



AVIATION RULEMAKING ADVISORY COMMITTEE (ARAC) MEETING

June 16, 2022***2:00 PM – 4:00 PM

- Welcome and Introductions
 - Federal Advisory Committee Act (FACA) Statement
 - Ratification of Minutes
 - Status Reports
 - ARAC
 - Airman Certification System Working Group – Mr. David Oord
 - ❖ Expanded tasks of Sport Pilot and Recreational Pilot certificates and all additional remaining category and class pilot certificates and ratings (Present Recommendation Report to ARAC: 12/2022)
 - Part 145 Working Group – Ms. Sarah McLeod
 - ❖ Final Report (Present Recommendation Report to ARAC: 12/2022)
 - Training Standardization Working Group – Mr. Brian Koester
 - Part 65.101 Repairman Certificate Portability Working Group – Mr. Ric Peri
 - Transport Airplane and Engine (TAE) Subcommittee – Mr. Keith Morgan
 - Flight Test Harmonization Working Group – Mr. Brian P. Lee
 - ❖ Phase 4/Topic 21 – Narrow Runway Operations (Present Recommendation Report to ARAC: 9/2022)
 - ❖ Phase 4/Topic 16 – Failure Assessment Methodology & Evaluation (FAME) (HQRN) (Present Recommendation Report to ARAC: 9/2022)
 - ❖ Phase 4/Topic 32 – TALPA (Present Recommendation Report to ARAC: 9/2022)
 - ❖ Phase 4/Topic 33 – Landing Distance on Dry Runway (Present Recommendation Report to ARAC: 9/2022)
 - Transport Airplane Metallic and Composite Structures Working Group – Mr. Doug Jury
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- ❖ Repeat Inspections and Crack Interaction (Present Recommendation Report to ARAC: 9/2022)
- Ice Crystals Icing Working Group (Present Recommendation Report to ARAC: 9/2022 – Ms. Melissa Bravin and Mr. Allan van de Wall
- Avionics System Harmonization Working Group – Mr. Clark Badie
 - ❖ Alerts for New Airplane Designs (Present Recommendation Report to ARAC: 12/2022)
- Recommendation Reports
 - Airman Certification System Working Group – Mr. David Oord
 - ❖ Call to Action Subgroup
 - Any Other Business
 - AGC to present a quick overview on what can be requested from FOIA
 - FAA update on regulatory activities
 - Remaining Fiscal Year 2022 Meeting Dates
 - Thursday, September 8, 2022

ARAC agendas, meeting minutes, and reports are available on the FAA's committee website at https://www.faa.gov/regulations_policies/rulemaking/committees/documents/index.cfm/committee/browse/committeeID/1

AVIATION RULEMAKING ADVISORY COMMITTEE

DRAFT RECORD OF MEETING

MEETING DATE: March 17, 2022

MEETING TIME: 1:00 PM ET

LOCATION: The Aviation Rulemaking Advisory Committee (ARAC) held a “virtual” meeting via Zoom.

PUBLIC ANNOUNCEMENT: The Federal Aviation Administration (FAA) provided notice to the public of this ARAC meeting in a *Federal Register* notice published on February 10, 2022 (87 FR 7897).

ATTENDEES: **Committee Members**

David Oord	Wisk/Autonomous Urban Air Mobility <i>ARAC Chair</i>
Justin Barkowski	American Association of Airport Executives (AAAE)
Doug Carr	National Business Aviation Association (NBAA)
Tom Charpentier	Experimental Aircraft Association (EAA)
Ambrose Clay	National Organization to Insure a Sound Controlled Environment (N.O.I.S.E)
Chris Cooper	Aircraft Owners and Pilots Association (AOPA)
Gail Dunham	National Air Disaster Alliance Foundation (NADAF)
Stéphane Flori	Aerospace & Defense Industries Association of Europe (ASD)
Paul Hudson	FlyersRights
Randy Kenagy	Air Line Pilots Association (ALPA)
Justin Madden	Aircraft Mechanics Fraternal Association (AMFA)
Chris Martino	Helicopter Association International (HAI)
Keith Morgan	Pratt & Whitney <i>Chair, Transport Aircraft and Engine (TAE) Subcommittee</i>
George Paul	National Air Carrier Association (NACA)
Ric Peri	Aircraft Electronics Association (AEA)

Larry Rooney	Coalition of Airline Pilots Association (CAPA)
Yvette A. Rose	Cargo Airline Association (CAA)
Bill Whyte	Regional Airline Association (RAA)
Christopher Witkowski	Association of Flight Attendants (AFA)
Attendees	
Kevin Berger	Airlines for America (A4A)
Ellen Birmingham	United Airlines
Tanya Boisseranc	Boeing
Andy Cebula	A4A
Katie Edwards	Boeing
Daniel Foster	International Aerospace Intelligence Organization
Steve Hall	Flight Safety International
Doug Jury	Delta Airlines <i>Chair, Transport Aircraft Metallic and Composite Structures Working Group</i>
Brian LaCross	Public Citizen
Brian Lee	Boeing <i>Chair, Flight Test Harmonization Working Group</i>
Nick Nadarski	Government Accountability Office
Jerod Rhodes	United Parcel Service
Mark Sudol	Aerospace Industries Association
FAA	
Angela Anderson	Office of Rulemaking (ARM)
Chris Bailey	ARM
Justin Barcas	ARM
Kathleen Bradshaw	Aircraft Certification Service (AIR)
Troy Brown	AIR
Paul Cloutier	Flight Standards Service (AFS)
Thuy Cooper	ARM
Brian Davis	AFS

Thea Dickerman	ARM
Aliah Duckett	ARM
Becca Fribush	The Regulatory Group/FAA contractor
Carole Gaelick	Office of Aviation Policy & Plans (APO)
Johann Hadian	ARM
Colleen Kilday	Quality, Integration and Executive Services (AQS)
Nellie Lew	APO
Daron Malmborg	AFS
Suzanne Masterson	AIR
Natalie Mitchell-Funderburk	ARM
Keiran O'Farrell	AFS
Chris Parfitt	AFS
Lakisha Pearson	ARM
Paul Preideckder	FAA Contractor
Robert Reckert	AFS
Brandon Roberts	ARM <i>Designated Federal Officer</i>
Tim Shaver	AFS
Walter Sippel	AIR
Alan Strom	AIR
Andrew Thai	ARM
Phan Tran	APO
Alana Zautner	AIR
Martin Zhu	APO

Welcome and Introduction

Mr. Brandon Roberts, Designated Federal Officer (DFO), called the meeting to order at 1:01 p.m. He introduced himself, reviewed zoom features, noted that the meeting was being recorded, and asked participants who dialed in using a phone number to identify

themselves through Zoom or by emailing their information to 9-AWA-ARAC@faa.gov to record their attendance.

Mr. Roberts read the required FACA statement (Title 5, United States Code (5 U.S.C.); Appendix 2 (2007)). He stated that members of the public may address the ARAC with permission of the Chair, Mr. David Oord.

Mr. Oord introduced himself and noted the following changes in ARAC membership –

- Mr. Paul McGraw (A4A) retired;
- Ms. Leslie Reigle is no longer with AIA and representing aircraft manufacturers; and
- Mr. Steven Udvar-Hazy's decided not to renew his ARAC membership.

Mr. Roberts noted that the FAA is in the process of renewing the ARAC charter. He also noted that the FAA will publish the solicitation notice for members this spring and members with expired terms must reapply if they wish to be considered for reappointment.

Ratification of Minutes

Mr. Oord asked for a motion to accept the minutes from the December 9, 2021¹, ARAC meeting. Mr. Larry Rooney motioned to accept the minutes, and Mr. Ambrose Clay seconded the motion after receiving clarification on the ex parte communications discussion from the last meeting. FAA confirmed the ex parte presentation was emailed to ARAC members. Mr. Justin Madden clarified that he suggested a joint FAA-industry training on ex parte. Ms. Lakisha Pearson, FAA, noted the minutes would be corrected to reflect Mr. Madden's suggestion. ARAC voted, with no objections, to ratify the minutes with the correction noted by Mr. Madden.

Status Reports

A copy of the March 17, 2022, meeting packet, which includes the presentations, can be found at:

https://www.faa.gov/regulations_policies/rulemaking/committees/documents/media/ARAC_Meeting_Packet_March2022_Final.pdf

Airman Certification Systems Working Group (ACSWG)

Mr. Oord, ACSWG Chair, provided the working group's status report. The update included an overview of membership, a summary of tasking, a review of the schedule, the status of tasking, and areas for ARAC consideration.

¹ The December 9, 2021, meeting minutes can be found at:
https://www.faa.gov/regulations_policies/rulemaking/committees/documents/media/ARAC_Meeting_Packet_March2022_Final.pdf.

