IN THE COURT OF CHANCERY OF THE STATE OF DELAWARE

THOMAS P. DiNAPOLI, COMPTROLLER OF THE STATE OF NEW YORK, AS ADMINISTRATIVE HEAD OF THE NEW YORK STATE AND LOCAL RETIREMENT SYSTEM, AND AS TRUSTEE FOR THE NEW YORK STATE COMMON RETIREMENT FUND, and FIRE AND POLICE PENSION ASSOCIATION OF COLORADO,

Plaintiffs,

v.

KENNETH M. DUBERSTEIN, MIKE S. ZAFIROVSKI, ARTHUR D. COLLINS JR., EDWARD M. LIDDY, ADMIRAL EDMUND P. GIAMBASTIANI JR., DAVID L. CALHOUN, SUSAN C. SCHWAB, RONALD A. WILLIAMS, LAWRENCE W. KELLNER, LYNN J. GOOD, ROBERT A. BRADWAY, RANDALL L. STEPHENSON, CAROLINE B. KENNEDY, W. JAMES MCNERNEY JR., DENNIS A. MUILENBURG, KEVIN G. MCALLISTER, RAYMOND L. CONNER, GREG SMITH, J. MICHAEL LUTTIG, GREG HYSLOP, and DIANA L. SANDS,

Defendants.

and

THE BOEING COMPANY,

Nominal Defendant.

PUBLIC VERSION
FILED ON: June 30, 2020

C.A. No. 2020-0465-AGB

VERIFIED STOCKHOLDER DERIVATIVE COMPLAINT

Plaintiffs Thomas P. DiNapoli, Comptroller of the State of New York, as Administrative Head of the New York State and Local Retirement System, and as Trustee of the New York State Common Retirement Fund, and Fire and Police Pension Association of Colorado, stockholders of The Boeing Company ("Boeing," the "Company," or "Nominal Defendant"), bring this action on Boeing's behalf against the current and former officers and directors identified below (collectively, "Defendants") arising from their failure to monitor the safety of Boeing's 737 MAX airplanes. The allegations in this Complaint are based on the knowledge of Plaintiffs as to themselves, and on information and belief, including the review of publicly available information and documents obtained under 8 *Del. C.* § 220,[1] as to all other matters.

[1] Plaintiffs obtained the following documents in response to a Section 220 demand: (i) minutes of any Board meeting or any committee thereof, that related to the 737 MAX 8 from January 1, 2010 through December 31, 2019. These materials included the documents that the Board, or any committee thereof, received in connection with any meeting that related to the 737 MAX; (ii) electronic communications from Dennis Muilenburg (June 1, 2018 through June 6, 2019), Kevin McAllister (through June 11, 2019) and Greg Hyslop (through June 11, 2019) collected by an agreed-to set of search terms; (iii) materials regarding the 737 MAX produced to Congress and in response to congressional inquiries into the 737 MAX through December 31, 2019; (iv) any documents produced in response to a demand made by any other Boeing stockholder pursuant to 8 *Del. C.* § 220. Plaintiffs have received over 44,100 documents totaling over 630,000 pages. It is reasonable to infer that Boeing's production includes all potentially exculpatory documents in Boeing's possession. *See In re Tyson Foods, Inc*., 919 A.2d 563, 577-78 (Del. Ch. 2007).

NATURE OF THE ACTION

1. In 1996, Chancellor Allen issued his famous opinion in *In re Caremark International Inc. Derivative Litigation*, in which he explained why the fiduciary obligations of directors of Delaware corporations "includes a duty to attempt in good faith to assure that a corporate information and reporting system, which the board concludes is adequate, exists[.]"

2. In 2011, Vice Chancellor Strine issued an opinion in *In re Massey Energy Company Derivative and Class Action Litigation*, in which he explained how a non-exculpated *Caremark* claim had been adequately pled against outside directors of Massey Energy Company, for failures of safety monitoring "that can be proximately linked to the Upper Big Branch Disaster," a massive mine explosion that resulted in the death of 29 miners.

3. In 2019, Chief Justice Strine explained in *Marchand v. Barnhill* why outside directors of an ice cream manufacturer that sold *listeria*-infected ice cream were potentially liable for not assuring the existence of a "board-level system of monitoring or reporting on food safety," a subject that was "essential and mission critical" to the corporation.

4. The dates of these Delaware decisions correspond to three pivotal events at Boeing that amount to an epochal corporate governance catastrophe.

5. In the mid-1990s, Boeing's leaders decided to dismantle their lauded safety-engineering corporate culture in favor of what became a financial-engineering corporate culture. One signal event was Boeing's 1997 acquisition of McDonnell Douglas, after which Boeing adopted McDonnell Douglas's cost-cutting approach to building airplanes. Within four years, Boeing had moved its corporate headquarters out of Seattle, to escape the influence of the resident flight engineers.

6. In 2011, Boeing's Board of Directors (the "Board") decided that its next generation of narrow-body commercial aircraft would be a reconfigured version of the Company's blockbuster 737 (the "737 MAX"), rather than an entirely new plane. This decision created new safety risks, but safety nowhere factored into the Board's decision. By the start of 2011, as a departing Boeing director expressly acknowledged, the Board had no tools to oversee safety. Safety simply was no longer a subject of Board discussion, and in subsequent years, there was no mechanism within Boeing by which safety concerns respecting the 737 MAX were elevated to the Board or to any Board committee.

7. The Board did not develop any tools to evaluate and monitor airplane safety until 2019, *after* the October 2018 crash of a Lion Air 737 MAX, *after* the March 2019 crash of an Ethiopian Airlines 737 MAX, and *after* the March 2019

grounding of the entire 737 MAX fleet, *i.e.*, after Boeing had already incurred massive liabilities caused by systemic airplane-engineering and airplane-safety problems.

8. There is no excuse for the Board's longtime failure to monitor airplane safety. Commercial airline sales have long been Boeing's largest source of revenue and profit. The 737 MAX was Boeing's best-selling airplane model of all time. The viability of the 737 MAX, Boeing's Commercial Airplane division, and the Company itself depends upon assurance that Boeing's entire fleet of aircraft are safe. Moreover, the Board repeatedly had been put on notice of serious safety-related red flags in Boeing's design, manufacture, and marketing of commercial airplanes:

- In 2013, the Federal Aviation Administration ("FAA") grounded Boeing's fleet of 787 Dreamliners for nearly three months due to recurring battery fires—the first time in over three decades that the FAA grounded an entire class of airplanes.
- In 2014, the National Transportation Safety Board ("NTSB") determined that the 2013 fatal crash of a Boeing 777 was due in part to complex automated systems that Boeing had inadequately described in its documentation and training manuals.

- A 2014 investigation by Al Jazeera revealed that a major customer of 787 Dreamliners, later revealed to be Qatar Airways, refused to accept planes assembled in Boeing's Charleston plant due to safety concerns, and that Boeing workers at the plant feared that the planes were not flight-worthy.
- In 2015, the FAA fined Boeing the second-largest amount for regulatory violations in FAA history and entered into a settlement and consent decree with Boeing to resolve thirteen separate pending or potential civil enforcement cases.

9. Investigation into the two crashes of the 737 MAX revealed the insidiousness of Boeing's cultural transformation. The Majority Staff of the House Committee on Transportation & Infrastructure issued preliminary investigative findings of a "Culture of Concealment" at Boeing, whereby Boeing withheld crucial information from the FAA, its airplane customers, and 737 MAX pilots about the plane's design and newly-implemented software, which made the plane much riskier to fly. Boeing's then-CEO and Chairman Dennis A. Muilenburg consistently denied to the Board—and the public—the existence of any "safety issues" at Boeing.

10. *The Seattle Times*, awarded this year's Pulitzer Prize for its extensive coverage of Boeing, exposed Boeing's dangerous and deceptive embrace of automation to address aerodynamic problems caused by engines on the 737 MAX. "Philosophically, Boeing had long opposed efforts to create automated actions . . . that would seize control of a situation from a pilot. But the aerodynamic solutions didn't produce enough effect . . . and so engineers turned to MCAS [software]." The Company developed the Maneuvering Characteristics Augmentation System ("MCAS") software to push the plane's nose down—automatically—based on various input sensors on the outside of the plane. After the FAA approved Boeing's preliminary fix, the Company implemented revised software, making MCAS both susceptible to false inputs and far more powerful. Despite these changes, Boeing neither conducted the requisite failure analysis of the new software nor worked with the FAA to evaluate whether the changes impacted certification. Boeing simply did not tell its customers or the pilots about the software at all. This software is a cause of the crashes of two 737 MAX airplanes. Following the grounding of the 737 MAX, Muilenburg admitted Boeing's error in May 2019: "The implementation of that [MCAS] software — we did not do it correctly."

11. Locked in a battle for market share with Airbus, Boeing insisted that its 737 MAX be built and certified for flight with as few hurdles as possible. That included limiting, if not avoiding, costly pilot simulator training, and minimizing updates to the aircraft's manual. One pilot complained to the FAA after the Lion Air crash that "[t]he Flight Manual is inadequate and almost criminally insufficient."

12. Safety was an add-on feature "for sale" at Boeing. Shortly after the Lion Air crash, the COO of Southwest Airlines, a major Boeing customer, was outraged to learn that a critical safety component—the AOA disagree alert, which alerted pilots when a critical sensor to determine the plane's angle of flight may be malfunctioning—did not come standard on the 737 MAX, but had instead been made available for sale (like modified seat configurations) as an *add-on*. "We don't need to be put in a position to buy safety warning information," he wrote. Yet, even after that exchange, Boeing internally concluded that the AOA disagree alert was not a "safety issue," a decision that was not elevated to upper-level management.

13. All 189 passengers and crew on board Lion Air Flight 610 perished. Five months later, all 157 passengers and crew perished when Ethiopian Airlines

Flight 302 crashed. Over Boeing's objection, the 737 MAX has been grounded globally ever since.

14. These events produced massive corporate trauma at Boeing: in January 2020, Boeing disclosed non-litigation costs associated with the grounding of the 737 MAX approaching $20 billion. The costs associated with the grounding of the 737 MAX include approximately $4 billion to shut down and restart the Renton, Washington factory, $8.3 billion to compensate airlines for lost sales as a result of the 737 MAX grounding, and a total production cost of $6.3 billion. The Company also faces government investigations and civil lawsuits.

15. A critical objective of Delaware corporate law is to deter corporate catastrophes by providing for a litigation remedy if fiduciaries in bad faith ignore their obligations to oversee profit-seeking managers. Both crashes were preventable. Boeing's officers and directors did not do their jobs, and they knew it. They failed to act in good faith to assure the existence of a functioning, Board-level safety-reporting system, including following the Lion Air crash. Even after Muilenburg's deceit and failures were exposed, and the Board determined to fire him, the Board in bad faith allowed Muilenburg to collect unvested equity-based compensation of over $38 million.

PARTIES

I. Plaintiffs

16. Plaintiff Thomas P. DiNapoli is Comptroller of the State of New York, Administrative Head of the New York State and Local Retirement System, and Trustee of the New York State Common Retirement Fund ("NYSCRF"). NYSCRF is a public pension fund for the employees of New York State government. Its assets totaled $210.5 billion as of March 31, 2019. NYSCRF has been a continuous holder of Boeing stock at all relevant times. As of June 8, 2020, NYSCRF held approximately 1,186,627 shares of Boeing stock.

17. Plaintiff Fire and Police Pension Association of Colorado ("FPPA") is the Trustee for the Fire and Police Members' Benefit Investment Fund, which contains assets of governmental defined benefit pension plans for the purpose of providing benefits for Colorado firefighters and police officers and beneficiaries upon retirement, disability, or death. FPPA's net investible assets totaled $5.6 billion as of January 1, 2020. FPPA has been a continuous holder of Boeing stock at all relevant times. As of June 8, 2020, FPPA held approximately 9,165 shares of Boeing stock.

II. Defendants

A. Nominal Defendant

18. Boeing is a global aerospace corporation that designs, manufactures, and sells commercial airplanes and other aviation equipment for the airline, and aerospace and defense industries. The Company operates in four reportable segments: (i) Commercial Airplanes; (ii) Defense, Space & Security; (iii) Global Services; and (iv) Boeing Capital. In 2017, the year prior to the Lion Air crash, the Company reported approximately $94.0 billion in revenue, of which approximately $58.0 billion, or 61.7%, was generated from the Commercial Airplanes segment. In 2019, by comparison, Boeing's revenue had fallen nearly 20% to $76.5 billion, and that of the Commercial Airplanes segment had dropped almost 45%, to $32.5 billion.

B. Outside Director Defendants

19. Directorships at Boeing are lucrative and long-term, and tend to be reserved for well-connected political insiders or present or former CEOs with financial expertise but no experience relevant to aircraft manufacturing. Recent directors of Boeing include non-parties former United States Ambassador to the United Nations Nikki Haley (a Boeing director from May 2019 to March 2020) and former United States Secretary of Commerce William M. Daley (a Boeing director from 2006 to 2011).

20. Defendant Kenneth M. Duberstein is a former White House Chief of Staff under President Ronald Reagan and a longtime principal of the lobbying firm The Duberstein Group, Inc. He served as a director of McDonnell Douglas from 1989 to 1997 and as a director of Boeing from 1997 to 2019. He was Lead Director of Boeing from 2005 to 2018. From 1997 to 2019, Duberstein received over $5.3 million for serving as a Company director.

21. Defendant Mike S. Zafirovski served as a director of the Company from 2004 until May 2020. Zafirovski was a senior executive at Nortel Networks (from 2005 to 2009). In 2007, he was appointed to the National Security Telecommunications Advisory Committee. From 2004 to 2019, Zafirovski received over $4.2 million for serving as a Company director.

22. Defendant Arthur D. Collins has been a director of the Company since 2007, the same year he retired as CEO of Medtronic, Inc. From 2007 to 2019, Collins Jr. received over $3.9 million in compensation for serving as a Company director.

23. Defendant Edward M. Liddy served as a director of Boeing from 2007 to 2008 and from 2010 to May 2020. He was previously the CEO of Allstate Corporation. Liddy received over $2.8 million for serving as a Company director.

24. Defendant Admiral Edmund P. Giambastiani Jr. is a former Vice Chairman of the Joint Chiefs of Staff. He has been a director of the Company since 2009. From 2009 to 2019, Giambastiani received nearly $3 million in compensation for serving as a Company director.

25. Defendant David L. Calhoun has been a director of the Company since 2009. Beginning in January 2014, Calhoun was senior managing director and head of portfolio operations at The Blackstone Group. Calhoun was named Lead Director of Boeing on April 30, 2018. As part of management shakeups in the wake of the 737 MAX disasters, Calhoun was appointed Chairman of the Board on October 12, 2019 (until December 23, 2019), and then as President and CEO of Boeing on January 13, 2020. From 2009 to 2019, Calhoun received nearly $3.4 million in compensation for serving as a Company director. As Boeing CEO, Calhoun's annual salary is $1.4 million, plus (i) an annual incentive payment targeted at $2.52 million; (ii) a long-term incentive of up to $9 million; (iii) additional incentive payments of up to $7 million based on certain performance targets, including returning the 737 MAX to service; and (iv) restricted stock units valued at $10 million.

26. Defendant Susan C. Schwab is a former United States Trade Representative under President George W. Bush. She has been a director of the

Company since 2010. From 2010 to 2019, Schwab received over $3 million in compensation for serving as a Company director.

