SAFETY OVERSIGHT AND CERTIFICATION ADVISORY COMMITTEE (SOCAC)

MEETING AGENDA

May 24, 2022 *** 1:00 PM – 4:00 PM

- Welcome and Introductions
- Federal Advisory Committee Act (FACA) Statement
- Ratification of December 2021 Meeting Minutes
- Change Product Rule International Harmonization Effort
- FAA Updates
  - FAA Update on Certification & Oversight Reform
  - ODA Expert Panel
- Other Business and Closing Remarks

Safety and Oversight Certification Advisory Committee
DRAFT Record of Meeting

MEETING DATE: December 8, 2021

MEETING TIME: 1:00 p.m. - 4:00 p.m. ET

LOCATION: Virtual Meeting via Zoom

PUBLIC ANNOUNCEMENT: Federal Aviation Administration (FAA) provided notice to the public of the Safety and Oversight Certification Advisory Committee (SOCAC) meeting in a Federal Register notice published on November 22, 2021 (86 FR 66384).

Attendance

Attendees	Occupation Or Affiliation
SOCAC Members	
Bill Ayer	National Business Aviation Association (NBAA)/SOCAC Chair
Bob Busto	FAA Aircraft Certification Service (AIR)
Shelly deZevallos	West Houston Airport Corporation
Jason Dickstein	Modification and Replacement Parts Association
Rob Duffer	FAA Flight Standards Service (AFS)
Bob Fox	Air Line Pilots Association, International (ALPA)
Chris Jackman	Wing Aviation LLC
Paul La Pietra	Honeywell Aerospace
Sarah MacLeod	Aeronautical Repair Station Association (ARSA)
Brad Mottier	GE Aviation
Michael Quiello	XTRA Airways
Chris Rocheleau	FAA Acting Associate Administrator for Aviation Safety/ Designated Federal Officer (DFO)
Gregory Shoemaker	National Air Traffic Controllers Association (NATCA)

Attendees	Occupation Or Affiliation
Alan Stolzer	Embry-Riddle Aeronautical University
Phillip Straub	Garmin International, Inc.
Michael Thacker	Bell/Textron Aviation
Jim Viola	Helicopter Association International
Non SOCAC Members	
Julie Arndt	Boeing
Ludovic Aron	European Union Aviation Safety Agency (EASA)
Chad Balentine	ALPA
Ellen Birmingham	United Airlines
Alex Burkett	General Aviation Manufacturers Association (GAMA)
Doug Carr	NBAA
Martha Chow	General Accounting Office (GAO)
Jane Dale	Alaska Air Carriers Association
Keith DeBerry	NATA
Walter Desrosier	GAMA
Chris Eick	Honeywell
Tony Fazio	GIFAS - French Aeronautics Association
Dean Griffith	Jones Day
Chris Hill	HAI
Elke Kolodinski	GAO
Jennifer Holder	Boeing
Leslie Riegle	Aerospace Industries Association
Abbey Salvon	Boeing
Brian Shaw	QED Consulting
FAA PARTICIPANTS	
Tim Adams	Office of Rulemaking (ARM)
Jodi Baker	AIR
Mark Liptak	Office of Accident & Investigation (AVP)
Eloise Trabka	Office of Policy, International Affairs and Environment (APL)

Karen Goff	AIR
Kiiva Williams	Office of Communication (AOC)
Michael Bartron	AIR
Lynn Lunsford	AOC
Edward Angelo	AFS
Bruce DeCleene	AFS
Brian LaCross	Air Traffic Organization (ATO)
Thuy Cooper	ARM
MaryMargaret Daniel	ARM
Kevin Dickert	AIR
Richard Doan	Office of the General Counsel (AGC)
Aliah Duckett	ARM
Crystal Essiaw	AOC
Mara Jenkins	AFS
Mel Johnson	AIR
Danko Kramar	AIR
Tiffany LaTour	AFS
Earl Lawrence	AIR
James Huddleston	AVS
Jeffrey Lee	AIR
Nellie Lew	APL
Michael Romanowski	AIR
Kawehi Lum	AFS
Paula Martinez	AVP
Sue McCormick	AIR
Natalie Mitchell-Funderburk	ARM
Mallory Naill	AIR
Lakisha Pearson	ARM
Luis Ramirez	AIR
Shalini Razdan	AIR
Virginia Spencer	AIR
Puja Sardana	ARM Contractor
Tim Shaver	AFS

Jamie Showman	AIR
Lona Saccomando	AIR
Stacy Wells	AFS

Welcome and Introduction

Mr. Chris Rocheleau, the Designated Federal Officer (DFO), called the meeting to order at 1:01 p.m. ET. He greeted SOCAC members, reminded participants that the meeting will be recorded, and provided Zoom instructions for conducting the meeting.

Mr. Rocheleau noted that the Federal Advisory Committee Act (FACA) rules apply, and speakers will be recognized by the Chair, Mr. Bill Ayer. Mr. Rocheleau read the required FACA, Title 5, United States Code (5 U.S.C.); Appendix 2 (2007) statement. He confirmed that the meeting is public and that members of the public may address SOCAC with the permission of the Chairperson.

Mr. Ayer, the SOCAC Chair, thanked Mr. Rocheleau and everyone for their attendance. He reviewed the agenda.

Ratification of Minutes

Mr. Ayer asked for a motion to accept the September 22, 2021, SOCAC meeting minutes. Mr. Bob Fox motioned to accept the minutes, and Mr. James Viola seconded the motion. SOCAC voted to ratify the minutes with no opposition.

Subcommittee Report

The December 8, 2021, meeting packet with presentations is available on the FAA Committee website at: https://www.faa.gov/regulations_policies/rulemaking/committees/documents/index.cfm/document/information/documentID/5303.

Mr. Fox, the Subcommittee Chair, provided an overview of the Workforce Development and Training Report. He reviewed the tasking, which included:

1. providing advice and recommendations on ways to develop, supplement, and train an agile safety aviation workforce and
2. identifying ways that the industry can work with the FAA to develop and use the training cooperatively.

Mr. Fox detailed areas of the report including regulatory compliance, technology, and professional development. He described how application processes vary in the recommendations based on applicability. Mr. Fox noted that the recommendations highlighted areas where the FAA can work directly with the industry for regulatory, technical, and professional advancements.

Mr. Ayer thanked Mr. Fox and asked how the FAA planned to implement the recommendations from an agency perspective. Mr. Rocheleau stated that he is confident that much of the subgroup's work aligns with current FAA philosophies and approaches, and he looks forward to the recommendations helping to augment and enhance training policies.

Ms. Sarah MacLeod emphasized that the recommendations are helpful to both, the industry and the FAA. She hopes the report helps industry to create its own standards for training and educates themselves on how to navigate around rulemaking to develop standard norms. Mr. Rocheleau noted that the FAA may be able to address some recommendations quickly but recognizes that some recommendations may take time.