Mr. Oord noted that membership has stayed the same, with consistent engagement from the FAA and industry. He noted that the summary of tasking had not changed. Mr. Oord explained that the working group's schedule is on track, and a comprehensive interim report was submitted in June 2018, with subsequent interim reports consistently submitted since then. He stated that the ACSWG final report was originally due on December 1, 2021; however, the working group was granted an extension until June 2022.

Mr. Oord provided an update on the group's call-to-action tasking and described the workflow in publishing ACS standards and recommendations. He noted that several standards are currently stuck in a holding pattern with FAA. Mr. Oord stated that publishing these documents by the agency is important for the group's work to move forward, and he hopes ever-changing technology will still support the group's previous recommendations.

Mr. Ric Peri asked how the cost-benefit analysis associated with the part 147 rollout could affect the public (for example, spending money on changes to curriculum). Mr. Oord noted that he does not have an answer at this time, but he is looking forward to seeing the path forward on the incorporation by reference (IBR) that the agency chooses. In response to Mr. Peri's concerns about the jump from the original tasking to the implementation of it, Mr. Roberts suggested two options that can be taken. He proposed that ARAC share the recommendations with the FAA to either (1) get a course correction or (2) FAA assigns a new task that correctly aligns with where the FAA is with IBR. He noted that the FAA would need to review the recommendations. Mr. Peri noted that any decision-making to move forward as soon as possible would be best.

Part 145 Working Group

Mr. Peri provided the Part 145 Working Group update, which included an overview of membership, a summary of taskings, the status of taskings, and areas for ARAC consideration.

Mr. Peri stated that there have been no changes to membership or tasking. He stated that the summary of tasking was more onerous than originally expected. He described the group's work process including extracting information from historical policy documents. Mr. Peri reviewed the schedule of deliverables, including an interim final report and a final report. He noted that FAA and ARAC previously granted a 6-month extension for the working group to submit the final report.

Mr. Peri summarized the working group's findings by describing the process of their workflow, including how they attempted to gain clarity from existing ambiguous regulations. He included information on the incompatibility of existing regulations, partly because some are performance-based and others are prescriptive.

Mr. Peri explained how the history of transportation regulations has affected aviation. He described gaps in aviation rulemaking that have identified challenges for the working

group. Mr. Peri noted that the group is requesting another 6-month extension to provide the best possible recommendation to ARAC before it is submitted to the agency.

Mr. Paul Hudson stated that he understood Mr. Peri's preference for performance-based regulations, but he asked for clarification on how performance is evaluated and verified. Mr. Peri noted that the group's report will address these concerns and that, in their work, they have found gaps in the scoping of current regulations for this information. Mr. Hudson asked for a specific example, and Mr. Peri gave an example of a regulation in part 145 that is tied to part 143. Mr. Peri gave another example and asked, more specifically, who/what entity is determining if a repair station is supposed to meet and maintain certain performance standards. Mr. Peri described a quality assurance system (a performance-based requirement that requires adequate personnel), including reporting certain standard data to verify performance assurance. Mr. Hudson asked how a foreign entity would meet the criteria. Mr. Peri suggested that the industry develop the best quality assurance system, and foreign entities would be outside of FAA's scope.

Mr. Oord thanked Mr. Peri and asked if there was a motion to accept the group's request for a 6-month extension on their tasking. Mr. Roberts noted the FAA prefers the recommendations as soon as possible, but he defers to the working group to make the best decision for their report. Mr. Justin Madden motioned to accept the extension, and Mr. Larry Rooney seconded the motion. ARAC voted to grant the extension with no objections.

Training Standardization Working Group (TSWG)

Mr. Steve Hall noted that he was filling in for Mr. Brian Koester and provided the working group's status report. The update included an overview of membership, a

summary of tasking, a review of the schedule, the status of tasking, and areas for ARAC consideration.

Mr. Hall noted that the working group is tasked with providing recommendations on the most effective ways to standardize curricula provided by training centers. He reviewed the following five tasks, noting that the first two are complete:

- 1) Recommend a detailed master schedule for the development of part 135 standardized curricula for each aircraft or series of aircraft;
- 2) Develop and recommend a standardized curriculum to qualify training center instructors and evaluators (check pilots) to provide part 135 training, testing, and checking;
- 3) Develop and recommend part 135 standardized curricula for each aircraft or series of aircraft, including the maneuvers, procedures, and functions to be performed during training and checking;
- 4) Recommend continuous improvements to each part 135 standardized curriculum for a specific aircraft or series of aircraft; and
- 5) Develop reports containing recommendations for standardized curricula and results of the tasks listed here. The group should review any relevant materials to assist in achieving their objective, including FAA Advisory Circular 142.1. Standardized Curricula Delivered by Part 142 Training Centers.

Mr. Hall reviewed the working group's schedule and the progress to meeting each deadline. He said that the working group was excited to see the instructor and check pilot curriculum published. He noted that the G-V Action Team is the remaining active action team and they meet regularly. The working group has no areas for ARAC consideration at this time.

Mr. Oord thanked Mr. Hall, and there were no further questions for this working group.

Transport Airplane and Engine (TAE) Subcommittee

Mr. Keith Morgan, the TAE Subcommittee Chair, provided the TAE Subcommittee status report update.

Mr. Morgan stated that there are currently four active TAE Subcommittee working groups: Flight Test Harmonization (FTH), Transport Airplane Metallic and Composite Structure (TAMCS), Ice Crystal Icing (ICI), and Avionic Systems Harmonization (ASH).

Mr. Morgan reviewed the schedule of meetings and deliverables. He noted that meetings continue to be virtual and stated that the TAMCS report might be delayed and would

likely not get submitted to ARAC by the June 1, 2022, target date. He noted the group would make their best attempt to deliver the report on time.

Flight Test Harmonization Working Group (FTHWG)

Mr. Morgan stated that membership is stable. He described a breakdown of tasks and how the work is being delegated. He noted that the current focus is on phase 4, low energy alerting. He reviewed the schedule (highlighting some important milestones), stated that the working group's tasking is on track, and noted that they do not need anything from ARAC at this time.

Mr. Morgan mentioned some struggles due to COVID-19 and the virtual environment and described a look ahead at the remaining taskings.

Transport Aircraft Metallic and Composite Structures Working Group (TAMCSWG)

Mr. Morgan reviewed the TAMCSWG membership, tasking, and schedule. Mr. Morgan summarized the original tasking and described the extended topics added, noting that the topic of crack interaction has been particularly difficult to come to a consensus on. He stated that the group is working its way through these issues and is very close to finalizing a report that satisfies various perspectives. The report will likely be submitted to ARAC for the September 2022 meeting. The group does not currently need anything from ARAC.

Ice Crystals Icing Working Group (ICIWG)

Mr. Morgan stated that the ICIWG membership nor the status of tasking have changed. He reviewed the schedule and tasking. He described the deliverable plan of their report:

- July 2022: working group submits interim report to TAE,
- Summer 2022: FAA will conduct a flight test program and process data,
- December 2022: submit interim report to FAA,
- Summer 2023: the data from the flight test program will be assessed against the original data, and
- December 2024: submit final report to FAA after ARAC deliberation.

He noted that the working group has regular meetings and is making good progress. Mr. Morgan stated that there were no areas for ARAC consideration at this time.

Avionics System Harmonization Working Group (ASHWG)

Mr. Morgan summarized the ASHWG's work plan and the questions they hope to answer in their tasking. He noted that the group meets regularly, and they hope to have their work completed by the end of third quarter of 2022 to be ready for the December ARAC meeting. He stated that the ASHWG does not need anything from ARAC at this time.

Other Business and FAA Updates

Mr. Roberts announced the following FAA personnel changes.

- Associate Administrator for Aviation Safety - Captain Billy Nolen
- Chief Counsel - Mr. Marc Nichols
- Executive Director for Flight Standards - Mr. David Boulter.

Also, Mr. Roberts noted that Administrator Dickson will retire March 31, 2022.

Mr. Hudson asked if these changes, with accompanying qualifications and contact information, could be found on FAA's website. Mr. Roberts said he could not speak with certainty about website updates, but some executive biographies are readily available on the site. Mr. Hudson noted problems he has encountered with sending information via the United States Postal Service and FedEx to the FAA's listed contact address.

Regulatory Updates

Mr. Roberts noted the following regulatory updates -

- Flight Attendant Duty Period Limitations and Rest Requirements NPRM (2120-AL41) – the comment period closed on January 3, 2022, and the FAA is reviewing public comments.
- Secondary Flightdeck Barriers NPRM (2120-AL59) – the Office of Information and Regulatory Affairs (OIRA) accepted for review. Information went public on [reginfo.gov](https://www.reginfo.gov) on March 16, 2022.
- SMS for Parts 21, 91, 135, and 145 NPRM (2120-AL60) – the projected publication date is September 2022.
- Medical Certification Standards for Commercial Balloon Operations NPRM (2120-AL51) – the comment period closed on January 18, 2022.

