



**Committee on Transportation and Infrastructure**  
**U.S. House of Representatives**  
**Washington, DC 20515**

**Peter A. DeFazio**  
Chairman

**Sam Graves**  
Ranking Member

Katherine W. Dedrick, Staff Director

Paul J. Sass, Republican Staff Director

June 14, 2019

**SUMMARY OF SUBJECT MATTER**

**TO:** Members, Subcommittee on Aviation  
**FROM:** Staff, Subcommittee on Aviation  
**RE:** Subcommittee Hearing on “Status of the Boeing 737 MAX: Stakeholder Perspectives”

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**PURPOSE**

The Subcommittee on Aviation will meet on Wednesday, June 19, 2019, at 10:00 a.m. in 2167 Rayburn House Office Building to hold an hearing titled, “Status of the Boeing 737 MAX: Stakeholder Perspectives.” The hearing is intended to gather views and perspectives from aviation stakeholders regarding the Lion Air Flight 610 and Ethiopian Airlines Flight 302 accidents, the resulting international grounding of the Boeing 737 MAX aircraft, and actions needed to ensure the safety of the aircraft before returning them to service. The Subcommittee will hear testimony from Airlines for America, Allied Pilots Association, Association of Flight Attendants-CWA, Captain Chesley (“Sully”) Sullenberger, and Randy Babbitt.

**BACKGROUND**

The Federal Aviation Administration’s (FAA) mission is to provide the safest, most efficient aerospace system in the world. According to the FAA, the risk of a fatal commercial aviation accident in the United States has been cut by 95 percent since 1997. There has only been one commercial airline passenger fatality in the United States in more than 90 million flights in the past decade.<sup>1</sup> Prior to that single passenger fatality in April 2018, the last fatal domestic commercial airline accident occurred in February 2009, when Colgan Air Flight 3407 crashed near Buffalo, New York, killing all 49 onboard and one person on the ground.<sup>2</sup> However, in a span of five months, there have been two fatal commercial airline accidents involving the new U.S.-designed and manufactured Boeing 737 MAX aircraft operated by foreign air carriers outside the United States,

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<sup>1</sup> On April 17, 2018, Southwest Airlines Flight 1380 experienced an engine failure, resulting in loss of an engine inlet and cowling. Fragments struck the airplane’s fuselage and damaged a cabin window, killing one passenger onboard.

<sup>2</sup> NTSB, Loss of Control on Approach, Colgan Air, Inc., Operating as Continental Connection Flight 3407, Bombardier DHC 8 400, N200WQ, <https://www.nts.gov/investigations/AccidentReports/Pages/AAR1001.aspx>.

raising safety concerns. According to the Flight Safety Foundation, worldwide, there were more than 50 fatal airline accidents each year through the early and mid-1990s, claiming more than 1,000 lives annually.<sup>3</sup> Fatalities dropped from 1,844 in 1996 to just 59 in 2017, then rose to 561 last year and 209 already this year (primarily due to the two 737 MAX accidents).<sup>4</sup>

## **I. FOREIGN AIR CARRIER ACCIDENTS INVOLVING THE BOEING 737 MAX**

### **A. Lion Air Flight 610**

On October 29, 2018, Lion Air Flight 610 (JT610)—a Boeing 737 MAX—an Indonesian domestic flight en route to Pangkal Pinang from Jakarta, crashed into the Java Sea at 450 miles per hour approximately 11 minutes after takeoff, killing all 189 on board (184 passengers and 5 crew).

According to the preliminary accident report by Indonesia’s Komite Nasional Keselamatan Transportasi (KNKKT),<sup>5</sup> prior to departure, the aircraft’s left and right angle of attack (AoA) sensors, which measure the angle between the airplane’s wings and the oncoming air, provided the pilots inaccurate readings (a 20-degree difference between left and right sensors). This faulty data made the accident aircraft believe it was in a stall and therefore activated a Boeing system on the 737 MAX called the “maneuvering characteristics augmentation system” (MCAS). The MCAS was designed to adjust the handling of the aircraft so that it operates similarly to previous 737 models by pushing the nose of the aircraft down based on certain data inputs. However, due to erroneous AoA data, the MCAS on JT610 activated (i.e., pushed the nose of the aircraft down) more than two dozen times during the 11-minute flight. The pilots’ manual attempts to counter the MCAS were ultimately unsuccessful.