Mr. Mike Quiello asked about thoughts on how to begin influencing the youth (in elementary school levels) to get involved in the industry. Mr. Ayer asked about specific gaps of open positions in the industry and Mr. Quiello said the technical jobs are harder to fill. Mr. Rocheleau discussed the FAA efforts to create a pipeline to connect with the youth, including the formation of an advisory committee focused on attracting youth to the aviation industry. He stated information on the *Youth Access to American Jobs in Aviation Task Force* is on the FAA's Committee website.

Mr. Jason Dickstein stated that the scope of training covers many issues, and that the FAA should consider a plan to prioritize them. He also stated that it is important that FAA employees have the right tools to be successful in their positions. Mr. Ayer agreed, stating that a plan to prioritize funding also should be considered.

Ms. MacLeod noted that discipline should be a forefront of training programs and test out options should be available. She said that baselines of information should be standard. Mr. Ayer suggested various vehicles for delivery of training programs.

Mr. Ayer thanked the team for their work and asked for a motion to accept the report for submission to the FAA. Mr. Fox motioned to accept, and Ms. Shelly deZevallos seconded the motion. SOCAC voted to accept the report with no objections.

SOCAC Safety Management System (SMS) Panel

Mr. Ayer introduced Mr. Doug Carr (NBAA) as the moderator of the SOCAC SMS panel discussion. Mr. Carr stated the panel would highlight the diversity and SMS experience within the aviation industry. The panelists included Ms. Jane Dale (Alaska Air Carriers Association), Mr. Chris Hill (Helicopter Association, International), and Mr. Keith DeBerry (NATA).

Ms. Dale noted that most pilots in Alaska are certified under part 135, and they range from large commuters to single pilot operators. She stated that many operators provide essential services in the region. She explained the need for a diverse and scalable SMS program to be successful, specifically in the Alaskan region.

Mr. Hill noted that SMS programs should vary based on the size and type of operation. He explained the research of safety accreditation programs, some of which have several special mission categories that may require less regulation. He cited helicopter specific missions as an example. Mr. Hill said some operations should be able to be self-assessed, perhaps through routine compliance, and some operations such as higher risk ones should be assessed by third parties. He mentioned ideas for industry mentorship programs.

Mr. DeBerry described a three-prong approach NATA created geared toward the practical implementation of SMS. Mr. DeBerry stated that existing SMS programs should be used as leverage toward creating a condition based approached proposed rule. He asked the FAA to work with industry, specifically the SMS focus group, to develop strategies.

Mr. Carr summarized some common themes.

(1) There is an overwhelming amount of support from industry for the concept and value of SMS.
(2) There should be recognition of knowledge and experience on SMS throughout the part 135 industry. Mr. Carr noted there are a significant number of industry led and valuable programs that are demonstrating real value to operators looking to improve their safety performance voluntarily.
(3) It is important that the FAA program is meeting international standards for SMS, especially where there are some tailored approaches for the unique diversity that the part 135 community possesses.
(4) Industry needs insights into the FAA's efforts toward policy development, implementation, and execution of compliance programs to ensure that the employees are prepared and trained.

Mr. Ayer thanked the panel and asked about considerations for voluntary operations versus non-voluntary. Mr. Carr clarified the difference would be between voluntary FAA programs and voluntary industry programs. He noted that programs would vary based on the size and type of operation. Mr. Carr said a performance-based standard should promote flexibility.

Mr. Quiello noted that it is important to consider how data will be stored, managed, and shared in the SMS program. Ms. MacLeod asked if she or any operator would need to have three separate SMS systems as a designer, producer, and repair person or is there one multi-faceted system that can be used for all three. She stated that many companies design, produce, and repair within the same umbrella of operations and asked the SMS panel if they had received similar feedback. Mr. Carr stated having one SMS could likely be the best-case scenario, however regulatory compliance is currently based on varied parts of the operation. Ms. MacLeod reminded everyone that large companies, such as Boeing, are affected by these policies, and it should be viewed from a bigger holistic perspective.

Mr. Carr asked Mr. Michael Thacker to speak of Bell's experience as a company that designs, produces, repairs, and manufactures. Mr. Thacker stated that Bell has a voluntarily SMS program with FAA approval. He explained that Bell developed a single SMS to cover all of these systems. Mr. Carr thanked him and stressed the importance of collecting data that would benefit the

broader community to learn from unique experiences. Mr. Thacker suggested that support and/or funding from the FAA could help the data collection efforts.

Mr. Hill emphasized the importance of the standardization of SMS programs and asked the FAA to implement rulemaking from an objective perspective. Mr. Rocheleau thanked everyone for their feedback, particularly around diversity and scalability of SMS.

FAA Updates

FAA Update on Certification & Oversight Reform Report

Mr. Kevin Dickert, Director of the Organization Designation Authorization Office, briefed the members on the most recent quarterly update provided to Congress by the FAA on certification and safety oversight reform. He explained that the framework of the FAA's certification and safety oversight processes is being shifted in a more holistic and comprehensive way. Mr. Dickert described the following general themes of the approach:

- Treat aircraft as complex systems, with full consideration of how all the elements in the operating system interact.
- Integrate human factors considerations more effectively throughout all aspects of the design and certification process.
- Improve the agency's oversight process by ensuring coordinated and flexible flow of data and information.
- Focus on the workforce of the future and develop expertise to evaluate technological advances.

Mr. Dickert reviewed impacts of the Aircraft Certification, Safety, and Accountability Act (ACSAA). He stated that the FAA organized certification and safety oversight reform provisions and recommendations into the following ten workstreams:

- Safety Management Systems
- System Safety and Human Factors
- Global Collaboration
- Data
- Integration of Certification and Oversight Functions
- Culture of Safety and Excellence
- Delegation
- Certification and Continued Operational Safety Processes
- Innovation
- Other Requirements

Mr. Dickert described the objective, benefits, and overview of actions for each work stream. Mr. Dickert reviewed individual reporting requirements and how the FAA is tracking information.

Mr. Dickert discussed current documents in development, as well as the status of completion of certain provisions. Mr. Dickert reminded the SOCAC that the agency will provide quarterly updates at each SOCAC meeting.

Change Product Rule International Harmonization Effort

Mr. Rocheleau reminded members that at the September meeting, the FAA discussed using a two-prong approach for engaging the committee. For issues that the FAA would need immediate feedback, the FAA intends to present an issue for the committee to discuss at the public meeting. He stated this approach allows members to engage with the FAA and provide more timely perspectives on various issues.

Mr. Rocheleau stated the FAA would like SOCAC's feedback on the FAA's Change Product Rule International Authorities Working Group (IAWG). He noted that in response to Section 117 of the Aircraft Certification, Safety, and Accountability Act, the FAA initiated the Change Product Rule IAWG to strive for a unified approach to address gaps and make improvements in the amended type certification process. He introduced Ms. Sue McCormick to present the topic and bring awareness of the IAWG's work.

As part of her presentation, Ms. Sue McCormick described objectives, workflow, and progress the group has made. Ms. McCormick stated the IAWG will conduct its work in three stages – 1) Review and Consultation Stage, 2) Development Stage, and 3) Aligned International Implementation and Outreach Stage. She noted that the working group is currently in stage 1, where they are looking at lessons learned and reviewing Title 14 Code of Federal Regulations (CFR) §§ 21.19 and 21.101.