Mr. Justin Madden stated that Mr. Roberts did not mention the Part 147, Aviation Maintenance Technician Schools Interim Final Rule. Mr. Roberts noted that the FAA submitted the interim final rule to the Federal Register and that the approval of the IBR process will affect the publication date. He stated a draft copy of the interim final rule is posted on the FAA website.

Mr. Peri asked for a timeline on the MOSAIC rulemaking. Mr. Roberts did not provide a timeframe outside of what was posted in the Unified Agenda. He noted that the agency is evaluating the UAS portion of the MOSAIC rulemaking in light of the recommendations from the UAS Beyond Visual Line-of-Sight (BVLOS) ARC recommendations. Mr. Peri asked the FAA to consider regulations for UAS that will not disenfranchise established crewed aircraft. Mr. Roberts confirmed the agency is trying to maintain its commitment to traditional aviation. Mr. Justin Barkowski asked for any insight on the Airport SMS Final Rule. Mr. Roberts recommended that he check OIRA's website for updates to the

Unified Agenda. Mr. Chris Martino echoed Mr. Peri's sentiment regarding the limitation of quick wins and the importance of balance between crewed and uncrewed operations.

Mr. Chris Cooper asked about the status of rulemaking involving the removal of the expiration of the certified flight instructor certificate. Mr. Roberts noted that he does not have an update beyond what it is the Unified Agenda. He noted that it might not be a priority in the 60+ active rulemakings the FAA is currently dealing with.

Mr. Hudson asked for feedback on the Emergency Evacuation Standards Aviation Rulemaking Committee and backlogged rulemakings affecting, and sometimes not in alignment with, current mandates. Mr. Roberts noted that the agency shares some frustration with the timeline of certain rulemaking; however, some current recommendations require more public feedback to move forward. Mr. Roberts noted that he appreciates and understands that concern and looks forward to progress. Mr. Hudson asked if the recently passed continuing resolution would provide more funding for FAA personnel. Mr. Roberts noted that, in general, continuing resolutions do not include a funding increase that provides for more personnel.

Mr. Ambrose Clay asked if the FAA is well-staffed, and Mr. Roberts confirmed that, within his organization of FAA, they are up to staff and that they hire when any vacancies become available. He confirmed that other organizations increase staff as needed, such as AVS, who may need to hire inspectors as the industry changes. Mr. Clay asked specifically about staff that is employed to get rulemaking published. Mr. Roberts noted that rulemaking often requires action from other organizations, and all critical positions are currently filled, but there is not one sole organization or person responsible. Mr. Roberts also mentioned struggles with hiring and keeping niche experts in the field.

ARAC Update

Mr. Roberts noted that the current ARAC charter expires in September 2022 and that the agency has initiated the process to renew the charter. He noted that membership for 21 ARAC members expired in October 2021, and the FAA plans to issue a notice to solicit members this spring. Mr. Roberts said that those whose memberships expired must respond to the solicitation notice if they are interested in continuing serving on ARAC.

Mr. Roberts noted that the June 2022 ARAC meeting conflicts with the FAA European Union Safety Aviation Agency (EASA) Safety Conference. He also noted that the FAA will allow in-person meetings after April 25, 2022. He gauged ARAC members on their interest to reschedule and meet in person.

Mr. Oord suggested waiting for the confirmed conference schedule before deciding about June 16. He confirmed he would be interested in an in-person meeting in the near future. Mr. Oord asked the FAA if they can confirm a decision after the agenda is released. Members noted that having an in-person meeting at the host hotel would be better than at FAA Headquarters.

Mr. Roberts provided the meetings dates for the remainder of FY 2022.

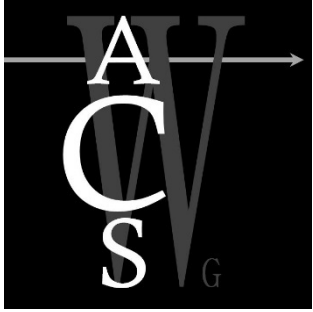
- Thursday, June 16, 2022
- Thursday, September 8, 2022

He stated that once the FAA-EASA conference agenda is confirmed, the FAA will check with ARAC for any rescheduling needs.

Mr. Oord thanked Mr. Roberts and stated that he is looking forward to seeing everyone in person in June.

Adjournment

Mr. Oord adjourned the meeting at 2:55 pm.



Airman Certification System Working Group Status Report to the Aviation Rulemaking Advisory Committee

David Oord
Working Group Chair

May 23, 2022

MEMBERS of ACSWG - INDUSTRY

- David Oord, Wisk
- Paul Alp, Jenner & Block
- Cindy Brickner, SSA
- Paul Cairns, ERAU
- Kevin Comstock, ALPA
- Chris Cooper, AOPA
- Mariellen Couppee, Independent
- Eric Crump, Polk State College
- David Dagenais, FSCJ
- Maryanne DeMarco, CAPA
- Anna Dietrich, CAMI
- Rick Durden, Independent
- Megan Eisenstein, NATA
- David Earl, Flight Safety
- Tom Gunnarson, Wisk
- John Hazlet Jr., RACCA
- Jens Hennig, GAMA
- Chuck Horning, ERAU
- David Jones, Avotek
- John King, King Schools
- Janeen Kochan, ARTS Inc.
- Kent Lovelace, UND
- Justin Madden, AMFA
- John McGraw, NATA
- John McWhinney, King Schools
- Crystal Maguire, ATEC
- Nick Mayhew, L3
- Jimmy Rollison, Independent
- Mary Schu, Mary Schu Aviation
- Roger Sharp, Independent
- Jackie Spanitz, ASA
- Burt Stevens, CFI Care
- Robert Stewart, Independent
- Tim Tucker, Robinson
- Robert Wright, NBAA
- Donna Wilt, SAFE
- Roger Woods, Leonardo
- Philipp Wynands, Metro Aviation



MEMBERS of ACSWG – FAA SMEs

- Susan Parson
- Barbara Adams
- Bill Anderson
- Dennis Byrne
- James Ciccone
- Bryan Davis
- Joel Dickinson
- Mike Duffy
- Troy Fields
- Ramona Fillmore
- Adam Giraldes
- Shawn Hayes
- Vanessa Jamison
- Laurin J. Kaasa
- Jeffrey Kerr
- Ricky Krietemeyer
- Mike Millard
- Anne Moore
- Kevin Morgan
- Margaret Morrison
- Kieran O'Farrell
- Richard Orentzel
- Katie Patrick
- Andrew Pierce
- Robert Reckert
- Jason Smith
- Shelly Waddell Smith
- Jeff Spangler
- Robert Terry
- Matt Waldrop
- Stephanie Williams
- Bill Witzig
- Jimmy Wynne
- Christopher Yanni



SUMMARY OF TASKING

- Provide recommendations regarding standards, training guidance, test management, and reference materials for airman certification purposes.
- Continuation of Pilot, Instructor, and Aircraft Mechanic certificates.
- Revisions for Private, Commercial, Remote Pilot certificates and the Instrument Rating.
- Added Sport and Recreational Pilot certificates – airplane.
- Added Private, Commercial, ATP, and Instructor certificates and Instrument Rating in additional aircraft categories–
 - Rotorcraft, powered lift, lighter-than-air, glider, etc.

SCHEDULE

- Interim reports
 - PVT, COM, ATP, Instructor, and AMT certificates and Instrument Rating – no later than June 2018 - complete
- Final recommendation reports no later than June 2022

SCHEDULE

- 2021 Meetings – all virtual one-day meetings
- 2022 Meetings –
 - February 17 (virtual meeting)
 - Summer check-in call (To Be Scheduled)
 - Autumn in-person (To Be Scheduled)

STATUS OF TASKING

- Progress on Standards, Guidance, and Test Management on hold
 - Publication of completed ACS documents waiting on Incorporation by Reference (IBR) rulemaking
- Call to Action (CtA) Subgroup – Task Complete
 - Final Recommendation Report

AREAS of ARAC CONSIDERATION

- **Call to Action (CtA) Subgroup –**
 - Final Recommendation Report
 - Response to Congressional requests made in H.R. 133-1160

<https://www.congress.gov/116/bills/hr133/BILLS-116hr133enr.pdf>

H.R. 133-1160: Page 1158, Sec. 119. Domestic and International Pilot Training. (c) (2) (D):

“a review of revisions made to the airman certification standards for certificates over the last 4 years, including any possible effects on pilot competency in basic manual flying skills”

H.R. 133-1160: Pages 1159-1160, Sec. 119. Domestic and International Pilot Training. (d) (1); (d) (2) (A), (B), and (C); and (d) (3):

“(d) CALL TO ACTION ON AIRMAN CERTIFICATION STANDARDS.—

(1) . . . Not later than 60 days after the date of enactment of this title . . . initiate a **call to action safety review of pilot certification standards** in order to bring stakeholders together to **share lessons learned, best practices, and implement actions to address any safety issues** identified.