The preliminary report provides information on the flight crew, including:<sup>6</sup>

- Pilot in Command: 6,028 hours (including 5,176 hours in the Boeing 737; the number of hours in the Boeing 737 MAX is not provided).
- First Officer: 5,174 hours (including 4,286 hours in the Boeing 737; the number of hours in the Boeing 737 MAX is not provided).

According to the preliminary report, there were problems reported by flight crews operating the aircraft on October 26, 27, and 28. The pilots of the flight immediately preceding the accident flight (on October 28) experienced similar problems to the accident flight on October 29. On the October 28 flight, despite experiencing problems, the pilots continued flying with manual trim, with the stick shaker activated, and without auto-pilot until safely landing at Jakarta more than one hour later. They reported certain problems to the airline but not the stick shaker activation. The aircraft was serviced, tested, and determined ready for flight.

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<sup>3</sup> David Koenig and Tom Krisher, *Recent Airline Crashes Run Against Trend Toward Safer Flying*, U.S. News and World Reports and Associated Press, May 6, 2019, available at <https://www.usnews.com/news/business/articles/2019-05-06/recent-airline-crashes-run-against-trend-toward-safer-flying/>.

<sup>4</sup> *Id.*

<sup>5</sup> Translated means “Transportation Safety National Committee” or “National Transportation Safety Committee.”

<sup>6</sup> Lion Air 601 Preliminary Report available at [https://reports.aviation-safety.net/2018/20181029-0\\_B38M\\_PK-LQP\\_PRELIMINARY.pdf](https://reports.aviation-safety.net/2018/20181029-0_B38M_PK-LQP_PRELIMINARY.pdf).

On November 7, 2019, the FAA issued an Emergency Airworthiness Directive (AD) requiring operators of the 737 MAX to “revise their flight manuals to reinforce to flight crews how to recognize and respond to uncommanded stabilizer trim movement and MCAS events.”<sup>7</sup> Specifically, the AD stated that in the event of an “erroneously high [AoA] sensor input . . . there is a potential for repeated nose-down trim commands of the horizontal stabilizer. This condition, if not addressed, could cause the flight crew to have difficulty controlling the airplane, and lead to excessive nose-down attitude, significant altitude loss, and possible impact with terrain.”<sup>8</sup> The AD identified existing flight crew procedures to be used in such circumstances.

Indonesia’s KNKT is leading the ongoing accident investigation. As mentioned previously, on November 27, 2018, the KNKT issued a preliminary report on the Lion Air crash. The preliminary report was compiled prior to the recovery of the cockpit voice recorder and does not contain analysis. The final report, which will include the probable cause(s) of the accident, is expected later this year. The National Transportation Safety Board (NTSB) is assisting with this investigation.

## **B. Ethiopian Airlines Flight 302**

On March 10, 2019, Ethiopian Airlines Flight 302 (ET302)—a Boeing 737 MAX—en route from Bole International Airport in Addis Ababa, Ethiopia, to Nairobi, Kenya, crashed approximately six minutes after takeoff. The accident resulted in the death of all 157 people on board (149 passengers and 8 crew members).

According to the Ethiopian Ministry of Transport’s preliminary accident report, erroneous AoA data from one sensor triggered the MCAS during flight, pulling the nose of the aircraft down, before it ultimately crashed into terrain. Unlike the Lion Air pilots, the Ethiopian Airline pilots hit the “STAB TRIM CUTOUT” switches (disconnecting the electric portion of the plane’s stabilizer), in accordance with Boeing’s emergency checklist described in the FAA’s Emergency AD issued months prior. The pilots did not reduce the throttle after takeoff and the aircraft accelerated to between 450 and 500 knots. The maximum design speed of the aircraft is 340 knots. As depicted in the image included in **Appendix 1**, using the manual trim wheel at excessive airspeed can be difficult or nearly impossible due to the downward force on the plane’s tail. According to the preliminary accident report, the pilots reactivated the motor on the stabilizer, allowing MCAS to push the nose down again. The pilots were unable to recover.