Ms. MacLeod asked if the working group referenced the preambles to the notice of proposed rulemaking and final rule for the change product rule. Ms. McCormick confirmed they did. Ms. MacLeod stated that she is not convinced that the current rule needs to be changed, but perhaps the application of it does. Mr. Michael Thacker agreed, noting that it is important to distinguish between the rule itself and the application, consistency, and training.

Mr. Ayer asked if there was a process for reverting to prior certification requirements within the CPR process. Ms. McCormick said the existing CPR process allows for exceptions to be proposed if compliance with the later amendment would either not contribute materially to the level of safety of the product or would be impractical.

Mr. Earl Lawrence, AIR Executive Director, emphasized that there is currently no requirement for rulemaking for the change product rule. Mr. Lawrence stated that the FAA plans to engage regularly with the SOCAC throughout the course of the IAWG's activities.

Mr. Ayer asked about MITRE's role in the process. Ms. McCormick noted that MITRE is doing an independent study focusing on the amended type certification process and the tradeoffs when the FAA provides an exception or exemption from current regulatory airworthiness requirements.

Other Business and Closing Remarks

Mr. Rocheleau noted that the 2018 FAA Reauthorization Act Section 213 ODA Expert Panel is finalizing their report, which will be sent to SOCAC members and to the Administrator as soon as it is completed.

He reported that the FAA is finalizing the notice to solicit nominations for SOCAC and the amended charter. Mr. Rocheleau thanked everyone for their work and patience.

Mr. Ayer noted that the next SOCAC meeting is scheduled for April 19, 2022.

Adjournment

Mr. Ayer adjourned the meeting at 3:47 p.m. ET.

Federal Aviation Administration

Safety Oversight and Certification Advisory Committee (SOCAC)

Change Product Rule Panel – May 2022 Virtual Meeting

Executive Summary

The FAA Aircraft Certification Service (AIR) proposes to seek input from industry as we improve type certification processes for changed products.

In support of section 117 of the 2020 Aircraft Certification, Safety, and Accountability Act, the FAA initiated the Changed Products Rule (CPR) International Authorities Working Group (IAWG) to strive for an internationally unified approach to address gaps and make improvements in the amended type certification process.

In December 2021, AIR presented to the Safety Oversight and Certification Advisory Committee (SOCAC) an overview of the CPR IAWG's overall plan and discussion topics. The FAA also expressed an interest in engaging industry, through the SOCAC, throughout the course of the CPR IAWG's activities in order to obtain immediate feedback on areas of opportunities for success within the CPR process.

For the May 2022 SOCAC meeting, the FAA proposes to use a structured panel to gain feedback from SOCAC members on two contentious topics, 1) use of "impracticality" exceptions, and 2) application of objective criteria for determining "substantial" and "significant" changes.

Table of Contents

Summary of CPR Regulations:

There are two main regulations associated with the CPR process, Title 14 Code of Federal Regulations (14 CFR) sections 21.19 and 21.101.

Section 21.19 describes the circumstances in which an applicant for a type certificate (TC) of a changed product must apply for a new TC. Section 21.19 requires an applicant to apply for a new TC for a changed product if the FAA finds that the change in design, power, thrust, or weight is so extensive that a substantially complete investigation of compliance with the applicable regulations is required.

Section 21.101 requires a change to a TC and the area affected by the change to comply with the latest requirements on the date of application, unless the change meets the criteria for the exceptions identified in § 21.101(b) and (c). The intent of § 21.101 is to enhance safety by incorporating the latest requirements into the type certification basis for the changed product, to the greatest extent practicable.

CPR Panelists and Moderator:

The FAA chartered the SOCAC in accordance with section 202 of the FAA Reauthorization Act of 2018, in part, to advise the FAA in streamlining certification processes.

The FAA requests the individuals listed below to serve as panelists and moderator for the May 2022 meeting. These individuals have been selected due to their product development experience and the diversity of product and projects types when complying with the CPR requirements.

Panelists and Moderator		
	Occupation Or Affiliation	**Role**
Rob Glassscock	Gulfstream	Panelist
Chris Mitchell	Cirrus	Panelist
Doug Beneteau	GE Aviation	Panelist
Brian Richardet	Textron Aviation	Panelist
Clay Barber	Garmin International, Inc.	Panelist
Michael Thacker	Bell/Textron Aviation	Moderator

Key Issues/Questions for Panelists to Address:

At the May 2022 SOCAC meeting, the FAA requests panelists to provide input on the following two elements being deliberated by the IAWG members:

1. Use of Impracticality Exceptions –

Further clarification should be provided to address the following questions -

a) How and when should the FAA and other authorities consider impracticality in safety decision-making?
b) How should the FAA, other authorities, and applicants for amended or supplemental TCs reflect impracticality considerations in safety decision-making in business processes?
c) Should the FAA and other authorities place limits on the use of impractical exceptions?
d) Should the use of and limits to exceptions be documented and available publicly in order to ensure proper visibility, clarity, and consistency of key design and compliance information that is submitted for certification, particularly with new design features?

The impracticality exception is defined by 14 CFR 21.101(b)(3) and (c) –

> *(b) Except as provided in paragraph (g) of this section, if paragraphs (b)(1), (2), or (3) of this section apply, an applicant may show that the change and areas affected by the change comply with an earlier amendment of a regulation required by paragraph (a) of this section, and of any other regulation the FAA finds is directly related. However, the earlier amended regulation may not precede either the corresponding regulation included by reference in the type certificate, or any regulation in §§ 25.2, 27.2, or 29.2 of this chapter that is related to the change. The applicant may show compliance with an earlier amendment of a regulation for any of the following:*
>
> *(3) Each area, system, component, equipment, or appliance that is affected by the change, for which the FAA finds that compliance with a regulation described in paragraph (a) of this section would not contribute materially to the level of safety of the product or would be impractical.*

> *(c) An applicant for a change to an aircraft (other than a rotorcraft) of 6,000 pounds or less maximum weight, to a non-turbine rotorcraft of 3,000 pounds or less maximum weight, to a level 1 low-speed airplane, or to a level 2 low-speed airplane may show that the change and areas affected by the change comply with the regulations included in the type certificate. However, if the FAA finds that the change is significant in an area, the FAA may designate compliance with an amendment to the regulation incorporated by reference in the type certificate that applies to the change and any regulation that the FAA finds is directly related, unless the FAA also finds that compliance with that amendment or regulation would not contribute materially to the level of safety of the product or would be impractical.*

FAA Advisory Circular (AC) 21.101-1B, Section 3.10.2 provides the following additional guidance:

> "If compliance with the latest airworthiness standards does contribute materially to the level of safety, then the applicant may assess incremental costs to see if it is commensurate with the increase in safety. The additional resource requirements could include those arising from design changes required for compliance and the effort required to demonstrate compliance, but excludes resource expenditures for prior product changes. The cost of changing compliance documentation and/or drawings is not an acceptable reason for an exception…
>
> Support your position that compliance is impractical with substantiating data and analyses. While evaluating your position and your substantiating data regarding impracticality, the FAA may consider other factors (e.g., the costs and safety benefits for a comparable new design)….
>
> The exception of impracticality is a qualitative and quantitative cost/safety benefit assessment for which it is difficult to specify clear criteria. Experience to date with applicants has shown that justification of impracticality is more feasible when both the applicant and FAA agree at an earlier discussion that the effort (in terms of cost, changes in manufacturing, etc.) required to comply would not be commensurate with a small incremental safety gain. This would be clear even without the need to perform any detailed cost/safety benefit analysis (although an applicant could always use cost analysis to support an appropriate amendment level). However, there should be enough detail in the applicant's rationale to justify the exception. Note: An applicant should not base the impractical exception on the size of the applicant's company or their financial resources. The applicant must evaluate the costs to comply with a later amendment against the safety benefit of complying with the later amendment."

