AVIATION RULEMAKING ADVISORY COMMITTEE (ARAC) MEETING

December 8, 2022***9:00 AM – 12:00 PM

- Welcome and Introductions
- Federal Advisory Committee Act (FACA) Statement
- Ratification of Minutes
- Status Reports/Recommendation 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: TBD)
    - Part 145 Working Group – Ms. Sarah Macleod
      - ❖ Final Recommendation Report
    - Training Standardization Working Group – Mr. Brian Koester
      - ❖ Standardized Curriculum Concept Recommendation Report
    - Section 65.101 Repairman Certificate Portability Working Group – Mr. Ric Peri (Present Recommendation Report to ARAC: 09/2023)
  - 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: 06/2023)
      - ❖ Phase 4/Topic 16 – Failure Assessment Methodology & Evaluation (FAME) (HQRM) (Present Recommendation Report to ARAC:06/2023)
      - ❖ Phase 4/Topic 33 – Landing Distance on Dry Runway (Present Recommendation Report to ARAC: 03/2023)

- Transport Airplane Metallic and Composite Structures Working Group – Mr. Doug Jury
  - ❖ Repeat Inspections and Crack Interaction (Present Recommendation Report to ARAC: 03/2023)

- Ice Crystals Icing Working Group (Present Recommendation Report to ARAC: 12/2024) – Ms. Melissa Bravin and Mr. Allan van de Wall

- Avionics System Harmonization Working Group – Mr. Clark Badie
  - ❖ Ground Spoiler Alerting Final Recommendation Report

- Any Other Business

- FAA update on regulatory activities

- Fiscal Year 2023 Meeting Dates
  - Thursday, March 16, 2023
  - Thursday, June 15, 2023
  - Thursday, September 21, 2023

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

- Transport Airplane Metallic and Composite Structures Working Group – Mr. Doug Jury
  - ❖ Repeat Inspections and Crack Interaction (Present Recommendation Report to ARAC: 3/2023)

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- Ice Crystals Icing Working Group (Present Recommendation Report to ARAC: 12/2022 – 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

- Part 145 Working Group – Ms. Sarah Macleod
  - ❖ Final Recommendation Report

- Training Standardization Working Group – Mr. Brian Koester
  - ❖ Standardized Curriculum Concept Recommendation Report

- Avionics Systems Harmonization Working Group – Mr. Clark Badie
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AVIATION RULEMAKING ADVISORY COMMITTEE

DRAFT RECORD OF MEETING

MEETING DATE: September 8, 2022

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

LOCATION: The Aviation Rulemaking Advisory Committee (ARAC) held a hybrid meeting in person at the FAA Headquarters in Washington, DC, and online virtually using Zoom.

PUBLIC ANNOUNCEMENT: The Federal Aviation Administration (FAA) provided notice to the public of this ARAC meeting in a *Federal Register* notice published on August 25, 2022 (87 FR 52425).

ATTENDEES: **Committee Members**

David Oord (In-person)	Wisk *ARAC Chair*
Michelle Betcher	Airline Dispatchers Federation (ADF)
Doug Carr	National Business Aviation Association (NBAA)
Ambrose Clay	National Organization to Insure a Sound Controlled Environment (N.O.I.S.E.)
Chris Cooper (In-person)	Aircraft Owners and Pilots Association (AOPA)
Walter Desrosier (In-person)	General Aviation Manufacturers Association (GAMA)
Gail Dunham (In-person)	National Air Disaster Alliance Foundation (NADAF)
Stéphane Flori	Aerospace & Defense Industries Association of Europe (ASD)
Daniel Friedenzohn	Embry-Riddle Aeronautical University
Paul Hudson	FlyersRights
Randy Kenagy	Air Line Pilots Association (ALPA)
Sarah MacLeod	Aeronautical Repair Station Association (ARSA)
Chris Martino	Helicopter Association International (HAI)
Keith Morgan (In-person)	Pratt & Whitney *Chair, Transport Aircraft and Engine (TAE) Subcommittee*

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)
Attendees	
Ludovic Aron (In-person)	European Union Aviation Safety Agency
Ellen Birmingham	United Airlines
Tanya Boisseranc	Boeing
Antonio Chiesa	Transport Canada Civil Aviation
Maryann DeMarco (In-person)	Coalition of Airline Pilots Association
Jennifer Iversen	Regional Airline Association
Lily Johnson	Experimental Aircraft Association
Doug Jury	Delta Airlines *Chair, Transport Aircraft Metallic and Composite Structures Working Group*
Brian Koester (In-person)	NBAA
Brian Lee	Boeing
Justin Madden	Airlines for America
Matt Muehlhausen	Boeing
Dinkar Mokadam	Association of Flight Attendants
Craig Updkye	ASTM International
Edgar Valdez	Deloitte
FAA	
Lee Abbott	Flight Standards Service (AFS)
Angela Anderson	Office of Rulemaking (ARM)
Chris Bailey	ARM
Paul Cloutier	AFS
Thuy Cooper	ARM
Martin Crane	Aircraft Certification Services (AIR)

Jim Crotty (In-person)	ARM
Thomas Cuddy	Office of Aviation Policy and Plans (APO)
Bryan Davis	AFS
Colleen Donovan	AIR
Carlos Fernandes	AIR
Johann Hadian (In-person)	ARM
Megan Harding	ARM
Dan Kelman	AFS
Sarah Leavitt	Office of the Chief Counsel (AGC)
Nellie Lew	APO
Daron Malmborg	AFS
Suzanne Masterson	AIR
Lakisha Pearson (In-person)	ARM
Paul Preidecker	FAA Contractor
Alberto Ramon	APO
Robert Reckert	AFS
Brandon Roberts	ARM, *Designated Federal Officer*
Brenda Robeson	Commercial Space Transportation (AST)
Monico Robles	AFS
Salli Rowe	AFS
Puja Sardana (In-person)	FAA Contractor
Lynsey Scott	AGC
Todd Steiner	APO
Kristin Tullius	FAA Contractor
Phan Tran	APO
Alana Zautner	AIR
Martin Zhu	APO

Welcome and Introduction

Mr. David Oord, ARAC Chair, called the meeting to order at 1:04 pm. He introduced the Designated Federal Officer (DFO), Mr. Brandon Roberts, who reminded everyone that the meeting was being recorded. Mr. Roberts reviewed logistics for the hybrid meeting, offering information to those attending in person and virtually.

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 ARAC with permission of the Chair, Mr. Oord.

Mr. Oord asked ARAC members, observers, and support staff, attending in person, to introduce themselves, and stated that virtual attendance would be recorded using Zoom. He announced a couple of changes to ARAC membership – with Mr. Justin Madden no longer with the Aircraft Mechanics Fraternal Association (AMFA) and that Mr. Bill Whyte retired from the Regional Airline Association (RAA). Mr. Oord thanked them for their work and contributions to ARAC.

