

United States Senate

WASHINGTON, DC 20510

March 27, 2019

Dennis Muilenburg
President and Chief Executive Officer
The Boeing Company
100 N Riverside Plaza,
Chicago, IL 60606

Dear Mr. Muilenburg:

We write to request answers about Boeing's ongoing practice of charging airlines extra for safety-critical systems important to the operation of an aircraft. In the span of five months, two Boeing 737 MAX 8 aircraft have crashed, tragically claiming the lives of all passengers and crew on board and raising questions about Boeing's decision to qualify certain important safety features on their MAX 8 and 9 aircraft as options only available to airlines at an additional cost.

According to reports, the 737 MAX 8 aircraft involved in the Lion Air crash in October and the Ethiopian Airlines crash earlier this month lacked two critical safety features that could have helped the pilots and aviation mechanics recognize false readings from the sensors connected to the aircraft's new flight control system. Based on preliminary findings from the Lion Air tragedy, sensors feeding erroneous data to the new flight control system may have caused the aircraft to pitch down wildly, resisting pilots' efforts to keep the plane level and airborne.¹ One feature—the angle of attack indicator—displays the readings of the system's sensors in the cockpit. The other feature—a disagree light—alerts the pilots if the plane's sensors are providing different readings, which could help pilots and mechanics detect a sensor malfunction.² The FAA and other aviation regulators did not require these features to come standard on the 737 MAX 8 and 9, and Boeing treated these systems as optional features that airlines could purchase for an additional fee.

We have serious concerns that extra costs for these and other critical safety features—such as backup fire extinguishers in the cargo hold and oxygen masks for flight crews—may discourage airlines from purchasing them.³ Aircraft manufacturers are increasingly selling “optional” features—such as premium seats, extra bathrooms, or special lighting—to increase profit. But aviation safety is not a luxury upsell that airplane manufacturers should be allowed to leverage for additional revenue.

Safety must be a standard part of our fleets, engrained in every bolt, sensor, and line of code on an aircraft. Boeing should include all safety-critical systems instrumental to the safe operation of an aircraft as part of the standard cost to the airlines of purchasing their aircraft. Safety features

¹ Jorge Ortiz, 'A punch in the nose for Boeing': Second fatal crash raises questions about plane's safety, USA Today (Mar. 10, 2019), <https://www.usatoday.com/story/news/nation/2019/03/10/ethiopian-airlines-crash-boeing-questions-737-max-8-safety/3126793002/>.

² Hiroko Tabuchi & David Gelles, *Doomed Boeing Jets Lacked 2 Safety Features That Company Sold Only as Extras*, N.Y. Times (Mar. 21, 2019), <https://www.nytimes.com/2019/03/21/business/boeing-safety-features-charge.html>.

³ *Id.*

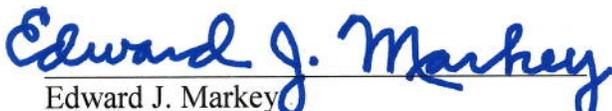
on jets that fly hundreds of passengers should never be sold as a la carte add-ons.

In light of these concerns, we respectfully request that by April 16, 2019, you answer the following questions:

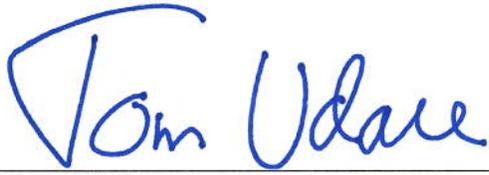
1. Why did Boeing opt to not include an angle of attack indicator and disagree light as standard features on the 737 MAX 8 and 9? Please detail the evidence that supported your company's conclusion that these features were not necessary for the safe operation of the aircraft.
 - a. Given that Boeing included two angle of attack sensors in the 737 Max, why did Boeing not design the MCAS to automatically disengage when there was a meaningful disagreement between the two sensors, such as when one of the sensors is malfunctioning? Please explain.
2. How does Boeing determine which safety features will be "standard" on an aircraft and which will be "optional"? Please detail every safety feature Boeing offers as an a la carte purchase on the 737 MAX 8 and 9 and how much you charge airlines to purchase those additional features.
3. As of October 28, 2018, how much did Boeing charge airlines to install an angle of attack indicator and disagree light on its 737 MAX 8 and 9 aircraft? Did any airline cite the cost of these safety features as a reason for not purchasing an angle of attack indicator and disagree light? If yes, please detail the complaint.
4. As of October 28, 2018, how much did it cost Boeing to install an angle of attack indicator and disagree light on its 737 MAX 8 and 9 aircraft?
5. As of October 28, 2018, how much had Boeing collected in fees associated with the installation of angle of attack indicators and disagree lights on the 737 MAX 8 and 9 aircraft?
6. How many 737 MAX 8 and 9 aircraft in use in the United States were sold without an angle of attack indicator, a disagree light, or both as of March 27, 2019?

Thank you for your prompt attention to this important matter. Should you have any questions about this request please contact Daniel Greene of Senator Markey's staff at 202-224-2742.

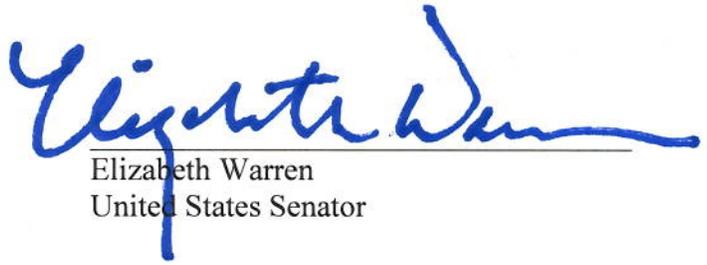
Sincerely,


Edward J. Markey
United States Senator


Richard J. Durbin
United States Senator



Tom Udall
United States Senator



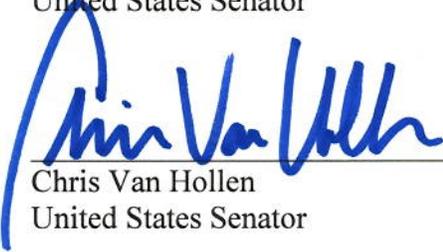
Elizabeth Warren
United States Senator



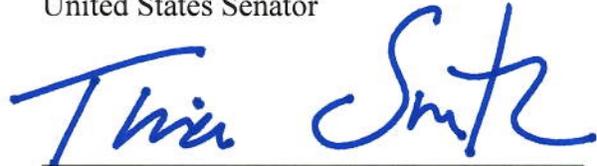
Sheldon Whitehouse
United States Senator



Richard Blumenthal
United States Senator



Chris Van Hollen
United States Senator



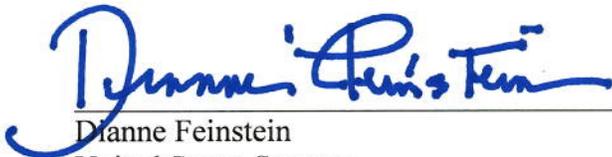
Tina Smith
United States Senator



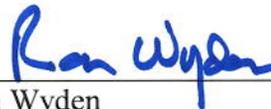
Benjamin L. Cardin
United States Senator



Bernard Sanders
United States Senator



Dianne Feinstein
United States Senator



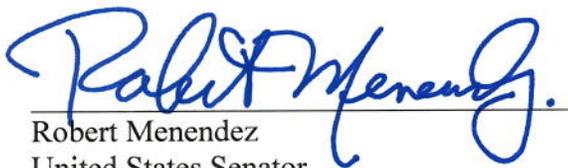
Ron Wyden
United States Senator



Kirsten Gillibrand
United States Senator



Tammy Baldwin
United States Senator



Robert Menendez
United States Senator



Amy Klobuchar
United States Senator

Tammy Duckworth

Tammy Duckworth
United States Senator