Appendix E of AC 21.101-1B provides a procedure for evaluating material contribution or impracticality of applying latest requirements to a changed product.

2. Development of objective criteria for determining substantial and significant changes

Further clarification should be provided to include addressing the following questions –

a) Would developing objective criteria be helpful in determining substantial changes (§ 21.19)? Significant changes (§ 21.101)?
b) Are there specific criteria that would be helpful?
c) Should the criteria vary across products (i.e., small airplanes, rotorcraft, transport airplanes, and engines)?

Section 21.19 requires a new type certification application if the change to a product in design, power, thrust, or weight is so extensive that a substantially complete investigation of compliance with the application regulations is required.

AC 21.101-1B, Section 3.3 and Appendix A provide guidance specific to substantial changes:

> Step 2. Verify the proposed type design Change is not substantial.
>
> 3.3.1 Section 21.19 requires that you apply for a new TC for a changed product if the change in design, power, thrust, or weight is so extensive that a substantially complete investigation of compliance with the applicable regulations is required. A new TC could be required for either a single extensive change to a previously type certificated product or for a changed design derived through the cumulative effect of a series of design changes from a previously type certificated product.
>
> 3.3.2 A "substantially complete investigation" of compliance is required when most of the existing substantiation is not applicable to the changed product. In other words, you may consider the design change substantial if it is so extensive (making the product sufficiently different from its predecessor) that the design models, methodologies, and approaches used to demonstrate a previous compliance finding could not be used in a similarity argument. The FAA considers a change substantial when these approaches, models, or methodologies of how compliance was shown are not valid for the changed product.

3.3.3 If it is not initially clear that a new TC is required, appendix A of this AC provides some examples of substantial changes to aid in this classification. A substantial change requires application for a new TC. See §§ 21.17 and 21.19. If the change is not substantial, proceed to Step 3.

History and Background Information on CPR Regulations:

In 1997 (Notice Number 97-7), the FAA initiated rulemaking activities involving 14 CFR part 21 and the changed products rule, which reflected ARAC recommendations. The FAA initiated these actions to address the trend toward fewer products that are of completely new design and more products with multiple changes to previously approved designs. The rule was needed to enhance safety by applying the latest airworthiness standards, to the greatest extent practicable, for the certification of significant design changes of aircraft, aircraft engines, and propellers.

As stated –

> "In recent years, a trend has developed towards fewer products that involve substantial design changes that would require a new type certificate. In many cases, over a period of time, a series of changes could permissively be made to a product by amending its original type certificate such that the resultant model is substantially different from the original model. Although each changed product in such a series of changes may differ little from its immediate predecessor, the changes could collectively result in a product with considerable differences from the original product. As a result, many changed aeronautical products have not been required to demonstrate compliance with all the recent airworthiness standards. This rule is intended to clarify under what conditions more recent airworthiness amendments need to be applied to changed products."…
>
> "The FAA maintains that the issue should not be whether a product is produced under a new type certificate or an amended one. The issue is whether or not the level of safety of the product, embodied in the airworthiness standards it complies with, is as high as practicable."…
>
> "When establishing the highest practicable level of safety for a changed product, the FAA has determined that it is appropriate to assess the service history of a product as well as the later airworthiness standards. It makes little sense to mandate changes to well understood designs, whose service experience has been acceptable, merely to comply with new standards. The clear exception to this premise is if the new standards were issued to address a deficiency in the design in question or if the service experience is not applicable to the new standards. This consideration of airworthiness standards and service experience should form the basis for developing the certification basis for a change in a product."

The FAA issued Amendment 21-77 on June 7, 2000 to ensure that when an essentially new product is developed through a series of changes, the final product achieves a level of safety similar to that of a comparable new product.

In December 2012, the FAA issued Amendment 21-96, which revised section 21.101 to replace the term "changed product" with "change and areas affected by the change." Amendment 21-77 required that an applicant show the "changed product" meets the applicable requirements to obtain an amended type certificate, supplemental type certificate, or amended supplemental type certificate. While the purpose of the rule was to enhance safety by requiring compliance with the latest amendments, the intent was to limit an applicant's responsibility to those areas affected by the change. Areas not affected by the change, as described in § 21.101(b)(2) need not be resubstantiated.

As stated in the Final Rule, "The term 'changed product' was replaced with 'change and areas affected by the change' in Sec. 21.101 to be consistent with the rule language as established in Sec. 21.101(b)(2) and (b)(3) and to clarify the responsibility of the applicant. The 'change' refers to the design change proposed by the applicant. 'Areas affected by the change' refers to aspects of the type design the applicant may not be proposing to change directly, but that are affected by the applicant's proposal. For example, changing an airframe's structure, such as adding a cargo door in one location, may affect the frame or floor loading in another area. Further, upgrading engines with new performance capabilities could require additional showing of compliance for minimum control speeds and airplane performance requirements. For many years the FAA has required applicants to consider these effects, and this practice is unchanged by this rulemaking."

Historical Amendments to Sections 21.19 and 21.101

Sec. 21.19

Changes requiring a new type certificate.	21-0	02/01/1965
Changes requiring a new type certificate.	21-59	02/17/1987
Changes requiring a new type certificate.	21-77	06/10/2003
Changes requiring a new type certificate.	21-92	04/16/2011

Sec. 21.101

Designation of applicable regulations.		02/01/1965
Designation of applicable regulations.	21-16	10/24/1967
Designation of applicable regulations.	21-17	01/26/1968
Designation of applicable regulations.	21-19	01/12/1968
Designation of applicable regulations.	21-27	12/01/1969
Designation of applicable regulations.	21-42	02/07/1975

Designation of applicable regulations.	21-58	12/12/1985
Designation of applicable regulations.	21-68	09/10/1990
Designation of applicable regulations.	21-69	09/16/1991
Designation of applicable regulations.	21-77	06/10/2003
Designation of applicable regulations.	21-90	12/10/2007
Designation of applicable regulations.	21-92	04/16/2011
Designation of applicable regulations.	21-96	02/04/2013
Designation of applicable regulations.	21-100	08/30/2017

Certification & Safety Oversight Reform

Status Update

Federal Aviation Administration

Date: May 20, 2022

Introduction

The Federal Aviation Administration (FAA) understands and embraces the need to promote and sustain the primacy of safety, as well as continuous and proactive management of risk throughout its workforce, across industry, and with other aviation authorities.