Ratification of Minutes

Mr. Oord asked for a motion to accept the minutes from the June 16, 2022[1], ARAC meeting. Mr. Keith Morgan motioned to accept the minutes, and Mr. Walter Desrosier seconded the motion. ARAC voted to ratify the minutes. No members objected or abstained from voting.

Status Reports

A copy of the September 8, 2022, meeting packet, which includes working group presentations, can be found at: https://www.faa.gov/regulations_policies/rulemaking/committees/documents/index.cfm/document/information/documentID/5643

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.

Mr. Oord described the summary of tasking, noting that the Call-to-Action report was approved by ARAC at the June 2022 meeting. He stated the group is in a holding pattern due to limitations and hurdles from the agency relating to incorporation by reference (IBR) and ex parté restrictions.

[1] The June 16, 2022, meeting minutes can be found at: https://www.faa.gov/regulations_policies/rulemaking/committees/documents/index.cfm/document/information/documentID/5643.

Mr. Oord reviewed the meeting schedule and noted that he hopes for in-person meetings to resume by December 2022. He confirmed that the status of tasking is on hold. Mr. Oord said that the group is awaiting feedback on previously submitted recommendations from FAA before they can continue any work.

Mr. Desrosier asked about the status of powered-lift standards, and Mr. Oord noted ARAC submitted the powered-lift standards to the FAA but emphasized that they were developed around tilt-rotor aircraft like the Leonardo AW609 but not for new electric vertical takeoff and landing (eVTOL) aircraft which the FAA will certificate as powered-lift. Mr. Oord noted that that the agency is reviewing the draft powered-lift ACS and stated that the working group would welcome an opportunity to revise and apply the standards to new eVTOL aircraft. Mr. Christopher Cooper emphasized the need for timely updates, and asked Mr. Roberts for a timeline related to these standards. Mr. Roberts noted that two test standards were included in the Spring Unified Agenda and that the powered-lift standards may need to be revised before going to rulemaking.

Mr. Larry Rooney thanked the group for their hard work.

Part 145 Working Group

Ms. MacLeod provided the Part 145 Working Group update. She confirmed that ARAC accepted the group's special report at the last ARAC meeting and that there were no other updates at this time.

Ms. Gail Dunham asked if the group would be submitting a follow up report, and Ms. MacLeod confirmed they would submit the final report to ARAC by November 1, 2022, at least 30 days in advance of the December meeting.

Training Standardization Working Group (TSWG)

Mr. Brian Koester provided the Training Standardization Working Group's (TSWG) 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. He noted that the group submitted a report to ARAC for discussion and vote at the meeting.

Mr. Koester began by asking for clarification on the process of getting working group members approved. Ms. Thuy Cooper noted that the FAA program office recommends a candidate for appointment, then the Office of the Chief Counsel vets the candidate to determine whether they are qualified to serve as a working group member, and the FAA Administrator approves the candidate. Mr. Oord asked if subject matter experts (SMEs) can be appointed by the FAA, and Ms. Cooper stated SMEs can attend meetings (with the approval of the working group chair) but SMEs cannot vote at meetings. She also confirmed that, if a member changes organizations but still works within the same stakeholder group that they were appointed to represent, that member can stay on the

working group. Mr. Koester noted that there has been significant turnover in the FAA membership within their group.

Mr. Koester summarized the group's tasking, which is to provide recommendations on the most effective ways to standardize curricula provided by training centers. He noted that he expects aircraft at parts 135 and 142 centers to change over the years. Mr. Koester mentioned that the group's work on instructor and check pilot curriculum, which received little feedback from public comment, should be published soon.

Mr. Koester provided the status of tasking, noting that taskings 1 and 2 are complete. He said that he anticipates additional recommendations on specialty curricula in December 2022 and adaptive recurrent in March 2023.

Mr. Koester described the G-V Curriculum Recommendation package and timelines for policy changes. He stated that the G-V action team is now on standby and future action teams are tentatively scheduled as:

- Specialty curriculum (expected in December 2022)
- Remedial training policies (expected in December 2022)
- Adaptive recurrent (expected in March 2023)
- HS-125 Hawker Series Action Team
- CE-560 Citation Excel Series Action Team

ARAC members discussed the process and potential timeline from submission of these taskings to the FAA to their implementation. Mr. Koester hopes the full process takes approximately one year.

Mr. Koester noted that the group has a detailed spreadsheet to describe the process behind their recommendations. He described the following six recommendations included in the report:

- 6.1 Recommendation on Training Curricula
- 6.2 Recommendation on Performance Planning
- 6.3 Recommendation on Expanding Company Check Pilot Authority
- 6.4 Recommendation on Training Under Parts Other Than 135
- 6.5 Recommendation on Grading Criteria
- 6.6 Recommendation on Data Collection

Mr. Koester summarized dissenting opinions in the working group.

Mr. Oord asked if there was a motion to accept the report and forward it to the FAA. Mr. Randy Kenagy motioned to accept the report, and Mr. Keith Morgan seconded the motion.

Ms. MacLeod asked questions about the methodology used for the performance-based recommendations. She suggested that orders referenced for aviation safety inspectors are

supposed to provide parameters for using good reasoning to approve or accept a particular operator's program for ensuring competent pilots and that the orders in the report seem to be more of a prescriptive checklist (and not performance-based). Ms. MacLeod asked if the checklist should be standardized by the agency for applicants and certificate holders and not have to go through the rulemaking process. She suggested the agency be more considerate of what should or should not have to go through rulemaking.

Ms. Dunham asked for a timeline of the work, and Mr. Koester stated that the working group had its first meeting in December 2020, and the G-V specific work has been going on for approximately one year.

All ARAC members voted in favor of accepting the report.

Part 65.101 Repairman Certificate Portability Working Group

Mr. Peri provided the § 65.101 Repairman Certificate Portability Working Group status report update. He stated that the group would work towards solving their problem statement after they finish establishing what the problem statement is. He said that the group is currently in an identification phase. Mr. Peri noted that nothing else has changed and the group does not need anything from ARAC at this time.

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, including:

- virtual meetings and an upcoming face-to-face meeting in October 2022;
- FTHWG TALPA report submitted to ARAC for discussion and vote at the ARAC meeting;
- three reports delivered by the December 2022 ARAC meeting (ASHWG Ground Spoiler Alerting, FTHWG Dry Runway, and TAMCSWG Crack Interaction); and
- the EICIWG Interim report to be submitted ahead of the March 2023 ARAC meeting.