27. Defendant Ronald A. Williams has been a director of the Company since 2010, the same year he retired as CEO of Aetna Inc. From 2011 to 2019, Williams received over $2.9 million in compensation for his role as a Boeing director.

28. Defendant Lawrence W. Kellner has been a director of the Company since 2011. He was named non-executive Chairman of the Board on December 23, 2019, as part of the management shakeups at Boeing in the wake of the 737 MAX disasters. Kellner is a former CEO of Continental Airlines (from 2004 to 2009). From 2011 to 2019, Kellner received over $2.3 million for serving as a Company director.

29. Defendant Lynn J. Good has been a director of the Company since 2015. During the entirety of her Boeing tenure, Good has been CEO of Duke Energy. In *Caremark* litigation naming Good as a defendant, which arose out of a $102 million fine levied against Duke Energy for violations of the Federal Clean Water Act, Chief Justice Strine wrote in dissent: "Duke's executives, advisors, and directors used all the tools in their large box to cause Duke to flout its environmental responsibilities, therefore reduce its costs of operations, and by that

means, increase its profitability. This, fiduciaries of a Delaware corporation, may not do." *City of Birmingham Ret. & Relief Sys. v. Good*, 177 A.3d 47, 65 (Del. 2017). The majority opinion held that the outside director majority could not be held liable for breach of the duty of loyalty, but stated: "None of this reflected well on Duke Energy." *Id*. at 64. From 2015 to 2019, Good received over $1.4 million for serving as a Company director.

30. Defendant Robert A. Bradway has been a director of the Company since 2016. He is the CEO of Amgen Inc. From 2016 to 2019, Bradway received more than $1.1 million for serving as a Company director.

31. Defendant Randall L. Stephenson served as a director of the Company from February 2016 to December 2017. During his tenure at Boeing, Stephenson was chairman and CEO of AT&T Inc. From 2016 to 2017, Stephenson received nearly $600,000 for serving as a Company director.

32. Defendant Caroline B. Kennedy has been a director of the Company since 2017. Kennedy is a former United States Ambassador to Japan. From 2017 to 2019, Kennedy received more than $800,000 for serving as a Company director.

C. Officer Defendants

33. Defendant W. James McNerney Jr. was Boeing's CEO, President, and Chairman of the Board from 2005 until February 2016. From 2001 to 2016, McNerney received over $240 million in compensation for his roles at Boeing.

McNerney's retirement package entitled him to at least $58.5 million over a subsequent ongoing fifteen-year period.

34. Defendant Dennis A. Muilenburg started working at Boeing in 1985. He became Vice Chairman, President, and COO in December 2013, CEO in July 2015, and served as CEO *and* Chairman of the Board from March 2016. As part of management shakeups in the wake of the 737 MAX disasters, Muilenburg lost his position as Chairman of the Board on October 11, 2019, and was allowed to resign as CEO on December 22, 2019. Between 2011 and 2019, Muilenburg received more than $120 million in compensation for his roles at Boeing. In December 2018, after the Lion Air crash, the Board awarded Muilenburg over $31 million—the highest pay of his tenure—including a $13 million cash award purportedly reflecting short and long-term performance.

35. Defendant Kevin G. McAllister was Executive Vice President of the Company and President and CEO of Boeing Commercial Airplanes ("BCA" or "Commercial Airplanes") from November 2016 until his ouster on October 22, 2019, seven months after the Ethiopian Airlines crash. From 2016 to 2017, McAllister received more than $28 million in compensation from Boeing. He received a lump sum cash payment of $14.75 million upon his departure.

36. Defendant Raymond L. Conner joined Boeing in 1977 and was vice chairman of Boeing from 2014 until his retirement in 2017, and President and CEO of BCA from 2014 until November 2016. From 2012 to 2017, Conner received more than $57.5 million from Boeing.

37. Defendant Greg Smith has served as Boeing's CFO since 2011. From 2011to 2019, Smith received more than $54 million from Boeing.

38. Defendant J. Michael Luttig served as Boeing's EVP and General Counsel from May 2006 to May 2019. In May 2019, following the grounding of the 737 MAX, Luttig was named Counselor and Senior Advisor to CEO Muilenburg and the Board. As part of management shakeups in the wake of the 737 MAX disasters, Luttig departed in December 2019. From 2011 to 2019, Luttig received more than $59 million from Boeing.

39. Defendant Greg Hyslop has served as the Company's chief engineer since July 2016. He is a member of the Company's Executive Council and reports to the Company's President and CEO. His responsibilities include oversight of all aspects of safety and technical integrity of Boeing products and services. In 2018, Hyslop received more than $8.5 million from Boeing.

40. Defendant Diana L. Sands has served as Senior Vice President of Boeing's Office of Internal Governance and Administration since April 1, 2014.

She is a member of Boeing's Executive Council. As the Company's chief ethics and compliance officer, Sands purportedly leads Boeing's ethics, compliance, corporate audit and trade controls activities. Sands reports to Boeing's President and CEO and to the Audit Committee.

FACTUAL BACKGROUND

I. Boeing Jettisons Its Safety Engineering Culture

41. Boeing was founded by William Boeing in Seattle, Washington in July 1916. Over the next 80 years, Boeing essentially functioned as "an association of engineers." As reported in *The Atlantic*, Boeing's executives "held patents," "designed wings," and were conversant in engineering requirements. The culture of the Company was focused on safety, engineering, and the pursuit of learning. Boeing emerged as one of the largest global aerospace manufacturers.

42. A little over twenty years ago, Boeing's leaders chose to dismantle its safety-engineering culture. In 1997, Boeing acquired McDonnell Douglas, another airplane manufacturer. McDonnell Douglas was at this time a dysfunctional corporate enterprise: its aircraft plant in Long Beach, California was falling apart, and it had a history of hiring engineers to meet tight deadlines and then firing them to make their numbers. McDonnell Douglas ceased operations after having developed a reputation for poor quality control at its factories, and for designing a

commercial airplane that, over the course of 43 years, suffered more than fifty safety incidents, including fatal accidents in 1974 and 1979.

43. Although Boeing had purchased McDonnell Douglas, it was McDonnell Douglas's executives who ended up leading the combined entity. Boeing's CEO at the time, Phil Condit, remained in his position, but Harry Stonecipher, McDonnell Douglas's CEO, soon became Boeing's new President. As noted above, Kenneth Duberstein, a longtime McDonnell Douglas director, eventually became Boeing's longtime Lead Director.

44. Under Stonecipher's leadership, Boeing's culture shifted from safety-first to profits-first. Stonecipher, a former General Electric engine-division chief who headed McDonnell Douglas for three years, immediately made his presence felt by questioning Boeing's processes, and focusing on costs-cutting rather than designing airplanes. Stonecipher put it best himself: "When people say I changed the culture of Boeing, that was the intent, so that it's run like a business rather than a great engineering firm." His cultural transformation marginalized engineers as a class and airplanes as a business, and replaced the ethos of "Boeing family" with "Boeing team." Employees were cautioned to perform, otherwise they would be cut from the team.

45. Stonecipher's cost-cutting style inevitably and quickly led to employee disenchantment and departures. In 2000, Boeing's engineers staged a 40-day strike to improve Company culture and regain a voice in decision-making. When the engineers and technicians eventually returned to work they found the culture had only deteriorated. The strike had exacerbated tensions: strikers were wary of their bosses and managers felt betrayed. A series of resignations ensued as longtime technical employees and others who had been with the Company for decades walked out.

46. Boeing also saw a sharp increase in safety violations imposed by the FAA beginning in the early 2000s. Between 2000 and 2020, Boeing's twenty airplane safety violations included poor quality control, poor maintenance, installing regulatory non-compliant parts, and failing to provide airline clients with crucial safety information. The fines for these violations ranged from $6,000 to more than $13 million. By comparison, during the same period Airbus, Boeing's primary competitor, received just three safety violations from the FAA, none of which related to quality control or regulatory non-compliance.

47. Boeing's new leadership not only shifted the Company's culture away from engineering, it physically moved the management team away from Boeing's own engineers and production facilities. In 2001, Condit and Stonecipher

relocated Boeing's Seattle headquarters, the base where the majority of the Company's over 40,000 engineers lived and worked, and where the jets were assembled to Chicago. Top management and staff, approximately 500 people, were re-assigned to the new location. Condit explained the move in a manner consistent with the desire to escape the influence of Boeing's engineers: "When the headquarters is located in proximity to a principal business—as ours was in Seattle—the corporate center is inevitably drawn into day-to-day business operations."

48. Stonecipher's Boeing culture revamp brought with it a series of public scandals. The rocket division was found to be in possession of stolen Lockheed Martin documents. Boeing's CFO was convicted of violating federal procurement laws. Then-CEO Condit was forced out and replaced by Stonecipher, who himself would not remain in charge for long after his own career-ending scandal with a married employee.

49. In 2005, Defendant W. James McNerney Jr. replaced Stonecipher as Boeing CEO. McNerney had no technical background whatsoever. He got his start in brand management at Proctor & Gamble before becoming a protégé of Jack Welch at General Electric. Aerospace analyst Richard Aboulafia identified the combined impact of the move to Chicago and the accession of McNerney: "You

had this weird combination of a distant building with a few hundred people in it and a non-engineer with no technical skills whatsoever at the helm."

50. Soon after assuming his role, McNerney began to push for a new airplane: the 787 Dreamliner. The Board approved a $7 billion development budget to efficiently develop and build a sequel to the Boeing 777. Yet, the 787 Dreamliner was slow to develop and massively over budget. Boeing understaffed the project and sub-contracted several key components. Three years behind schedule and billions of dollars over budget, the 787 Dreamliner was grounded 14 months after its debut following a series of lithium-ion battery fires.

51. A longtime Boeing physicist and negotiator for the Society for Professional Engineering Employees in Aerospace (the aviation engineers' union), Stan Sorscher, issued powerful reports about the erosion of the Company's corporate culture, and later explained:

> If your business model emphasizes productivity, employee engagement, and process improvement, costs go down faster. This was the essence of the "quality" business model Boeing followed in the mid-90s.
>
> The 777 had the best "learning curve" in the business. On the other hand, if your industry is mature, and your products are commodity-like, business school theory says a cost-cutting model is appropriate.
>
> Wal-Mart perfected its particular version of the cost-cutting business model. Amazon adapted that model to its industry. Boeing has adapted it to high-end manufacturing.

52. Sorscher explained that the 787 Dreamliner epitomized Boeing's cultural rebirth as a cost-cutting enterprise. Far more dramatic in all ways, the 737 MAX catastrophe is a direct consequence of deliberate decisions to prioritize profit and marginalize innovation, performance and, ultimately, safety.

II. Boeing Lacked Board-Level Oversight of Airplane Safety

53. For an airplane manufacturer, flight safety is essential and mission critical. Yet, the Board of Directors of America's premier aircraft developer, manufacturer, and seller categorically failed to exercise oversight of safety and ignored its obligation to monitor safety. According to former director John H. Biggs, who retired in 2011, the Boeing "board doesn't have any tools to oversee" safety. The Board-level safety systems belatedly created in 2019, after the Lion Air and Ethiopian Airlines crashes and the grounding of the entire 737 MAX fleet (discussed *infra* Section VI), highlight the prior woeful absence of mission-critical safety monitoring mechanisms.

A. No Board Committee Was Responsible for Airplane Safety Oversight

54. From 2011 until August 2019, the Board had five standing Committees to monitor and oversee specific aspects of the Company's business but not one oversaw safety. The Committees—(i) Audit, (ii) Finance, (iii) Compensation, (iv) Special Programs, and (v) Governance, Organization and

Nominating—each have charters setting forth the duties of their respective members, in addition to the duties of Board members generally. Those charters are silent as to airplane safety—notwithstanding the serious problems with safety that Boeing routinely had confronted.[2]

55. Because no Board committee was expressly tasked with safety oversight,[3] that essential responsibility should have been incorporated into the purview of the Audit Committee.

56. The Audit Committee handled risk oversight, including "evaluat[ing] overall risk assessment and risk management practices," "perform[ing] central oversight role with respect to financial statement, disclosure, and compliance risks," and "receiv[ing] regular reports from [Boeing's] Senior Vice President, Office of Internal Governance and Administration with respect to compliance with our ethics and risk management policies."

57. From the development of the 737 MAX to its grounding, the Audit Committee Charter never mentioned oversight of "safety." Instead, it focused primarily on financial risks, despite the breadth of its mandate, which included oversight of the Company's compliance and regulatory requirements.

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[2] *See* Section III.

[3] The Finance, Compensation, Special Programs, and Governance Organization and Nominating Committees had no oversight responsibility of safety generally and received no reports about product safety issues, including about the 737 MAX.

58. The Audit Committee Charter lists Committee responsibilities, including the following:

a. "Obtain and review, on an annual basis, a formal written report prepared by the independent auditor describing [Boeing's] internal quality-control procedures."

b. [Review] "[a]ny material issues raised by the most recent internal quality-control review, or peer review, of [Boeing], or by any inquiry or investigation by governmental or professional authorities, within the preceding five years, respecting one or more independent audits carried out by [Boeing]…."

c. "Discuss with management the Company's policies, practices and guidelines with respect to risk assessment and risk management."

d. "At least annually receive reporting by the [Senior Vice President, Office of Internal Governance and Administration] on the Company's compliance with its risk management processes, and by the General Counsel on pending Law Department investigations of alleged or potentially significant violations of laws, regulations, or Company policies."

e. "Meet with the [Senior Vice President, Office of Internal Governance and Administration] to review the Company's ethics and business

conduct programs and the Company's compliance with related laws and regulations."

59. The Audit Committee was also required to regularly report to the Board on the topics for which it had oversight, including "the Company's compliance with legal or regulatory requirements," and "the implementation and effectiveness of the Company's ethics and compliance programs to support the Board's oversight responsibility."

60. Notwithstanding that the Audit Committee was responsible for risk oversight, during the years-long development of the 737 MAX, the Audit Committee failed to discuss product safety issues related to the design, development, or production of the 737 MAX, or ask for presentations on the topic. Instead, Audit Committee presentations focused on [redacted]

61. While the Audit Committee received a yearly update on the Company's compliance risk management process, that process did not include [redacted] Indeed, even after the Lion Air crash, the risk management update, presented by [redacted]

[redacted] The Audit Committee did not review [redacted] and no other Boeing Board committee did so either. Indeed, the Audit Committee's predominant role with respect to [redacted]

62. The absence of a committee specifically designated to oversee safety stands in stark contrast to a number of airlines, including some of Boeing's most important customers. For example, Southwest instituted a safety committee "to assist the board in overseeing the company's activities with respect to safety and operational compliance" in November 2009. JetBlue's Board of Directors established a Safety Committee in 2009, and adopted the first official committee charter on September 15, 2010.

B. <u>Internal Safety Reporting Did Not Reach the Board</u>

63. Boeing's principal internal safety reporting process was the Safety Review Board ("Review Board"). Without either a Board-level reporting mechanism, or a process for ensuring that safety-related decisions were elevated to the Board, safety issues reported to the Review Board stayed well below the Board's radar.