To meet this need, the FAA drives greater transparency, collaboration, and accountability across the regulating and regulated communities, with a primary focus on:

- Strengthening corporate safety cultures to improve safety risk management and performance through mandated and voluntary action;
- Improving data availability, accessibility, and analysis through both process and infrastructure enhancements; and
- Advancing system-level safety management through better integration of the design, production, and operational approval processes.

Further, the FAA is committed to thorough and complete implementation of the aircraft certification reform legislation and addressing recommendations from recent investigations and independent reviews.

Approach Overview

The FAA continues to improve and refine our certification and safety oversight processes using a *comprehensive approach* to implementing the provisions from the recent certification reform legislation and the various recommendations received from investigations (OIG, NTSB, KNKT, etc.) and independent reviews (JATR, Special Committee, etc.). We identified the following general themes:

- ***Treat aircraft as complex systems**, with full consideration of how all the elements in the operating system interact.*
- ***Integrate human factors considerations more effectively** throughout all aspects of the design and certification process.*
- ***Improve the agency's oversight process** by ensuring coordinated and flexible flow of data and information.*
- ***Focus on the workforce of the future** and develop expertise to evaluate technological advances.*

Requirements, Recommendations, and Provisions

- **Aircraft Certification, Safety, and Accountability Act** (December 27, 2020)
  - 100+ provisions
- **Joint Authorities Technical Review Submittal** (October 11, 2019)
  - 12 recommendations
- **Official Report of the Special Committee (Spec Comm) to review the Federal Aviation Administration's Aircraft Certification Process** (January 16, 2020)
  - 10 Focus Areas
- **National Transportation Safety Board (NTSB) Report** (September 19, 2019)
  - 7 recommendations
- **JT610 Final Komite Nasional Keselamatan Transportasi (KNKT) Aircraft Accident Investigation Report** (October 29, 2018)
  - 8 recommendations
- **Office of Inspector General *Weaknesses in FAA's Certification and Delegation Processes Hindered Its Oversight of the 737 MAX 8*** (February 23, 2021)
  - 14 recommendations
- **Technical Advisory Board (TAB) Final Report** (November 18, 2020)
  - 5 action items

Certification and Safety Oversight Reform

The FAA organized certification and safety oversight reform provisions and recommendations into the following workstreams:

- Safety Management Systems
- System Safety and Human Factors
- Global Collaboration
- Data
- Integration of Certification and Oversight Functions
- Culture of Safety and Excellence
- Delegation
- Certification and Continued Operational Safety Processes
- Innovation
- Other Requirements

Milestones since February ACSAA Quarterly Update

026

- **Sec. 108:** Published the Technical Advisory Board (TAB) work instruction in February 2022.
- **Sec. 116**: Issued policy memorandum in May 2022.
- **Sec. 135**: Interim Final Rule with new requirements for aviation maintenance technician school certificates and associated ratings signed by Administrator in May 2022. Interim Final Rule is with the Office of the Federal Register and is anticipated to be published imminently.
- **Sec. 136**: MITRE final report on Type Certification Reform delivered to the FAA in April 2022.

ACSAA Sections Closed or No Action Required

The following ACSAA sections are considered closed or have no required actions by the FAA:

- **Sec. 101:** Short title; table of contents – no action required
- ***Sec. 108:*** *Integrated Project Teams - closed*
- **Sec. 109:** Oversight integrity briefing – closed
- **Sec. 114:** Compensation limitation – closed
- **Sec. 121:** Implementation of recommendations – closed
- **Sec. 123:** Settlement agreement – closed
- **Sec. 128:** Pilot Operational Evaluations – closed
- **Sec. 129:** Ensuring appropriate responsibility of aircraft certification and flight standards performance objectives and metrics – no action required
- ***Sec. 135:*** *Promoting Aviation Regulations for Technical Training – to be closed upon publication*
- **Sec. 137:** Definitions – no action required

Safety Management Systems: Overview

Objective: To enhance and promote the use of safety management systems (SMS) to ensure a holistic and proactive assessment of hazards and support improvement in safety performance**.**

Behavioral and Process Benefits:

- Increased transparency from industry will drive behavioral changes, which allow the agency to be more proactive in our decision making.
- Key decisions made by industry will be prioritized by the safety impact.
- Strengthen risk management interfaces and feedback loops within industry and the FAA for design, manufacturing, operation, and maintenance.

Overview of Actions:

- SMS rulemaking for design and manufacturing organizations, repair stations, Part 135 operators, and air tour operators conducting operations under 14 CFR 91.147.
- Promoting the use of voluntary SMS programs:
  - Voluntary SMS programs in place for Design & Manufacturing organizations and for Operations & Maintenance Organizations.
  - Voluntary SMS participants submit elements of SMS to FAA for acceptance.
  - Voluntary SMS participants commit to regular oversight of their SMS by the FAA.
- Corporate implementation of the FAA & Industry Guide to Product Certification (CPG).
  - The CPG promotes a systems approach to certification with appropriate involvement and oversight by the FAA.

Cert Reform Bill	JATR	Spec Comm	Other
Section 102	Recommendation 6	Focus Area 1	OIG Recommendations 4, 14

System Safety and Human Factors: Overview

Objective: Implement changes to ensure system safety analyses and human factors assumptions are incorporated into the FAA's Aviation Safety (AVS) policy and oversight.

Behavioral and Process Benefits:

- Human factors activities will improve the way aircraft designs account for the broad range of pilots and pilot capabilities around the world.)
- System safety assessment activities will generate earlier, more frequent, and timely assessments of potential hazards and risks associated with aircraft and operations during the design and certification process.
- Comprehensive understanding of the interconnectivity of the airplane lifecycle.

Overview of Actions:

- Developing rulemaking and corresponding guidance material for system safety assessments, disclosure of safety critical information and new policy for flightpath management.
- Human Factors Expert Safety Review Panel completed preliminary review of rules and guidance related to human factors and pilot response assumptions to identify and prioritize changes.
- Developed and conducting *Human Factors in Certification* trainings and workshops.
- Issued three grants to the University of Akron, Embry-Riddle Aeronautical University/Kent State, and Wichita State University through the Center of Excellence for Technical Training and Human Performance to develop a human factors training modules for FAA employees and conduct a study on human error taxonomies.
- Issued a memo to AIR employees reinforcing the prohibition on delegating critical system design features without validation of the underlying human factors assumptions.
- Issued a policy memo to implement flight crew alerting system mandates consistent with Sec. 116(b).

Cert Reform Bill	JATR	Spec Comm	Other
Sections 105, 106, 115, 116, 119, 124, 126, 127	**Recommendations 2, 3, 4, 6**	**Focus Areas 2**	**OIG Recommendations 3, 5** **NTSB A-19-10 through A-19-16** **KNKT 2018-35.20; -21; -23; -24** ***TAB Report Action Item 5***

Global Collaboration: Overview

Objective: Expand global engagement with other Civil Aviation Authorities to foster improvements in international safety standards and practices for how the operational requirements for an aircraft are evaluated by the State of Design as part of the certification effort.