Mr. Morgan provided the following status update for each subcommittee.

Flight Test Harmonization Working Group (FTHWG)

Mr. Morgan stated that the group has been working on phase 4 of the tasking. He described a breakdown of the tasks and how the work is being delegated. Mr. Morgan

reviewed the schedule (including a face-to-face meeting), stated that the status of tasking is on track.

Mr. Brian Lee, FTHWG co-chair, emphasized that the FAA members of the team were not approved to travel to the group's in-person meeting, and he noted that progress lacked because they were not able to attend. He and Mr. Morgan hope that approvals would be done in a timely manner in the future.

Mr. Matt Muehlhausen described the FTHWG's recommendation report, beginning with some history of the Takeoff and Landing Performance Assessment (TALPA) Aviation Rulemaking Committee (ARC). He noted that the report recommends updates to the performance aspects of the airworthiness standards, which would require information to be provided in the Airplane Flight Manual (AFM) for contaminated runway takeoff data and time-of-arrival landing data. He stated codifying the standards would promote harmonization in this area of aircraft operation.

Mr. Muehlhausen detailed the working group's task: to recommend rules and guidance to codify the part 25 aspects recommended by the TALPA ARC for computing landing distances for use at the time-of-arrival and computing takeoff distances on contaminated (non-dry, non-wet runways).

Mr. Muehlhausen detailed the method and deliberations for the following summary of recommendations:

- New Recommended 14 CFR part 25 Regulations
    - § 25.1591 Takeoff Performance Information for Operations with Slippery Wet and Contaminated Runway Surface Conditions
    - § 25.1592 Performance Information for Landing Distance Assessment at Time of Arrival
- Recommended Updates to 14 CFR part 121 Operating Standards
    - § 121.195 Airplanes: Turbine engine powered: Landing limitations: Destination airports.
    - § 121.197 Airplanes: Turbine engine powered: Landing limitations: Alternate airports.
    - § 121.647 Factors for Computing Fuel Required
- Recommended Updates to Advisory Material for Existing Type Designs
    - AC 25-31X Takeoff Performance Information for Operations with Slippery Wet and Contaminated Runway Surface Conditions
    - AC 25-32X Performance Information for Landing Distance Assessment at Time of Arrival (and subsequent cancellation of AC 25-31 and AC 25-32)
- New Recommended Advisory Material for New Type Designs
    - AC 25.1591 Takeoff Performance Information for Operations with Slippery Wet and Contaminated Runway Surface Conditions
    - AC 25.1592 Performance Information for Landing Distance Assessment at Time of Arrival

- AC 25-7X Section 42.4 Criteria for Approval of Steep Approach to Landing

Mr. Muehlhausen described the consensus summary, and he noted that there were no dissenting opinions in the working group.

Mr. Oord thanked Mr. Muehlhausen and asked if there was a motion to accept the report for forwarding to the FAA. Ms. Dunham motioned to accept the report, and Mr. Cooper seconded the motion.

Mr. Doug Carr thanked the working group for a great report and asked for clarity of a 5% consideration mentioned in the report. Mr. Muehlhausen clarified what the 5% meant.

All ARAC members voted to accept the report.

Transport Aircraft Metallic and Composite Structures Working Group (TAMCSWG)

Mr. Morgan provided an overview of the TAMCSWG status report. He reviewed membership (noting that Mr. Jury is the Chair of the working group), tasking, and schedule. Mr. Morgan summarized the original tasking and described the extended topics that were added. He noted that the only remaining task is crack interaction, which TAE hopes to present to ARAC by December. He stated that consensus has been difficult to achieve on this topic, and he summarized some areas of contention that did not meet the objective. Mr. Morgan noted that the group does not need anything from ARAC at this time.

Ice Crystals Icing Working Group (ICIWG)

Mr. Morgan stated that nothing has changed with the ICIWG membership nor with the summary of tasking. Mr. Morgan reviewed the schedule, which shows a final report tentatively being submitted by December 2024.

Mr. Morgan mentioned that upcoming flight campaigns would provide valuable data on air pollution for the working group. He noted that the group has regular meetings and is making good progress. Mr. Morgan estimated that the interim report would tentatively be completed by March 2023. He stated that there are no areas for ARAC consideration at this time.

Ms. Dunham asked if any of the group's work addressed sand dust, and Mr. Morgan confirmed yes, it does, only as sand dust relates to ice crystal icing. She commended the evolving work that has been researched under this topic.

Avionics System Harmonization Working Group (ASHWG)

Mr. Morgan provided a status update.. Mr. Morgan summarized the ASHWG's work approach and noted that the group is finishing up their tasking. He stated that the group does not need anything from ARAC at this time.

Other Business and FAA Updates

Freedom of Information Act (FOIA)

FAA received a request for a briefing on the Freedom of Information Act (FOIA). Mr. Roberts introduced Ms. Sarah Leavitt, FAA/AGC, to give the briefing. Ms. Leavitt stated she would explain to what extent FOIA applies to working group content. She noted that working group information is not stored on FAA's database, so it is not subject to FOIA unless later incorporated into the agency's files or systems. She explained that FOIA applies to documents within the custody and control of the government agency, in this case, within the control of FAA. Ms. Leavitt noted that working groups should not provide documents by email to the agency. She encouraged everyone to mark their documents proprietary when applicable.

Mr. Paul Hudson mentioned that the Attorney General recently sent a memorandum to agencies regarding FOIA, and he suggested the memo leaned in favor of release of information. He asked if that memo caused any present or future change, and Ms. Leavitt stated that current processes already require release of otherwise-exempt records when no foreseeable harm would result from release, and she is not aware of policy changes in that respect.

Ms. MacLeod stated that she believed anything in FAA's possession is subject to FOIA. She suggested that emails are often exchanged between (and sometimes outside of) working group members, including FAA staff. She emphasized that this applies to all agencies, not just FAA, and if information should be protected, the agency should be very clear about it.

Ms. Leavitt explained that if the agency determines that information responsive to a FOIA request may contain proprietary information, the FAA is required to consult with the entity that submitted the information and provide an opportunity for objection.

Ms. Leavitt stated that the agency has final say on what it ultimately withholds pursuant to a FOIA exemption. However, even if the FAA determines to release information over a submitter's objection, the submitter will receive notice and an explanation at least ten days before the disclosure, which provides time to take whatever action the submitter deems appropriate.