The preliminary report provides information on the flight crew, including<sup>9</sup>:

- Pilot in Command: 8,122 flight hours (including 1,417 hours in the Boeing 737, and 103 hours in the Boeing 737 MAX).
- First Officer: 361 flight hours (including 207 hours in the Boeing 737, and 56 hours in the Boeing 737 MAX).

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<sup>7</sup> Daniel K. Elwell, FAA, Testimony before for the Senate Commerce Committee, Aviation and Space Subcommittee, hearing on State of Airline Safety: Federal Oversight of Commercial Aviation, at 7 (Mar. 27, 2019).

<sup>8</sup> FAA Emergency Airworthiness Directive, AD 2018-23-51 (Nov. 7, 2018), *available at* [http://rgl.faa.gov/Regulatory\\_and\\_Guidance\\_Library/rgad.nsf/0/83ec7f95f3e5bfbfd8625833e0070a070/\\$FILE/2018-23-51\\_Emergency.pdf](http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgad.nsf/0/83ec7f95f3e5bfbfd8625833e0070a070/$FILE/2018-23-51_Emergency.pdf).

<sup>9</sup> ET302 Preliminary Report *available at* <http://www.ecaa.gov.et/documents/20435/0/Preliminary+Report+B737-800MAX+%2C%28ET-AVJ%29.pdf/4c65422d-5e4f-4689-9c58-d7af1ee17f3e>.

Immediately following the accident, foreign civil aviation authorities began grounding the Boeing 737 MAX planes. On March 11, 2019, the FAA issued a Continuous Airworthiness Notification to the International Community (CANIC) for 737 MAX operators, describing the FAA's activities following the Lion Air accident in support of continued operational safety of the 737 MAX fleet. On March 13, two days later, the FAA ordered a temporary grounding of the fleet operated by U.S. airlines or in U.S. territory. The Boeing 737 MAX remains grounded today.

The Ethiopian government is leading the accident investigation. As mentioned previously, on April 4, 2019, Ethiopia's Ministry of Transport's Aircraft Accident Investigation Bureau issued a preliminary report on the Ethiopian Airlines crash. A final report detailing probable cause(s) of the accident is expected within the year. The NTSB is assisting with this investigation as well.

### **C. Issues to be Considered in 737 MAX Accident Investigations**

An aviation accident rarely has one probable cause. Rather, accident investigators consider a number of factors, including: operations, weather, human performance, survival factors, and aircraft structures, power plants, and systems, to name a few.

In terms of the two 737 MAX accidents, as the United States is the state of design and manufacture of the accident aircraft, the FAA and NTSB are serving as technical experts to examine aircraft design and certification. In accordance with Annex 13 to the U.N. Chicago Convention of the International Civil Aviation Organization (ICAO), Indonesia and Ethiopia will (respectively) be responsible for examining a number of factors, including: pilot experience, pilot training, operational factors, and aircraft maintenance.

***International Pilot Training Standards.*** According to ICAO Standards and Recommended Practices, the pilot-in-command requires an Airline Transport Pilot License (ATP). An ATP requires a pilot have "completed not less than 1,500 hours of flight time." Further, "[t]he Licensing Authority shall determine whether experience as a pilot under instruction in a flight simulation training device is acceptable as part of the total flight time of 1,500 hours. Credit for such experience shall be limited to a maximum of 100 hours, of which not more than 25 hours shall have been acquired in a flight procedure trainer or a basic instrument flight trainer."<sup>10</sup>

ICAO also provides standards to obtain a Multi-Crew Pilot License (MPL), which "allows a pilot to exercise the privileges of a co-pilot in a commercial air transportation on multi-crew aeroplanes."<sup>11</sup> ICAO Standards for an MPL are set at a minimum of 240 hours "as the minimum number of actual and simulated flight hours performing the functions of the pilot flying and the pilot non-flying."<sup>12</sup> The ICAO Standard "does not specify the breakdown between actual and simulated flight hours and thus allow part of the training curriculum that was traditionally conducted on aeroplane to be done on flight simulation training devices."<sup>13</sup> The applicant pilot is required to meet "all the actual flying time for a private pilot license plus additional actual flying time in instrument, night flying and upset recovery."