(2) . . . shall include—

(A) a **review of . . . regulations, guidance, and directives related to the pilot certification standards**, including the oversight of those processes;

(B) a review of revisions made to the pilot certification standards for certificates over the last 5 years, including any possible **effects on pilot competency in manual flying skills and effectively managing automation** to improve safety; and

Airman Certification Standards Comparison Study

- **Purpose** – to investigate and identify differences in applicant performance on FAA Airman Practical Tests and knowledge tests from before the implementation of the ACS (pre-ACS) to after (post-ACS) with a focus on manual flying skills and automation management
- **Practical Test**
 - The data analyzed were from Private Pilot Airplane, Instrument Rating Airplane, Commercial Pilot Airplane, and Airline Transport Pilot and Type Rating Airplane practical test results
- **Findings**
 - Manual Flying Skills – decrease in ATP Airplane Stall Prevention Area of Operation
 - Automation Management – increase in ATP Instrument Procedures Area of Operation
- **Knowledge Test** – no significant differences pre- and post ACS

ACS Mapping and Gap Analysis Study

- **Purpose** – Considering the Private Pilot Airplane, Instrument Rating Airplane, Commercial Pilot Airplane, and Airline Transport Pilot and Type Rating Airplane ACSs:
 - Mapping – to identify the Tasks and Elements for manual flying skills and automation management in each of the ACS
 - Gap Analysis – to evaluate if there were Tasks and/or Elements missing from the ACSs from either the previous PTSs or in view of expert judgment
- **Method** –
 - To map the ACSs, each ACS Tasks and Elements for Knowledge, Risk Management, and Skill was recorded
 - Counted the number of Tasks and Elements and calculated percentages of total number of Tasks and Elements
 - Gap Analysis - Work group members evaluated the mappings for missing Tasks or Elements previously in the PTS or in their expert judgment are needed in the ACS
- **Results** –
 - The combined analyses from this study indicate that the ACSs evaluated capture the requirements for airman to know, consider, and do to effectively balance flying the plane, using combinations of automation and manual flying, to build and retain all skills necessary for flight path management.

CtA SG FRR Recommendations

- **Recommendation 1:** Congress immediately engage with the Department of Transportation (DOT) to eliminate the recent and unnecessarily restrictive interpretations of the Administrative Procedure Act, which are delaying publishing time-critical aviation safety information, and implement a transparent pathway for effectively and efficiently publishing and maintaining the ACS documents that accommodates safety needs (including NTSB, FAA, and stakeholder input), permits timely changes, provides for predictable revisions, permits for public consultation, promotes continued communication and interaction with community partners.
- **Recommendation 2**—Establish a semi-permanent industry/agency collaborative body within FAA to maintain and update the ACS to ensure that training and testing remains correlated and corresponds to current regulations, procedures, equipment, aviation infrastructure, and safety trends. This could be accomplished through the continuation of the ACS WG under the ARAC as a permanent industry/agency body, to see this large task, and other taskings within the ACS WG completed.

CtA SG FRR Recommendations

- **Recommendation 3**—Publish an ex parte policy that supports a more welcoming approach to public stakeholder feedback, clearly and broadly defines informal rulemaking and handling of non-governmental feedback, and incorporates into a process that supports ongoing development of the ACS, informational documents and FAA Knowledge Exams using the agency/industry collaboration that resulted in the successful pilot ACS already published. This will require creation and implementation of an ex parte training session to ensure all affected parties are educated on the policy, what constitutes informal rulemaking, when a communication is considered ex parte, and how to properly give and receive ex parte communications.
- **Recommendation 4**—Establish a means for ongoing data evaluation based on the ACS codes, airman knowledge test reports, and practical exam reports for the purpose of ongoing improvement and collaboration between training and testing and to support emerging technologies.
- **Recommendation 5**—Establish a process for continual improvement to the FAA standards, guidance, and testing with change management and communication maintained with the training community, including, but not limited to, methods to ensure a balanced test map and means to include new and/or change existing requirements for a sound airman certification process.

Part 145 Working Group Status Report to the Aviation Rulemaking Advisory Committee

Sarah MacLeod and Ric Peri

Working Group Chairs

June 2022 Meeting

Members of the Part 145 Working Group (Unchanged)

Paul Cloutier, Working Group Representative

Brent Hart, Analyst

Lakisha Pearson, Analyst

Justin Smith, Director of Operations

Craig Fabian, Regulatory Compliance Leader

Sarah MacLeod, Executive Director

Joe Sambiasse, Director Airworthiness &
Maintenance

Jeff Cornell, Senior Director/Quality

Justin Madden, Legislative Affairs Director

Jeremy Bryck, Senior Director 145
Maintenance

John Fox, Accountable Manager
Senior Manager, Quality Control

FAA—AFS, Repair Station Branch

FAA, ARM

FAA, ARM

Quality Aviation Instruments, Inc., D/B/A QAI

GE Engines

Aeronautical Repair Station Association

General Aviation Manufacturers Association

Aviation Technical Services

Aircraft Mechanics Fraternal Association (AFMA)

Air Methods Corporation

United Airlines, Inc.

Members of the Part 145 Working Group (Unchanged)

Richard Macklosky, Manager, Regulatory Management
Civil Aviation

Jeff Eagle, Senior Regulatory Compliance Specialist

Eric M. Monte., Principal Quality Assurance Engineer

David Stapes, Manager, Regulatory Compliance

Richard (Ric) Peri, Vice President Government & Industry
Affairs

Stephanie Branscomb, Director of Operations
Quality Manager

Stephen R. Wysong, President

Steven Brewer, Manager Structure Engineering

Bill Hanf, Owner

Samuel Edwards, Administrative Manager

Jeffrey Orth, Senior Regulatory & Compliance Specialist

United Technologies Corporation

United Technologies Corporation/Pratt &
Whitney

Rockwell Collins

Delta TechOps

Aircraft Electronics Association

Wysong Enterprise

Wysong Enterprise

Kalitta Air

Green Mountain Avionics

Boeing Commercial Airplanes

Boeing Global Services

Recognized Observers to the Part 145 Working Group (Unchanged)

Brian Koester, Manager, Flight
Operations & Regulation

Carol Giles, Advisor

Ken Thompson

Art Smith, Vice President-Chief Quality
Officer

Paul Hawthorne, Director Global
Support Quality

Gary Daniels, FAA DAR-T DMS
Designee

National Business Aircraft Association

Aeronautical Repair Station Association

National Air Transportation Association

AAR Corporation

Moog

Independent consultant



SUMMARY OF TASKING

- ~~Comprehensive review of internal and external guidance material — relate to laws and regulations~~
 - ~~— on certificating and overseeing all part 145 repair stations~~
 - ✓ ~~Orders, notices, advisory circulars, job aids and safety assurance system (SAS) Data Collection Tools (DCTs)~~
 - ✓ ~~Laws, executive orders~~
- The Final Report is in process. It will recommend improvements to guidance documents and will include an Acceptable Means of Compliance document which will—
 - ✓ Annotate the applicable regulations, laws or executive orders.
 - ✓ Be numbered to establish a relationship between the guidance and the underlying regulation.
 - ✓ Communicate agency expectation of compliance to the public and FAA workforce in a comprehensive and consistent manner, with tools to ensure application, evaluation, and oversight is performance-based
 - ✓ Account for oversight of repair stations vis-à-vis amount, type, scope and complexity of the certificate holders' work and its size.
 - ✓ Align with regulations, laws and executive orders.

SCHEDULE

- Preliminary report was submitted, approved by ARAC in December 2020, and forwarded to the agency.
- Special Report submitted to ARAC June 2022.
- Final report is to be submitted December 2022.
- Task group of FAA representative, Co-Chairs, and interested industry representatives have *daily* meetings to—
 - ✓ Draft final report with recommendations, and
 - ✓ Work on AMC
 - ✓ Created Special Report

STATUS OF TASKING

- ARAC Working Group is providing a Special Report for the ARAC to forward to the agency with the recommendation it be used to develop agency guidance on certification of repair stations with multiple locations. Part 145 provides the applicant the discretion to create—
 - A single certificate with managerial control of multiple locations.
 - A repair station certificate with managerial control over satellite locations.
- Excerpt from Acceptable Means of Compliance document on 14 CFR sections—
 - 145.51(a)
 - 145.5
- ARAC Working Group will begin weekly meetings starting Wednesday, July 6 through the first week in November.

AREAS for ARAC CONSIDERATION

- None.

