To amend title 49, United States Code, to reform the Federal Aviation Administration’s aircraft certification process, and for other purposes.

IN THE SENATE OF THE UNITED STATES

Mr. WICKER (for himself and Ms. CANTWELL) introduced the following bill; which was read twice and referred to the Committee on

A BILL

To amend title 49, United States Code, to reform the Federal Aviation Administration’s aircraft certification process, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the “Aircraft Safety and Certification Reform Act of 2020”.

SEC. 2. TABLE OF CONTENTS.

The table of contents of this Act is as follows:

Sec. 1. Short title.
Sec. 2. Table of contents.
Sec. 3. Definitions.
Sec. 4. Safety management system for manufacturers.
Sec. 5. Organization designation authorization.
Sec. 6. Best practices for organization designation authorizations.
Sec. 7. Review of human factors assumptions.
Sec. 8. Human factors research.
Sec. 9. FAA center of excellence for flight automation and human factors in aircraft.
Sec. 10. Certification pilot operational evaluations.
Sec. 11. FAA continuing education and training.
Sec. 12. Authorization of appropriations for scientific and technical advisors.
Sec. 13. Prohibition on certain performance-based incentives.
Sec. 14. Safety reporting program.
Sec. 15. Protection of whistleblowers.
Sec. 16. Repeal of design and production organization certificate authority.
Sec. 17. Ensuring appropriate responsibility of aircraft certification and flight standards performance objectives and metrics.
Sec. 18. Review of FAA certification expertise.

SEC. 3. DEFINITIONS.

In this Act:

(1) ADMINISTRATOR.—The term “Administrator” means the Administrator of the FAA.

(2) APPROPRIATE COMMITTEES OF CONGRESS.—The term “appropriate committees of Congress” means the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Transportation and Infrastructure of the House of Representatives.

(3) FAA.—The term “FAA” means the Federal Aviation Administration.

SEC. 4. SAFETY MANAGEMENT SYSTEM FOR MANUFACTURERS.

(a) RULEMAKING PROCEEDING.—

(1) IN GENERAL.—The Administrator shall conduct a rulemaking proceeding to require that manufacturers that hold both a type certificate and a pro-
duction certificate issued pursuant to section 44704 of title 49, United States Code, where the United States is the State of Design and State of Manufacture, have in place a safety management system that is consistent with the standards established by the International Civil Aviation Organization for such systems.

(2) Aviation Rulemaking Committee.—Not later than 90 days after the date of enactment of this Act, the Administrator shall establish an aviation rulemaking committee to make recommendations on the rulemaking to be carried out under paragraph (1).

(b) Final Rule Deadline.—Not later than 24 months after establishing the aviation rulemaking committee under subsection (a)(2), the Administrator shall issue a final rule pursuant to the rulemaking proceeding required under subsection (a).

(c) Surveillance and Audit Requirement.—The final rule issued pursuant to subsection (b) shall include a requirement for the Administrator to implement a documented surveillance process by defining and planning inspections, audits, and monitoring activities on a continuous basis, to ensure that design and production approval holders of aviation products meet and continue to
meet safety management system requirements under the rule.

SEC. 5. ORGANIZATION DESIGNATION AUTHORIZATION.

(a) APPROVAL OF ODA UNIT MEMBERS.—Section 44736 of title 49, United States Code, is amended by adding at the end the following:

“(d) APPROVAL OF ODA UNIT MEMBERS.—

“(1) IN GENERAL.—Beginning on the date that is 1 year after the date of enactment of this subsection, each individual who is a new member of an ODA unit of an ODA holder and performs an authorized function pursuant to a delegation by the Administrator under section 44702(d) shall be an employee, a contractor, or the employee of a supplier of the ODA holder who is approved to be a member of the unit by the Administrator. The ODA holder may make provisional appointments of ODA unit members pending final approval by the Administrator. The Administrator shall approve or reject appointments within 120 days.

“(2) QUALIFICATIONS.—In approving appointments to an ODA unit, the Administrator shall take into account the technical proficiency and expertise of individuals. The Administrator shall issue minimum qualifications for ODA members that are sub-
ject to approval by the Administrator pursuant to paragraph (1).