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<sup>10</sup> See ICAO Annex 1, Personnel Licensing, at section 2.6 (regarding airline transport pilot (ATP) license).

<sup>11</sup> See ICAO, Multi-Crew Pilot License, <https://www.icao.int/safety/airnavigation/Pages/peltrgFAQ.aspx#anchor24>.

<sup>12</sup> *Id.*

<sup>13</sup> *Id.*

***FAA Certification and Delegation of Authority.*** All aircraft and aviation products are subject to FAA certification prior to their sale and use in the United States. The FAA is responsible for regulating aviation safety, which includes approving the design and manufacture of new aircraft and aviation products before they enter the National Airspace System (NAS).<sup>14</sup> Therefore, the FAA will need to review and approve any software fix proposed by Boeing and determine whether changes to the 737 MAX training program are needed to get the aircraft back into commercial service.

Since even before the FAA was formed over 60 years ago, the Federal government has delegated some safety certification responsibilities to technical experts in the industry. As airplanes, engines, and their constituent systems became increasingly complex, Congress authorized the FAA to leverage the product-specific knowledge among appropriately-qualified employees of manufacturers to determine a new product's compliance with the applicable provisions of the Federal Aviation Regulations. A designee may receive authority to examine, inspect, and test aircraft and persons for the purpose of issuing certificates.<sup>15</sup>

The delegation program allows the FAA to leverage limited resources to focus on the areas of highest-risk and make timely certification decisions. According to the Government Accountability Office (GAO), in terms of the breadth or scope of activities performed by FAA designees, designees perform more than 90 percent of FAA's certification activities.<sup>16</sup> However, the FAA has ultimate responsibility to ensure appropriate oversight is taken and aircraft are certified in a safe manner.

Since the original 737 aircraft was certified in the 1960s, there have been more than a dozen new models of the aircraft approved for flight. The 737 MAX is the latest version of the 737 aircraft. With regard to the FAA certification of the 737 MAX, the process to issue a type-certificate, from initial application to final certification, took five years, according to the FAA.<sup>17</sup> The process included 297 certification flight tests, including tests of the MCAS functions. The final type certificate was issued in March 2017. The FAA reports it was "directly involved" in the System Safety Review of the MCAS.<sup>18</sup>

## **II. REVIEWS OF THE BOEING 737 MAX**

Subsequent to the two fatal foreign airline Boeing 737 MAX accidents, the U.S. Department of Transportation (DOT), FAA, and Boeing have stood up various panels, including those explained below.

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<sup>14</sup> See 49 U.S.C. §§ 44702, 44704; GAO, *Aviation Manufacturing: Status of FAA's Efforts to Improve Certification and Regulatory Consistency* (July 31, 2014), GAO-14-829T, at 1.

<sup>15</sup> GAO-14-829T at 4.

<sup>16</sup> GAO, *Aviation Safety: FAA Efforts Have Improved Safety, but Challenges Remain in Key Areas* (Apr. 16, 2013), GAO-13-442T, at 3–4. In a May 7, 2019, email to Committee staff, the GAO clarified that the 90 percent number refers to the breadth or scope of FAA activities on which designees can do rather than the amount of certification work done by designees.

<sup>17</sup> See Koenig, *supra* note 3 at 6.

<sup>18</sup> *Id.*

## **A. Safety Oversight and Certification Advisory Committee (SOCAC)**

On March 25, 2019, as mandated by Congress in the *FAA Reauthorization Act of 2018*, DOT announced it will stand up the Safety Oversight and Certification Advisory Committee. The SOCAC is required to advise the Transportation Secretary on policy-level issues related to FAA safety certification and oversight programs, including efforts to streamline aircraft and flight standards certification processes, utilization of delegation authorities, risk-based oversight efforts, and training programs. The SOCAC will develop training and continuing education objectives for FAA engineers and safety inspectors. While not directly tasked with Boeing certification, aircraft certification is a key tasking of the committee.