Behavioral and Process Benefits:

- Increased sharing of information about the type design from the State of Design and improved information flow from States of Registry to the FAA to assist in continued operational safety.
- Harmonization of standards, guidance, and practices.
- Improved information flow from States of Registry to the FAA to assist in continued operational safety management.

Overview of Actions:

- Adjust the requirements for establishing pilot training requirements for new or amended type certificates to require additional information from the manufacturer.
  - Work with International Civil Aviation Organization (ICAO) and other international stakeholders to improve the FAA's ability to influence the maintenance and pilot training requirements for U.S. products operating under the oversight of another civil aviation authority.
  - Work multilaterally with Certification Management Team (CMT) authorities to influence, improve, and increase integration and harmonization of international maintenance and pilot training standards and best practices.
  - Air carrier pilots of varying levels of experience must participate in the pilot operational evaluations for transport airplane type certification projects.
    - FAA issued policy in December 2021 requiring Flight Standardization Board (FSB) operational evaluations to include test subjects of domestic and/or foreign air carrier pilots of varying levels of experience.
- Provide leadership in the ICAO Personnel Training & Licensing Panel (PTLP) Automation Working Group, which is tasked with determining the extent of automation dependency globally. This group is expected to issue a report in December 2022 that will inform recommendations to pilot licensing standards, qualifications, or guidance.
  - PLTP report anticipated in Spring 2023
- FAA published for comment in **February 2022** new guidance on flightpath management. This draft was developed based on numerous recommendations received from the Air Carrier Training Aviation Rulemaking Committee (ACT ARC).

Cert Reform Bill	JATR	Spec Comm	Other
Sections 117, 119, *128*	**Recommendation 1**	**Focus Areas 3, 8**	**TAB Report Action Items 7, 8** **KNKT Recommendations 2018-35.25, .27**

Data: Overview

Objective: Enhance the capability to collect, consolidate, analyze, and share safety data within the FAA and between industry stakeholders and international partners.

Behavior and Process Benefits:

- Significant improvements in data quality and availability to support FAA's risk-based decision making.
- Technology infrastructure and data integration to support risk-based decision making.
- Data accessibility to make daily safety decisions.

Overview of Actions:

- Contract in place with Transportation Research Board (TRB) to develop framework for annual analysis and report on emerging safety trends in aviation.
  - Kickoff meeting held in August 2021. Since then, FAA officials have briefed TRB Committee members, per their request, on a variety of topics.
  - TRB anticipates a report to Congress by July 2022.
- The FAA continues to consult and collaborate with union partners on a safety culture assessment. The assessment will not commence until coordination is complete.
- Charter signed and first meetings held for joint FAA/NASA System Wide Safety (SWS) Research Transition Teams (RTTs) focused on real-time monitoring, assessment, and mitigation of hazards for both current and emerging aviation.
- Enhancements to the Aviation Safety Information Analysis and Sharing (ASIAS) system to integrate new data sources and methods for safety analysis.
- Validation of the initial Safety Data Governance ConOps for a Single FAA Data Repository.

Cert Reform Bill	JATR	Spec Comm	Other
Sections 132	**Recommendations 12**	**Focus Area 3**	**None**

Integration of Certification and Oversight: Overview

Objective: Improve coordination between AVS offices throughout the aviation lifecycle.

Behavioral and Process Benefits:

- Ensure maximum integration between certification and operations.
- Leveraging system safety principles to develop internationally harmonized certification basis for products under the Changed Product Rule.
- Comprehensive assessment of risk through the aviation lifecycle and system approach to safety oversight.

Overview of Actions:

- FAA published the Technical Advisory Board (TAB) work instruction in February 2022.
- In June 2020, the FAA commissioned the Integrated Program Management (IPM) team comprised of subject matter experts from the Flight Standards Service (FS) and Aircraft Certification Service (AIR) to assess current practices and policies and make recommendations for improving FAA oversight through the integration between design and operations.
  - Best practices identified from this process are being applied to ongoing certification projects.
  - Targeted outreach to select ongoing type certificate projects to ensure strong integration between AIR and FS.
- The Compliance Program launched in 2015 and provides a framework for how the agency responds to safety deviations, including regulatory noncompliance.
  - Executive Council and Steering Committee completed the first annual evaluation of the Compliance Program and sent a report, including recommendations, to the Administrator.
  - The Executive Council and Steering Committee continue their work to close out recommendations from the first evaluation.

Cert Reform Bill	JATR	Spec Comm	Other
Sections *108*, 118, 122, *123*	**Recommendations 4, 9, 12**	**Focus Area 5**	**OIG Recommendations 6, 7, *13* KNKT Recommendation 2018-35.22**

Culture of Safety and Excellence: Overview

Objective: Enhance the FAA's safety culture by promoting voluntary safety reporting, increasing workforce competencies, and attracting the right talent.

Behavioral and Process Benefits:

- Just culture – employees and designees free to identify, raise or address potential safety concerns without fear of reprisal.
- Workforce that is adaptive and responsive to changing industry technologies and practices.

Overview of Actions:

- Implemented the AVS Voluntary Safety Reporting Program (VSRP) in April 2021.
  - Data shows that system is being used regularly by employees to raise safety concerns.
  - The FAA's AVS safety culture assessment will help inform AVS leadership of the VSRP's effectiveness.
- Implemented a number of efforts to bolster human factors expertise and resources, including:
  - Placing an emphasis on the hiring of human factors staff within the Aviation Safety (AVS) organization.
  - Linked the development of human factors education and training through a Center of Excellence grant.
- The FAA is working in coordination with union partners to execute a comprehensive workforce review. Union engagement is ongoing. The workforce review is anticipated to be completed later this year.

Cert Reform Bill	JATR	Spec Comm	Other
Sections 104, 111, 112, 113, *114*	**Recommendations 5,7**	**Focus Area 6**	**OIG Recommendation 10**

Delegation: Overview

Objective: Promote consistency and transparency in the applicability of policy, oversight of Organization Designation Authorization (ODA) holders, and communication between the FAA and ODA unit members.

Behavior and Process Benefits:

- Foster an environment of safety at companies and transparency between applicant and ODA.
- Stronger relationship and trust between the agency and ODA unit members to share information and discuss safety concerns without fear of retribution/barriers.
- Standardization of unit member approval and FAA oversight of the ODA Holder.

Overview of Actions:

- Issued policy in October 2021 to require FAA approval of unit members for TC ODA holders and assignment of FAA advisors for engineering unit members at select ODA holders (implementation date of 12/15/2021).
- Published for comment draft policy to prevent interference with ODA unit members and to facilitate open communication between unit members and the FAA.
  - Public comment period closed on April 11, 2022. Final comments are in process of being dispositioned.
- Continuing to standup and fully staff the ODA Office at the AVS Level.
- Working to convene an expert review panel to make findings and recommendations with respect to ODA holders for the design and production of transport airplanes.