“(3) RECISSION OF APPROVAL.—The Administrator may rescind an approval of an appointment to a ODA unit at any time for any reason the Administrator considers appropriate. The Administrator shall develop procedures to provide for proper notice and opportunity to appeal rescission decisions made by the Administrator. Such decisions by the Administrator are not subject to judicial review.

“(4) RECORDS AND REPORTS.—An ODA holder shall maintain, for a period to be determined by the Administrator—

“(A) any data, applications, records, or manuals required by the ODA holder’s approved procedures manual, as determined by the Administrator;

“(B) the names, responsibilities, qualifications, and example signature of each member of the ODA unit who performs an authorized function pursuant to a delegation by the Administrator under section 44702(d);

“(C) training records for ODA unit members and ODA administrators; and
“(D) any other data, applications, records, or manuals determined appropriate by the Administrator.

“(5) AUDITS.—

“(A) IN GENERAL.—The Administrator shall perform a periodic audit of each ODA unit and its procedures.

“(B) DURATION.—An audit required under subparagraph (A) shall be performed with respect to an ODA holder once every 3 years (or more frequently as determined appropriate by the Administrator).

“(C) RECORDS.—The ODA holder shall maintain, for a period to be determined by the Administrator, a record of—

“(i) each audit conducted under this paragraph; and

“(ii) any corrective actions resulting from each such audit.

“(e) FEDERAL AVIATION SAFETY ADVISORS.—For ODA holders that are manufacturers that hold both a type and a production certificate for transport category airplanes with a maximum takeoff gross weight greater than 150,000 pounds and manufacturers of engines for such airplanes, the Administrator shall assign FAA aviation
safety engineers or inspectors with appropriate expertise
to be advisors to the ODA unit members that are author-
ized to make findings of compliance on behalf of the Ad-
ministrator. Advisors shall communicate with assigned
unit members on an ongoing basis to ensure that they are
knowledgeable of relevant FAA policies and acceptable
methods of compliance and shall monitor their perform-
ances to ensure consistency with those policies.

“(f) COMMUNICATION WITH THE FAA.—Neither the
Administrator nor an ODA holder may prohibit an ODA
unit member from communicating with, or seeking the ad-
vice of, the Administrator or FAA staff.”.

(b) REPORT.—Not later than September 30, 2022,
the Administrator shall submit to the appropriate commit-
tees of Congress a report on the implementation of sub-
sections (d) through (f) of section 44736 of title 49,
United States Code, as added by subsection (a).

SEC. 6. BEST PRACTICES FOR ORGANIZATION DESIGNA-
TION AUTHORIZATIONS.

(a) In General.—Section 213 of the FAA Reau-
3249) is amended—

(1) by striking subsection (g);

(2) by redesignating subsections (c) through (f)
as subsections (d) through (g), respectively;
(3) by inserting after subsection (b), the follow-

ing:

“(c) BEST PRACTICES REVIEW.—In addition to con-
ducting the survey required under subsection (b), the
Panel shall conduct a review of all ODA holders to identify
and develop best practices. At a minimum, the best prac-
tices shall address preventing and deterring instances of
undue pressure on or by an ODA unit member, within an
ODA, or by an ODA holder, or instances of perceived reg-
ulatory coziness or other failures to maintain independ-
ence between the FAA and an ODA holder or ODA unit
member. In carrying out such review, the Panel shall—

“(1) examine other government regulated indus-
tries to gather lessons learned, procedures, or proc-
esses that address undue pressure of employees, per-
ceived regulatory coziness, or other failures to main-
tain independence;

“(2) identify ways to improve communications
between an ODA Administrator, ODA unit mem-
ers, and FAA engineers and inspectors, consistent
with section 44736(g) of title 49, United States
Code, in order to enable direct communication of
technical concerns that arise during a certification
project without fear of reprisal to the ODA Adminis-
trator or ODA unit member; and
“(3) examine the FAA Designee Program, including the assignment of FAA advisors to designees, to determine which components of the program may improve the FAA’s oversight of ODA units, ODA unit members, and the ODA program.”;