## **B. Safety Oversight and Certification Advisory Committee Special Committee**

On March 25, 2019, DOT announced it would create a Special Committee to review the FAA's Aircraft Certification Process (Special Committee) within the structure of the SOCAC, described previously.<sup>19</sup> The Special Committee is tasked with reviewing the procedures of the FAA for the certification of new aircraft, including the Boeing 737 MAX.<sup>20</sup> The Special Committee's review of the certification process includes the "FAA certification process workplan, process timeline, Organization Designation Authorization, Designated Engineering Representatives Authorization/Certification, Authorized Representation Certification and oversight thereof."<sup>21</sup> The Special Committee will focus primarily on the Boeing 737 MAX 8 certification process from 2012 to 2017 and make recommendations for how the process could be improved.<sup>22</sup> Its findings and recommendations will then be presented directly to the DOT Secretary and the FAA Administrator for their consideration.<sup>23</sup>

## **C. Joint Authorities Technical Review**

On April 2, 2019, the FAA established a Joint Authorities Technical Review (JATR)<sup>24</sup> to conduct a comprehensive review of the certification of the automated flight control system (MCAS) on the Boeing 737 Max, including evaluating aspects of its design and pilots' interaction with the system, determining its compliance with all applicable regulations and identifying future enhancements that might be needed.<sup>25</sup>

The JATR is chaired by former NTSB Chairman Chris Hart and comprised of a team of experts from the FAA, National Aeronautics and Space Administration (NASA), and international aviation authorities, including China, Indonesia, Australia, Brazil, Canada, Singapore, the United

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<sup>19</sup> FAA, *DOT Announces Special Committee to Review FAA's Aircraft Certification Process* (2019), available at <https://www.transportation.gov/briefing-room/dot1619>.

<sup>20</sup> *Id.*

<sup>21</sup> DOT, *Letter to General McDew* (2019), available at <https://www.transportation.gov/sites/dot.gov/files/docs/briefing-room/337281/gen-darren-mcdew.pdf>.

<sup>22</sup> *Id.*

<sup>23</sup> *Id.*

<sup>24</sup> FAA, *FAA Updates on the Boeing 737 MAX: FAA Establishes Joint Authorities Technical Review (JATR) for Boeing 737 MAX* (2019), available at <https://www.faa.gov/news/updates/?newsId=93206>.

<sup>25</sup> On March 26, 2019, Chair of the House Committee on Transportation and Infrastructure Peter DeFazio (D-OR) and Chair of the Subcommittee on Aviation Rick Larsen (D-WA) sent a letter to FAA Acting Administrator Daniel K. Elwell, urging the agency to engage an independent, third-party review composed of individuals with the technical skills and expertise to objectively assess the corrective measures proposed for the 737 MAX by Boeing.

Arab Emirates (UAE), and the European Union Aviation Safety Agency (EASA).<sup>26</sup> The JATR had its first meeting on April 29, 2019, and is expected to last three months from the date it was established.<sup>27</sup> The JATR is not tied to the FAA's decision for return to service of the 737 MAX. That decision will be based upon FAA's assessment of the sufficiency of the proposed software updates and pilot training to address known issues for grounding the aircraft.

#### **D. Technical Advisory Board**

On May 6, 2019, the FAA launched the Technical Advisory Board (TAB). The TAB is tasked with conducting an independent review of Boeing's proposed software change and its integration into the 737 MAX flight control system. The review, which will run parallel to FAA's software reviews and flight tests, will include experts from the FAA, U.S. Air Force, the Volpe National Transportation Systems Center and NASA. The TAB is distinct from the JATR, in that the JATR focuses broadly on the earlier certification of the automated flight control system.

#### **E. Boeing Board of Directors Review Committee**

On April 5, 2019, Boeing announced it was creating a panel that will examine the design and development of its aircraft.<sup>28</sup> According to Boeing's statement, the panel will examine "company-wide policies and processes for the design and development of its aircraft" and will also "confirm the effectiveness of [its] policies and processes for assuring the highest level of safety on the 737-MAX program, as well as [its] other airplane programs, and recommend improvements to [its] policies and procedures."<sup>29</sup>

### **III. ONGOING INVESTIGATIONS**

#### **A. U.S. House of Representatives Committee on Transportation and Infrastructure**

On March 13, 2019, Chairman Peter A. DeFazio and Subcommittee on Aviation Chairman Rick Larsen launched an investigation by the Committee on Transportation and Infrastructure into the certification of the Boeing 737 MAX.