64. Review Board members include the [redacted]

[redacted] The Review Board received presentations from employees of Boeing's Airplane Safety Engineering subdivision. An employee identifying a putative "Safety Issue" can prepare a report describing the issue, which the employee or her supervisor presents to the Review Board. The Review Board ultimately evaluated whether the reported issue is "sufficient to identify [as] a Safety Issue." Only in 2019, after the grounding of the 737 MAX, did the Board learn about the Review Board and the critical decisions it made about airplane safety.

65. The Airplane Safety Engineering subdivision is responsible for the engineering and technical aspects of Boeing airplane safety. It, too, received no oversight from the Board. Board materials reveal that [redacted]

C. The Board Had No Whistleblower Reporting System in Place

66. The Board had no mechanism to receive, inquire into or address whistleblower complaints relating to product safety in general. The stories of the individuals below are emblematic of the "hear no evil" attitude prevalent at the highest levels of Boeing.

67. In summer 2018, Ed Pierson, a longtime general manager and engineer at the Renton, Washington plant where the 737 MAX was assembled, tried to raise safety concerns about 737 MAX development with his superiors. He

contacted Scott Campbell, Vice-President and General Manager of the 737 Program and the Renton factory leader about "Recovery Operations & Safety Concerns." Pierson wrote: "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."

68. Pierson identified two concerns: an exhausted workforce, and program schedule pressure. Aggressive production schedules were "creating a culture where employees are either deliberately or unconsciously circumventing established processes. These process breakdowns come in a variety of forms adversely impacting quality." Pierson recommended that Campbell tell employees working on the 737 MAX that delivery schedules are "not nearly as important as building the highest quality product and working safely" and that he shut down the 737 MAX production line, in order to "allow our team time to regroup so we can safely finish the planes outside and then shift our attention to the planes inside."

69. When Campbell met Pierson to discuss these recommendations to ensure the safety of the 737 MAX aircraft assembled in Renton, Pierson said he had "seen larger operations shut down for far less safety issues . . . in the military and those organizations have national security responsibilities." Campbell's response was to remind Pierson that "the military isn't a profit making

organization." Pierson retired from Boeing soon thereafter. There is no evidence that any of his recommendations were implemented or seriously considered by Boeing, or that his complaints were otherwise discussed with the Board.

70. Separately, in 2018, [redacted], lamented to [redacted] that Boeing had selected [redacted] which reflected unrelenting and dangerous economic pressure from senior management:

[redacted]

71. In July 2018, Boeing's Test and Evaluation department voiced concerns to [redacted] regarding the [redacted] the 737 MAX program faced over production schedules. The department's letter identifies the [redacted] due to the [redacted] Employee Relations Director [redacted] forwarded the communication to [redacted], but [redacted]

mischaracterized the letter as [redacted][4]

72. Additionally, in November 28, [redacted], a [redacted] and nearly 30-year Boeing veteran recounted mistreatment [redacted] explaining that "[redacted]" He added, "[redacted]" [redacted] identified another whistleblower, [redacted] a former quality specialist and compliance monitor, whom he said [redacted] related to the 737 MAX.

D. FAA Regulatory Scrutiny Was No Replacement for Internal Safety Oversight

73. The Board could not in good faith rely on FAA regulation to ensure the safety of the Company's aircraft. On the contrary, the FAA relied on Boeing to

[4] [redacted] echoed the issues raised by the Test and Evaluation department describing [redacted] She noted [redacted]

self-regulate, and Boeing's political influence meant that the Company often got its way with the FAA, even for practices inimical to public safety.

74. Specifically, pursuant to an FAA program called Organization Designation Authorization ("ODA"), the FAA permits some airplane manufacturers, including Boeing, to "self-certify" compliance with certain regulations.[5] The ODA program allowed Boeing to exercise outsized influence over the FAA, including over critical safety decisions about the 737 MAX. The ODA program was instituted in 2005, when the FAA began delegating various types of compliance issues to Boeing,[6] including major repairs and alterations, as well as critical tests involving safety and flight control design.

75. An active and influential proponent of the ODA program, Boeing lobbied extensively for an expansive version that would shed both any review and an expiry date.

76. Government watchdogs criticized the delegation program, and in 2006, the Government Accountability Office ("GAO") issued a report criticizing the ODA program. The GAO report correctly predicted that the proposed expanded ODA program would "remove FAA from direct oversight of the

[5] The ODA program regulations are found at 14 C.F.R. §§ 183.41-813.67.
[6] *See* Establishment of Organization Designation Authorization Program, 70 Fed. Reg. 59931 (Nov. 14, 2005).

individuals performing the delegated activities" and that "it will be important for the agency to adhere to its policy of using designees only for less safety-critical work."

77. In 2011, the Department of Transportation's Inspector General ("IG") issued a report following a two-year audit of the ODA program. The IG report concluded that, under the ODA program, the "FAA has significantly reduced its role in approving individuals who perform work on FAA's behalf by further delegating this approval to . . . aircraft manufacturers." The report noted that "with less FAA involvement in the . . . process, there is also potential risk that [aircraft manufacturers] could appoint [delegated workers] with inadequate qualifications or a history of poor performance to approve certification projects."

78. Notwithstanding these findings, Boeing's oversight by the FAA further weakened and the distinctions between the two increasingly blurred. In 2012, the IG found that:

a. the FAA had "too close a relationship with Boeing officials" and was not properly exercising oversight of Boeing;

b. the FAA circumvented its own division tasked with oversight of certain types of airplanes (including Boeing's) in reviewing Boeing appeals of decisions to FAA headquarters; and

c. the FAA had not issued timely airworthiness directives requiring Boeing to address safety issues.

79. There is no record that Boeing's Board took notice of the IG's findings.

80. The FAA sided with Boeing over the FAA's own employees. A congressional investigation revealed recently that FAA management regularly overruled the determination of its own technical experts at Boeing's behest: "In these cases, FAA technical and safety experts determined that certain Boeing design approaches on its transport category aircraft were potentially unsafe and failed to comply with FAA regulation, only to have FAA management overrule them and side with Boeing instead."

81. With the benefit of a compliant FAA, Boeing continued to avoid crucial safety procedures and oversight. In a 2013 GAO Report, the FAA was found to have delegated 90% of its certification compliance authority to Boeing. By 2018, more than 95% of compliance authority was being delegated.

82. As discussed *infra* Section II.D, Boeing's exploitation of the ODA program and its relationship with the FAA, culminated in the ill-fated 737 MAX certification process. Boeing received initial delegation for the 737 MAX's flight manual, its flight controls, and its flight computer systems. By March 2016, the

FAA had delegated to Boeing the safety certification of the 737 MAX "System Safety Analysis," its Flight Control system, its stabilizer controls, and its Flight Management Computer System.

III. The Board Was On Notice of Red Flags Relating To Commercial Airplane Safety

83. Boeing's lack of safety oversight mechanisms continued despite red flags concerning major safety issues within the Commercial Airplanes division. Between 2013 and 2016—while Boeing was developing and manufacturing the 737 MAX—the Company had a series of safety-related issues with its other airplanes that put the Board on notice that it should be exercising further oversight of safety and quality control. Some of the issues overlapped with problems that would later plague the 737 MAX; for example, the NTSB concluded in 2014 that Boeing's training manuals for the 777 airplane were insufficient and had contributed to a 2013 crash that took three lives. The Company also saw one of its newest planes, the 787 Dreamliner, grounded for three months in 2013 due to battery fires. Despite these red flags, the Board did nothing to change its procedures or ensure it was properly overseeing safety of the Company's airplanes.

A. Inadequate Training Manuals Are Blamed for the Crash of a 777 in 2013

84. On July 6, 2013, a Boeing 777 airplane operated by Asiana Airlines crashed into a seawall on approach to the runway at San Francisco International

Airport. Three passengers were killed, and 49 passengers and crew were seriously injured.

85. The NTSB concluded in June 2014 that the crash had in part been caused by Boeing's failure to describe the "complexities of the airplane's autopilot and autothrottle" systems in its plane documentation and training manuals. According to the NTSB investigation, Boeing's documentation and training manuals on the autothrottle were not sufficiently detailed, and thus pilots did not understand how the critical system worked. The NTSB criticized Boeing's documentation explaining, among other things, that (i) not only was the operation of the autothrottle not clear but it could not be inferred from Boeing's description; and (ii) it was vital for flight crews to have a complete understanding of the system functionality and the effects of changes that they can make, particularly during critical phases of flight. The NTSB expressly recommended that Boeing improve flight crew training, revise its 777 Flight Crew Operations Manual to explicitly explain and demonstrate the circumstances in which the autothrottle would not control the airplane's airspeed, and examine the functionality of the control systems.

86. Internal Board documents reflect the Board [redacted] including the

[redacted]

[redacted]

B. Grounding of the 787 Dreamliner

87. Between January and April 2013, just over a year after the 787 Dreamliner came into service, the FAA grounded Boeing's 787 Dreamliner planes for three months due to fires started by overheating lithium-ion batteries installed in the planes. The 787 Dreamliner grounding was the first time the FAA had grounded an entire class of airplanes since 1979.

88. Internal documents reveal the Board did nothing during that period to change its policies or increase oversight of product safety issues. When the Audit Committee met on January 28, 2013, it did not discuss the 787 Dreamliner. Board members inquired about the lithium-ion battery issue at meetings, but did nothing to introduce Board-level safety monitoring mechanisms.

89. On November 21, 2014, the NTSB issued a full report on the 787 Dreamliner battery fires. Among the NTSB's conclusions was that Boeing had made misleading and unfounded claims about the lithium-ion battery system in its safety assessment reports to the FAA. It also revealed that Boeing's certification engineers working under ODA authority did not properly test the lithium-ion battery system for high-temperature situations, and that Boeing's safety assessment

was insufficient and did not account for vulnerabilities of the battery that, in the NTSB's opinion, would have been discovered with better diligence.

90. Board materials reflect that the Board [redacted]

C. Qatar Airways Refuses to Accept Planes Manufactured At Boeing's South Carolina Plant

91. In 2014, Boeing customer Qatar Airways complained about the lack of quality control in Boeing's Charleston plant and refused to accept any Boeing 787 Dreamliner airplanes manufactured at the facility. The fact that an unidentified customer had refused to accept 787 Dreamliners assembled in Charleston was revealed in a 2014 Al Jazeera investigative report. Boeing did not deny it. The same investigative report revealed that multiple anonymous employees in Charleston stated that they would not fly on planes assembled in that facility.

92. For years, employees reported ineffective quality control and poor inspections at the South Carolina factory, in particular reports of "foreign object debris" (such as nuts, bolts, and wrenches) left in airplanes after they were assembled. Foreign object debris poses a significant safety risk for an airplane.

93. Boeing employees repeatedly flagged issues with foreign object debris at the facility, such as "test flights with debris in an engine . . . risking failure;" and "clusters of metal slivers hanging over wiring that command[ed] flight controls." However, Boeing employees who complained faced Company retaliation. For example, one employee reported that he "urged his bosses to remove the [metal slivers] . . . they refused and moved him to another part of the plant." A quality manager reported "wire bundles rife with metal shavings" in planes and was penalized with negative performance reviews.

94. Although the Audit Committee very occasionally did receive [redacted] for the purpose of [redacted]—indeed one internal Boeing memo notes [redacted]—the Committee [redacted]

95. Board materials reflect that the [redacted] after the grounding of the 737 MAX.

D. Boeing's 2015 Settlement With the FAA Over Quality Control And Safety Protocol Violations

96. In late 2015, Boeing entered into a five-year, $12 million settlement with the FAA to resolve thirteen separate pending or potential civil enforcement cases relating to quality control, safety protocol violations, and manufacturing errors in the production lines (the "FAA Settlement"). Up to $24 million in additional fines were deferred (and remain so) pending Boeing's implementation of "additional significant systemic initiatives, to strengthen its regulatory compliance processes and practices." The FAA Settlement is the second largest in FAA history for regulatory violations and remains in effect until January 2021.

97. The FAA investigation and settlement arose from the discovery of significant quality issues, safety protocol violations, and manufacturing errors in Boeing's production lines, and Boeing's failure to take appropriate corrective action to address the problems. Many of the problems raised serious questions about the safety of Boeing's aircraft. For example, Boeing repeatedly failed to meet deadlines in action plans it submitted to the FAA to address safety issues. Boeing even missed a deadline for compliance with fuel-tank regulations that were enacted to address issues that caused a Boeing 747 fuel tank to explode in 1996, killing all 230 people aboard. Additionally, an FAA audit of 787 Dreamliner production processes found that Boeing's corrective action was "insufficient to

prevent further occurrences." The FAA issued an Airworthiness Directive warning airlines that the situation was "unsafe" and ordering immediate inspection of the same fuel connections on all 787 Dreamliners to prevent possible fuel fires. Following that directive, airlines found five more 787s with the faulty fuel couplings.

98. The FAA Settlement is unprecedented in both its scope and its requirement of ongoing future remediation. When announced in December 2015, the *Wall Street Journal* noted "[t]he agreement is unusual because it raises questions about how Boeing's commercial-airplane unit has implemented some of its core quality, safety and compliance programs." The article further explained "[t]he broad nature of the agreement—combined with the extensive and continuing reporting requirements imposed on Boeing—sets it apart from past settlements involving manufacturers."

99. The FAA Settlement was "designed to enhance BCA's early discovery and self-disclosure of potential regulatory compliance problems, as well as the timely development and implementation of effective corrective actions." Pursuant to the FAA Settlement, Boeing is required to meet specific performance targets in twelve regulatory compliance areas, including "Safety Management," "Regulatory Compliance Plan," and "Compliance Reporting." Until 2021, Boeing

must also submit quarterly reports laying out its compliance efforts, capped by a final "comprehensive report" about the overall effectiveness of those programs. An aviation safety consultant assessed the FAA Settlement's broader findings about Boeing as: "If the culture is, 'We've got to get it out the door,' and we start creating workarounds and normalized deviations from required procedures, that's a culture that it is far more likely to experience serious safety issues."

100. The FAA Settlement was a red flag that the Commercial Airplanes division's safety and compliance programs were deficient. While passing references to the FAA Settlement appear in [redacted] At most, [redacted] but there were no [redacted] Once again, the Board [redacted]

IV. Development Of The 737 MAX

A. Boeing Elected To Save Money By Re-Designing Its Existing 737

101. From almost the very start, the development of the 737 MAX was about cutting costs and getting the aircraft certified as quickly as possible. In 2010 and early 2011, Boeing considered two options for updating its existing 737

Next-Generation ("NG") model: either develop an entirely new airplane or "re-design" the current model with more efficient engines. The decision to "re-design" the 737 ultimately won out because it was the most cost-effective option for the Company: it would preserve an [redacted] in contrast to [redacted]

102. The decision was driven in part by increased competition from Airbus. Airbus, which for years Boeing had not viewed as a serious competitive threat, had sales now surpassing Boeing's, which had until that point been the standard-bearer of the commercial airline industry. Just a few years prior, in 2008, Airbus had delivered 483 planes, to Boeing's 375. Airbus's new fuel-efficient A320neo, announced in 2010, was selling well and quickly gaining ground on Boeing's 737, which had last been updated in the late 90s. In early 2011, Airbus's competition came for one of Boeing's longtime customers, American Airlines. McNerney received a call from American Airlines CEO, Gerard Arpey, who told McNerney that American Airlines was considering buying hundreds of new, fuel-efficient jets from Airbus, and that Boeing would need to move more aggressively and quickly to keep its business. Boeing's focus turned from developing a new

commercial plane (a process that could take a decade), to updating its staple 737, which could be done in six years.