Training Standardization Working Group Status Report to the Aviation Rulemaking Advisory Committee



June 16, 2022

MEMBERS of Training Standardization Working Group

Jon	Dodd	Coalition of Airline Pilots Associations
Steve	Hall	FlightSafety International
Aimee	Hein	CAE, Inc.
Jens	Hennig	General Aviation Manufacturers Association
Brian	Koester*	National Business Aviation Association
Doug	Carr	National Business Aviation Association
Todd	Lisak	Air Line Pilots Association
Steve	Maloney	Sun Air Jets
Allan	Mann	Wheels Up, LLC
John	McGraw	National Air Transportation Association
Brian	Neuhoff	Airbus Helicopters
Janine	Schwahn	Summit Aviation, Inc.
Annmarie	Stasi	Northwell
Daniel	Von Bargaen	Jet Aviation Flight Services, Inc.
Mike	Walton	Textron

FAA Partners

Josh Tarkington

Paul Preidecker

Kevin Hancock

* Training Standardization Working Group Chair

SUMMARY OF TASKING

The Training Standardization Working Group (TSWG) will provide advice and recommendations to the ARAC on the most effective ways to standardize curricula provided by training centers. The group is tasked with the following:

- ✓ Recommend a detailed master schedule for the development of part 135 standardized curricula for each aircraft or series of aircraft;
- ✓ Develop and recommend a standardized curriculum to qualify training center instructors and evaluators (check pilots) to provide part 135 training, testing, and checking;
- 3) Develop and recommend part 135 standardized curricula for each aircraft or series of aircraft, including the maneuvers, procedures, and functions to be performed during training and checking;
- 4) Recommend continuous improvements to each part 135 standardized curriculum for a specific aircraft or series of aircraft; and
- 5) Develop reports containing recommendations for standardized curricula and results of the tasks listed here. The group should review any relevant materials to assist in achieving their objective, including FAA Advisory Circular 142-1,2 Standardized Curricula Delivered by Part 142 Training Centers.

SCHEDULE

- ✓ June 2021 – Deadline for submitting initial recommendation report including the proposed master schedule for standardized curriculum development to ARAC. The deadline to submit the interim report to the FAA is June 30, 2021.
- ✓ December 2021 – Deadline for submitting the addendum recommendation report, including a standardized curriculum to qualify training center instructors and check pilots to provide part 135 training, testing, and checking to ARAC. The deadline to submit the interim report to the FAA is December 31, 2021.
- The Training Standardization Working Group may submit ad hoc recommendation reports, including continuous improvements, to standardized curricula, via ARAC to the FAA for review and consideration at any time.
- The voting members of the TSWG meet on the second Tuesday of the month. (Next meeting is April 12th)
- Action Teams meet every Thursday. (Next meeting is March 24th)

STATUS OF TASKING

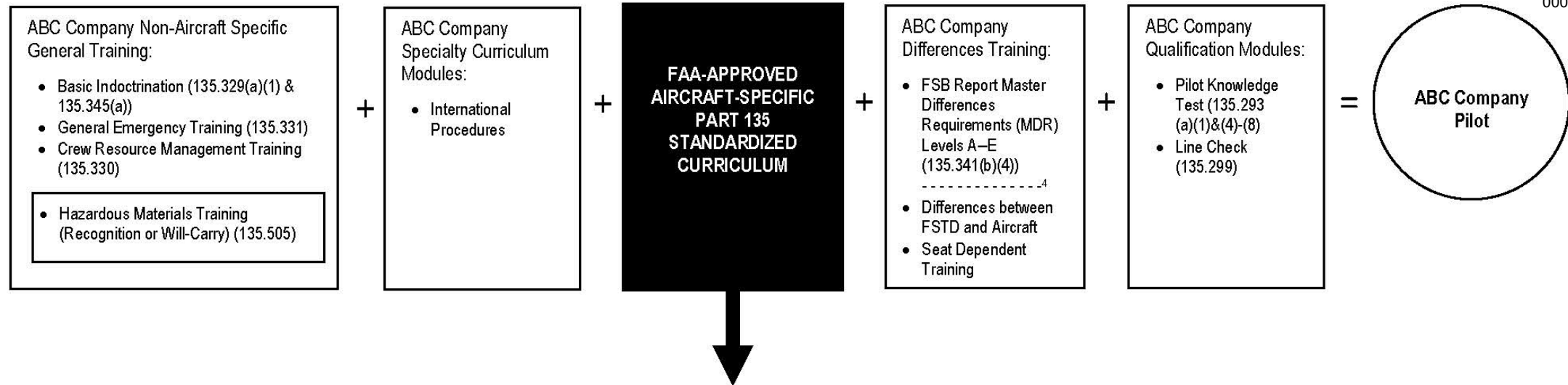
- Tasking 1 (schedule) and 2 (instructor curriculum) are complete.
 - The schedule and instructor curriculum were made available for public comment, with no substantive feedback
- Anticipate first curriculum recommendation September.
- G-V Curriculum Recommendation Package:
 - Initial
 - Recurrent
 - Requal
 - Upgrade
 - Enhanced Recurrent
 - SOPs
 - Grading Criteria

TSWG G-V Action Team Tasks:



Action Team:	Team Lead	Participants:
G-V	Preidecker	Ruthenbeck, Neubert, Djordjevic, Mika, Emmert, Goldman, Emig, Pangalangan, Hancock, Wolfe, Maas

1. Conduct a review and analysis of the assigned tasks and any other related materials or documents.
 - ✓ Review TNA
 - ✓ Review FSBR
 - ✓ Review relevant OpSpecs/MELs
 - Review existing 142 training programs
2. Based on the templates and best practices established by the TSWG Develop and recommend the following curricula, including planned hours, for each aircraft fleet:
 - ✓ Initial New Hire,
 - Standard Recurrent,
 - Requalification,
 - Upgrade Recurrent, and
 - Scenario Enhanced Recurrent Training.
3. Each Type Specific Action Team will develop the following based on the templates and best practices established by the TSWG, to be used throughout the standardized training program and during normal operations:
 - ✓ SOPs
 - ✓ Call outs
4. Draft and submit the recommendation report based on the assigned tasks.
5. Present the recommendation report at the TSWG meeting.
6. Provide continuous improvement for the standardized curriculum based on recommendations from the TSWG.



What does the Aircraft-Specific Part 135 Standardized Curriculum *portion* include (what's in the box—which curriculum segments are inside the box)?

Aircraft-Specific Part 135 Standardized Curriculum:

(Note: Aircraft Ground Training & Flight Training Segments under current Definitions.)¹

- Aircraft-Specific Ground Training/Aircraft Systems (135.345(b))
- Flight Training (135.347)²
- SOPs
- Profiles (Maneuvers) (135.327(b)(3))
- Checklists (OEM or developed by SMEs)
- Aircraft-Specific Qualification Modules (Testing/Checking)³
 - Pilot Testing: 135.293(a)(2)&(3)
 - Proficiency Check: 135.293(b)
 - Instrument Proficiency Check: 135.297

- Instructors/Check Airman (Evaluators) qualified by the 142 Training Center in accordance with 135.337 through 135.340 to deliver training, testing & checking under Aircraft-Specific Part 135 Standardized Curriculum.

AREAS of ARAC CONSIDERATION

- Reviewing OpSpecs requires creating standardized curriculum segments that will be optional for some carriers.
- Developed training plan with learning objectives for initial new hire curricula.
- Contains supporting guidance recommendations to make the standardized curriculum feasible.

§ 65.101 Repairman Certificate Portability Working Group Status Report to the Aviation Rulemaking Advisory Committee

Ric Peri

Working Group Chair

June 15, 2022

MEMBERS of Repairman Portability WG

- ARAC members:
 - Ric Peri – Aircraft Electronics Association (Chair)
 - Sarah MacLeod – Aeronautical Repair Station Association
 - Justin Madden -- AMFA
- SME members:
 - Jeff King – Duncan Aviation
 - Ben Wigton – Garmin International
 - Martin Segraves – Texas State Technical College
 - David Downen -- Aviation Technical Services
 - Fred Dyen – Blue Ridge Community College
- FAA participants:
 - Bryan Davis – AFS-350

The Task:

- The Repairman Certificate Portability Working Group will provide advice and recommendations to ARAC on the most effective ways to allow a repairman certificate issued under § 65.101 to be more portable from one employing certificate holder to another.
- The Working Group will review all relevant materials to assist in achieving their objective.

Task 1:

- To perform a comprehensive review of internal and external guidance material and regulations, that pertain to certificating a repairmen under § 65.101. This review will include reviewing –
 - (a) The pertinent sections of the part 65 preamble(s) to gain a thorough understanding of the intent of the limitation of a repairman working under an entity.
 - (b) FAA Guidance as necessary: i.e. FAA Orders, Notices, Advisory Circulars, Job Aids and Data Collection Tools.
 - (c) Processes and requirements by which the FAA process the application and issue the Repairmen Certificate.

Task 2:

- Develop recommendations:
 - (a) That could increase the portability of repairmen certification issued under § 65.101 across employing certificate holders.
 - (b) That maintain, or improve, the current level of safety with regard to repairmen training and certification under § 65.101.
 - (c) That will clearly identify the need and the benefits of a portable repairman certificate while taking into consideration the costs and ramifications if any.