#### **B. DOT Inspector General**

On March 19, 2019, Secretary of Transportation Elaine Chao requested the DOT Inspector General (DOT IG) conduct an audit "to compile an objective and detailed factual history of the activities that resulted in the certification of the Boeing 737-MAX 8 aircraft."<sup>30</sup>

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<sup>26</sup> *FAA Establishes JATR*, *supra* note 24.

<sup>27</sup> *Id.*

<sup>28</sup> Boeing, *Statement from Boeing CEO Dennis Muilenburg: We Own Safety - 737 MAX Software, Production and Process Update* (2019), available at <https://boeing.mediaroom.com/2019-04-05-Statement-from-Boeing-CEO-Dennis-Muilenburg-We-Own-Safety-737-MAX-Software-Production-and-Process-Update>.

<sup>29</sup> *Id.*

<sup>30</sup> The DOT IG reports similar audit requests from the Chairman and Ranking Member of the Senate Committee on Appropriations, Subcommittee on Transportation, Housing and Urban Development, and Related Agencies; and Senator Richard Blumenthal (D-CT). See DOT OIG, *Audit Announcement: FAA's Oversight of Boeing 737 MAX Certification*, available at <https://www.oig.dot.gov/sites/default/files/Audit%20Announcement%20-%20FAA%27s%20Oversight%20of%20the%20Boeing%20737%20MAX%20Certification.pdf>.

On March 19, 2019, Chairman DeFazio and Aviation Subcommittee Chairman Rick Larsen asked DOT IG to investigate the certification process for the Boeing 737 MAX, including how each of the new features on the plane, including the AoA sensors and the MCAS, were tested and certified. The request also seeks investigation of the FAA's decision not to revise pilot training programs and manuals to reflect flight critical automation systems; how new features of the aircraft were communicated to airline customers, pilots and foreign civil aviation authorities; whether ODA authority contributed to any of the factors FAA considered in its decision-making; and a status report on how corrective actions have been implemented since the Lion Air crash in October 2018.

On March 29, 2019, Chairman DeFazio, Ranking Member Sam Graves, Aviation Subcommittee Chair Larsen, and Aviation Subcommittee Ranking Member Garrett Graves requested that the DOT IG launch an investigation of international pilot training standards and training for commercial pilots operating outside of the United States, including training for the Boeing 737 MAX.

### **C. U.S. Department of Justice**

According to multiple news sources, it was reported that the U.S. Department of Justice (DOJ) is conducting a criminal investigation into the FAA's certification of the Boeing 737 MAX.<sup>31</sup> Reports indicate the investigation began after the October 2018 Lion Air crash and is primarily focusing on the certification process.<sup>32</sup> According to news reports, the FBI Seattle Office and the Justice Department's criminal division in Washington State are leading the investigation.<sup>33</sup> The Justice Department has declined to comment.

### **D. U.S. Securities and Exchange Commission**

According to multiple news sources, it was reported that the Securities and Exchange Commission (SEC) is investigating whether Boeing "was adequately forthcoming to shareholders about material problems with the [Boeing 737 MAX]" and whether the company's "financial statements have appropriately reflected potential impacts from the problems."<sup>34</sup> The SEC has declined to comment.<sup>35</sup>

## **IV. NEXT STEPS AND IMPACTS OF THE GROUNDING**

***Returning to Service in the United States.*** After the October 2018 Lion Air crash, Boeing announced that the company is working on a design change to implement a software patch for the MCAS. Boeing continues to work on the certification documentation required to certify the MCAS software enhancement and the associated pilot training material. The FAA is responsible for

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<sup>31</sup> See Steve Miletich, *FBI Joining Criminal Investigation into Certification of Boeing 737 MAX*, THE SEATTLE TIMES (Mar. 20, 2019), available at <https://www.seattletimes.com/business/boeing-aerospace/fbi-joining-criminal-investigation-into-certification-of-boeing-737-max/>; Evan Perez and Shimon Prokupecz, *Justice Department Issues Subpoenas in Criminal Investigation of Boeing*, CNN (Mar. 21, 2019), available at <https://www.cnn.com/2019/03/20/business/boeing-justice-department-subpoenas/index.html>.