Regulatory Updates

Mr. Roberts reported that the FAA published the following regulatory documents since the June meeting:

- Extension of the Requirement for Helicopters To Use the New York North Shore Helicopter Route Interim Final Rule; Published- July 29, 2022; Effective Date – July 29, 2022

- Manual Requirements to Accommodate Technology (NPRM) Published – July 14, 2022; Comment Period Closes – September 12, 2022

- Installation and Operation of Flightdeck Installed Physical Secondary Barriers on Transport Category Airplanes in Part 121 Service (NPRM); Published – August 1, 2022; Comment Period Closes – September 30, 2022

- Request for Comments in Minimum Seat Dimensions Necessary for Safety of Air Passengers (Emergency Evacuation) - Notice; Published – August 3, 2022; Comment Period Closes – November 1, 2022

Ms. Dunham asked FAA to email the link out for the request for comment on Minimum Seat Dimensions, and Mr. Roberts confirmed they would. Mr. George Paul asked for clarification on what a request for comments was, and Mr. Roberts confirmed that the request for comments is to receive public comments on the topic because FAA's emergency testing could not include higher risk persons including minors, elderly, or the disabled. Mr. Roberts further noted that the public's feedback would help FAA's decision-making in response to the legislation. Mr. Roberts stated that limiting the risk of injury while testing was required. Mr. Hudson added that anyone over 250 pounds was also excluded from testing, and he encouraged others to research the two reports attached to the request for comment. Mr. Hudson stated that small seats and confined spaces lead to health risks, and this topic needs to be explored further.

ARAC Update

Mr. Roberts provided the following updates:

- The notice soliciting ARAC members closed on May 20, 2022. The FAA is currently reviewing the nominations.

- The Secretary approved the ARAC charter for a 2-year renewal on August 12, 2022. The charter will be filed with Congress on September 14, 2022, and FAA will send it to members and post it on the FAA's Committee website.

- The first meeting in FY 2023 is December 8, 2022. FAA staff will send members the calendar invites.

Mr. Roberts noted that a new DOT committee order may allow ARAC to meet outside of the Washington, DC, area, and the agency will keep members informed on the location of a future in-person meeting. A member asked if the meeting had to occur at a Federal facility, and Mr. Roberts suggested that would be the preference.

Mr. Oord thanked Mr. Roberts and stated that the next meeting will also be hybrid.

Adjournment

Mr. Oord adjourned the meeting at 3:32 pm.

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

David Oord
Working Group Chair

December 8, 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 December 2022
  - Unable to complete due to incomplete taskings and restrictions

SCHEDULE

- 2021 Meetings – all virtual one-day meetings
- 2022 Meetings –
  - February 17 (virtual meeting)
  - September 6, industry check-in call
  - December 13 (virtual meeting)

STATUS OF TASKING

- Progress on Standards, Guidance, and Test Management on hold
  - Publication of completed ACS documents waiting on Incorporation by Reference (IBR) rulemaking

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

Sarah MacLeod and Ric Peri

Working Group Chairs

December 2022 Meeting

Members of the Part 145 Working Group

- The membership of the Working Group remained steady throughout the process.
- Representation was associated with the amount, type, scope, and complexity of work being performed, and the certificate holders' size.
- Parties directly and indirectly impacted by the assignment were consulted and provided input to the reports and recommendations.

SUMMARY OF COMPLETED TASK

- Perform a comprehensive review of internal and external guidance material, in relation to the current laws and regulations, that pertain to certificating and overseeing all part 145 repair stations. This review will include pertinent—
  - FAA Orders, Notices, Advisory Circulars, Job Aids and Safety Assurance System (SAS) Data Collection Tools.
  - Laws and executive orders, particularly those associated with inclusion of small business and paperwork reduction act requirements in agency policy and guidance.

Preliminary report with analysis of internal and external guidance in relation to the current laws and regulations was approved by ARAC in December 2020 and forwarded to the agency.

SUMMARY OF COMPLETED TASK

- Develop recommendations on improvements to internal and external guidance material to ensure it is:
  - Aligned and compliant with the aviation safety regulations, other laws and executive orders reviewed in (1)(b).
  - Annotated to the applicable rule, other law or executive order; and,
  - Consistently numbered to ensure a comprehensive relationship between the guidance document and the annotated rule, law or executive order.
  - Developed to communicate the agency's expectations for compliance to the public and the FAA workforce in a comprehensive and consistent manner, including the tools necessary to ensure the application and evaluation of compliance includes performance-based oversight.
- Oversight by the FAA's domestic and foreign workforce vis-a`-vis the amount, type, scope, and complexity of work being performed and the certificate holders' size.

SUMMARY OF COMPLETED TASK

- Special report with an example of the Acceptable Means of Compliance (AMC) that ensures compliance with the task by being—
  - ✓ Numbered to establish a relationship between the guidance and the underlying regulation.
  - ✓ Clear on the applicant/certificate holder's responsibility for compliance and FAA workforce's finding of compliance in a comprehensive and consistent manner, with tools to ensure application, evaluation, and oversight is performance-based.
  - ✓ Aligned with and annotating the applicable regulations, laws, or executive orders.
  - ✓ Efficient in the oversight of repair stations vis-à-vis amount, type, scope and complexity of the certificate holders' work and its size.
- The Final Report with recommendations was provided November 8 to 9-awa-arac@faa.gov.

SCHEDULE

- Task was accepted by ARAC December 2017.
- First Working Group Meeting December 2018.
- Preliminary Report submitted December 2020.
- Final report with recommendations submitted November 8 for December 8, 2022 meeting.

RECOMMENDATION (1)

Adopt a single AMC document containing the compliance information needed by applicants and certificate holders to apply for and maintain, and for the agency's personnel to certificate and surveil part 145 repair stations.

RECOMMENDATION (1) LOGIC

The adoption of a single, consolidated document with acceptable ways of showing and finding compliance will ensure—

- Guidance is current and complete.

- The agency's findings of compliance remain directly aligned with the plain language and historical requirements of the aviation safety regulations and other legal mandates.

** Since the Working Group was unable to complete its draft AMC document, it asks the agency to accept the final report approved by ARAC and extend the task to allow time to complete the AMC.

RECOMMENDATION (2)

Develop regulation-based training that provides the history, intent, and expected results for the certification and oversight of repair stations using the chronological information on the control of civil aviation maintenance. (*See*, Part 145 Working Group Preliminary Report, December 2020, page 9 of 23.)

(a) Develop the training in conjunction with industry, either through another task to the ARAC Working Group or through other collaborative avenues.

(b) Make the training available to all applicants, certificate holders, and aviation safety inspectors.

RECOMMENDATION (2) LOGIC

By creating training based solely on the history and plain language of the current rules, the agency can ensure showings and findings of compliance and the agency's oversight remain directly aligned with the plain language of all regulations in Chapter 1 applicable to repair stations.

RECOMMENDATION (3)

Amend the SAS DCTs to clearly differentiate between compliance elements and risk indicators.