Task 3:

- Provide qualitative and quantitative cost and benefits analysis and source documents for all recommendations that result in a change to either the CFR or FAA guidance.

Task 4:

- Develop a preliminary and final report containing recommendations based on the analysis and recommendations. The reports should document both majority and dissenting positions on the recommendations and the rationale for each position. Disagreements should be documented, including the reason and rationale for each position.

Task 5:

- The Working Group may be reinstated to assist the ARAC in responding to the FAA's questions or concerns after the recommendation report has been submitted.

Schedule:

- This tasking notice requires two reports.
 - The preliminary report is due to the FAA no later than 12 months after the first working group meeting (June 2023).
 - The final recommendation report is due to the FAA no later than 12 months after ARAC forwards the preliminary report to the FAA (June 2024).
- The preliminary and final recommendation reports must be submitted to ARAC for deliberation prior to submission to the FAA.

Schedule first meeting

- Proposed first meeting:
 - Week of June 20 (Thursday 6/23 – Friday 6/24)
 - AEA – HQ Lees Summit (Kansas City)
- Monthly - Virtual
- Quarterly – face to face.

SCHEDULE

- Introductory Meeting:
 - Friday May 6, 2022 (Virtual)
- Proposed first meeting:
 - Thursday 6/23 – Friday 6/24
 - AEA – HQ Lees Summit (Kansas City)
- Proposed Schedule (following first meeting):
 - Monthly - Virtual
 - Quarterly – face to face.

Questions?

Transport Aircraft and Engines Subcommittee Status Report to the Aviation Rulemaking Advisory Committee

Keith R. Morgan
Subcommittee Chair

16 June 2022

Members of the Transport Aircraft and Engines Subcommittee

Pratt & Whitney

ALPA

A4A

ASD

Airbus

Boeing

GAMA

AIA

Bombardier

NADA/F

Embraer

SRCA

TAE Meeting Schedule

- 2022 Meetings
 - January 25, 2022
 - April 26, 2022
 - July 26, 2022
 - Oct. 25, 2022

Active Working Groups

- Flight Test Harmonization
- Transport Aircraft Metallic and Composite Structures
- Engine Ice Crystal Icing
- Avionic Systems Harmonization

Look Ahead Report Submittal Schedule to ARAC

- September 2022
 - EICIWG Interim report
 - FTHWG TALPA
 - TAMCSWG Crack Interaction
- December 2022
 - ASHWG Ground Spoiler Alerting
 - FTHWG Dry Runway

Flight Test Harmonization Working Group Status Report to the Transport Aircraft and Engines Subcommittee of the Aviation Rulemaking Advisory Committee

Brian P. Lee, Boeing
Laurent Capra, Airbus
Working Group Co-Chairs

26 April 2022

MEMBERS of

Flight Test Harmonization Working Group Phase 4

Authorities	OEM's			Observers
FAA Bob Stoney Troy Brown (sponsor)	Airbus Philippe Genissel + SME's	Embraer Murilo Ribeiro + SME's	ATR Matthieu Ollivier Jean-Pierre Marre +SME's	JCAB (Japan) Shinsuke Yamauchi Teruke Koike
				CAAI (Israel) Yshmael Bettoun
EASA Matthias Schmidt	Boeing Matt Muehlhausen + SME's	Gulfstream Mike Watson +SME's	Airbus Canada Joel Boudreault +SME's	Norwegian Airlines John Lande
				Operations SME David Anvid
Transport Canada Lee Fasken	Bombardier Tony Spinelli +SME's	Textron Kurt Laurie +SME's	DeHavilland Canada Eric Herrmann +SME's	Centre d'Essais en Vol Francois MEIGNIEN
				Operators
ANAC (Brazil) Marcos Carvalho	Dassault Philippe Eichel +SME's			ALPA John Cinnamon Josh Larson

STATUS OF TASKING

- Tasking for Phase 4 Received in December, 2020
- Planning for the 6 tasks is complete
- Work is under way on 4 topics:
 - TALPA (getting close)
 - Narrow Runway Certification
 - Dry Runway Braking (getting close)
 - FAME (how to deal with failures affecting Handling Qualities)
- ASHWG:
 - Low Energy Alerting
 - There will be fall-out from the ASHWG Recommendation
 - FTHWG Phase 2 recommended
 - Low Energy Alerting for all phases of flight only for neutral-stability configurations
 - ASHWG recommends
 - Low Energy Alerting only for close-to-ground for all configurations
 - We have put this on our calendar to be worked in Phase 4
 - Spoiler Not Armed Alert
 - FTHWG reviewed ASHWG recommendation Report (small suggestions; favorable agreement)

Phase 4 FTHWG Topic Technical Status

- Topic #16 Failure Assessment Methodology & Evaluation (FAME)
 - Progress has been challenged by Covid
 - Detailed topic planning is complete and agreed
 - Topic leaders have executed ~~in-person~~ virtual kickoff in March 2022 with required specialists
 - Now planning (with some confidence) in-person session in June, 2022....progress is accelerating
- Topic # 21 Narrow runway operations
 - Team has converged on the definition a “baseline” runway, and the “regulatory hook” for declaration of runway width
 - Next moving on to what will be required for “narrower than baseline” (discussion on-going AS WE SPEAK)
- Topic # 32 TALPA (time of arrival performance)
 - Group is continuing progress on harmonized guidance for takeoff and landing information to be furnished in the AFM.
 - Proposing harmonized language on reverse thrust performance credit.
 - Draft report is in work and are not anticipating dissent resolving remaining issues.
 - Cautiously optimistic we will have the report to TAE in July, and ARAC in September (better than 50%)
- Topic # 33 Landing Distance on Dry Runway (dispatch)
 - Most technical issues to define AFM landing distance to be more consistent with typical operations addressed.
 - Close to consensus on final recommendations for Part 25 certification standards as well as operational factors
 - Cautiously optimistic we will have the report to TAE in July and ARAC in September, (but not as confident as TALPA)

Coronavirus Accommodation

- Quarterly (face-to-face) meetings
 - Evaluated with decision gate at ~T-6 weeks
 - Have gone virtual since June, 2020
 - Replace 5-days of 8-hour face-to-face with 5 days of 3 hour virtual meetings
 - Not nearly as efficient
 - Less time
 - Communication is not as good (no body language, etc.)
- March 2022 meeting was virtual (moved to 4 hours/day vs 3)
- Next face-to-face now planned for Seattle, June, 2022
 - (moving forward with some confidence)
- Implications:
 - Lost hours (vis-à-vis planning)
 - SME travel budget implications raise concerns as schedules shift
 - Participants have been resilient and flexible: THANK YOU!

FTHWG Phase 4 Meeting Plan

Delivery to TAE, Blue Stars

Delivery to ARAC in following quarter, Green Stars

	Dassault Bordeaux	Boeing Seattle Virtual	Easa Cologne Virtual	FAA Seattle Virtual	Airbus Toulouse Virtual	Boeing Seattle Virtual	EASA Cologne Virtual	Embraer Melbourne Virtual	EASA Cologne Virtual	Boeing Seattle Jrjawa (TDC)	Airbus Toulouse	Textron Wichita	Dassault Paris	Boeing Seattle / Everett	ATR (IBC)	FAA (Location TBD)	Easa Cologne (IBC)	Airbus Canada (IBC)
	March 2020 (2-6)	June 2020 (8-12)	Sept. 2020 (14-18)	Dec. 2020 (7-11)	March 2021 (1-5)	June 2021 (7-11)	Sept. 2021 (13-17)	Dec. 2021 (6-10)	March 2022 (7-11)	June 2022 (6-10)	Sept. 2022 (12-16)	Dec. 2022 (5-9)	March 2023 (6-10)	June 2023 (5-9)	Sept. 2023 (11-15)	Dec. 2023 (4-8)	March 2024 (4-8)	June 2024 (3-7)
Topic #16 HQRM FAME																		★
Topic #32 TALPA (time of arrival performance)											★	★						
Topic #33 Landing Distance on Dry Runway (dispatch)											★	★						
Topic #21 Narrow runway operations													★	★				
Topic #22 Derate thrust procedures																	★	★
Topic #26 Landing in abnormal configurations																	★	★
ASHWG Low Speed Alert															★	★		

Started work ahead of tasking

Formal Tasking Period

+ Single-topic telecom each week

- Mostly HQ Specialists
- Mostly Performance Specialists

AREAS for ARAC CONSIDERATION

- None at this time, except lingering COVID restrictions on face-to-face meetings

Transport Airplane Metallic and Composite Structures Working Group

*Recommendation Report, Extension Topics,
Briefing to the TAE – April 2022 meeting*