<sup>32</sup> *Id.*

<sup>33</sup> *Id.*

<sup>34</sup> Bloomberg, *Boeing Faces SEC Probe into Disclosures about 737 MAX Troubles* (May 24, 2019), <https://www.bloomberg.com/news/articles/2019-05-24/boeing-faces-sec-probe-into-disclosures-about-737-max-troubles>.

<sup>35</sup> *Id.*



reviewing and approving this and any other design changes to the 737 MAX. According to the FAA, the “737 MAX will return to service for U.S. carriers and in U.S. airspace only when the FAA’s analysis of the facts and technical data indicate that it is appropriate.”<sup>36</sup> Boeing CEO Dennis Muilenburg expects the 737 MAX to return to service by the end of 2019,<sup>37</sup> although the FAA has not committed to a timeline.<sup>38</sup>

**International Input.** On May 23, 2019, the FAA convened foreign civil aviation authorities from around the world in Fort Worth, Texas, to explain the agency’s plan and approach to evaluating Boeing’s forthcoming changes to the 737 MAX.<sup>39</sup> As stated by Acting FAA Administrator Dan Elwell, “Internationally, each country has to make its own decisions, but the FAA will make available to [its] counterparts all that [it has] learned, all that [it has] done, and all of [its] assistance under [U.S.] International Civil Aviation Organization commitments.”<sup>40</sup> The European Union (EU) has stated it will require four conditions before allowing the 737 MAX to fly again in its skies, including that the European Aviation Safety Agency (the EU’s equivalent of the FAA) approves Boeing’s updates to the aircraft separate from the FAA determination.<sup>41</sup>

**Impacts on Airlines and their Customers.** There are more than 370 Boeing 737 MAX aircraft worldwide,<sup>42</sup> and, according to news reports, there are fewer than 100 operated by U.S. airlines and grounded at this time.<sup>43</sup> Southwest Airlines is the top 737 MAX operator in the United States. Airlines have cancelled thousands of flights as a result of the international grounding of the 737 MAX aircraft and have made schedule and fleet adjustments to best accommodate passengers.<sup>44</sup> According to news reports, United Airlines alone has cancelled more than 3,000 flights and has removed its 14 MAX aircraft from scheduled service through August 3, 2019,<sup>45</sup> and American Airlines has removed its 24 MAX aircraft from scheduled service through September 3, 2019.<sup>46</sup> It is reported that even after the 737 MAX returns to service, airlines recognize potential difficulty in getting passengers comfortable flying in the aircraft again.<sup>47</sup> Media reports indicate that at least one airline has cancelled its contract with Boeing for new 737 MAX aircraft altogether.<sup>48</sup>

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<sup>36</sup> Elwell, *supra* note 7, at 9.

<sup>37</sup> CNBC, *Boeing CEO Says Troubled 737 MAX Jets Should be Flying by the End of the Year* (June 3, 2019).

<sup>38</sup> NBCDFW, *FAA Meets with International Regulators Over Boeing 737 MAX* (May 23, 2019), <https://www.nbcdfw.com/news/local/FAA-Meets-With-International-Regulators-Over-Boeing-737-Max-510341841.html>.

<sup>39</sup> FAA Acting Administrator Dan Elwell's Opening and Closing Remarks at Directorates General Meeting, May 22 & 23 2019, [https://www.faa.gov/news/updates/?newsId=93206&omniRss=news\\_updatesAoc&cid=101\\_N\\_U](https://www.faa.gov/news/updates/?newsId=93206&omniRss=news_updatesAoc&cid=101_N_U).

<sup>40</sup> *Id.*

<sup>41</sup> POLITICO, *Shadow of Global Mistrust Colors FAA’s 737 MAX Gathering* (May 22, 2019).

<sup>42</sup> See Boeing, *737 MAX Updates*, <https://www.boeing.com/commercial/737max/737-max-contacts.page>.

<sup>43</sup> CNBC, *U.S. Grounds Boeing 737 MAX Planes, Citing Links Between 2 Fatal Crashes* (Mar. 13, 2019), <https://www.cnbc.com/2019/03/13/boeing-shares-fall-after-report-says-us-expected-to-ground-737-max-fleet.html>.