103. The Board and senior management considered the [redacted] Head of [redacted] presented a [redacted] for Boeing's [redacted] that would [redacted]

104. The Board again discussed [redacted] The Board focused on [redacted] According to three people present at that meeting, not a single Board member asked about the re-design's safety. One former Board member has since reported that "'Safety was just a given.'" Another former Director, John H. Biggs, who sat on the Board from 1997 until 2011, stated that he "doesn't remember anyone in that group questioning whether a reconfiguration of the 737 with larger engines would create trade-offs that would affect safety."

105. The August 2011 Board meeting ended with a resolution that the Company would "launch a 737 aircraft incorporating new engine technology and such other modifications and upgrades as are deemed appropriate in light of prevailing market conditions." The resolution delegated to McNerney all authority respecting the multi-year effort to approve the final specifications for the 737 MAX and to develop and build it. McNerney never had to return to the Board on these issues:

> RESOLVED FURTHER, that W. James McNerney, Jr., Chairman of the Board, President and Chief Executive Officer of the Company, be, and hereby is, authorized to approve the final offering terms and conditions of the Re-Engined 737 Aircraft, the final specifications of such aircraft and the decision to develop and build such aircraft, and is further authorized to take such actions as are necessary or appropriate to implement the resolutions contemplated herein and to delegate his authority under these resolutions to such other officers of the Company as he deems necessary or proper.

106. Boeing announced the 737 MAX launch in an August 30, 2011 press release, touting that "[t]he 737 MAX will deliver maximum efficiency, maximum reliability . . . [w]e call it the 737 MAX because it optimizes everything we and our customers have learned about . . . operating the world's best single-aisle airplane." Boeing intended to develop three models of 737 MAX airplane: the 737 MAX 7, MAX 8, and MAX 9.

107. Nevertheless, Boeing was months behind Airbus in developing its next generation of aircraft. Playing catchup to Airbus resulted in Boeing, according to current and former employees, setting a "frenetic" pace for the 737 MAX program. Engineers, including those developing flight controls for the 737 MAX, were asked to submit technical drawings and design at double their normal pace. In the words of one engineer, "it was go, go, go." Inevitably, designers delivered sloppy blueprints to technicians which fell short of the intricate instructions normally necessary to ensure proper assembly.

B. The Placement of Larger Engines Shifted the Plane's Center of Gravity

108. As Boeing's engineers began designing the plane, they were instructed to ensure that it maintained "commonality"—an industry term that evaluates how similar one model is to its predecessor—with the existing 737 NG, in order to avoid certification hurdles and costly training requirements for pilots and customers.

109. That directive met a challenge early in the design process. Re-designing the existing Boeing 737 NG with new engines to develop the 737 MAX involved a "design change that [would] ripple through the airplane." Critically, the 737 MAX would have larger engines than the 737 NG, necessitating that the engine be positioned differently on the airplane's wings. This shifted the 737

MAX's center of gravity and created a risk that, absent mitigating design changes, the 737 MAX might tilt too far upwards or "pitch up" during flight.

110. Indeed, as early as 2012, Boeing's wind-tunnel tests on the 737 MAX revealed just that: the jet had a tendency to pitch up. Pitching up affected how the control column (sometimes called the "stick") felt in the pilot's hands: rather than feel a smooth, increasing force on the stick, the pilot suddenly felt an unexpected slackening of resistance. However, the FAA mandates that commercial airplanes handle with smoothly changing stick forces *at all* times.

111. Boeing's initial attempts to resolve this engineering challenge with aerodynamic solutions—such as by adjusting the plane's shape by placing vortex generators or small metal vanes on the wings, or by altering the wings' shape—failed.

C. MCAS Software Posited An Automatic Fix To an Aerodynamic Problem

112. With a growing pipeline of 737 MAX orders, Boeing took a very different approach to solving its "pitch up" challenge: MCAS software. The MCAS software counteracted the pitch up problem by *automatically* swiveling up the leading edge of the plane's entire horizontal tail (known as the "horizontal stabilizer"), thereby causing the air flow to push the tail up and correspondingly push the nose of the plane down. This would smooth out the changing forces on

the stick, and the pilot would feel the requisite smooth transition without a slackening or resistance.

113. The decision to rely on an automated system was, in fact, a radical departure for Boeing. It not only ran counter to Boeing's engineering ethos, but it represented a philosophical shift for the Company which had historically vested aircraft control with the pilot. Boeing's deference to pilots in the cockpit led Boeing pilots to coin the phrase "If it's not Boeing, I'm not going." Indeed, while a system similar to MCAS once appeared in the Boeing Air Force KC-46 tanker plane, its inclusion on the commercial 737 series was unprecedented; it had not existed in the 737 NG.

114. When the MCAS software was originally conceived, it was designed to activate only if *two* distinct sensors were initiated: a high angle of attack ("AOA") and a high G-force (also referred to as jet speed). The AOA is the angle between the wing and the oncoming air flow—the higher the angle, the more pitched up the plane's nose. The G-force is the plane's acceleration in the vertical direction. The extent the MCAS software adjusted the plane's tail—and pushed the plane's nose down—was determined by the AOA and the G-force.

115. The original iteration of the MCAS software would only trigger in limited circumstances. According to Boeing, the MCAS software was designed

"to address potentially unacceptable nose-up pitching moment at high angles of attack at high airspeeds." Further, the impact of the MCAS software was limited: the nose-down pitch would not exceed 0.6 degrees.

116. Boeing submitted a System Safety Assessment to the FAA in 2014, describing the MCAS software. The Safety Assessment contained a failure analysis calculating the effect of possible MCAS software failures, including the inadvertent activation of MCAS for different lengths of time. The failure analysis did not consider the possibility that the MCAS software could trigger *repeatedly* (as it did on both the Lion Air and Ethiopian Air flights) effectively giving the software unlimited authority over the plane. Boeing's [redacted] concluded that [redacted] Based on this [redacted] Years later, acting FAA Administrator Daniel Elwell acknowledged in congressional testimony that the MCAS software should have been designated a "safety-critical system."

117. In an interview with CBS Evening News several weeks after the grounding of the 737 MAX, Muilenburg admitted: "The implementation of that [MCAS] software — we did not do it correctly."

D. Boeing Changed the MCAS Software But Did Not Test What Those Changes Meant For The Airplane's Safety

118. In the midst of flight testing in 2016, Boeing made substantial changes to the MCAS software including modifying the inputs and increasing the degree to which the software could force the plane's nose down. Despite these significant changes, Boeing did not conduct another failure analysis of the revised MCAS software for the FAA.

119. The changes were prompted by the discovery that the lack of smooth maneuvering occurred not just at high speeds, as previously understood, but also at low-speed flight conditions. Accordingly, Boeing expanded the MCAS software's scope and power. Since the MCAS software now had to trigger even at low speeds (where there is no excessive G-force), Boeing entirely removed the G-force factor as a trigger. As a result, the MCAS software could be automatically triggered simply by a high AOA. The MCAS software was also changed to be much more powerful: the software could now push the horizontal stabilizer down not just 0.6 degrees as previously set, but over four times more, as much as *2.5 degrees*.

120. While the FAA was nominally made aware of the updated version of the MCAS software in 2016, Boeing failed to re-evaluate the radically revised MCAS software through either a single or multi-factor failure analysis and provide an updated safety assessment to the FAA. Boeing did not revisit the MCAS safety assessment with the FAA because it wanted to avoid additional pilot training or invite greater certification requirements. Additional pilot training or greater certification requirements would cause airlines to incur extra costs, thereby making the 737 MAX a harder sell than the Airbus A320neo.

121. Boeing's internal safety analyses of the new MCAS software in 2016 revealed that if it took a pilot more than 10 seconds to identify and respond to the software's activation, the result could be "catastrophic" (specifically, the destruction of the entire airplane). Boeing summarized these findings in a document published in July 2018: "A typical reaction time was observed to be approximately 4 seconds. A slow reaction time scenario (>10 seconds) found the failure to be catastrophic. . . ." According to the House Report issued in March 2020, there is no evidence Boeing shared these findings with the FAA, its customers, or 737 MAX pilots.

122. Boeing's approach was instead to downplay the MCAS software, suggesting that it operated in the "background" and was not a significant change

from the NG system. According to a senior FAA official involved with training, "[t]he way the system was presented to the FAA, the Boeing Corporation [sic] said this thing is so transparent to the pilot that there's no need to demonstrate any kind of failing."

E. Boeing Failed to Build Redundancies Into the MCAS Software

123. The revised MCAS software was also susceptible to failure because the remaining input—the angle of attack—came from just two sensors ("AOA sensors") mounted on each side of the plane's nose. The AOA sensors gauge incoming airflow to the plane's nose to determine if the plane is pitching up. If just one of the two AOA sensors determined that the airplane was pitching up at too steep an angle, it would automatically trigger the MCAS software.

124. The danger of the revised MCAS software was that it was susceptible to a false reading from a single AOA sensor. Aircraft engineers and manufacturers typically build multiple redundancies into their designs to prevent any single false event or action from improperly activating a complementary reaction, and to ensure that a problem can always be solved by multiple safety solutions.

125. Redundancies avoid a "single point of failure," where one single error in a complex system causes total system failure. A single point of failure is considered an egregious error in the design of any complex device, and a gross managerial and engineering fail. A 2011 FAA Advisory Circular, which

constitutes official agency guidance, states that "[h]azards identified and found to result from probable failures are not acceptable in multiengine airplanes . . . [i]n these situations, a design change may be required . . . such as increasing redundancy."

126. AOA sensors are known for providing false readings to the aircraft control systems. AOA sensors are external devices that are highly vulnerable to failure from a number of causes, including software malfunctions, bird strikes, and lightning. Between 2004 and 2019, AOA sensors were flagged to the FAA in more than 216 incident reports, which outlined cases in which the sensor failed or had to be replaced or fixed; in some cases, the planes had to make emergency landings.

127. An MCAS software failure was foreseeable as a single point of failure: the AOA sensor is susceptible to falsely conveying to the aircraft's control system that the airplane is pitching up when, in fact, the airplane may be level. A Boeing engineer asked in late 2015 "[a]re we vulnerable to single AOA sensor failures with the MCAS implementation or is there some checking that occurs?" Boeing did not flight-test a scenario in which a single broken angle-of-attack sensor triggered MCAS on its own, relying instead on simulator analysis.

128. Boeing could have—and should have—solved this foreseeable problem by adding a third AOA sensor. A third AOA sensor would act as a referee if a single AOA sensor provided a possibly false reading, and would stop the MCAS software from unnecessarily activating. But the addition of a third AOA sensor would have required the plane to undergo a full retrofit, extending its release timeline, increasing costs and risking short-term financial consequences to the Company. Boeing declined to do that.

129. Boeing also rejected a 2013 proposal by engineer Curtis Ewbank and his team to implement a proposed safety feature, called synthetic airspeed, that would have detected a false AOA signal. The system already existed on Boeing's 787 Dreamliner airplanes. According to Ewbank's ethics complaint, filed shortly after the Ethiopian Airlines crash, the proposal was blocked by Boeing managers and, ultimately by 737 MAX chief project engineer Michael Teal, because it would have meant additional cost and pilot training.

130. The problems with the revised MCAS software, and its reliance on a single AOA sensor trigger, became clear to Boeing during simulator tests just months before the 737 MAX was certified. In a November 2016 internal message exchange, Boeing's Chief Technical Pilot Forkner wrote that the MCAS software was "running rampant" when he tested it in a simulation and that "the plane is

trimming itself like cra[z]y." Forkner then stated that he "basically lied to the regulators (unknowingly)."

131. His colleague, Patrik Gustavsson, corroborated Forkner's account of the plane's MCAS software engagement which caused the aircraft to press downward. Forkner said that this issue was "egregious" and wondered "why are we just now hearing about this?" The two ultimately agreed that the "test pilots have kept [them] out of the loop," because they were "all so damn busy, getting pressure from the program."

132. If there had been any board-level safety or reporting system, this would have been reported to the Board. Muilenburg acknowledged in congressional testimony that he learned about the messages between Forkner and Gustavsson after the Lion Air crash but *prior to* the Ethiopian Airlines crash.

F. Boeing Learned Its AOA Disagree Alert Was Inoperable But Failed to Tell Its Customers Or The FAA

133. An "AOA disagree alert," which is otherwise standard equipment in the cockpit, identifies any disagreement between two AOA sensors. For example, the AOA disagree alert came standard in the 737 NG.

134. However, while the 737 MAX also included the AOA disagree alert as a standard feature, *the alert itself did not actually function*. In truth, on the 737 Max, the AOA disagree alert was merely a non-functional display light.

Specifically, due to a software failure, the AOA disagree alert was unable either to sense disagreement or to light up at all unless a customer purchased a further feature—an optional "add-on" for $80,000 called an "AOA indicator display." At least 80% of the 737 MAX planes Boeing delivered did not actually have working AOA disagree alerts.

135. The inoperable AOA disagree alerts violated the 737 MAX's type certificate that Boeing submitted in March 2017 to the FAA setting forth the standard features of the plane. A type certificate signifies the airworthiness of a particular category of aircraft, and confirms that the aircraft is in compliance with applicable airworthiness requirements established by the national air law. Once receiving a type certificate, the plane must contain the specified characteristics to be and remain certified. FAA Administrator Elwell explains that "[a]lthough an AOA disagree message was not necessary to meet FAA safety regulations, once it was made part of the approved type design, it was required to be installed and functional on all 737 MAX airplanes Boeing produced."

136. Recognizing the problem in August 2017, just five months after the 737 MAX was certified, Boeing complained to the software supplier that, because the 737 MAX's AOA disagree alert was tied to an *optional* AOA indicator display, the alert did not function on the vast majority of the 737 MAX worldwide fleet.

137. In [redacted], a Boeing [redacted]

138. The [redacted] proposed to draft an [redacted] to [redacted] and [redacted] that the [redacted] The [redacted] At the time, Muilenburg was not made aware of this 2017 decision.[7] A [redacted] prepared for the same purpose, to [redacted] was also [redacted]

139. Instead, the Company decided to repair the alert in a later software update that was not scheduled to occur until 2020 in conjunction with the rollout of Boeing's planned 737 MAX 10 aircraft. As Representative Peter DeFazio stated during an October 30, 2019 Hearing before the Committee on Transportation and

[7] Boeing later told Congress that it engaged in its "standard process" in 2017 when it concluded the AOA disagree alert was not a "safety issue." That "standard process" did not include the Safety Review Board, which did not consider the issue until December 2018, after the Lion Air crash.

Infrastructure: "Boeing continued delivering new aircraft to customers with non-functioning AOA disagree alerts and did not inform airlines or pilots the alerts were not functioning."

140. The FAA and Boeing's customers were unaware of this problem. The Company did not reveal to the FAA (or its customers) that the majority of its planes had inoperable "AOA disagree alerts" until after the Lion Air crash—more than three years after Boeing learned of the issue.

141. After the Lion Air crash, Boeing continued to insist that the AOA disagree alert did not present a safety issue. Upon considering the issue on December 6, 2018, the Safety Review Board concluded *unanimously* that it was not related to safety. Muilenburg was not informed of this decision. As Rep. DeFazio stated in the October 30, 2019 Hearing, "[e]ven if the AOA disagree alert is not necessary for safe operation of the MAX, as Boeing states, the [C]ompany kept everyone, including regulators, in the dark regarding its inoperability for more than a year."