(4) in subsection (d) (as redesignated by paragraph (2))—

(A) by striking paragraph (3) and redesignating paragraphs (4) through (6) as paragraphs (3) through (5), respectively;

(B) in paragraph (4) (as redesignated by subparagraph (A)), by striking “and” at the end;

(C) in paragraph (5) (as so redesignated), by striking the period at the end and inserting “; and”; and

(D) by adding at the end the following:

“(6) the results of the review conducted under subsection (c).”; and

(5) by inserting after subsection (g) (as redesignated by paragraph (2)), the following:

“(h) BEST PRACTICES ADOPTION.—

“(1) IN GENERAL.—Not later than 180 days after the date on which the Administrator receives the report required under subsection (e), the Admin-
istrator shall establish best practices for all ODA holders and require such practices, as appropriate, to be incorporated into each ODA holder’s approved procedures manual.

“(2) NOTICE AND COMMENT PERIOD.—The Administrator shall publish the established best practices for public notice and comment for not fewer than 60 days prior to requiring the practices, as appropriate, be incorporated into each ODA holder’s approved procedures manual.

“(i) SUNSET.—The Panel shall terminate on the earlier of—

“(1) the date of submission of the report under subsection (e); or

“(2) the date that is 2 years after the date on which the Panel is first convened under subsection (a).”.

(b) PROCEDURES MANUAL.—Section 44736(b)(3) of title 49, United States Code, is amended—

(1) in subparagraph (E), by striking “and” after the semicolon at the end;

(2) in subparagraph (F), by striking the period at the end and inserting “; and”; and

(3) by adding at the end the following:
“(G) ensure the ODA holders procedures manual contains procedures and policies based on best practices established by the Administrator of the FAA to mitigate undue pressure and regulatory coziness or other failures to maintain independence.”

SEC. 7. REVIEW OF HUMAN FACTORS ASSUMPTIONS.

(a) HUMAN FACTORS IN CERTIFICATION.—Not later than 60 days after the date of enactment of this Act, the Administrator shall initiate a review and may, after such review and as necessary, revise existing regulations, including, but not limited to, sections 25.1302, 25.1309, and 25.1322 of title 14, Code of Federal Regulations, and supporting policies, guidelines, and advisory circulars, to integrate and emphasize human factors and human system integration, particularly those related to pilot and aircraft interfaces.

(b) REVIEW.—In carrying out subsection (a), the Administrator shall—

(1) review existing assumptions on pilot recognition and response, including response to safety-significant failure conditions, as part of the certification process;

(2) validate such assumptions with applicable human factors research and the input of human fac-
tors experts, and as necessary modify the existing assumptions;

(3) ensure that when carrying out the certification of a new aircraft type, including an amended or supplemental type, the cumulative impact that new technologies may have on pilot response are properly assessed through system safety assessments or otherwise;

(4) ensure that any action carried out under this section accounts for the necessary adjustments to system safety assessments, pilot procedures and training needs, and design requirements; and

(5) notify other international regulators that certify transport-category airplane type designs of the review and encourage them to evaluate any regulatory changes to their processes and address any changes, if applicable.

(c) Report.—Not later than 180 days after completing the review required under subsection (a), the Administrator shall submit a report to the appropriate committees of Congress detailing the results of the review and what revisions or other changes were made as a result of such review.
SEC. 8. HUMAN FACTORS RESEARCH.

(a) AUTOMATION HUMAN FACTORS.—Not later than 180 days after the date of enactment of this Act, the Administrator, in consultation with aircraft manufacturers, operators, and pilots, and in coordination with the Administrator of the National Aeronautics and Space Administration, shall develop a research plan to address the integration of human factors in the design and certification of aircraft that are intended for use in air transportation.