<sup>44</sup> See American Airlines statement, June 9, 2019, <http://news.aa.com/news/news-details/2019/The-Latest-Information-About-737-MAX-Operations/default.aspx>; Statement of Gary Kelly, Southwest Airlines, April 26, 2019, [https://www.southwest.com/html/air/737-MAX-8.html?clk=737MAX8\\_190408](https://www.southwest.com/html/air/737-MAX-8.html?clk=737MAX8_190408); and CNBC, *United CEO Says He's Not Sure Travelers Will Want to Fly a Boeing 737 MAX — Even After a Fix* (May 30, 2019).

<sup>45</sup> *United CEO*, *supra* note 44.

<sup>46</sup> CNBC, *American Airlines Extends Cancellations from Grounded Boeing 737 Max to Sept. 3* (June 9, 2019), <https://www.cnbc.com/2019/06/09/american-airlines-extends-boeing-737-max-to-september.html>.

<sup>47</sup> *Id.*

<sup>48</sup> See e.g., Reuters, *Azerbaijan Cancels \$1 Billion Contract with Boeing for Safety Reasons* (June 3, 2019), <https://www.reuters.com/article/us-boeing-azerbaijan/azerbaijan-cancels-1-billion-contract-with-boeing-for-safety-reasons-idUSKCN1T413D>.

**WITNESSES**

Sharon Pinkerton  
Senior Vice President, Legislative and Regulatory Policy  
Airlines for America

Captain Daniel Carey  
President  
Allied Pilots Association

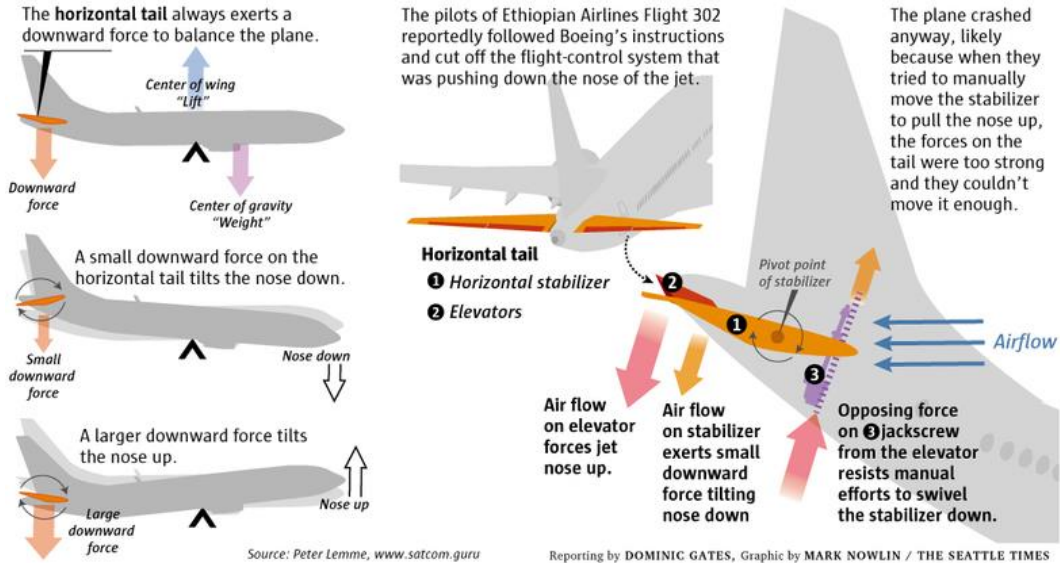
Captain Chesley Sullenberger  
Pilot, US Airways (Retired)

Sara Nelson  
International President  
Association of Flight Attendants-CWA

The Honorable Randy Babbitt  
Former Administrator, Federal Aviation Administration

APPENDIX 1.

**With the 737 MAX's automatic system cut off, forces on the horizontal tail could make it very difficult for pilots to swivel it manually**



Seattle Times, "Why Boeing's emergency directives may have failed to save 737 MAX," by Dominic Gates on April 3, 2019.