142. Following the Ethiopian Airlines crash, Boeing continued to insist that the AOA indicator display was not a "required" safety feature and that it was appropriate to offer it as an optional "add on." In late [redacted], watched [redacted]

addressing the Ethiopian Airlines crash, and [redacted]

143. Boeing's response [redacted] That was incorrect. As described above, Boeing's failure to provide a *working* AOA disagree alert feature in the cockpit violated the airplane's type certificate. In communications about the proposed response [redacted]

G. Boeing Refused to Allow Pilot Simulator Training

144. Boeing opposed any additional pilot simulator training for the 737 MAX. Instead, Boeing maintained that pilots who flew older 737s only needed computer-based training to fly the 737 MAX. Computer-based training uses an

iPad or similar tablets rather than a model cockpit and, unlike simulator training, does not require pilots to solve in-flight problems or mimic flight scenarios.

145. Requiring pilots who already trained on the 737 NG to train on the 737 MAX would have dramatically increased the cost of developing the new aircraft. In the words of Mike Renzelmann, a former Boeing engineer who worked on the 737 MAX's flight controls, Boeing "wanted to A, save money and B, to minimize the certification and flight-test costs." One Boeing marketing employee stated that "[minimizing training requirements] is a big part of the operating cost structure in our product marketing [slide] decks, and is at the heart of . . . $$$ analyses." The Chief Technical Pilot replied by reassuring all those on the e-mail that the training "footprint will be less than 4 hours."

146. Boeing asserted in numerous communications with customers, regulators, and internally that pilot simulator training on the 737 MAX was unnecessary.

- In July 2014—years before the FAA would make a decision about pilot training, and more than a year before Boeing had even begun to produce the 737 MAX—Boeing issued a press release stating that "Pilots already certified on the Next Generation 737 ***will not require a simulator course to transition to the 737 MAX***." (Emphasis added.)

- At the August 2014 Board meeting, the Board received a [redacted] that touted [redacted]. The presentation also emphasized the [redacted]

"commonality." It included [redacted]

- In 2014, the Chief Technical Pilot instructed Boeing employees to "flood [redacted] with as much data as we can, showing the similarities [between the NG and the 737 MAX].

- E-mails in 2014 between the Chief Technical Pilot and another Boeing employee discussed the [redacted] which would entail a training update with no simulations lasting less than a single day.

- In 2015, the Chief Technical Pilot exchanged e-mails with a Boeing employee stating that any risk associated with the limited training on the 737 MAX was one that "we must live with for [minimal training] course for NG to MAX."

- In March 2017, the month in which the FAA certified the 737 MAX, the Chief Technical Pilot wrote that he wanted to "stress the importance of holding firm that there will not be any type of simulator training required to transition from NG to MAX. Boeing will not allow that to happen. ***We'll go face to face with any regulator who tries to make that a requirement.***" (Emphasis added.)

- Rick Ludtke, a former Boeing engineer who was on the 737 MAX team, recalled that "[a]ny designs we created [for the 737 MAX] could not drive any new training that required a simulator." Ludtke further stated, "[Boeing] was trying to avoid costs and trying to contain the level of change . . . [t]hey wanted the minimum change to simplify the training differences . . ."

147. Boeing's effort to limit 737 MAX training was approved by the FAA when the plane was certified in March 2017. At Boeing's insistence, pilots who had been trained on earlier 737 models were only required to take an hour-long

course on a digital tablet to fly the 737 MAX. The course did not mention the MCAS software.

148. In response to the FAA's approval, the elated Chief Technical Pilot emailed a Boeing colleague bragging that his "jedi mind tricks" had worked on the FAA.

H. Boeing Deliberately Withheld Critical Information About the MCAS Software In Its Pilot Reference Manuals

149. As part of its strategy to avoid costly simulator training, Boeing also convinced the FAA that the MCAS software did not need to be included in the manuals and documentation provided to airlines and flight crew. The MCAS software did not merit a detailed description, Boeing claimed, because it was "completely transparent to the flight crew and only operates WAY outside of the normal operating envelope."

150. Boeing produces two important resources for pilots in connection with every new aircraft model: the Flight Crew Operations Manual ("FCOM") and the Quick Reference Handbook. The FCOM is the primary reference for pilots, and contains systems, procedures, and performance specifications for a particular model of airplane. The Quick Reference Handbook is a shorter, aircraft-specific emergency manual, intended for use during abnormal flight situations. Boeing also

produces a Flight Crew Training Manual, which provides general recommendations on flying maneuvers and techniques.

151. At the time of Boeing's March 2016 request, the FAA officials assessing the manual and training requirements had been told only about the original version of the MCAS software. They were not aware that Boeing was in the midst of expanding the MCAS software, and Boeing did not update them as it maintained the software changes did not merit discussion in the pilot manuals.

152. Years later, in testimony before Congress, FAA Acting Administrator Elwell explained that "I, at the beginning when I first heard of this, thought that the MCAS should have been more adequately explained in the ops manual and the flight manual, absolutely."

153. In its February 2017 report to the FAA providing the basis for certifying the 737 MAX, Boeing mentioned MCAS software only once. The report does not explain what MCAS software is, the scope or extent of its functionality, or how the software will respond to erroneous data inputs.

I. Boeing Leveraged Its Success with the FAA Around the World

154. Boeing targeted emerging markets for 737 MAX sales. The Company has consistently lobbied the United States government to facilitate Boeing's efforts to grow its business in emerging markets. Boeing is a staunch supporter of the U.S. Export-Import Bank, which provides financial incentives to foreign customers

who buy American products, and Boeing lobbies the Bank to expand and extend loan guarantees and promote the Company in trade talks. The Board is frequently updated on government advocacy efforts in emerging markets on Boeing's behalf.

155. Other regions around the world take their safety cues from the FAA. For example, if the FAA approved minimal training requirements on the 737 MAX for pilots already familiar with the 737 NG, Boeing could expect that other region's regulators would do the same. As Boeing's Chief Technical Pilot explained in a 2016 email: the "FAA is pretty powerful and most countries defer to what the FAA does (except for the National Authorities that are stuck in the stone ages)[.]"

156. In 2017, Lion Air and [redacted] both requested simulator training on their newly purchased 737 MAX airplanes. Boeing employees unfairly speculated that "Lion Air might need a sim to fly the MAX, and maybe because of their own stupidity." But, rather than provide simulator training (which would have been costly to Boeing), Boeing employees pressured emerging market airlines to accept computer-based training instead, emphasizing, in particular, that the "FAA, [European regulators], Transport Canada, China, Malaysia, and Argentinia [sic] authorities have all accepted the [computer-based training] requirement."

157. Boeing deliberately emphasized the additional cost of simulator training to customer airlines in emerging markets that the Company knew were cost-conscious. For example, Boeing's Chief Technical Pilot advised one [redacted] training official that "you may want to consider what other airlines have thought about . . . [a] simulator training requirement would be quite burdensome to your operation." Boeing prevailed. Simulator training was never required or provided to any airline in emerging markets or elsewhere.

J. Sales Boom Globally for the 737 MAX

158. As Boeing hoped, orders for the 737 MAX flooded in. Four months after launch in 2011, the 737 MAX had logged more than 1,000 orders and commitments from airlines and leasing customers worldwide.

159. The list price for a 737 MAX ranges from $99.7 million to $134.9 million, depending on size. By 2014, Boeing had cumulative orders in excess of 2,700 737 MAX airplanes from 57 customers. By the end of 2016, these figures had grown to over 4,300 orders from 92 customers. The 737 MAX had become the fastest-selling airplane in Boeing's history.

160. Boeing workers faced intense pressure to maintain production schedules and deliver the new 737 MAX plane to customers; one former Boeing manufacturing manager testified that it was a "factory in chaos."

161. Boeing began fulfilling customer orders in May 2017, starting with the delivery to Malindo Air in Indonesia of seventy-four 737 MAX 8 aircraft.

162. Boeing used its 737 MAX program as a vehicle for expanding sales into emerging markets and targeted airlines and regulators in the Caribbean, Middle East, and Southeast Asia. Competition with Airbus for new business in Southeast Asia in particular was fierce, but, by December 2017, Boeing had made 737 MAX sales to a number of airlines in the region, including Lion Air, Garuda Indonesia Airlines, Singapore Airlines, Malaysia Airlines, Thai Airways, Philippines Airlines, and Vietnam Airlines.

163. By 2018, the MAX 737 had contributed massively to Boeing's profits. Indeed, 2018 was a banner year for Boeing: for the first time, it reported annual revenue of more than $100 billion. Approximately 60% of the Company's record $101.1 billion came from the Commercial Airplanes division. Since its launch, the 737 MAX had received approximately 5,000 orders from more than 100 airlines and leasing customers worldwide.

164. The Commercial Airplanes division was not only responsible for the majority of Boeing's net revenue, it was also responsible for a vast majority of Boeing's net earnings. In 2018, Boeing saw $10.4 billion in net earnings, of which approximately $8 billion, or 80%, came from the Commercial Airplanes division.

By the end of 2018, the value of Boeing's total backlog of orders had risen to $490 billion, with the Commercial Airplanes division accounting for $412 billion and nearly 5,900 jetliners. Of those, more than 4,000 were 737 MAX planes.

V. Boeing Defends the Safety of the 737 MAX and Insists on Increasing Production Until the Fleet Is Grounded by the FAA

165. The commercial aviation industry is necessarily predicated on the safety of the planes. Commercial aviation crashes are exceedingly rare even as the number of scheduled flights has increased steadily since the early 2000s. By 2017, there were approximately 36.7 million commercial flights scheduled annually. Between 2010 and 2017, there were ***three*** accidents worldwide involving commercial passenger airplanes with more than 150 fatalities. There were no such crashes in 2015, 2016, or 2017—the years immediately preceding the Lion Air crash.

166. It was incumbent on Boeing's fiduciaries to assess the necessary steps to prevent Boeing from causing a single large-scale fatality, much less multiple crashes. Boeing's directors and officers failed to do so. Following the Lion Air crash, the Board failed to exercise oversight to ensure that it was receiving complete and accurate information from Muilenburg about the safety of its fleet of 737 MAX airplanes. Even after the Ethiopian Airlines crash, Muilenburg lobbied President Trump to prevent the FAA from grounding the 737 MAX.

A. Boeing Is Quickly Blamed For Safety Failures After the Lion Air Crash

167. On October 29, 2018, Lion Air Flight 610 departed Jakarta, Indonesia. The aircraft, a 737 MAX, had been in service for fewer than three months.

168. Thirty seconds after takeoff, the airplane's stick shaker began to rattle—an indication to pilots of a potential imminent stall. Minutes later, the airplane's nose was suddenly and repeatedly pushed downward by the MCAS software, which would disable for a few seconds, then re-activate. The pilots' request to return to Jakarta was granted. The plane never returned. Within 12 minutes of taking off, Lion Air Flight 610 crashed into the Java Sea, killing all 189 people onboard.

169. Satellite data showed the plane rising and falling repeatedly— more than 20 times—as the pilots struggled to wrest control back from the automated system. Data recovered from the plane's black box revealed that for nine minutes, while the pilots struggled to keep the plane's nose upright, the first officer flipped frantically through the Quick Reference Handbook (containing a checklist for abnormal flight events), in order to identify what was happening to the plane. But the handbook said nothing about the MCAS software. The pilots struggled to pull back on the yoke, which in prior 737 models would have permanently disabled any automated flight control systems. But that could not disable the MCAS software,

which continued to push the 737 MAX's nose downward until it crashed into the ocean.

170. Within days, Boeing concluded that the MCAS software was a cause of the crash and began working on a software fix. The Company's chief engineer testified to the House of Representatives in July 2019 that Boeing had "quickly identified that this MCAS [software] activation could have been a scenario. . . . And once the flight data recorder came up . . . . [Boeing] started working on a [MCAS] software change immediately." The fix, as Muilenburg explained nearly a year later during congressional testimony, ensures that the MCAS software will compare information from both sensors before activity, will only activate a single time, and will allow the pilot to override the software at any time using the control column alone.

171. Meanwhile, the FAA conducted an internal safety analysis of the 737 MAX 8 called a Transport Airplane Risk Assessment Methodology ("FAA Risk Assessment"). The FAA Risk Assessment concluded that there was an unacceptably high risk of catastrophic failure if the MCAS software design was not changed. Specifically, the FAA estimated that the fleet of Boeing 737 MAX planes would average one fatal crash stemming from the MCAS software every *two to three years* if the software was not corrected. Notably, the FAA's analysis

was based on the size of Boeing's existing 737 MAX fleet; it did not account for the exponentially increased risk when Boeing's nearly 5,000 backorders were delivered. Boeing was informed of the results of the FAA Risk Assessment, and [redacted][8]

172. On November 6, 2018, Boeing issued a Manual Bulletin stating that "[i]n the event of erroneous AOA sensor data, the pitch trim system can trim the stabilizer nose down in increments lasting up to 10 seconds." The Manual Bulletin failed to identify the pitch trim system as MCAS software.

173. On November 7, 2018, the FAA issued an Emergency Airworthiness Directive ("Emergency Directive") identifying the potential danger presented by the 737 MAX flight control system and training manual. An Emergency Directive appears solely "when an unsafe condition exists that requires immediate action by an owner/operator." In such cases, "the intent of an Emergency Directive is to rapidly correct an urgent safety of flight situation." Emergency Directives are extremely rare. They are issued when there is an immediate safety concern that *must be addressed* by the manufacturer, as previously had happened to Boeing regarding the lithium-ion batteries on its 787 Dreamliner.

[8] MIT statistics professor Arnold Barnett later stated that the FAA analysis underestimated the 737 MAX's risk "by a factor of at least 24."

174. The Emergency Directive confirmed that Boeing was aware of an unsafe condition that could cause a 737 MAX to crash into the ground: "***an analysis performed by the manufacturer*** showing that if an erroneously high single angle of attack (AOA) sensor input is received by the flight control system, there is a potential for repeated nose-down trim commands of the horizontal stabilizer." (Emphasis added.) The Emergency Directive warned that nose-down trim "could cause the flight crew to have difficulty controlling the airplane, and lead to excessive nose-down altitude, significant altitude loss, and possible impact with terrain." The Emergency Directive acknowledged that "the unsafe condition described previously is likely to exist or develop in other products of the same type design."

175. The FAA ordered that operators, within three days, "revise the airplane flight manual ("AFM") to provide the flight crew horizontal stabilizer trim procedures to follow under certain conditions." The relief directed by the FAA in the Emergency Directive was, in fact, unusually mild. It conspicuously did not refer to the MCAS software. According to the *Wall Street Journal*, "When the FAA determines an aircraft poses an unacceptably high safety risk, it typically mandates targeted equipment changes, inspections or training to alleviate the

hazard. It is unusual for the agency to conclude that reiterating cockpit emergency procedures or tweaking manuals will suffice."