Doug Jury (Delta Air Lines)
Working Group Chair

April 26, 2022

Members of the Working Group

- Industry WG voting members:
 1. Kevin Davis (Boeing)
 2. Chantal Fualdes (Airbus)
 3. Pascal Lortie (Bombardier)
 4. Benoit Morlet (Dassault Aviation)
 5. Antonio Fernando Barbosa (Embraer)
 6. Kevin Jones (Gulfstream)
 7. Toshiyasu Fukuoka (Mitsubishi Aircraft)
 8. David Nelson (Textron Aviation)
 9. Ryan Higgins (British Airways)
 10. Doug Jury (Delta Air Lines) –Chairperson
 11. Mark Boudreau (FedEx)
 12. Eric Chesmar (United Airlines)
- NAAs: FAA (Walt Sippel, Larry Ilcewicz, Michael Gorelik, Patrick Safarian, Linda Jahner, Greg Schneider); EASA (Richard Minter, Simon Waite); ANAC (Pedro Caldeira, Marco Villaron, Fabiano Hernandez); TCCA (Jackie Yu, Natasa Mudrinic); JCAB (Hiroshi Komamura); Phil Ashwell (CAA)
- General public, non-voting participants: Allen Fawcett (retired, former SME participant), Mike Gruber (retired, former WG member & chair)

SUMMARY OF ORIGINAL TASKING

With the increased use of composite and hybrid structures recommendations regarding revision of the **fatigue and damage-tolerance requirements** & associated guidance material were previously provided in Final Report, dated 6/27/2018

Tasking was divided up into the following 12 focus areas:

1. Threat Assessment
2. Emerging material technology
3. Inspection Thresholds
4. Structural Damage Capability – Fail-safety
5. Aging, WFD & LOV (including ultimate strength & full-scale fatigue test evidence)
6. Testing (related to composite and hybrid materials including WFD test demonstration)
7. Repairs (bonding / bolting)
8. Modifications
9. EASA aging aircraft rulemaking and harmonization
10. Rotorburst
11. Disposition of cracking during full-scale fatigue testing
12. Accidental damage inspections included in the ALS conflicts w/ MSG-3 program

During final report submission and review by ARAC in September, 2018 three separate topics were raised as needing further evaluation and recommendation from this existing WG.

SUMMARY OF TASKING – extended topics

Three additional items for rule & guidance recommendation development

1. Structural Damage Capability (SDC) for Single Load Path (SLP) structure (completed):
 - Develop requirements and guidance material for single load path (SLP) structure, which by definition has no SDC
 - ARAC approved this report on 12/10/2020
 - Minor revision required due to final recommendations in Structural Bond report – expect to have to TAE week of 10/25. **Done. ARAC approved 12/11/2020 – completed and published, available to public.**
2. Structural Bonding and “Weak Bonds” (completed):
 - FAA requests further clarification from the working group on how to address disbonds and weak bonds as a manufacturing defect
 - ARAC approved this report on 6/17/2020
3. Repeat Inspections & Crack Interaction
 - Advisory Circular 91-82A provides evaluation considerations for establishing inspection thresholds and repeat intervals, including consideration of crack interaction with little guidance in AC. Based on this, the FAA is requesting information from the working group on how to address crack interaction when establishing inspection programs.

Item 3: Crack Interaction

000070

- ARAC granted 3 month extension for report submission (Sept, 2022).
- Most technical matters settled (closed) – WG team is largely focused on report authoring/reviewing/editing phase.
- Rule change:
 - No – general consensus position as of now
 - Currently two dissenting positions related to harmonization with EASA rule language
- Guidance changes:
 - WG agreement on need for some change, but no consensus on extent of clarification needed in guidance.
 - Since there is no clearly & widely accepted proposal considerable thought given to how to concisely and completely convey what the WG considered, and why various proposals were supported or opposed by WG members in recommendation report.

Item 3: Crack Interaction (continued)

000071

Guidance changes (continued): WG is revising the draft report to improve the description of the WG positions and address a few new items

- Some WG members believe the current recommendation does not adequately address certain gaps in guidance
 - Report will summarize existing guidance where gaps may occur related to crack interaction and establishing repeat inspection intervals.
 - Report will identify those gaps that appear to cause confusion when addressing the following questions:
 - What is crack interaction?
 - Why does crack interaction need to be considered as DTE?
 - When does crack interaction need to be considered in a DTE?
 - How may crack interaction be considered in a DTE?
 - Report will identify all actions (e.g., guidance changes) the WG considered to address the gaps.
 - Report will summarize the supporting and objecting arguments for each action when consensus is not reached.
 - The FAA can form a position based on the WG's input on each action.
 - This is a slight shift in our approach to identify a recommendation to the FAA.
 - Originally, the WG tried to combine actions together to form recommendations.
 - The WG could not agree on which actions to combine.
- Discussions revealed AC 25.571-1D may need a new section to explicitly address repeat inspection intervals.
(Input from full WG pending review of draft material)

SUMMARY OF TASKING – extended topics (continued)

000072

Item 3: Crack interaction guidance (continued)

High-level summary:

- What is crack interaction?
 - WG has consensus to add a new definition to AC 25.571-1D
 - Some members favor adding language to distinguish between crack interaction as part of “normal” DTE and WFD (which has some detailed guidance in AC 120-104).
 - Some members favor adding illustrative examples in guidance.
- Why does crack interaction need to be considered as DTE?
 - WG members generally all in favor of new content to highlight awareness of need to include crack interaction in a DTE “at some point” – using existing language from AC 91-82A
- When does crack interaction need to be considered in a DTE?
 - Some members favor elaboration of “at some point” with a new brief statement to link interaction effects to expected fatigue reliability (additional technical explanation provided in report) – vote tally on this recommendation is pending.
- How may crack interaction be considered in a DTE?
 - WG is evenly divided in how much detail to be provided in AC for an applicant to “include” crack interaction as part of DTE (divide is essentially between TCHs (7) and operators & one TCH (5), with NAA participants generally voicing preference of more detail being preferable)
 - Majority position: complexity of analysis is up to applicant where simplifying assumptions are explained and justified.
 - Minority position: optional analysis assumptions/conservatism/design/operating limits as means to account for interaction effects described in guidance would be valuable to applicants and regulators
 - Little support for a detailed analytical method described in AC.
- One additional considered proposal, though opposed by large majority of WG members is to propose further technical guidance (potential MoC) to be developed by an industry standards organization

Deliverable & Schedule

Deliverable: three reports containing:

- Recommendations on appropriate performance-based requirements
 - Recommendations on any new guidance or changes to existing guidance
 - Qualitative and quantitative costs and benefits of the recommendations
- ARAC agreeable to presenting this report at **Sept 2022** meeting.
 - Core team has prepared a target report drafting & review milestone schedule to meet the next TAE scheduled meeting.
 - Targeting **final week of June, 2022** to have draft ready for TAE review.

Milestones ^[1]:

•TAE Status 2	March 2019
•WG face to face meeting (San Francisco)	April 2019
•TAE Status 3	May 2019
•Second Face to Face, ATL	Oct 2019
•Three recommendation reports – submitted to TAE	
•1: Structural Damage Capability – Single Load Path	Oct/Nov 2020 DONE
•2: Structural Bonding	Mid 2021 SUBMITTED to TAE DONE
•3: Crack Interaction	Mid 2022

^[1] May find impact to WG member availability to participate due to COVID-19 related business decisions (furloughs, leave of absences, etc.)

Meeting cadence:

- Sub-teams (including NAA representatives) would meet more frequently
- Bi-weekly progress meetings (virtual) with FAA
- Full WG meetings (virtual) – monthly or as needed

Ice Crystal Icing Working Group Status Report Transport Aircraft and Engines Subcommittee

Melissa Bravin

Allan van de Wall

Working Group Co-Chairs

25 April 2022

MEMBERS of ICI WG

Member Name	Organization	Role
Alan Strom	(FAA-ANE Standards) <u>FAA Representative</u>	FAA Representative
Philip Habermen	(FAA-ANE Standards) <u>FAA Representative</u>	FAA Representative
Keith Morgan	Pratt & Whitney	ARAC Representative
Melissa Bravin	Boeing Commercial Airplanes	WG Co-Chair – Airplane – P
Allan van de Wall	GE Aviation	WG Co-Chair – Engine – P
Tom Dwier	Textron Aviation	Airplane – P
Pierre-Emmanuel Arnaud	Airbus	Airplane – P
Bryan Lesko	Air Line Pilots Association	Other – P
Josh Larson	Air Line Pilots Association	Other - P
Jon Saint-Jacques	A4A/Atlas Air	Other – P
David Dischinger	Honeywell	Engine – P
Keith Wegehaupt	Honeywell	Engine – P
Jim Loebig	Rolls-Royce	Engine – P
Roberto Marrano	Pratt & Whitney Canada	Engine – P
Shengfang Liao	Pratt & Whitney East Hartford	Engine – P
Roxanne Bochar	Pratt & Whitney	Engine – P
Aaron Cusher	Collins	Other - P

