Report: FAA Needs to Strengthen its Risk Assessment and Oversight Approach for Organization Designation Authorization, and Risk-Based Resource Targeting Programs, at 3 (June 29, 2011).