176. The same day that the Emergency Directive was issued, [redacted]

177. [redacted] was also shared with [redacted]

178. Individual pilots voiced safety concerns about the 737 MAX to the Aviation Safety Reporting System ("ASRS"), a federal database for anonymous,

voluntary reports about aviation incidents. One report submitted on November 8, 2018 described the pilot's reaction to learning about the existence of the MCAS software:

> I think it is unconscionable that a manufacturer, the FAA, and the airlines would have pilots flying an airplane without adequately training, or even providing available resources and sufficient documentation to understand the highly complex systems that differentiate this aircraft from prior models. The fact that this airplane requires such jury rigging to fly is a red flag**.** Now we know the systems employed are error prone–even if the pilots aren't sure what those systems are, what redundancies are in place, and failure modes.
>
> I am left to wonder: what else don't I know? ***The Flight Manual is inadequate and almost criminally insufficient. All airlines that operate the MAX must insist that Boeing incorporate ALL systems in their manuals***. (Emphasis added.)

179. The same month, another Boeing 737 MAX pilot reported that the aircraft had pitched nose down after the autopilot was engaged on departure. The Ground Proximity Warning System—the system designed to alert pilots if their aircraft is in immediate danger of flying into the ground or an obstacle—sounded, warning the pilots with the alert, "don't sink, don't sink"—just as it had before the Lion Air crash. The captain was able to avoid disaster by immediately disconnecting the autopilot and pitching the aircraft into a climb. The first officer wrote that he could not "think of any reason the aircraft would pitch nose down so aggressively." Between November 2018 and February 2019, at least five

complaints from pilots concerning the 737 MAX aircraft were recorded through the ASRS that described similar flight control issues and unanticipated dives.

180. The three largest pilots' unions also reacted to Boeing's failure to disclose the import of this novel software. On November 10, 2018, Captain Mike Michaelis, chairman of the safety committee of the Allied Pilots Association at American Airlines, sent out a message to pilots regarding the MCAS software. "This is the first description you, as 737 pilots, have seen," the message said. "It is not in the American Airlines 737 Flight Manual … nor is there a description in the Boeing FCOM (Flight Crew Operations Manual). It will be soon." The same day, Boeing's largest customer, Southwest Airlines wrote a letter to its pilots acknowledging that there was no specific reference to the MCAS software in the Flight Crew Operations Manual.

181. On November 12, 2018, the *Wall Street Journal* published an article entitled "Boeing Withheld Information on 737 Model, According to Safety Experts and Others." Citing "safety experts involved in the investigation, as well as midlevel FAA officials," the article reported that Boeing "withheld information about potential hazards associated with a new flight-control feature suspected of playing a role in last month's fatal Lion Air jet crash." The article further reported that "[s]afety experts involved in and tracking the investigation said that at U.S.

carriers, neither airline managers nor pilots had been told such a system had been added to the latest 737 variant--and therefore aviators typically weren't prepared to cope with the possible risks." Captain Jon Weaks, president of the Southwest Airlines pilot union, was quoted as saying: "We're pissed that Boeing didn't tell the companies and the pilots didn't get notice obviously, as well . . . But what we need now is . . . to make sure there is nothing else Boeing has not told the companies or the pilots."

182. The *Wall Street Journal* article noted that the focus of U.S. and Indonesian crash investigators had shifted to the way in which "the MAX 8's automated flight-control systems interact with each other, and how rigorously the FAA and Boeing analyzed potential hazards in the event some of them malfunction and feed incorrect or unreliable data to the plane's computers." Citing industry and government officials, the article revealed that "Boeing is working on a software fix."

183. On November 27, 2018, the American Airlines pilots union (the Allied Pilots Association) met with representatives from Boeing at the union's headquarters. The pilots requested more information about the plane they were flying and that Boeing needed to take further steps to ensure its safety. One pilot defended the Lion Air pilots: "These guys didn't even know the damn system was

on the airplane, nor did anybody else." Another pilot said that the system should have been explained in the aircraft's training manual: "I would think that there would be a priority of putting explanations of things that could kill you."

184. At the meeting, for the first time, Boeing publicly confirmed that it was making changes to the MCAS software but would not "rush" the process.

185. Boeing vice president Mike Sinnett dismissed the pilots' concerns, saying that Boeing felt pilots did not need to know more about the MCAS software, given how unlikely it was considered to misfire: "I don't know that understanding this system would've changed the outcome on this. In a million miles, you're going to maybe fly this airplane, maybe once you're going to see this, ever. So we try not to overload the crews with information that's unnecessary so they actually know the information we believe is important." At the same meeting, Sinnett rejected the notion that the AOA sensors represented an unacceptable "single point of failure," claiming that "it is not considered by design or certification a single point," "[b]ecause the function and the trained pilot work side by side and are part of the system."

B. Muilenburg Defends the Safety of the 737 MAX

186. The Lion Air crash was a mass fatality that was plausibly attributable to design attributes of the 737 MAX and the manner in which Boeing developed and marketed its commercial aircraft. The potential of a future crash posed an existential danger to the 737 MAX, the Commercial Aircraft division, and Boeing itself.

187. In such circumstances, it was essential that the Board realize that its jettisoning of its former safety culture and failure to implement Board-level information reporting systems meant that the Board was effectively flying blind. The Board's only conduit of information about aircraft safety was Muilenburg, a CEO with an intense commercial as well as personal interest in selling as many aircraft as possible (and maximizing the value of his equity-based compensation). The Board needed to make a course correction and implement tools by which the Board could properly oversee mission-critical risks respecting the safety of its aircraft.

188. That is not what the Board did in the aftermath of the Lion Air crash (or even in the immediate aftermath of the Ethiopian Airlines crash). Muilenburg and the Board treated investigative reporting into Boeing by major news organizations as a problem of public relations, investor relations, customer relations, and government relations. The Board did not look inward and

investigate. It did not create tools by which the directors could evaluate what within Boeing needed to be fixed. The Board did not [redacted] The Board's materials and communications [redacted]

189. Muilenburg took advantage of the Board's failure to implement information-reporting systems. He deflected and denied wrongdoing, and proclaimed the airplane was safe. He misled the Board in the same way Boeing treated regulators, airline customers, pilots, and the public at large. The Board, in turn, consciously disregarded Muilenburg's failure to provide candid, factual, substantive reports about a mission-critical, life-and-death issue.

190. Muilenburg's first written correspondence with the Board in the wake of the Lion Air crash was [redacted], a week after the crash. His email, which was also sent to [redacted] Nor does Muilenburg [redacted] Instead, his email [redacted]

[redacted] he wrote. He concluded, [redacted]

(Emphasis added.)

191. On November 8, Muilenburg sent another letter to the Board that briefly addressed the Lion Air investigation. [redacted]

192. Muilenburg's priority was the continued manufacture and sale of the 737 MAX. [redacted]

[redacted]

193. On November 13, 2018, director Arthur Collins forwarded Muilenburg a news summary from the *Wall Street Journal* with a short cover email: "I am sure you have already read point #2 and will brief the [B]oard on this topic." "Point #2," the second top news story of the day, was the November 12 *Wall Street Journal* article.

194. The next day, Muilenburg wrote an email to director Duberstein: "Ken, Closing the loop – I talked with Dave [Calhoun] after we talked yesterday. He suggested that my note to the Board focus solely on the Lion Air matter given the importance and visibility . . . ." Duberstein replied: "Press is terrible. Very tough. Lots of negative chatter I'm picking up. Not pleasant. [redacted] Muilenburg agreed and discussed [redacted], which involved claiming that the [redacted]

[redacted]

[redacted]

195. Later that day, November 14, Muilenburg sent an update to the Board. Its primary purpose was to contradict the *Wall Street Journal* article published two days prior. Muilenburg first noted that the article reported that [redacted] Muilenburg insisted that these reports were [redacted] (Emphasis added). Muilenburg did not tell the Board [redacted]

196. [redacted]

[redacted]

197. In an interview televised on November 16, 2016, Muilenburg again insisted that the MCAS software was "part of the training manual[.] . . . It's an existing procedure so the [FCOM Bulletin] we put out . . . pointed to that existing flight procedure." Again, he insisted "[t]he bottom line here is the 737 MAX is safe."

198. Muilenburg continued to bemoan media coverage of the Lion Air crash internally in a November 16, 2018 email with senior vice president of Communications Toulouse and his chief of staff Schmidt. In response to a *New York Times* article titled "What the Lion Air Pilots May Have Needed to do To Avoid a Crash"—an article about how MCAS software may have caused the crash—Muilenburg wrote [redacted] Schmidt then stated, [redacted] to which Muilenburg responded, [redacted] In fact, the article's discussion of the underlying causes of the Lion Air crash was supported by Boeing's own internal analysis.

199. The following day, November 17, 2018, Boeing executives, including [redacted] discussed a *Bloomberg* article about Boeing's efforts to assuage customer concerns about the MCAS software in the wake of the Lion Air crash. Muilenburg commented that the article was [redacted] As described herein, that assertion was false.

200. On November 18, 2018, Muilenburg sent another letter to the Board. He informed the Board that [redacted]

201. His letter concludes: [redacted] (Emphasis added). Tellingly, a previous draft of the letter had not included [redacted] but was added in response to

[redacted]

202. Three days later, on November 21, 2018, Muilenburg emailed the Board to inform them about a Board call that he, General Counsel Luttig, and Smith would be hosting to provide an update on the Lion Air crash. The call was scheduled for Friday, November 23. Muilenburg noted that the call was "optional" in light of the Thanksgiving holiday weekend.

203. The call went forward as scheduled on November 23, 2018. Talking points for the call circulated among Muilenburg and other executives [redacted] The talking points stated that [redacted]—was referenced in the Flight Crew Operations Manual. This was untrue, as confirmed by numerous pilots and pilot unions.

204. Muilenburg assumed the same defiant posture in a November 19, 2018 internal message to Boeing employees. "You may have seen media reports that we intentionally withheld information about airplane functionality from our

customers. That's simply untrue," he wrote. "The relevant function is described in the Flight Crew Operations Manual and we routinely engage with our customers about how to operate our airplanes safely." In fact, criticism of Boeing's intentional withholding of information about the MCAS software had already come directly from pilots at Boeing's largest customer, Southwest Airlines, as well as numerous other customers and the three largest pilots' unions. Muilenburg also sought to reassure employees that "the 737 MAX is a safe airplane" in which he had "supreme confidence."

205. On November 28, 2018, Muilenburg sent a letter to the Board in response to release of the preliminary report by Indonesia's National Transportation Safety Committee. The report assigned no blame for the Lion Air crash. Nonetheless, and notwithstanding the wide acknowledgement within the media and elsewhere regarding the role the MCAS software had played, Muilenburg [redacted] Emphasis added.)

206. On December 6, 2018, Toulouse circulated an update on Boeing's press coverage to Muilenburg and other Boeing executives, including McAllister,

Hyslop, Luttig, and Smith, which included two stories by the *Wall Street Journal*: one covering the MCAS software's role in the Lion Air crash and the second reporting on Boeing's public relations challenges stemming from the crash. Muilenburg told Toulouse to [redacted]

207. On December 13, 2018, Muilenburg sent the Board a business summary and competitor dashboard for the month of December. In it, he briefly updated the Board again about the status of the Lion Air investigation, noting that Boeing was providing technical assistance to regulators, and the Company's media engagement strategy to express "continued confidence in the 737 MAX." He also shared that delivery in November of [redacted]

208. On December 16 and17, 2018, the Board held its first regularly scheduled meeting after the Lion Air crash.[9] The Board materials reflect [redacted] In fact, during the Open

[9] A Norwegian Air 737 MAX experienced a different safety issue one day later during a flight from Dubai to Oslo, when one of its engines shut down due to low oil pressure and was forced to make an emergency landing in Iran.

Board session—including a presentation [redacted] The sole topic of discussion with respect to the 737 MAX was [redacted] The Board minutes note that: [redacted] (Emphasis added.) The presentation for the Board's Executive Session on December 16, 2018 generically lists the "Lion Air incident" as a "Hot Topic."

209. The Committee materials from the December 2018 meeting do not [redacted] discuss the plan to [redacted] and the program's [redacted] It reflects [redacted] even though it mentions [redacted] and the effect of the [redacted] on [redacted] at Boeing's [redacted] site.

210. On January 16, 2019, Muilenburg sent his monthly business summary and competitor dashboard to the Board. He briefly updated the Board on the Lion Air accident investigation. For the first time, he acknowledged to the Board that [redacted] Muilenburg also reiterated his confidence in the 737 MAX: [redacted]

211. A week later, on February 13, 2019, Muilenburg sent the Board the February business summary and competitor dashboard. In it, he provided [redacted]

212. On February 20, 2019, Luttig provided [redacted]

213. The next Board meeting was held on February 24-25, 2019. [redacted] In the Executive Session, [redacted] Muilenburg gave a presentation on [redacted] There was no mention of [redacted] were mentioned.

214. On February 25, 2019, an addendum was issued to the meeting minutes summarizing a legal update given by Luttig. The Board moved to [redacted]

215. Following the Lion Air crash, the Board did not take any steps to investigate Boeing's safety-reporting structure, or implement a Board-level system of safety monitoring at Boeing. Nor did the Board seek to understand the cause of the Lion Air crash. Indeed, in most instances, Muilenburg's statements insisting that press reports were inaccurate, and that the 737 MAX was safe, were met with silence from the Board. Calhoun later told the *Washington Post* that he did not "regret that judgment" to keep the plane in the air after the Lion Air crash, saying:

"It looked like an anomaly." But, based on the Board's failure to obtain or discuss any analysis of the Lion Air crash, no such judgment was made by the Board.

C. Boeing Continues to Insist on the Safety of the 737 MAX After the Ethiopian Airlines Crash

216. On March 10, 2019, Ethiopian Airlines Flight ET 302 took off from Addis Ababa Bole International Airport. One minute into the flight the captain reported that the crew was having flight-control problems.

217. Throughout the chaos of the short and fatal flight, Boeing's MCAS software was activated several times, repeatedly pushing the plane downward and thwarting successive efforts by the pilots to regain control of the plane. At its first activation, the MCAS software pushed the nose of the airplane down for nine seconds. The plane descended slightly while audible warnings — "Don't Sink" — sounded in the cockpit. The pilots fought to turn the nose of the plane up, and briefly they were able to resume climbing, but the MCAS software again pushed the nose down.

218. The pilots followed the emergency procedures recommended by Boeing, by flipping a pair of cutoff switches that disabled the electric motor moving the horizontal stabilizer. But, having deactivated the electric motor, the pilots could not manually turn the stabilizer trim wheel to adjust the horizontal stabilizer to its proper position. After turning the electric motor back on, the

MCAS software once again automatically pushed the plane's nose down, ultimately pushing the plane into a nosedive. Less than a minute later, the cockpit voice recording ended and the plane crashed, killing all 157 passengers and crew on board, just six minutes after taking off.

219. Later that same day, Muilenburg sent the Board a brief email regarding the Ethiopian Airlines crash and Boeing's official response statement.

220. Multiple foreign aviation regulators (including those in China and Indonesia) immediately ordered the grounding of 737 MAX planes. The next day, March 11, Ethiopian Airlines, Aerolineas Argentina, Cayman Airways, Comair, Eastar Jet, Gol Transportes Aéreos, and Royal Air Maroc, all grounded the 737 MAX. Several prominent United States Senators also called for the 737 MAX to be grounded.

221. Boeing resisted calls to ground the 737 MAX. Muilenburg defiantly denied that the MCAS software was flawed. Instead—despite the second crash of a brand new 737 MAX in five months—Muilenburg continued to defend the safety of the plane. The Board failed to inquire whether the 737 MAX had a safety defect that contributed to this second mass fatality.