RECOMMENDATION (3) LOGIC

Compliance elements are those directly linked to the plain language of an applicable regulation and are the only ones needed to show and find compliance and issue the certificate to which the applicant is entitled.

Risk indicators are those that may, depending upon the amount, type, scope, and complexity of work performed, and the certificate holder's size, show a need to increase the agency's oversight.

RECOMMENDATION (3) LOGIC

With the current backlog in repair station applications and certification projects, the DCTs that do not reference a regulation must be given consideration only during surveillance planning.

RECOMMENDATION (4)(a)

Update the application process to reflect the current requirements of part 145—

(a) Remove submittal of the pre-application statement of intent (Form 8400-6) or adjust the Office of Management and Budget information to accommodate repair stations.

RECOMMENDATION (4)(a) LOGIC

Update the application process to reflect the current requirements of part 145 by removing the "requirement" for Form 8400-6 (Pre-Application Statement of Intent)

- The OMB information submitted by FAA for Form 8400-6 does not reference part 145 applicants.
- It does not add any discernible value to the certification of a repair station.

RECOMMENDATION (4)(b)

Update the application process to reflect the current requirements of part 145—

(a) …

(b) Adjust the information gathered on FAA Form 8310-3—

(i) Adjust Block 1.b. to accommodate changes to multiple locations.

(ii) Adjust Block 2 to accommodate all the requirements for submission and align it with the regulations.

RECOMMENDATION (4)(b) LOGIC

Update the application process to reflect the current requirements of part 145 by adjusting FAA Form 8310-3 to accommodate—

- Applications for multiple locations;
- All requirements for its submission by aligning the options with the regulations

The Report provides the details associated with this recommendation—the language in the Form was not carefully reviewed when the regulation changed for all the nuances associated with the new regulatory language.

RECOMMENDATION (4)(c)

Update the application process to reflect the current requirements of part 145—

(a)…

(b)…

(c) Remove the compliance checklist from the SAS on-line application process; the requirement was specifically rejected in the 2014 final rule.

RECOMMENDATION (4)(c) LOGIC

Update the application process to reflect the current requirements of part 145 by removing compliance checklist from the SAS on-line application process a requirement that was specifically rejected in the 2014 final rule.

The agency's organization discourages thorough coordination among the divisions (see, Preliminary Report, page 22, *"Agency Divisional Independence").*

RECOMMENDATION (5)

Review the operations specifications' paragraphs and remove any that are not safety limitations.

RECOMMENDATION (5) LOGIC

The letter sent by multiple trade associations to the Executive Director of Flight Standards Services and reviewed by the Working Group is based upon a statutory requirement that without “a written finding of necessity, based on objective and historical evidence of imminent threat to safety, the Administrator shall not promulgate any operations specification, policy, or guidance document that is more restrictive than, or requires procedures that are not expressly stated in, the regulations.”

RECOMMENDATION (5) LOGIC

The industry letter sets forth a methodology that the agency could follow in establishing compliance with the congressional mandate and it would ensure control of the development of operations specifications by differentiating those that are issued—

- As required by the regulations, or
- For the convenience of the agency

AREAS for ARAC CONSIDERATION

- Adopt the Final Report and its recommendations in whole or in part.

- Request the FAA assign the existing Working Group—
  1. Completion of the AMC
  2. Development of training to support the AMC

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

December 8, 2022

MEMBERS of Training Standardization Working Group

Thomas	Benvenuto	Solairus Aviation
Stephen	Bragg	Executive Jet Management
Greg	Brown	Helicopter Association International
Fabiano	Cypel	Embraer
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 Bargen	Jet Aviation Flight Services, Inc.
Mike	Walton	Textron

** Training Standardization Working Group Chair*

FAA Partners
Kevin Hancock
Paul Preidecker
Shannon Salinsky
James Sapoznik
Josh Tarkington*
Kristin Tullius

** FAA Lead*

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 quarterly

STATUS OF TASKING

- Tasking 1 (schedule) and 2 (instructor curriculum) are complete.
  - The FAA is making revisions to the instructor curriculum
- Anticipate additional recommendations on specialty curricula in December and adaptive recurrent in March.
- G-V Curriculum Recommendation Package:
  - Initial
  - Recurrent
  - Requal
  - Upgrade
  - Enhanced Recurrent
  - SOPs
  - Grading Criteria

AREAS of ARAC CONSIDERATION

- G-V Curriculum public comment closed November 9th
- Bell omitted from current revision due to turnover
  - Not in top ten anyway
  - Will be included in next revision
- Action Teams:
  - Specialty curriculum (expected in December -> March)
  - Remedial training policies (No separate recommendation)
  - Adaptive recurrent (expected in March)
  - HS-125 Hawker Series Action Team
  - CE-560 Citation Excel Series Action Team

Future teams:

- CL-30 Challenger 300/350
- BE-300 King Air 300

RECOMMENDATION(S)

6.1 Recommendation 1: The Master Schedule

The Training Standardization Working Group recommends the updated master schedule for aircraft-specific standardized curriculum development as submitted, determined through research and data analysis, and the priority in which each aircraft or series of aircraft curriculum will be developed.

Recommended Revised Top Ten

Type Certificate Holder	Civil Model Designation	Current Type Rating Designation	% Volume of Training	Final Rank
Gulfstream Aerospace Corporation	GIV-X, GIV-X (G350), GIV-X (G450), GV, GV-SP, GV-SP (G500), GV-SP (550)	G-V	7.74	1
Bombardier Inc.	BD-100-1A10 (Challenger 300)	CL-30	6.95	2
Textron Aviation Inc.	300, 300LW, B300, B300C, (BE-300F)	BE-300	5.57	3
Textron Aviation Inc.	560XL, 560XLS, 560XLS+	CE-560XL	5.18	4
Gulfstream Aerospace Corporation	G-IV, G-IV (G300), G-IV (G400)	G-IV	4.85	5
Textron Aviation Inc.	750	CE-750	4.06	6
Bombardier Inc.	BD-700-1A10 BD-700-1A11	BBD-700	3.85	7
Textron Aviation Inc.	DH.125 Series BH.125 Series HS.125 Series BAe.125 Series 800 Hawker 750, Hawker 800 Hawker 800XP Hawker 850XP Hawker 900XP	HS-125	3.77	8
Embraer S.A.	EMB-505 (Single Pilot) EMB-505 (SIC Required; SIC limitation is required)	EMB-505	3.72	9
Textron Aviation Inc.	500, 501, 550, S550, 551, 552, 560	CE-500	3.44	10

DISSENT(S)

- None.