(b) REQUIREMENTS.—In developing the plan required under this section, the Administrator shall—

(1) establish goals for research and continuing education in areas of study relevant to advancing technology, improving design engineering and certification practices, and facilitating better understanding of human factors concepts in the context of the growing development and reliance on automation in aircraft operations, including, but not limited to, the development of tools to validate pilot recognition and response assumptions and diagnostic tools to improve the clarity of failure indications presented to pilots;

(2) take into consideration and leverage any existing or planned research that is conducted by, or conducted in partnership with, the FAA;

(3) focus on—
(A) preventing a recurrence of the types of recent accidents that have involved large transport category airplanes designed and manufactured in the United States; and

(B) increasingly complex aircraft systems and designs.

(c) IMPLEMENTATION.—In implementing the plan required under this section, the Administrator shall, to the maximum extent practicable, work with the Center of Excellence for Technical Training and Human Performance and the Center of Excellence focused on flight automation and human factors in aircraft that are intended for use in air transportation established under section 9.

(d) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Administrator such sums as may be necessary to carry out this section.

SEC. 9. FAA CENTER OF EXCELLENCE FOR FLIGHT AUTOMATION AND HUMAN FACTORS IN AIRCRAFT.

(a) CENTER.—

(1) IN GENERAL.—The Administrator shall develop a Center of Excellence focused on flight automation and human factors in aircraft that are intended for use in air transportation.

(2) DUTIES.—The Center for Excellence shall—
(A) promote and facilitate collaboration among academia, the FAA, and the aircraft and airline industries, including aircraft, engine, and equipment manufacturers, air carriers, and representatives of the airline pilot community;

(B) establish goals for research and continuing education in areas of study relevant to advancing technology, improving engineering practices, and facilitating better understanding of human factors concepts in the context of the growing development and reliance on automation in commercial aircraft; and

(C) examine issues related to human system integration and flight crew and aircraft interfaces.

(3) AVOIDING DUPLICATION OF WORK.—In establishing the Center of Excellence, the Administrator shall ensure the work of the Center of Excellence does not duplicate or overlap with the work of any other established center of excellence.

(b) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Administrator such sums as may be necessary to carry out this section.
SEC. 10. CERTIFICATION PILOT OPERATIONAL EVALUATIONS.

(a) Certification Operational Evaluations.—Not later than 1 year after the date of enactment of this Act, the Administrator shall revise existing policies for manufacturers of large transport category airplanes that are expected to be operated for scheduled passenger air transportation to ensure that pilot operational evaluations for airplanes that are in the process of being certified use pilots from foreign and domestic air carriers that are expected to operate such airplanes.

(b) Requirement.—The air carrier pilots used for such evaluations shall include a representative sample of such carriers’ pilots with respect to levels of experience.

SEC. 11. FAA CONTINUING EDUCATION AND TRAINING.

(a) In General.—Chapter 445 of title 49, United States Code, is amended by adding at the end the following:

“§ 44519. Certification personnel continuing education and training

“(a) Office.—Not later than 120 days after the date of enactment of this section, the Administrator of the FAA shall establish an Office of Continuing Education.

“(b) Program.—The Office of Continuing Education shall administer a continuing education and training program.
“(c) PURPOSE OF PROGRAM.—The purpose of the continuing education and training program shall be to provide continuing education and training to FAA personnel who hold positions involving aircraft and flight standards certification, including engineers and inspectors.

“(d) FUNCTIONS.—In administering the continuing education and training program, the Office of Continuing Education shall—

“(1) in consultation with outside experts, develop—

“(A) an education and training curriculum on current and new aircraft technologies, project management, and the roles and responsibilities associated with oversight of designees; and

“(B) best practices for compliance with FAA regulations; and

“(2) hire and manage a staff of qualified individuals to educate and train FAA personnel described in subsection (c) using the education and training curriculum and best practices developed under paragraph (1).

“(e) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Administrator, $10,000,000 for each of fiscal years 2021 through 2025
to carry out this section. Amounts appropriated under the preceding sentence for any fiscal year shall remain available until expended.

“(f) Definition of FAA.—In this section, the term ‘FAA’ means the Federal Aviation Administration.”.

(b) Table of Contents.—The analysis for chapter 445 of title 49, United States Code, is amended by inserting after the item relating to section 44518 the following: “44519. Certification personnel continuing education and training.”.