222. On March 10, 2019, Toulouse sent Muilenburg a draft all-employee email regarding the tragedy for his review. Muilenburg's response was to [redacted]

[redacted] (Emphasis added.)

223. On March 11, 2019, Muilenburg sent the Board a letter regarding Boeing's damage control of bad publicity. Muilenburg described Boeing's [redacted] He informed the Board that earlier that day, Boeing officials had [redacted] Muilenburg's focus remained on [redacted]

224. The FAA did not immediately ground the 737 MAX. Instead, on March 11, 2019, the FAA released a statement noting its plan to issue a

"Continued Airworthiness Notification to the International Community" for Boeing 737 MAX operators. It stated: "External reports are drawing similarities between this accident and the Lion Air Flight 610 accident on October 29, 2018. However, this investigation has just begun and to date we have not been provided data to draw any conclusions or take any actions." The FAA also acknowledged that it had been working with Boeing to complete "flight control system enhancements" related to MCAS software since the Lion Air crash and anticipated mandating the design changes by April 2019.

225. Boeing contemporaneously issued "A Statement on 737 MAX Software Enhancement," claiming that "[s]afety is a core value for everyone at Boeing and the safety of our airplanes, our customers' passengers and their crews is always our top priority." It also said that "[t]he 737 MAX is a safe airplane," and "MCAS [software] does not control the airplane in normal flight; it improves the behavior of the airplane in a non-normal part of the operating envelope." Boeing claimed that an MCAS software fix was something that Boeing had been working on "[f]or the past several months and in the aftermath of the Lion Air [Crash]."

226. Boeing's March 11, 2019 statement questioned the capabilities of the Ethiopian Airlines pilots by claiming that all they had needed to do was follow the flight crew manual:

> Boeing's 737 MAX Flight Crew Operations Manual (FCOM) already outlines an existing procedure to safely handle the unlikely event of erroneous data coming from an angle of attack (AOA) sensor. ***The pilot will always be able to override the flight control law using electric trim or manual trim.*** In addition, it can be controlled through the use of the existing runway stabilizer procedure. (Emphasis added.)

Boeing concluded the note by stating, "It is still early in the investigation, as we seek to understand the cause of the accident."

227. 737 MAX groundings continued: regulators in Singapore, India, Turkey, Australia, and Malaysia, among others, issued directives to ground the 737 MAX. Other jurisdictions, such as the United Kingdom, banned the 737 MAX from their airspace altogether. The European Union Aviation Safety Agency ("EASA") announced the suspension of all 737 MAX flights in Europe, publishing a Safety Directive stating that the ban was imposed due to, among other things, "similarities with the Lion Air accident data" and the "unusual scenario of a 'young' aircraft experiencing 2 fatal accidents in less than 6 months."

228. By March 12, Boeing and the FAA faced tremendous bipartisan pressure to ground the 737 MAX. On March 12, the Association of Flight Attendants—which represents nearly 50,000 flight attendants at 20 airlines—

issued a statement calling on the FAA to ground the 737 MAX fleet "until FAA-identified fixes to the plane can be installed, communicated, and confirmed." The same day, the FAA issued an advisory notice mandating that Boeing implement design changes to the 737 MAX by April 2019.

229. While relentlessly insisting that the 737 MAX was airworthy, Boeing issued a statement announcing that it would update its flight control systems for the 737 MAX.

230. Muilenburg personally "made the case [to President Trump] that the 737 MAX planes should not be grounded in the United States." Later on March 12, FAA officials reiterated their previously expressed position: U.S. flights of the 737 MAX would continue.

231. On March 13, 2019, after the FAA received new satellite data directly implicating MCAS software in the Ethiopian Airlines crash, the agency announced its revised decision to ground all 737 aircraft. The FAA's initial findings indicated that the Ethiopian Airlines plane had experienced the same pattern of repeated, steep dives and climbs that had preceded the Lion Air crash.

232. The FAA was the final major aviation regulator to ground the 737 MAX. In total, 387 planes were grounded.

233. Later that day, Muilenburg sent a communication to the Board that was [redacted] His communication focused on [redacted] Later on March 13, Muilenburg wrote a second letter, reassuring the Board that, [redacted] The letter adopts [redacted]

234. On March 14, 2019, Muilenburg's Chief of Staff Schmidt wrote him a candid note, cautioning him not to [redacted] and to try to [redacted] She observed that [redacted] and encouraged Muilenburg to [redacted]

[redacted]

235. Schmidt also recommended that [redacted]

236. Over the course of the next six weeks, Muilenburg's communications to the Board centered on the importance of bringing the plane back into service rather than investigating what had gone wrong:

- On March 17, 2019, Muilenburg stated that [redacted] Muilenburg flagged [redacted]
- On March 19, 2019, Muilenburg sent a letter to the Board stating that [redacted] emphasizing [redacted]

- On March 20, 2019, Muilenburg's letter to the Board stated that [redacted] and Boeing responded with a public statement that it would cooperate.
- On March 22, 2019, Muilenburg's letter to the Board stated that [redacted]

237. At no point before the grounding of the 737 MAX did the Board demand or did Muilenburg provide any analysis of the safety-related issues identified by government regulators or widely circulated in the press, such as the development of the MCAS software, the concealment of that software from 737 MAX customers and pilots, and the mostly inoperable AOA sensor disagree alert.

238. As late as March 21, 2019, [redacted] to [redacted]

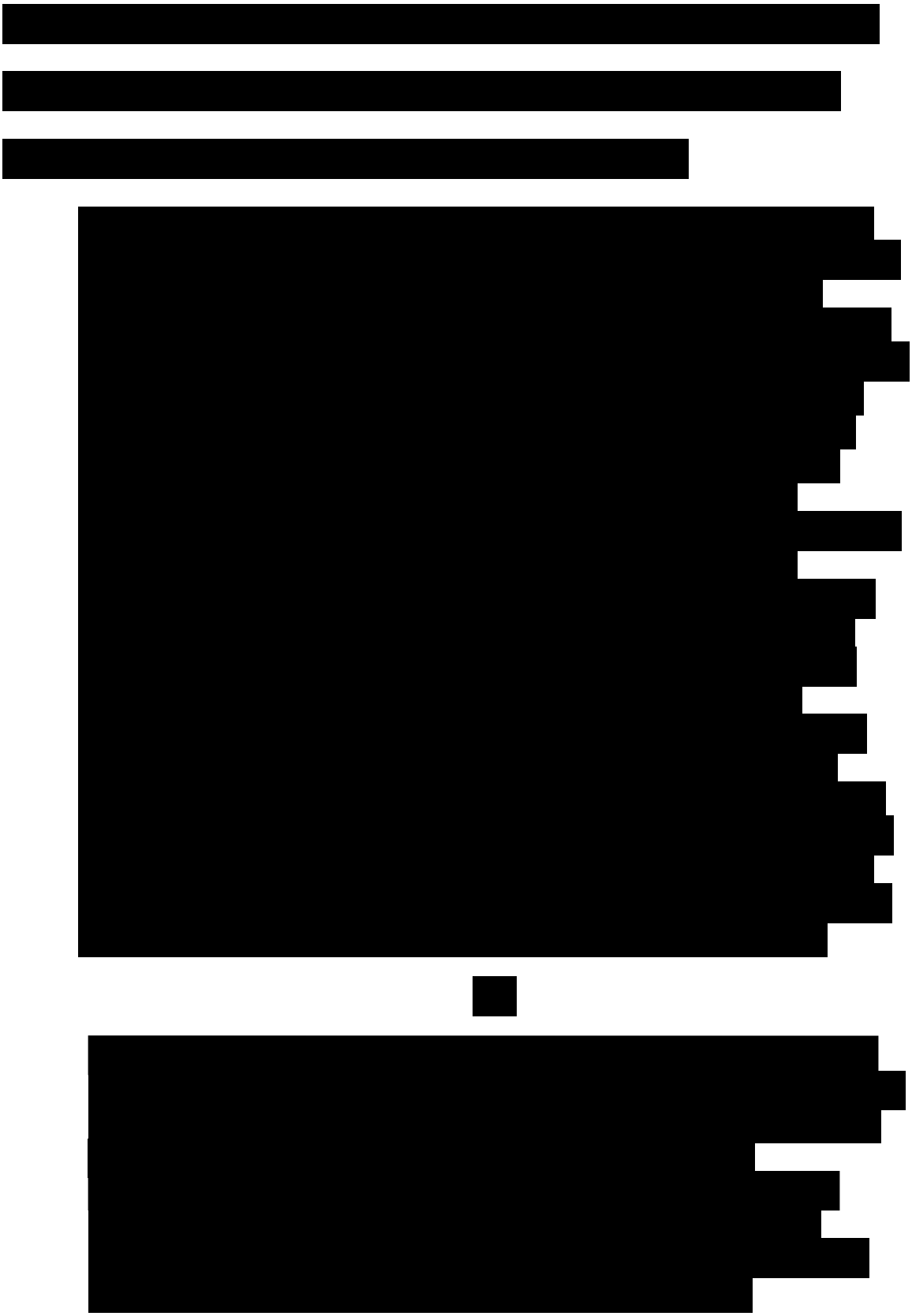
239. A preliminary report on the Ethiopian Airlines crash, released April 4, 2019, cited MCAS software as a contributing cause for the accident, combined with the fact that pilots could not adjust the stabilizer trim by hand. While there was an electronic system to help turn the trim wheel, that system was disabled by the same switch that disabled the MCAS software.

240. That same day, Boeing issued a press release from Muilenburg addressing the preliminary report, acknowledging that "in both flights the Maneuvering Characteristics Augmentation System, known as MCAS, activated in response to erroneous angle of attack information," but otherwise insisting that "most accidents are caused by a chain of events" and that was the case for the two crashes. The press release was sent to the full Board before it went out.

VI. Boeing Finally Institutes Board-Level Safety Oversight

241. It took tragic and irreversible events—two mass-fatality plane crashes and the grounding of an entire fleet of 737 MAX planes—and several weeks thereafter for the Board and senior management to undertake oversight responsibility for airplane safety. For the first time in a generation, Board-level corporate governance began to be organized around safety oversight.

242. On the evening of [redacted] sent two emails to [redacted] about [redacted]



[redacted] (Emphasis added.)

243. Calhoun forwarded [redacted] email to Muilenburg, who stated that he had [redacted]

244. Muilenburg, Calhoun, and the larger Board now recognized—after the 737 MAX grounding—that they needed to implement Board-level safety reporting. To defend the Board and Boeing, Calhoun in an interview with the *Washington Post* in May 2019 pointed to the Board's prior reliance on the FAA certification:

> Do we make sure that the rigor around those [certification] processes are good and that they are reported to us step by step? Of course we do. Do we ask questions about what the difficult spots are in the certification process? Of course we do. Do we go down to the test site and watch the monitors to find out whether they're working accurately? No, we don't. What you might call safety and everyone would like to label that, ***the certification process in and of itself and the review of those Cert milestones with us is safety. That's what it is.*** The whole environment that gets attached to it is just that. (Emphasis added.)

A. The Board Receives a Briefing on Airplane Safety

245. The Board's next regularly scheduled meeting after the 737 MAX grounding was on April 28-29, 2019. The Ethiopian Airlines crash—and, specifically, what it meant for the Company going forward—was the main topic of conversation for the Board. Indeed, of the approximately six hours of the open

session Board meeting, two hours and fifteen minutes were dedicated to discussing the 737 MAX—including, for the first time, MCAS software, the AOA sensor disagree alert, the FAA certification process, and pilot training requirements.

246. Overall, twelve people presented about the 737 MAX and responded to questions from the Board. The topics and presenters were as follows:

[redacted]

247. The presentations revealed the Board's lack of prior knowledge of safety and compliance issues central to the Company's core product. For example, a presentation by [redacted] The presentation began with a [redacted] It also described [redacted]

B. The Board Establishes Safety-Related Committees

248. The Committee on Airplane Policies and Processes ("Airplane Committee") was established on April 4, 2019 "to review the company-wide policies and processes that are currently in place for the design and development of commercial airplanes, for the purpose of advising the Board as to any improvements that the [Airplane] Committee concludes should be made to those policies and processes going forward."[10] The creation of the Airplane Committee marked the first Board-level effort at monitoring safety, or developing systems and policies to ensure that safety issues were reported to the Board.

249. The document creating the Airplane Committee stated:

> The Board's Committee to review the company's policies and processes for the design and development of airplanes concluded that it would be in the interest of the Company for there to be an even more focused, particularized, and regularized review and oversight of the Company's policies and processes for the safe design and development of the Company's aerospace products and services, including the Company's policies, practices, and activities with respect to pilot training and skills, and cybersecurity of the Company's portfolio of aerospace products and services.

250. Based on the Airplane Committee's recommendation, on August 26, 2019, the Board established the Aerospace Safety Committee "for the purpose of assisting the Board in the oversight of the safe design, development, manufacture,

[10] The CAPP had four members: Director Defendants Giambastiani, Bradway, Good, and Liddy.

production, operations, maintenance, and delivery of the aerospace products and services of the Company."

251. The Aerospace Safety Committee has several responsibilities, including:

a. Direct oversight over the Company's engineering, design, development, manufacturing, production, operations, maintenance, and delivery of aerospace product;
b. Ensuring the safety of the Company's aerospace products;
c. Oversight of Company policies and processes for safe design and development;
d. The certification process and Company protocols for engaging with the FAA.

C. Boeing Reorganizes Its Management and Safety Reporting Structure

252. In late June 2019, following a presentation to the Airplane Committee from [redacted] about safety, [redacted] made a number of proposals to implement new procedures regarding safety oversight. Among his suggestions were [redacted] Those procedures were not in place prior to that time.

253. [redacted] expressed concern with [redacted]

[redacted]

254. In late 2019, Boeing gradually implemented a review process to determine "what items require higher visibility due to their severity, urgency, and reputational risk." Those items would "brought to the CEOs attention and [ ] tracked to closure." Previously, there was no mechanism or process for bringing safety issues to the CEO's attention. Additionally, Muilenburg, for the first time, began to receive "granular weekly reports of potential safety issues discussed at meetings of rank-and-file engineers - something that did not happen in the past." A presentation at the October 20, 2019 Board meeting reflected a reporting process for product safety concerns that ultimately reported up to executives and the Board.

255. On September 30, 2019, Boeing confirmed that, consistent with the Airplane Committee's recommendation, it would create a Company-wide Product and Services Safety Organization. The Product and Services Safety Organization oversees Boeing's Accident Investigations team, Boeing's Safety Review Board, as well as the Organization Designation Authority. It is also responsible for

investigating "cases of undue pressure and anonymous product and service safety concerns raised by employees."

256. The head of the Product and Services Safety Organization, Beth Pasztor, reports directly to the Aerospace Safety Committee and Boeing's Chief Engineer, Greg Hyslop, who, in turn, reports directly to the CEO. For example, at a December 15, 2019 meeting of the Aerospace Safety Committee, Pasztor reported on the safety reporting process and the Safety Review Watchlist.

257. The Product and Services Safety Organization represents the first time that there has been any mechanism or reporting line to convey employee complaints to the Board. This is significant given the employee complaints regarding airplane quality and safety concerns prior to and immediately after the Lion Air crash.[11]

258. The Audit Committee also began to receive updates on product safety from the compliance risk management group. At the December 15, 2019 meeting, the Audit Committee received a presentation from chief compliance and ethics officer Sands. For the first time, the 2019 compliance risk management report included a category for "Safety." That report stands in stark contrast to Sands's

[11] *See supra* Section II(C).

report from December 2018, after the Lion Air crash, which did not cover product safety at all.