Member Name	Organization	Role
Philip Chow	FAA	Consultant
Jeanne Mason	FAA	Consultant
Walter Strapp	Met Analytics Inc.	Consultant
Dan Fuleki	National Research Council Canada	Consultant
Ashlie Flegel	NASA	Consultant
Tom Ratvasky	NASA	Consultant
Terry Tritz	Boeing	Consultant
Adam Malone	Boeing	Consultant
Bob Hettman	FAA	Non-voting role
Doug Bryant	FAA	Non-voting role
Eric Duvivier	EASA	Non-voting role
Julien Delanoy	EASA	Non-voting role
Fausto Enokibara	ANAC	Non-voting role
David Johns	TCCA-probes	Non-voting role
Eric Fleurent-Wilson	TCCA-engines	Non-voting role
Masato Fukushi	JCAB	Non-voting role
John Fisher	FAA	Non-voting role
Mauricio Caio Rosin	TCCA	Non-voting role

SUMMARY OF TASKING

- The ICIWG will provide advice and recommendations to the ARAC through the TAE Subcommittee on Appendix D to Part 33, and harmonization of §33.68 *Induction System Icing* requirements as follows:
 1. Evaluate recent ICI environment data obtained from both government and industry to determine whether flight testing data supports the existing Appendix D envelope.
 2. Evaluate the results carried out in Task 1 and recommend changes to the existing Appendix D envelope, as required. Examine how compliance with §33.68(e) and §25.1093(b)(1) can be shown to demonstrate that at the airplane level, engine effects that could prevent the continued safe flight and landing of the airplane during encounters in ice crystal icing conditions would be extremely improbable (10^{-9}). If that cannot be shown, recommend changes to the text of §33.68 or §25.1093 (or a combination of both) that would provide the level of safety described by §25.1309(b)(1).
 3. Compare available service data on air data probes from both government and industry probes on Appendix D, including any changes proposed in Task 2. Determine whether engine or aircraft data probe responses warrant the use of a different environmental envelope from those proposed in Task 2, or to the existing Appendix D envelope.
 4. Evaluate the results from Task 3 and recommend ICI boundaries relevant to aircraft and engine air data probes. If the working group proposes a different envelope for aircraft and engine air data probes, recommend if these should be included in the existing Appendix D, or create a new appendix to Part 33.
 5. Identify non-harmonized FAA or EASA ICI regulations or guidance. If the working group finds significant differences that impact safety, propose changes to increase harmonization that may also include icing environments other than Appendix D as a secondary objective.
 6. Recommend changes to the Advisory Circular AC20-147a, *Turbojet, Turboprop, Turboshift and Turbofan Engine Induction System Icing and Ice Ingestion*, based on Task 1 through 5 results.
 7. Assist the FAA in determining the initial qualitative and quantitative costs, and benefits that may result from the working group's recommendations.
 8. Develop a recommendations report containing the results of tasks 1 through 6. The report should document both majority and dissenting positions on the findings, the rationale for each position, and reasons for disagreement.

SCHEDULE

- Weekly teleconferences
 - Currently attempting to schedule F2F in June 2022
 - July 2022: WG submits an interim report to FAA
 - Summer 2022: FAA conducts flight campaign, processes data
 - Summer 2023: WG reconvenes to assess flight campaign data
 - December 2024 (?): WG submits a final report to FAA

STATUS OF TASKING

Task #	Description	Status
1	Evaluate recent ICI environment data obtained from both government and industry to determine whether flight testing data supports the existing Appendix D envelope.	Complete
2	Evaluate the results carried out in Task 1 and recommend changes to the existing Appendix D envelope, as required. Examine how compliance with §33.68(e) and §25.1093(b)(1) can be shown to demonstrate that at the airplane level, engine effects that could prevent the continued safe flight and landing of the airplane during encounters in ice crystal icing conditions would be extremely improbable (10^{-9}). If that cannot be shown, recommend changes to the text of §33.68 or §25.1093 (or a combination of both) that would provide the level of safety described by §25.1309(b)(1).	ALT-SAT Envelope Complete Joint Probability study in work
3	Compare available service data on air data probes from both government and industry probes on Appendix D, including any changes proposed in Task 2. Determine whether engine or aircraft data probe responses warrant the use of a different environmental envelope from those proposed in Task 2, or to the existing Appendix D envelope.	95% Complete (Boeing second review of probe events) – <u>not expected to change Task 4 status</u>
4	Evaluate the results from Task 3 and recommend ICI boundaries relevant to aircraft and engine air data probes. If the working group proposes a different envelope for aircraft and engine air data probes, recommend if these should be included in the existing Appendix D, or create a new appendix to Part 33.	Complete
5	Identify non-harmonized FAA or EASA ICI regulations or guidance. If the working group finds significant differences that impact safety, propose changes to increase harmonization that may also include icing environments other than Appendix D as a secondary objective.	In Work
6	Recommend changes to the Advisory Circular AC20-147a, Turbojet, Turboprop, Turboshift and Turbofan Engine Induction System Icing and Ice Ingestion, based on Task 1 through 5 results.	In work
7	Assist the FAA in determining the initial qualitative and quantitative costs, and benefits that may result from the working group's recommendations.	TBC
8	Develop a recommendations report containing the results of tasks 1 through 6. The report should document both majority and dissenting positions on the findings, the rationale for each position, and reasons for disagreement.	Interim report in work

AREAS of ARAC CONSIDERATION

- None

Avionics Systems Harmonization Working Group (ASHWG) Status Report to the Aviation Rulemaking Advisory Committee

Clark Badie
Working Group Chair

April 2022

CURRENT ASHWG MEMBERS

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SUMMARY OF TASKING

- Advise on the use of an alert when ground spoilers are not armed for landing in light of related incidents and accidents.
- Reference from the tasking statement:
 - There has been a history of landing incidents and accidents where the automatic ground spoilers were not armed, in addition to the subsequent reduction in wheel-braking effectiveness as well as drag reduction.
 - This has been a significant contribution to runway overruns. One example occurred on April 26, 2011, when a Southwest Airlines Boeing 737-700 went off the end of the runway at Chicago Midway International Airport. This task is also related to NTSB safety recommendations following the December 29, 2010, American Airlines Flight 2253 runway overrun accident at Jackson Hole Airport, Wyoming.

SPECIFIC TASKING QUESTIONS

1. Are the existing industry standards or guidance material sufficient, or do you recommend any new or revised industry standards or guidance material to provide acceptable automatic ground spoiler alerts for the flightcrew in cases where the airplane is prepared to land (for example, when the airplane drops below an appropriate height above the runway), but the automatic ground spoilers are not armed? The recommendations should ensure there is enough flexibility to cope with potentially different aircraft designs.
2. Are the existing alerting standards in 14 CFR part 25 sufficient, or do you recommend changes to the existing alerting requirements?
3. After reviewing airworthiness, safety, cost, and other relevant factors including recent certification and fleet experience, are there any additional considerations that the FAA should take into account regarding avoidance of landing without ground spoilers armed?
4. Is coordination necessary with other harmonization working groups? If yes, coordinate with that working group and report on that coordination.

STATUS OF TASKING

- The ASHWG has reviewed additional information to help understand the relationship between runway overruns and aircraft equipped with ground spoilers/speed brakes.
- Also evaluated other circumstances related to runway overrun contributions.
 - Ref: FAA AC 91-79A “Mitigating the Risks of a Runway Overrun Upon Landing”
- Recommended approach to develop a new proposed rule, 25.704 “Landing Alerting System” and new AC 25-704.

RECOMMENDED APPROACH

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Develop a 'Landing Alerting System' rule 25.704 and advisory material AC 25-704

- Include ground spoilers/speed brakes specifically, when required for landing
- Consistent with Ref: FTHWG Task 9 Wet Runway Stopping Performance Final Report, March 16, 2018. ASHWG to follow up with FTHWG in Q1.
- Allow for future considerations which may help reduce or eliminate the likelihood of runway overruns (e.g. unstable approaches, potential adverse runway conditions, potential long/late touchdowns, energy state issues).
- Document those other considerations in the report, and recommend a follow up task to improve in the future (addresses tasking question #3).

Recommend EASA CS 25.705 - Runway Overrun Awareness and Avoidance System (ROAAS) - for harmonization (**as-is**).

- Ref: FTHWG Task 9 Wet Runway Stopping Performance Final Report, March 16, 2018

SCHEDULE/ACTIVITIES

- Initial meeting held February, 2021
- Monthly (virtual only) meetings have been conducted to work this task. Ad-hoc telecons and electronic correspondence will be used to the maximum extent possible.
- Current
 - Team review/refinement of the report. Specifically, the team is still working on the rule wording and whether clarifications vs. 25.1322 should be provided (e.g. alert required to be continuous; alert timeliness description)
 - Provided draft to FTHWG for awareness, awaiting feedback.
- Planned completion: Q3 2022

AREAS of ARAC CONSIDERATION

None at the moment