

DIVISION V – AIRCRAFT CERTIFICATION, SAFETY AND, ACCOUNTABILITY

Section-by-Section Summary

Sec.101. Short title; table of contents.

This title may be cited as the “Aircraft Certification, Safety, and Accountability Act”.

Sec.102. Safety management systems.

Requires the Federal Aviation Administration (FAA) to issue regulations for holders of both a type certificate and a production certificate, such as aircraft and other aerospace industry manufacturers, to adopt safety management systems (SMS) consistent with international standards and practices. While the FAA has required SMS for airlines, the agency has failed to require the same of manufacturers. An SMS adopted under this section must contain a confidential employee reporting system that includes non-punitive provisions through which employees can report hazards and safety concerns, as well as a code of ethics emphasizing safety as the highest priority for a manufacturer’s officers and employees. The confidential employee reporting system must be implemented in a manner consistent with other voluntary reporting programs administered by the FAA Administrator.

Sec.103. Expert review of organization designation authorizations for transport airplanes.

Convenes an independent expert review panel—comprised of representatives of the FAA, National Aeronautics and Space Administration (NASA), U.S. airlines, manufacturers of aircraft and aircraft components, labor unions representing airline pilots, production employees, and FAA engineers and safety inspectors, other organization designation authorization (ODA) holders, and other independent subject-matter experts—to review The Boeing Company’s ODA, safety culture, and capability to perform FAA-delegated functions. Directs the panel to make recommendations on any deficiencies found during the review. Authorizes the FAA Administrator to limit, suspend, or terminate Boeing’s ODA if the Administrator deems it necessary based on the review panel’s findings. Requires the FAA Administrator to report to Congress on the status of procedures under which the agency will conduct focused oversight of Boeing’s processes for performing FAA-delegated functions.

Sec.104. Certification oversight staff.

Requires the FAA to examine and address any shortfall in the agency’s expertise regarding innovative aviation technologies, including future technologies. Authorizes \$27,000,000 for each of fiscal years 2021 through 2023 in new appropriations for the FAA to recruit and retain engineers, safety inspectors, human factors specialists, software and cybersecurity experts, and other qualified technical experts who perform duties related to the certification of aircraft, engines, and other components. Clarifies that nothing in this section vests in any exclusive bargaining representative any management right of the FAA Administrator, and any action taken under this section is subject to the availability of appropriations.

Sec.105. Disclosure of safety critical information.

Requires manufacturers to disclose to the FAA certain safety-critical information related to an aircraft, including information regarding systems that manipulate flight controls without direct pilot input or commands, correct adverse handling qualities, or compensate for unstable aerodynamic properties, as well as other systems whose failure or erroneous activation would

present a risk rated hazardous or catastrophic. Imposes up to a \$1 million civil penalty for a violation of the disclosure requirements. Directs the FAA to revoke an airline transport pilot certificate held by an individual who fails to disclose such safety-critical information on behalf of a manufacturer.

Repeals the “certified design and production” (CDPO) authority first granted in the 2003 FAA Reauthorization and expanded in the 2012 Reauthorization. While the FAA has not yet implemented this authority, this bill would remove this authority and prevent FAA from further removing itself from the certification process.

Sec.106. Limitation on delegation.

Prohibits the FAA from delegating certification tasks related to safety critical design features, such as flight control systems, until the FAA has reviewed and verified all underlying human factors assumptions.

Sec.107. Oversight of organization designation authorization unit members.

Ensures that FAA’s will be responsible for approving and removing manufacturers’ engineers who act on behalf of the FAA — the Organization Designation Authorization (ODA) unit members, as was required under the FAA’s Designated Engineering Representative (DER) delegation program. Requires assignment of FAA safety advisors to manufacturer’s authorized representatives so that the FAA has direct and ongoing oversight and communication with the ODA unit members responsible for certification activities, another key return to the DER program. Authorizes \$3,000,000 annually for fiscal years 2021 through 2023 in new appropriations for the FAA to provide staffing and resources necessary to undertake this work.