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

Ric Peri

Working Group Chair

December 2022

MEMBERS of Repairman Portability WG

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

Meeting Schedule:

- Monthly virtual meeting

- Quarterly face-to-face schedule:
  - ✓June 23/24: (AEA, Lees Summit, MO)
  - ✓Sept 27: (HAI, Alexandria, VA)
  - March 21, 2023 (Garmin, Salem, OR)
  - Jun 20, 2023 (AEA, Lees Summit, MO)
  - Sep 2023 (DC)
  - Mar 2024 (ATS, Everett, WA)
  - May 2024 (AEA, Lees Summit, MO)

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 (a): Regulatory Review

- § 65.15 Duration of certificates limits the “portability” of repairman certificates.
- Part 65 does not reflect the changes introduced in Part 145 in 2001.
- AC 65-24 does not reflect the changes introduced in Part 145 in 2001

§ 65.15 Duration of certificates

- (b) Unless it is sooner surrendered, suspended, or revoked, a repairman certificate is effective until the holder is relieved from the duties for which the holder was employed and certificated.

- (c) The holder of a certificate issued under this part that is suspended, revoked, or no longer effective shall return it to the Administrator.

Regulatory Conflict between part 65 and 145

- § 145.159 Recommendation of a person for certification as a repairman.
- A certificated repair station that chooses to use repairmen to meet the applicable personnel requirements of this part must certify in a format acceptable to the FAA that each person recommended for certification as a repairman –
  - (a) Is employed by the repair station, and
  - (b) Meets the eligibility requirements of § 65.101.

Part 145 NPRM (June 21, 1999)

- The proposal would delete the provisions of current § 145.4 1 (b) , which require that each person recommended must be at or above the level of shop foreman or department head or be responsible for supervising the work performed by the repair station and would permit a repair station to recommend any employee who meets the requirements of current § 65.101 for certification as a repairman. …

Part 145 NPRM (June 21, 1999)

- …
- *The FAA has decided that this proposal would recognize the level of professional expertise of maintenance personnel currently employed at repair stations. The proposal also would enable repair stations to be more flexible in their hiring and placement practices.*
- …

Part 145 NPRM (June 21, 1999)

- …
- This proposal is consistent with current § 65.101, which does not require that an individual be employed in a supervisory position at a repair station to meet the eligibility requirements for a repairman certificate.

§ 65.15 Duration of certificates

- **Option 1** (Short term): recognize earlier “qualification” for subsequent issuance of RM certificate.

- **Option 2** (Short term): allow reissuance of RM certificate with “new employer” with previously approved privileges.
  - No limit on the reissuance of the certificate
  - With added qualifications privileges progressively added to.

- **Option 3** (Long term): Rulemaking – remove (b/c).

Need for Standardization

- Repairman is NOT a rating.
  - (Listing repairman as a rating on a repairman certificate is redundant)

- Align repairman ratings with repair station class rating terminology
  - Aircraft
  - Airframe
  - Powerplant
  - Propeller
  - Radio
  - Instrument
  - Accessory
  - Defined specialized service

Currently working on Task 1 (b):

- 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.

Questions?

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

Keith R. Morgan
Subcommittee Chair

8 DEC 2022

Members of the Transport Aircraft and Engines Subcommittee

Pratt & Whitney

ALPA

A4A

ASD

Airbus

Boeing

GAMA

AIA

NADA/F

Embraer

SRCA

TAE Meeting Schedule

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

- 2023 Meetings
  - January 24
  - April 25 (planned face-to-face Seattle)
  - July 25
  - October 24 (planned face-to-face Washington DC)

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

- December 2022
  - ASHWG Ground Spoiler Alerting

- March 2023
  - EICIWG Interim report
  - FTHWG Dry Runway
  - TAMCSWG Crack Interaction

June 2023

- FTHWG Narrow 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

21 October, 2022

MEMBERS of Flight Test Harmonization Working Group Phase 4

Authorities	OEM's			Observers
FAA Bob Stoney Joe Prickett 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
				CAAI (Israel) Yshmael Bettoun
EASA Matthias Schmidt Lorenzo Prieto Saiz	Boeing Matt Muehlhausen (To Retire November) Brian Lee (Acting) + 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 (DGA) Matthieu Buisson
				Operators
ANAC (Brazil) Marcos Carvalho	Dassault Philippe Eichel +SME's			ALPA John Cinnamon Josh Larson

Status of Working Group Activities

- Back in step
  - Quarterly face-to-face meeting (two in Europe, two in North America)
  - Weekly scheduled telecons
- Additional working meetings
  - Dry Runway Stopping is meeting bi-weekly IN ADDITION to finish consensus
  - Subteams of FAME are meeting regularly (IN ADDITION) in support larger group

STATUS OF TASKING

- Tasking for Phase 4 Received in December, 2020
- Planning for the 6 tasks is complete
- Work is under way on 5 topics:
  - Narrow Runway Certification
  - Dry Runway Braking (Requesting Extension to finish)
  - FAME (how to deal with failures affecting Handling Qualities)
  - Reduced/Derated Thrust Takeoff Procedures
  - Landing Distance for Abnormal Configurations