Cert Reform Bill	JATR	Spec Comm	Other
Sections 103, 107, *109*, 125	**Recommendations 5,8**	**Focus Area 7**	**OIG Recommendations 8, 9, 11, 12** **KNKT Recommendation 2018-35.21**

Certification and COS Processes: Overview

Objective: Increase robustness of the type certification process and related reduction of operational risk.

Behavioral and Process Benefits:

- Continuous improvement of our certification process, including the evaluation of the aircraft lifecycle perspective.
- Robust issue resolution and appeals guidance for certification decisions.

Overview of Actions:

- Developing an order that establishes overarching principles and requirements for resolving issues and subsequent appeals of type certification decisions.
- Revising guidance material to ensure proposed changes to an aircraft are evaluated from a whole aircraft system level perspective, including human interface aspects.
- Developing defined criteria for what constitutes a significant change.
- Investigating mandating validation of assumptions and focusing on new and updated training materials.
- Commissioned external reviews to evaluate our Transport Airplane Risk Assessment Model (TARAM) and an independent study on Type Certification Reform. These reviews will help inform future changes to certification processes.
  - MITRE delivered its final report on Type Certification Reform to the FAA in March 2022, and the FAA continues its review.
- Continuing to engage internationally to resolve harmonization differences in certification processes with Certificate Management Team (CMT) partner authorities.
- Issued a policy memo to implement flight crew alerting system mandates consistent with Sec. 116(b).

Cert Reform Bill	JATR	Spec Comm	Other
Sections 110, 116, 120, 130, 136	**Recommendations 2, 5, 8, 12**	**Focus Area 8**	**OIG Recommendation 1** **TAB Report Action Items 2,4** **KNKT Recommendation 2018-35.26**

Innovation: Overview

Objective: Accelerate and expand deployment of new technologies and practices by reducing barriers to innovation and actively promoting innovation that enhances safety and performance of the National Airspace System (NAS).

Behavioral and Process Benefits:

- Early applicant engagement and information sharing to define certification path for emerging technologies and concepts.
- Increased efficiencies through the FAA intake process.
- Enhanced coordination across the FAA on emerging products and concepts.

Overview of Actions:

- Established and staffed the Center for Emerging Concepts and Innovation (CECI) supporting certification of new aircraft and technologies by providing structured pre-application engagement with companies to identify a clear path to compliance.
  - Work instruction drafted for internal review; comments dispositioned; final WI in coordination.
  - CECI is currently tracking and engaging with approximately 70 innovative technology products, including large unmanned aircraft, electric vertical takeoff/landing vehicles for advanced air mobility, electric and hybrid-electric propulsion systems, and supersonic/hypersonic transports, among others.

Cert Reform Bill	JATR	Spec Comm	Other
Section 134	None	Focus Area 9	OIG Recommendation 2

Other Requirements: Overview

Objective: Evaluate ways to expedite implementation of changes while longer-term policy or rulemaking efforts are underway as well as to address requirements and recommendations that don't fit into other focus areas.

Overview of Actions:

- Section 121 briefing completed on January 19, 2022.
- Signed Interim Final Rule providing new requirements for aviation maintenance technician school certificates and associated ratings and the general operating rules for the holders of those certificates.

Cert Reform Bill	JATR	Spec Comm	Other
Sections *121, 135*	**None**	**Focus Area 10**	**None**

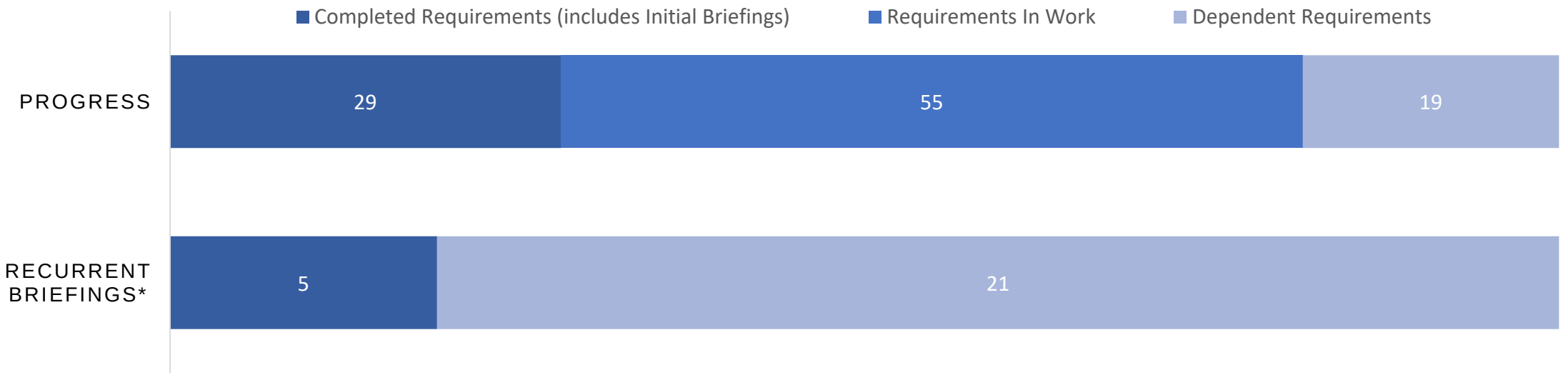
Additional Sections

While the FAA is implementing the legislation in its totality, Aviation Safety (AVS) is not the office of primary responsibility for the follow sections:

- Sec. 131 – National Air Grant Fellowship Program
- Sec. 133 – FAA Accountability Enhancement
- Sec. 134 – Authorization of Appropriations for the Advanced Materials Center of Excellence

AVS refers all questions related to these sections to the appropriate Line of Business/Staff Office.