Establishes new civil penalties for any manufacturer supervisory employee who interferes with (e.g., harasses, berates, or threatens) an ODA unit member’s performance of authorized functions on behalf of the FAA and requires all ODA unit members to promptly report any cases of interference experienced or witnessed at a company.

Sec.108. Integrated project teams.

Requires establishment of integrated project teams—made up of technical experts from the FAA and federal agencies such as NASA and the Air Force—for certification of proposed large commercial aircraft. Throughout the process, the team will advise FAA on the plans, analysis, assessments, and reports necessary to properly evaluate these designs and technologies as well as advise FAA whether a request for an exemption or exception from the latest airworthiness standards is warranted. This team will provide more scrutiny of manufacturers’ designs, assumptions, and system safety assessments starting at the beginning of the certification process, providing more transparency to the certification process. Requires FAA to respond to the team’s recommendations in writing and include this in the certification project records.

Sec.109. Oversight integrity briefing.

Requires the FAA to brief Congress on FAA’s reform of ODA oversight, including individual FAA employee responsibility to ensure that the manufacturer’s ODA performs its work in accordance with safety management principles and in the public interest of aviation safety.

Sec. 110. Appeals of certification decisions.

Directs the FAA Administrator to establish an appeal process to review a FAA employee's decision regarding a manufacturer's compliance with applicable design regulation. Prohibits FAA leadership and manufacturing executives from communicating about the dispute outside of the established review process unless those communications are publicly disclosed.

Sec.111. Employment restrictions.

Implements a one-year cooling off period for incoming FAA employees from overseeing their former aerospace manufacturer employer. Also implements a two-year cooling off period for former FAA certification employees representing their new employer before the FAA if they were responsible for overseeing that employer while at FAA, consistent with existing aviation safety inspector restrictions.

Sec.112. Professional development, skills enhancement, continuing education and training.

Directs the FAA to develop a program for regular recurrent training of FAA engineers, inspectors, and other subject matter experts. FAA personnel who hold positions involving aircraft and flight standards certification will receive additional continuing education and training, including in human factors, modern flight deck systems, and automation. Authorizes \$10 million annually for fiscal years 2021 through 2023 in new funding for this program.

Sec.113. Voluntary safety reporting program.

Requires FAA to establish a voluntary, confidential reporting program to flag safety concerns during certification or oversight processes. Requires the FAA Administrator to review submitted safety reports, identify the root cause of any safety issue, and take appropriate action to rectify any errors. Provides new channels for FAA employees to report concerns without fear of retribution. Requires FAA to provide yearly report to Congress on the effectiveness of the safety reporting program.

Sec.114. Compensation limitation.

Repeals existing law allowing FAA employees to receive bonuses or other financial incentive based on meeting manufacturer-driven certification schedules or quotas.

Sec.115. System safety assessments and other requirements.

Directs the FAA to require an applicant for an amended type certificate for a transport airplane (as defined in this Act) to perform a system safety assessment with respect to each proposed design change that the Administrator determines is significant, considering the airplane-level effects of individual failures and realistic pilot response times. Requires the FAA to review each system safety assessment for sufficiency and adequate consideration of the airplane-level effects of individual failures and realistic pilot response times.

Sec.116. Flight crew alerting.

Prohibits the FAA from issuing a type certificate for a new airliner design unless the airplane is equipped with a centralized crew alerting system that helps a pilot differentiate, prioritize, and respond to warnings, cautions, and advisories activated on the airplane. In response to a National Transportation Safety Board recommendation, ensures that for all future airplanes, including the 737 MAX derivatives, a manufacturer will complete a systems safety assessment on the flight

deck alerting systems.

Sec.117. Changed product rule.

Requires FAA to conduct a rulemaking to require proposals for new aircraft designs (type certificates) and variants of existing aircraft designs (amended type certificates) to undergo an integrated system safety analysis. Requires FAA to undertake an analysis of the cumulative effects of proposed design changes to the aircraft, human factors issues, and impacts on training for pilots and maintenance personnel. In the 737 MAX certification process, FAA failed to review the proposed design changes at an aircraft level, which led to FAA misunderstanding how the MCAS system would operate. This reform would help catch how new design features interact with other aircraft systems.