SEC. 12. AUTHORIZATION OF APPROPRIATIONS FOR SCIENTIFIC AND TECHNICAL ADVISORS.

There are authorized to be appropriated to the Administrator, $10,000,000 for each of fiscal years 2021 through 2030 for salaries of specialized technical personnel with expertise in new and emerging technologies for such personnel to advise the Administrator on the development of technical standards for new technologies and operations to be implemented in the FAA’s regulatory and certification programs. Amounts appropriated under the preceding sentence for any fiscal year shall remain available until expended.

SEC. 13. PROHIBITION ON CERTAIN PERFORMANCE-BASED INCENTIVES.

Section 106(l) of title 49, United States Code, is amended by adding at the end the following:
“(7) Prohibition on certain performance-based incentives.—No employee of the Administration shall be given an award, financial incentive, other compensation, or recognition as a result of actions to meet performance goals related to meeting schedules or quotas for certificates issued under section 44704.”.

SEC. 14. SAFETY REPORTING PROGRAM.

(a) In general.—Not later than 1 year after the date of enactment of this Act, in order to improve safety in the individual certification application review process and potential trends relating to safety concerns, the Administrator shall maintain a safety reporting program for FAA employees to anonymously and voluntarily report instances where they have identified safety concerns during the certification process.

(b) Safety reporting program requirements.—In maintaining the safety reporting program under subsection (a), the Administrator shall ensure the following:

(1) The FAA maintains a reporting culture that encourages engineers and other appropriate FAA employees to voluntarily report when they believe an aspect of an aircraft design may be noncompliant, nonconforming, or unsafe.
(2) The safety reporting program is non-punitive and anonymous.

(3) The Administrator thoroughly reviews safety reports to determine whether there is a hazard, defect, noncompliance, nonconformance, or process error.

(4) The Administrator thoroughly reviews safety reports to determine whether potential weaknesses in the aircraft certification processes led to safety concerns being raised regarding aircraft, engine, propeller, and appliance designs, including systems, components, parts, and materials.

(5) If the Administrator determines that a hazard, defect, noncompliance, nonconformance, or process error exists, the root cause is identified and appropriate action is taken to remedy the defect, noncompliance, nonconformance, or process error.

(c) OUTCOMES.—Results of safety report reviews under this section may be used to—

(1) improve—

(A) safety systems, hazard control, and risk reduction;

(B) certification systems;

(C) FAA oversight; and

(D) compliance and conformance; and
(2) implement lessons learned.

(d) REPORT FILING.—The Administrator shall establish requirements for when in the certification process reports may be filed, which may include certification milestones, timelines, or other decision-making points, with the goals of ensuring that identified issues can be timely addressed and fostering open dialogue between applicants and FAA employees throughout the certification process.

(e) INTEGRATION WITH OTHER SAFETY REPORTING PROGRAMS.—The Administrator shall harmonize the safety reporting program maintained under subsection (a) with other internal safety reporting programs the FAA maintains.

(f) REPORT TO CONGRESS.—Not later than 2 years after the date of enactment of this Act, and annually thereafter, the Administrator shall submit to the appropriate committees of Congress a report on the effectiveness of the safety reporting program maintained under subsection (a).

SEC. 15. PROTECTION OF WHISTLEBLOWERS.

Section 42121(a) of title 49, United States Code, is amended—

(1) by redesignating paragraphs (1) through (4) as subparagraphs (A) through (D), respectively,
and moving the margins of such subparagraphs 2
ems to the right;

(2) in the subsection heading, by striking “AIR-
LINE”;  

(3) by striking “No air carrier” and inserting
the following:

“(1) AIR CARRIERS.—No air carrier”; and

(4) by adding at the end the following:

“(2) AIRCRAFT MANUFACTURERS.—No aircraft,
engine, or propeller manufacturer that holds a cer-
tificate issued pursuant to section 44704 of title 49,
United States Code, or contractor of, subcontractor
of, or supplier to, such a manufacturer may dis-
charge an employee or otherwise discriminate
against an employee with respect to compensation,
terms, conditions, or privileges of employment be-
cause the employee (or any person acting pursuant
to a request of the employee)—