Implementation Status



**Multiple ACSAA provisions contain requirements which run through 2031.*

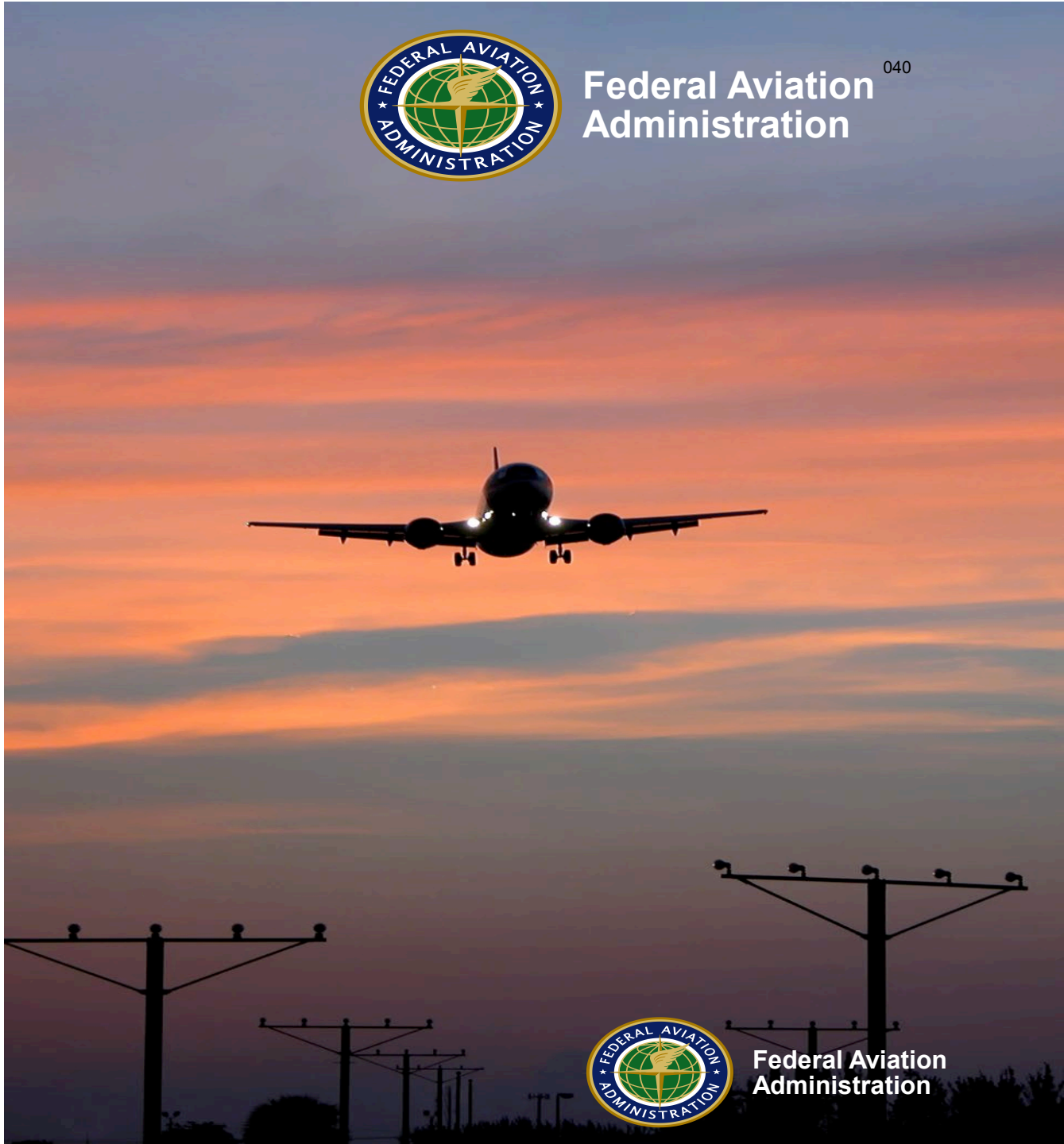
The FAA will continue to provide quarterly updates to Congress on the implementation status of all ACSAA provisions.

Sec. 213 ODA Expert Review Panel

SOCAC Briefing

Presented to: Safety Oversight and Certification Advisory Committee

Date: May 24, 2022



Background

- **Section 213 of 2018 Reauthorization Act requires:**
  - FAA Administrator to convene multidisciplinary expert review panel to examine aspects of the ODA program
- **Composition and Member Qualifications of Panel:**
  - Not more than 20 members
  - Minimum of 5 years of ODA related experience
  - Represent - ODA holders, aviation manufacturers, safety experts, and FAA labor organizations
- **Deliverable:**
  - Report documenting Panel findings and recommendations
  - Submitted to: FAA Administrator, SOCAC, and Congress

Panel Specifics

- **Panel chartered in December 2019**
- **Diverse membership**
  - **Holders/Manufacturers:**
    - American Airlines
    - Bell
    - Boeing
    - Cirrus Aviation
    - Duncan Aviation
    - Garmin
    - GE Aviation
    - Gulfstream
    - HEICO
    - Honeywell
    - Textron Aviation
  - **Safety Experts:**
    - Regulations and Policy: (AIR-600, AFS-600)
    - Compliance and Airworthiness (AIR-700)
    - System Oversight (AIR-800)
    - AVS ODA Office
  - **FAA Labor Unions:**
    - PASS (AFS and MIDO)
    - NATCA
    - AFSCME

2018 Reauthorization Panel Tasks (Sec. 213)

- **Survey of ODA Holders and Program Applicants**
  - FAA certification and oversight activities
  - Use of the ODA program
  - Timeliness and efficiency of the certification process.

- **Assessment and Recommendations**
  1. FAA's processes and procedures under the ODA program and their effectiveness
  2. Best practices and lessons learned by ODA holders and FAA personnel
  3. ~~FAA Performance incentive policies that do not conflict with public interest~~
  4. Training activities related to the ODA program for FAA and ODA Holders
  5. Impact…on the FAA's ability to process applications for certifications outside of the ODA program
  6. The results of the survey conducted under subsection

ACSAA Additional Tasks (Sec. 125)

- **December 27, 2020 Congress passed the Aircraft Certification, Safety, and Accountability Act**
- **Section 125 modified Section 213 of 2018 FAA Reauthorization Act**
- **Major Change Summary:**
  - Added a new paragraph (c)
    - To identifying best practices related to:
      - Undue pressure and perceived regulatory coziness, and independence,
      - Improve ODA/FAA communications,
      - Examine FAA designee programs, advisor appointments to identify components that could improve the ODA program.

Work Completed - ODA Survey

- Data collected from 16 Feb - 5 Apr 2021
- Responses were anonymous (i.e., companies cannot be identified)
- Received 61 responses (76.3% participation rate) with a 92% completion rate
- 102 Questions in total (combination of both quantitative and qualitative questions*)
  - Qualitative questions were categorized into themes based on responses

Work Completed - ODA Survey

Survey Sections Reference

- **Demographics**
- **Program Applicant Questions**
  - Communications/Expectations
  - Efficient Practices
- **ODA Holder Questions**
  - Certification
  - Continued Operational Safety
  - Culture/Incentives/Environment
  - Benefits of ODA
  - Delegation/Designation
  - Procedures Manual
  - ODA Internal Self-Audit
  - FAA Oversight

Work Completed – ACSAA Actions

- **Addressing ACSAA requirements**
  - Works groups formed each focused on one of the new requirements
  - Examined regulated industries at local, state, and national level
    - Conducted literature search and interviews with subject matter experts focused on controls of undue pressure/influence, independence, and regulatory coziness
  - Conducted interviews with OMT members, Policy Offices, and ODA Administrators to examine ODA/FAA communication and undue pressure
  - Conducted interviews with SME's from other FAA Designee programs
    - Flight Standards, Aero Medical, Aircraft Certification

Outcomes – Final Report

- **Assessment and Recommendations**
  - Panel has developed 41 recommendations covering 8 major themes
  - Recommendation Targets: FAA, Congress, and Aviation Industry
  - Panel accomplished their task using a combination of literature/policy research, examination of past ODA studies, ODA Survey results, expert knowledge/experience, and interviews with relevant stakeholders.

Major Themes and Number of Recommendations	
Staffing and Hiring - 3	ODA Data & Tools - 1
Training and Competency – 5	Safety Culture - 1
ODA Policy - 28	FAA Cost Recovery - 1
ODA Office - 1	ODA Unique Services - 1