Sec.118. Whistleblower protections.

Extends whistleblower protections, similar to existing protections for airline employees, to employees, contractors, and suppliers of aircraft manufacturers. Ensures that frontline workers and ODA unit members can voice safety concerns during the certification process without fear of retribution.

Sec.119. Domestic and international pilot training.

Requires the FAA to independently review a proposal by a transport airplane manufacturer in setting pilot training requirements for an airliner. Prohibits such manufacturer from making assurances regarding certain pilot training requirements to customers before the FAA establishes them without a clear disclaimer regarding the actual status of training requirements and prohibits such manufacturer from providing financial incentives such as rebates to a potential customer regarding the scope or magnitude of pilot training for an airplane.

Beginning the day after the date on which the FAA issues regulations in response to the expert safety review required by this section, prohibits the FAA from issuing a new or amended type certificate to a transport airplane manufacturer for a transport airplane unless the manufacturer has demonstrated to the FAA it has accounted for realistic assumptions regarding pilot reaction time to non-normal conditions in designing the systems and instrumentation of such airplane.

Directs the FAA to initiate an expert safety review of assumptions relied upon by the FAA and airplane manufacturers, including a review of assumptions regarding the time presumed for pilot response to non-normal conditions, in designing airplane systems and instrumentation and consideration of the global nature of the marketplace and varying pilot training programs worldwide.

Authorizes \$5 million annually for fiscal years 2021 through 2023 to enable the FAA to provide increased technical assistance to foreign civil aviation authorities. This is an increase from the \$3 million currently spent by the FAA annually for this work. Also authorizes \$2 million annually for fiscal years 2021 through 2023 to support FAA's efforts to develop international requirements for training programs and operational policies on pilot training, automation and human-machine interface.

Sec.120. Nonconformity with approved type design.

Requires aircraft manufacturers to present to the FAA and deliver aircraft to customers that conform with its approved type design — the configuration that the FAA certified as safe — or be subject to a \$1 million fine per aircraft.

Sec.121. Implementation of recommendations.

Requires the FAA to report to Congress on the status of the agency’s implementation of recommendations made by the National Transportation Safety Board, Joint Authorities Technical Review, Department of Transportation Inspector General, and other entities in response to the Lion Air flight 610 and Ethiopian Airlines flight 302 accidents involving the Boeing 737 MAX aircraft. For any recommendation with which the FAA Administrator does not concur, the Administrator must provide to Congress a detailed explanation for such non-concurrence.

Sec.122. Oversight of FAA compliance program.

Directs the FAA to establish an Executive Council to oversee the use and effectiveness of the FAA’s Compliance Program across the agency’s program offices and make recommendations to the FAA Administrator on controls that should be issued to improve the Program’s effectiveness and to ensure the highest levels of aviation safety.

Sec.123. Settlement agreement.

Expresses a sense of Congress that the FAA administrator should fully exercise all rights and pursue all remedies available to the administrator under the 2015 FAA-Boeing settlement agreement, including a demand for full payment of applicable deferred civil penalties if Boeing has not fully performed all of its obligations incurred under the agreement.

Sec.124. Human factors education program.

Directs the FAA to conduct an evaluation of tools and methods that support the better integration of human factors and system safety assessments of aircraft flight deck and flight control systems into the FAA’s certification process. Directs the FAA to develop a human factors education program for FAA employees that teaches about the effects of modern flight deck systems on human performance and new approaches for better integration of human factors into aircraft design and certification.

Sec.125. Best practices for organization designation authorizations.

Requires an expert review and recommendations for FAA to establish best practices that will prevent and deter instances of undue pressure on or by an ODA unit member or failures to maintain independence between the FAA and an ODA holder or an ODA unit member.

Sec.126. Human factors research.