D. Muilenburg Acknowledges The Need to Elevate Visibility Into Safety Issues

259. In a July 2019 email to McAllister, Hyslop, and Smith, and other senior Boeing officials, Muilenburg wrote:

260. At congressional hearings held on October 29-30, 2019, Muilenburg testified that Boeing "got some things wrong" on the 737 MAX's design and that ***"one of the key learnings from this whole process is we need to elevate the visibility on safety issues that might come up at the ground floor level. Make sure they get the right visibility and action***." He also stated that "[o]ur airline customers and their pilots have told us they don't believe we communicated enough about MCAS."

261. Muilenburg admitted before Congress failures of policies and compliance:

> Sen. Moran: [H]ave you determined that the failures that resulted in tragic consequences, were they failures in the policies and protocols that Boeing had in place, or was it a failure to comply with those protocols and policies that resulted in these consequences.
>
> Dennis Muilenburg: Senator, ***I believe that both are true***.

262. In his testimony, Muilenburg acknowledged that better information would have supported grounding the 737 MAX fleet shortly after the Lion Air crash: "if we knew back then what we know now, we would have grounded right after the first accident."

E. The Board Replaces Senior Management But Allows Muilenburg to Keep Unvested Equity Awards

263. On October 11, 2019, in advance of congressional testimony, Boeing announced that the Board had stripped Muilenburg of his title as Chairman, but allowed him to continue running the Company as the CEO and a director. No Board minutes reflect this decision.

264. On October 21, 2019, the Board, including Muilenburg, [redacted] Muilenburg publicly thanked McAllister the next day "for his dedicated and tireless service to Boeing, its customers and its communities."

265. On November 5, 2019, a week after congressional testimony by Muilenburg, the *New York Times* reported that Calhoun supported him: "From the vantage point of our board, Dennis has done everything right."

266. On December 16, 2019, the Board met and resolved to [redacted] The Company subsequently announced that she "resigned."

267. On Sunday, December 22, 2019, the *New York Times* published an exposé detailing customer exasperation with Muilenburg, his frayed relationship with the FAA, and his awareness in January 2019 of "instant messages from 2016 in which a Boeing pilot complained that the system known as MCAS, which was new to the plane, was acting unpredictably in a flight simulator," which "Muilenburg did not read" and which Boeing did not turn over to the FAA. According to the *New York Times*, the head of the FAA, Stephen Dickson, had "reprimanded" Muilenburg in a "tense, private meeting" that "was a rare dressing-down for the leader of one of the world's largest companies," and that Muilenburg had "found himself promising more than he can deliver."

268. The Board called a meeting for later that day. The Board [redacted] The Board "decided that a change in leadership was necessary to restore confidence in the Company moving forward as it works to repair relationships with regulators, customers and all other stakeholders."

269. The Board chose not to require Muilenburg to forfeit unvested equity awards worth approximately $38,642,304: (i) performance awards worth $13,077,900; (ii) restricted stock units worth $8,542,853; and (iii) performance-based restricted stock units worth $12,691,088. Each of the plans for those equity awards provided for [redacted]

270. The attorney attending the December 22, 2019 Board meeting [redacted] Any Board investigation of Muilenburg, had it occurred, would have uncovered that Muilenburg repeatedly misled the Board and deserved to be terminated for cause. The Board knew enough, regardless, to make the determination that [redacted] The Board chose in bad faith to pay Muilenburg his compensation in exchange for his silence.

271. Boeing publicly announced that Muilenburg "resigned," but later re-characterized his departure as a "retirement," which enabled Muilenburg to collect his unvested compensation.

272. On December 26, 2019, Boeing announced that Luttig would also "retire," which allowed Luttig to keep his unvested equity awards.

273. The Board replaced Muilenburg with longtime Board member and then-Chairman of the Board Calhoun, who took over in early January 2020.

274. Two months after taking the helm, Calhoun reflected on both Muilenburg and the Board in an interview with the *New York Times*. Calhoun admitted that Board "never seriously questioned [Muilenburg's] strategy, in part because before the first Max crash off the coast of Indonesia in October 2018, the company was enjoying its best run in years." Calhoun acknowledged that "'he'd never be able to judge what motivated [Muilenburg], whether it was a stock price that was going to continue to go up and up, or whether it was just beating the other guy to the next rate increase,'" concluding that "'[i]f anybody ran over the rainbow for the pot of gold on stock, it would have been him.'" He concluded:

> If [the Board] w[as] complacent in any way, maybe, maybe not, I don't know. . . . We supported a C.E.O. who was willing and whose history would suggest that he might be really good at taking a few more risks.

VII. The Costs and Liabilities Incurred by Boeing

275. In the wake of the Lion Air and Ethiopian Airlines crashes and the grounding of the 737 MAX, Boeing suffered significant damage to its profitability, credibility, reputation, and business prospects. It also became exposed to substantial liability in regulatory and private actions.

276. The 737 MAX fleet remains grounded today. The timeline for returning the aircraft to service has been repeatedly pushed back, including due to the discovery of additional software and manufacturing defects. Currently, there is no firm date for the return of the aircraft to full service.

277. The vast majority of the backlog of Boeing's Commercial Airplanes segment had consisted of unfulfilled 737 MAX aircraft. Sales of the 737 MAX comprised approximately 80% of the backlogged orders on Boeing's books. As of April 2019, Boeing had over 4,600 unfilled orders for 737 MAX planes.

278. Those unfilled orders are subject to cancellation. The first confirmed cancellation of a 737 MAX order was announced on March 14, 2019, when Garuda Indonesia airlines announced that it was cancelling orders for forty-nine aircraft, citing "concerns on the safety of passengers." In July 2019, the Saudi carrier Flyadeal cancelled a $6 billion order for thirty 737 MAX aircraft, stating that it instead would be purchasing Airbus's A320neo aircraft.

279. In January 2020, Boeing announced that it would be suspending all production of 737 MAX aircraft. Although the Company recently resumed production after a nearly five-month hiatus, the production is "at a low rate as [Boeing] implements more than a dozen initiatives focused on enhancing workplace safety and product quality," as well as reduced order volumes.

280. In January 2020, Boeing announced that the non-litigation costs associated with the grounding of the 737 MAX were likely to surpass $18.6 billion, a significant increase over previous forecasts. This amount is nearly 20 percent of Boeing's annual sales before the 737 MAX was grounded. The costs include approximately $4 billion to shut down and restart the Renton, Washington factory, $8.3 billion to compensate airlines for lost sales as a result of the 737 MAX grounding (more than $2.7 billion than its prior estimate), and a total production cost of $6.3 billion (up from a previous estimate of $3.6 billion).

281. Boeing also faces substantial regulatory and monetary liability arising from the 737 MAX. On May 24, 2019, the Securities and Exchange Commission ("SEC") launched an investigation into whether Boeing "properly disclosed issues tied to the grounded 737 MAX jetliners." The SEC is also investigating whether Boeing adequately informed stockholders about material problems with the aircraft.

282. In the wake of the Lion Air crash, the fraud section of the Criminal Division of the U.S. Department of Justice and the Federal Bureau of Investigation opened a criminal probe. The criminal probe is focused on whether Boeing provided incomplete or misleading information to regulators and customers. A grand jury subpoena was issued a day after the Ethiopian Airlines crash. *The Wall*

Street Journal, which broke this news, noted "it is highly unusual for federal prosecutors to investigate details of regulatory approval of commercial aircraft designs, or to use a criminal probe to delve into dealings between the FAA and the largest aircraft manufacturer the agency oversees."

283. Numerous private lawsuits have also been filed against the Company.[12] Compensating the estates of the crash victims is estimated to cost as much as $1.7 billion. A securities class action has been filed in the Northern District of Illinois.[13] Ethiopian Airlines also seeks compensation from Boeing for costs associated with the crash and the grounding.

284. Shortly after the Ethiopian Airlines crash, both the House and Senate launched investigations into Boeing and the 737 MAX. Congress has held nearly a dozen public hearings, obtained hundreds of thousands of pages of documents from Boeing, the FAA, and other third-parties, and interviewed dozens of witnesses. Congressional investigations continue: the Senate is scheduled to hear from FAA Chief Dickson on June 17, 2020.

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[12] *See* Complaint, *In re: Lion Air Flight JT 610 Crash*, No. 18-cv-07686 at Dkt. No. 571 (N.D. Ill. Nov. 19, 2018); *See* Master Complaint, *In re: Ethiopian Airlines Flight ET 302 Crash*, No. 19-cv-02170 at Dkt. No. 571 (N.D. Ill. Dec. 2, 2019).
[13] *See* Complaint, *In re The Boeing Co. Aircraft Securities Litig.*, No. 19-cv-02394 at Dkt. No. 1 (N.D. Ill. Feb. 14, 2020).

285. Boeing has incurred reputational damage as the public questions its aircraft's safety. For example, a 2019 Atmosphere Research survey of 2,000 passengers following the 737 MAX grounding revealed that passengers were ten times more likely to describe Boeing as irresponsible, arrogant, and unsafe; and two in every five passengers surveyed related that they would prefer to take a more inconvenient flight or pay more to avoid flying on a 737 MAX, once the aircraft returns to service. Boeing reached the same conclusion internally: its survey of thousands of regular fliers found that even in December 2019, nine months after the Ethiopian Airlines crash, 40 percent of respondents would be unwilling to fly on the 737 MAX.

DEMAND ON THE BOARD WOULD HAVE BEEN FUTILE

286. Demand is futile. At each point in time from at least November 18, 2019 (the date of filing of the first derivative complaint alleging demand futility) through and including today, a majority of the members of the Board have faced a substantial likelihood of liability for failing to make any good faith effort to implement and oversee a board-level system to monitor and report on safety.

287. As of November 18, 2019, twelve of the Board's thirteen members (Defendants Bradway, Calhoun, Collins, Giambastiani, Good, Kellner, Kennedy, Liddy, Muilenburg, Schwab, Williams, and Zafirovski) had each served on the Board for over a year prior to the Ethiopian Airlines crash, and eight of the thirteen

(Defendants Calhoun, Collins, Giambastiani, Kellner, Liddy, Schwab, Williams, and Zafirovski) had served on the Board for at least five years prior to the Ethiopian Airlines crash.

288. As of today, nine of the Board's twelve members (Defendants Bradway, Calhoun, Collins, Giambastiani, Good, Kellner, Kennedy, Schwab, and Williams) had each served on the Board for over a year prior to the Ethiopian Airlines crash, and six of the twelve (Defendants Calhoun, Collins, Giambastiani, Kellner, Schwab, and Williams) had served on the Board for at least five years prior to the Ethiopian Airlines crash.

289. Regardless of their length of service, all of the directors serving on the Board in December 2019 (including Defendants Calhoun, Collins, Giambastiani, Good, Kellner, Liddy, Muilenburg, Schwab, Williams, and Zafirovski) participated in the bad faith decision to allow Muilenburg to "retire" and collect his unvested equity-based compensation.

CLAIMS FOR RELIEF

COUNT I
Breach Of Fiduciary Duty
(Against the Director Defendants)

290. Plaintiffs repeat and reallege each and every allegation above as if set forth fully herein.

291. The Director Defendants owed fiduciary duties to Boeing and its stockholders, including, without limitation, implementing and overseeing a system to monitor aircraft performance and safety, the corporation's operational viability, and legal compliance. The Director Defendants had a fundamental duty to make good faith efforts to ensure that the Company's aircraft are not a danger to public safety.

292. The Director Defendants consciously breached their fiduciary duties and violated their corporate responsibilities in at least the following ways:

a. consciously and repeatedly failing to assure that a reasonable information and reporting system exists, and failing to actively monitor or oversee those systems, thus disabling the Director Defendants from being informed of risks or problems requiring their attention;

b. consciously disregarding their duty to investigate red flags and to remedy any misconduct uncovered; and

c. allowing Muilenburg to collect his unvested equity-based compensation.

293. As a direct and proximate result of the Director Defendants' conscious failure to perform their fiduciary duties, Boeing has sustained significant damages both financially and to its corporate image and goodwill. Such damages to Boeing

caused by the Director Defendants' misconduct include, and will include, massive operational cost increases, substantial penalties, fines, damages awards, settlements, expenses, increased regulatory scrutiny (including increased difficulty in operating in certain legal jurisdictions), increased cost of capital, and other liabilities described herein.

294. As a result of the conscious and bad faith misconduct alleged herein, the Director Defendants are liable to the Company.

COUNT II
Breach of Fiduciary Duty
(Against the Officer Defendants)

295. Plaintiffs repeat and reallege each and every allegation above as if set forth fully herein.

296. The Officer Defendants owed Boeing and its stockholders the highest obligations of due care and loyalty in the administration of the affairs of the Company, including, without limitation, operating the Company in compliance with laws and without undue risk to public safety, implementing and overseeing programs to comply with laws and regulations governing the sale and marketing of aircraft, and reporting significant risks to the Board, regulators, and stockholders.

297. The Officer Defendants consciously breached their fiduciary duties and/or acted with gross negligence in at least the following ways:

a. consciously and repeatedly failing to implement and actively monitor or oversee a compliance and safety program;

b. consciously disregarding their duty to investigate red flags and to remedy any misconduct uncovered; and

c. covering up the extreme safety risks of Boeing's aircraft.

298. As officers of the Company, the Officer Defendants are not entitled to exculpation under 8 *Del. C.* § 102(b)(7).

299. As a direct and proximate result of the Officer Defendants' conscious and/or grossly negligent failure to perform their fiduciary duties, Boeing has sustained significant damages both financially and to its corporate image and goodwill. Such damages to Boeing caused by the Officer Defendants' misconduct include, and will include, massive operational cost increases, substantial penalties, fines, damages awards, settlements, expenses, increased regulatory scrutiny (including increased difficulty in operating in certain legal jurisdictions), increased cost of capital, and other liabilities described herein.

300. As a result of the misconduct alleged herein, the Officer Defendants are liable to the Company.

PRAYER FOR RELIEF

WHEREFORE, Plaintiffs demand judgment as follows:

a. determining that this action is a proper derivative action maintainable under the law and that demand was excused;

b. finding that Defendants consciously breached their fiduciary duties by failing to make a good faith effort to implement and oversee an effective safety monitoring and compliance system;

c. finding that the Officer Defendants acted with, at a minimum, gross negligence;

d. against all Defendants and in favor of the Company for the amount of any and all damages sustained by Boeing as a result of Defendants' breaches of fiduciary duties, including any and all damages compensable by statute and/or law;

e. directing the Director Defendants to take necessary actions to enhance the Company's governance to comply with applicable laws and to protect Boeing and its stockholders from repeating the harms described herein;

f. awarding to Boeing restitution from all Defendants, and each of them, and ordering disgorgement of all profits, benefits, and other compensation obtained by Defendants, including payment of unvested equity-based compensation;

g. awarding to Plaintiffs the costs and disbursements of the action, including reasonable attorneys' fees, accountants', consultants' and experts' fees, costs, and expenses; and

h. granting such further relief as the Court deems just and proper.

FRIEDLANDER & GORRIS, P.A.

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