“(A) provided, caused to be provided, or is
about to provide (with any knowledge of the
employer) or cause to be provided to the em-
ployer or Federal Government information re-
lating to any violation or alleged violation of
any order, regulation, or standard of the Fed-
eral Aviation Administration or any other provi-
sion of Federal law relating to aircraft, engine, or propeller manufacturer safety (including parts or components provided by contractors, subcontractors, or suppliers) under this subtitle or any other law of the United States;

“(B) has filed, caused to be filed, or is about to file (with any knowledge of the employer) or cause to be filed a proceeding relating to any violation or alleged violation of any order, regulation, or standard of the Federal Aviation Administration or any other provision of Federal law, relating to aircraft, engine, or propeller manufacturer safety (including parts or components provided by contractors, subcontractors, or suppliers) under this subtitle or any other law of the United States;

“(C) testified or is about to testify in such a proceeding; or

“(D) assisted or participated or is about to assist or participate in such a proceeding.”.

SEC. 16. REPEAL OF DESIGN AND PRODUCTION ORGANIZATION CERTIFICATE AUTHORITY.

(a) In General.—Section 44704 of title 49, United States Code, is amended—
(1) in the section heading, by striking “airworthiness certificates, and design and production organization certificates” and inserting “and airworthiness certificates”; and

(2) by striking subsection (e).

(b) Conforming Amendment.—Section 44702(a) of title 49, United States Code, is amended, in the matter preceding paragraph (1), by striking “design organization certificates,”.

SEC. 17. ENSURING APPROPRIATE RESPONSIBILITY OF AIRCRAFT CERTIFICATION AND FLIGHT STANDARDS PERFORMANCE OBJECTIVES AND METRICS.

(a) Repeals.—Sections 211 and 221 of the FAA Reauthorization Act of 2018 (49 U.S.C. 44701 note) are repealed.

(b) Conforming Repeals.—Paragraphs (8) and (9) of section 202(c) of the FAA Reauthorization Act of 2018 (49 U.S.C. 44701 note) are repealed.

SEC. 18. REVIEW OF FAA CERTIFICATION EXPERTISE.

(a) In General.—Not later than 60 days after the date of enactment of this Act, and without duplicating any recently completed or ongoing reviews, the Administrator shall initiate a review of—
(1) the inspectors, engineers, managers, and executives in the FAA who are responsible for the certification of the design, manufacture, and operation of aircraft intended for air transportation for purposes of determining whether the FAA has the expertise and capability to adequately understand the safety implications of, and oversee the adoption of, new or innovative technologies, materials, and procedures that designers and manufacturers of such aircraft may adopt or introduce;

(2) the Chief Scientific and Technical Advisors program to determine whether the program should be enhanced or expanded to bolster and support the FAA’s aircraft certification and safety programs, particularly with respect to understanding the safety implications of new or innovative technologies, materials, aircraft, and procedures, that designers and manufacturers of such aircraft may adopt or introduce; and

(3) the FAA’s compensation policies for aircraft certification engineers relative to those of industry to determine whether compensation is adequate to attract personnel with adequate experience.

(b) DEADLINE FOR COMPLETION.—Not later than 270 days after the date of enactment of this Act, the Ad-
ministrator shall complete the review required by subsection (a).

(c) BRIEFING.—Not later than 30 days after the completion of the review required by subsection (a), the Administrator shall brief the appropriate committees of Congress on the results of the review and any other related review. The briefing shall include the following:

(1) An analysis of the FAA’s ability to hire safety inspectors, engineers, managers, executives, scientists, and technical advisors, who have the requisite expertise to oversee new developments in aerospace design and manufacturing.

(2) A plan for the FAA to improve the overall expertise of the FAA’s personnel who are responsible for the oversight of the design and manufacture of aircraft.

(3) Recommendations for such legislation, if any, as the Administrator determines necessary to carry out the plan required under paragraph (2).