Requires FAA, in coordination with the NASA and the new Center of Excellence established under the bill, to conduct research on the integration of human factors in the design and certification of aircraft used in air transportation. Authorizes \$7.5 million annually for fiscal years 2021 through 2023 for research that will review and validate assumptions regarding pilot recognition and responses to automated systems, and focus on increasingly complex aircraft systems.

Sec.127. FAA Center of Excellence for automated systems and human factors in aircraft.

Authorizes the establishment or expansion of a COE to promote and facilitate collaboration among academia, the FAA, and aircraft and airline industry stakeholders to research automation and other technological advancements in aviation and examine issues related to human system integration and flight crew and aircraft interfaces. Authorizes \$2 million annually for fiscal years 2021 through 2023 in new funding for the new or expanded COE.

Sec.128. Pilot operational evaluations.

Require that a representative sample of pilots with differing levels of experience, and from both foreign and domestic air carriers, conduct operational evaluations of airplanes undergoing certification. Ensures that aircraft designs account for the varying experience of airline pilots that actually will be flying the aircraft.

Sec.129. Ensuring appropriate responsibility of aircraft certification and flight standards performance objectives and metrics.

Repeals authority for the industry-friendly advisory panel, the Safety Oversight and Certification Advisory Committee (SOCAC), to set FAA performance goals and metrics for the agency's Aircraft Certification and Flight Standards services that do not prioritize safety in the aircraft certification process.

Sec.130. Transport airplane risk assessment methodology.

Requires an independent assessment of the effectiveness of the FAA's Transport Airplane Risk Assessment Methodology (TARAM) used to evaluate the likelihood of additional safety risks following an aircraft accident. Additionally, requires that when an aviation incident results in loss of life and requires changes to make aircraft airworthy, the FAA must provide notice to Congress on the findings and recommendations of the TARAM.

Sec.131. National air grant fellowship program.

Establishes a National Air Grant Program that will assist Congress and the FAA with keeping pace with changing technology. Creates a one-year fellowship program for graduate and post-graduate students in Congress and at the FAA and other federal agencies, where fellows will assist the federal government in developing aviation safety policy. Authorizes \$15 million annually for fiscal year 2021 through 2025 in new funding for the fellowship program.

Sec.132. Emerging safety trends in aviation.

Requires a new biennial report to Congress, conducted by the Transportation Research Board, identifying emerging safety trends in air transportation. Draws upon accident investigation data from the National Transportation Safety Board, FAA, air operators, and foreign aviation safety authorities to illuminate the latest trends impacting aviation safety, domestically and internationally, so policymakers and FAA can stay ahead of them

Sec.133. FAA accountability enhancement.

Establishes a new Office of Accountability and Whistleblower Protection, Office of Ombudsman, and Office of Professional Responsibility. Improves policy and authority within the FAA to investigate and act upon aviation safety disclosures properly and strengthen protection for whistleblowers.

Sec.134. Authorization of appropriations for the advanced materials center of excellence.

Authorizes funding for the FAA’s Joint Advanced Materials and Structures (JAMS) Center of Excellence at \$10 million annually for fiscal years 2021 through 2023. Led by the University of Washington and Wichita State University, the center of excellence (COE) conducts research on advanced composites and aerospace materials for commercial aircraft to support the FAA’s certification program. Funding for the COE was last authorized from fiscal years 2012 through 2015 at \$500,000 per year, and the new authorization is double the approximately \$5 million the FAA has funded the COE at in the last five years on average.

Sec.135. Promoting Aviation Regulations for Technical Training.

Updates and enhances the training provided by FAA-certified aviation maintenance technician schools. Modernizes the training pathway for individuals to obtain employment as an FAA certificated mechanic.

Sec.136. Independent study on type certification reform.

Requires new federally-funded research and a report to Congress examining the safety benefits and impacts of (1) mandating life time limits for adding derivatives to aircraft designs and (2) additional transparency requirements in the FAA process for evaluating an applicant’s request for deviations from the latest airworthiness standards. Draws upon the 737 MAX-related investigations and requires FAA to respond to the report’s findings and recommendations.

Sec.137. Definitions.

Defines certain terms used throughout the Act.