- 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

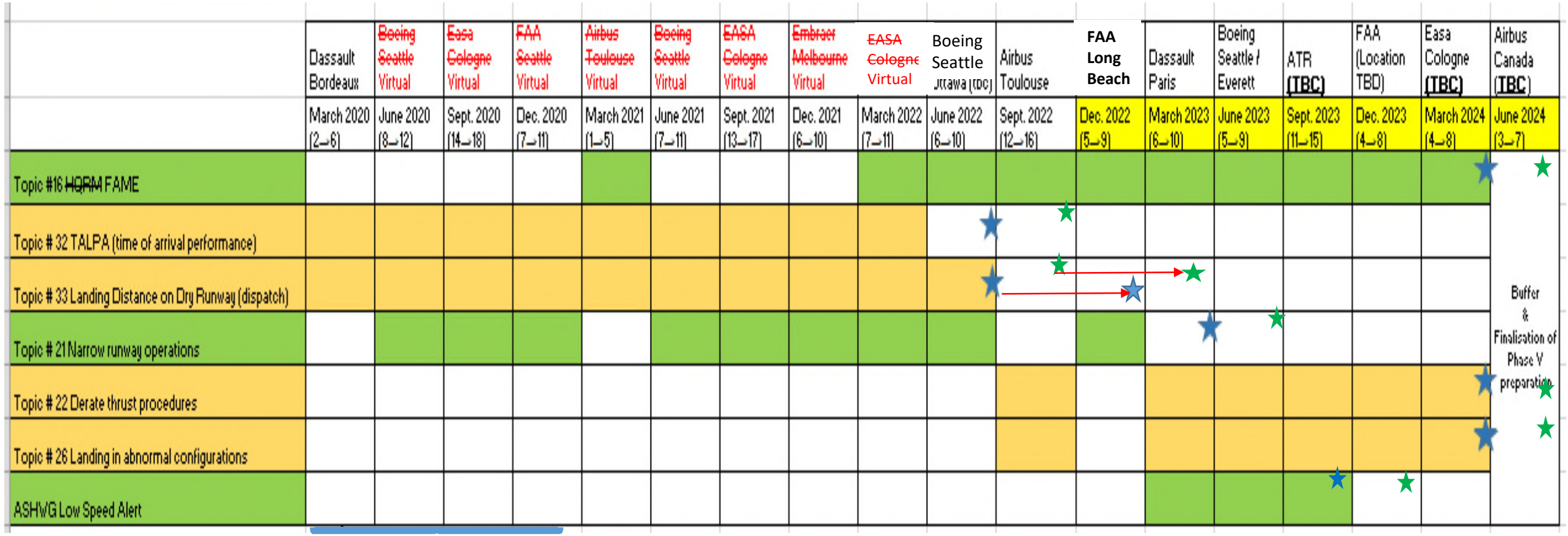
Phase 4 FTHWG Topic Technical Status

- Topic #16 Failure Assessment Methodology & Evaluation (FAME)
  - Now fully engaged
  - 2 sub-teams chartered and meeting regularly
    - Recommend Consistent Flight Envelope for failure evaluations
    - Recommend Consistent Environmental Conditions for failure evaluations
- Topic # 21 Narrow runway operations
  - Team has converged on the definition a “baseline” runway, and the “regulatory hook” for declaration of runway width
  - Moving on to what will be required for “narrower than baseline”
  - Three days dedicated in December face-to-face meeting
- 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
  - FAA Propulsion Branch (and now, some in TCCA) questioning conditions for thrust reverser credit
  - In order to accommodate TALPA, and because some assumptions are common to TALPA and Topic 9 Wet Runway stopping, we agreed to bring this report to TAE in early 2023: asking for extension
- Topic # 22 Landing in Abnormal Configurations Kickoff in September in Toulouse
- Topic # 26 Derate Thrust Procedures Kickoff in September

FTHWG Phase 4 Meeting Plan

000080

Delivery to TAE, Blue Stars
Delivery to ARAC in following quarter, Green Stars



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
- Happy to be back in cadence

Summary of Highlights for TAE review of proposed *Transport Airplane Metallic and Composite Structures Working Group – Status Report to FAA: Crack Interaction*

10/25/2022

Douglas Jury, Delta Air Lines, WG Chair

Walter Sippel, FAA WG representative

Summary of report state

- TAMCSWG on schedule to present Crack Interaction report to TAE at this meeting and to ARAC in December (provisional to TAE acceptance of WG's report).
- Report draft containing all content from subteam members presented to full WG team on 9/27/22
- Full WG meeting on 9/28/22: report presented.
- WG members requested to share all comments by 10/12. Four members responses are not fully complete with their review as of today.
- Other members have provided comments – none of the comments received to-date are major. Some require iteration of reworded updates & WG team review.
- All but three voting members have indicated that they agree with the report, pending certain language updates, all pertaining to rationale, technical discussions, background discussions, etc., and not with the recommendations themselves. Three other members are expected to provide concurrence as review is finalized or review with their management.

Summary of state of report

- Plan was to provide and summarize a nearly final draft to TAE at present meeting with intention to have the clean/signed copy to the subcommittee with sufficient time for members to review and vote for ARAC submission by or around 11/8/22.
- The amount of comments to address and some other considered presentation approach are challenging for meeting the deadline to get nearly final draft by now and final/signed draft within two weeks.
- Nonetheless, we can summarize the fully expected main points to appear in report with TAE now.

Purpose of Presentation

- To assist Transport Airplane & Engine (TAE) Subcommittee with the review of the anticipated report by providing a high-level summary of –
  - Recommendations, and
  - Items considered as recommendations, but did not receive general agreement.

List of Acronyms

AC:	Advisory Circular
DSG:	Design Service Goal
DTE:	Damage Tolerance Evaluation
EASA:	European Aviation Safety Agency
ED:	Environmental Damage
GSHWG:	Generalized Structures Harmonization Working Group
LOV:	Limit of Validity
MED:	Multiple Element Damage
MSD:	Multiple Site Damage
PSE:	Principal Structural Element
SLP:	Single Load Path
TAMCSWG:	Transport Airplane Metallic and Composite Structures Working Group
WFD:	Widespread Fatigue Damage

Background

- In 2015, the Aviation Rulemaking and Advisory Committee (ARAC) established the Transport Airplane Metallic and Composite Structures Working Group (TAMCSWG), under the TAE Subcommittee to provide advice and recommendations regarding revision of the damage-tolerance and fatigue requirements of Title 14, Code of Federal Regulations (14 CFR), part 25, including subparts C and E of 14 CFR part 26; development of associated advisory material; and estimate associated costs and benefits.
- In 2018, TAE/ARAC received and approved the *Transport Airplane Metallic and Composite Structures Working Group – Recommendation Report*, which covered twelve topics associated with the FAA's tasking.
  - ARAC also approved a tasking extension to address three additional activities, namely:
    - ✓ Single load path (SLP) structure, which is a topic related to structural damage capability (SDC)
    - ✓ Bonding
    - ✓ Crack interaction
  - The WG has addressed each topic in separate reports to TAE and ARAC: SDC & bonding done

Anticipated Report Overview

- The anticipated report addresses the tasking on Crack Interaction
  - FAA noted in the 2018 report that applicants use a variety of ways to comply with requirements in establishing inspections and associated procedures. TAMCSWG recognized this as important and therefore, FAA has requested information from WG on how to address crack interaction when developing inspection programs.
  - TAMCSWG did not have time to evaluate how applicants use AC 91-82A for Part 25 airplane certification activities in the 2018 recommendation report, including how applicants address subject of crack interaction.
  - AC 91-82A (*Fatigue Management Programs for In-Service Issues*) provides guidance on developing damage tolerance (DT)-based inspections or other procedures of structure for Parts 23 & 25 airplanes to address in-service findings. This AC states that actual cracking scenarios can be complex, involve multiple sites, and at some point, include crack interaction.

Anticipated Report Overview

- TAMCSWG evaluated ACs:
  - 25.571-1D: *Damage Tolerance and Fatigue Evaluation of Structure;*
  - 91-82A: *Fatigue Management Programs for In-Service Issues;* and
  - 120-104: *Establishing and Implementing Limit of Validity to Prevent Widespread Fatigue Damage (WFD)*

- TAMCSWG reached general consensus on the report.
  - Evaluated seven recommendation proposals, which included seven proposals, three alternatives to proposals, and one option to provide additional information on a proposal
  - Reached general agreement that no rule change is necessary beyond that recommended in 2018
  - Reached full agreement to make two recommendations to revise AC 25.571-1D
  - Documented dissenting positions
  - Determined the changes to AC 25.571-1D would be cost-beneficial via qualitative evaluation.
    - Minimal costs
    - Benefits are clarifications to regulatory guidance

Report organization

- Section 1: Introduction & Background (tasking & technical), identification of scope of effort
- Section 2: WG composition, outlines approach to reaching agreement/consensus
- Section 3: recommendations for rule changes
- Section 4: recommendations for guidance changes
- Section 5: cost and benefit discussion for recommendations
- Appendices:
  - A: restatement of key tasking elements
  - B: WG responses to FAA-posed detailed questions related to crack interaction
  - C: Illustration of three examples of crack scenarios where interaction effects are expected
  - D: Example analytical approaches to addressing crack interaction effects
  - E: Tally of WG member voting on guidance recommendation proposals considered
  - F: Discussion of one WG member’s evaluation approach of crack interaction
  - G: Example scenarios of crack interaction
  - H: Discussion of variety of approaches to address crack interaction in DTE

Summary of recommendations

The WG is making 5 recommendations:

1. No rule change; it's clear and performance-based

2. Revise AC 25.571-1D to add text on considering crack interaction in a DTE

3. Revise AC 25.571-1D to add a definition of crack interaction

4. FAA should NOT revise the AC to include a method of compliance to address crack interaction (too prescriptive)

5. FAA should NOT task an SDO to further address crack interaction

Rule Change Recommendation (Report Section 3)

- TAMCSWG reached general agreement[1] on no change to rule (beyond the previously proposed changes in 2018 recommendation report).
- WG did not identify a safety concern. Crack interaction is just one of many considerations in a DTE. Isolating one aspect of an evaluation to demonstrate presence of unsafe condition is difficult. Some WG members noted that further investigation would be necessary to eliminate the potential concern completely.
- WG position is current rule language is sufficiently performance-based.
- Harmonization with EASA Certification Specifications (CS) rule language was additionally considered with this recommendation[1].

[1] Two WG members presented dissenting position that EASA rule language, which states “damage at multiple sites due to prior fatigue damage,” as being preferable, yet the members agreed to support WG recommendation with their points having been documented.

Guidance Change Recommendations (Report Section 4)

- Existing regulatory guidance materials reviewed to determine which would benefit from changes (Report Section 4.2): AC 25.571-1D, 91-82A, 120-104
- Other materials WG reviewed for insight into development of new recommendations (Report Sections 4.3 & 4.4):
  - TAMCSWG's 2018 ARAC recommendation report
  - Generalized Structures Harmonization Working Group (GSHWG) 2003 ARAC recommendation report
  - EASA Acceptable Means of Compliance (AMC) 25.571
- WFD evaluation is a subset/special case of DTE – typically for global/repetitive details. WG position is that current crack interaction guidance for WFD evaluations (AC 120-104) is adequate. Therefore, WG focus was on developing updates to AC 25.571-1D, for non WFD-susceptible structure (i.e., local/unique design detail).
- WG presents 4 separate general means in which applicants typically address crack interaction effects (Section 4.5).

Guidance Change Recommendations (Report Section 4) (Continued)

- WG considered 6 separate proposed updates to AC 25.571-1D, and one additional alternate proposal (Report Section 4.6):
  - Proposal 1: bring awareness to crack interaction (includes an alternative to proposal)
  - Proposal 2: define crack interaction (includes an alternative option to include additional information (examples))
  - Proposal 3: provide additional distinction for crack interaction guidance in AC 120-104 for WFD evaluation
  - Proposal 4: Clarify that “at some point” may be related to expected fatigue reliability
  - Proposal 5: provide example means to address crack interaction (includes an alternative to proposal)
  - Proposal 6: provide additional guidance on developing inspection intervals (includes an alternative to proposal)
  - Proposal 7: task a new SDO to develop means to address crack interaction
- Generally, WG was split on how extent of detail presented in the regulatory guidance (typically split between OEM and operator members) – Appendix E contains the WG member votes for each proposal.
- For all proposals, both WG member positions in support and in opposition are presented.

Guidance Change Recommendations (Report Section 4) (Continued)

- Proposal 1 (Report Section 4.6.1.1)

  Update AC 25.571-1D, Paragraph 6.d (extent of damage) to add similar language from 91-82A stating “cracking scenarios can be complex, involve multiple sites, and at some point, include crack interaction.”

  - Supported by all WG members. Some members preferred more extensive updates but were not opposed to this as minimum update.
  - WG generally preferred this to adding a reference in 25.571-1D to 91-82A.
  - Therefore, proposal is recommended to FAA (no large majority supported this).

Guidance Change Recommendations (Report Section 4) (Continued)

- Proposal 2 (Report Section 4.6.2.1)

  Update AC 25.571-1D, Appendix 1 (References and Definitions), Paragraph 2 to introduce a new definition as follows:

  “Crack interaction - The effect on crack growth rate due to the simultaneous presence of more than one crack”.

  - Supported by all WG members. Some members preferred an option to include examples of cracking scenarios which may require crack interaction considerations (reference Appendix G) but were not opposed to the WG proceeding with this as recommendation.
  - Therefore, proposal is recommended to FAA (large majority supported this).

Guidance Change Recommendations (Report Section 4) (Continued)

- Proposal 3 (Report Section 4.6.3.1)

Update FAA AC 25.571-1D by adding the following statement to follow the sentence added in Proposal 1:

"Crack interaction has a significant influence in the behavior of WFD (MSD and MED) as discussed in AC 120-104. However, crack interaction can also affect the behavior of cracking at unique design features or details[1]".

[1] Current AC 25.571-1D, Appendix 3, Steps 4 and 6 are available to assist the applicant to determine if their structure being evaluated is WFD susceptible or is a local, unique design detail.

- The WG was unable to reach agreement on recommending this proposed change. More than half of the WG support this change (all four operator members and three OEM members) and the remaining five OEM members oppose this change.
- Therefore, proposal is not recommended to FAA (no large majority supported or opposed this).

Guidance Change Recommendations (Report Section 4) (Continued)

- Proposal 4 (Report Section 4.6.4.1)

Update FAA AC 25.571-1D by defining (or rephrasing altogether) the term “at some point” (reference Proposal 1) to state that crack interaction should be considered in the DTE when the fatigue reliability[1] within the LOV/DSG has fallen to a level where multiple cracks are expected in the unique design detail, which can be established by fatigue/durability analysis, or established by test or service findings, or both.

[1] As proposed by WG in 2020 SDC SLP report: The ability of the structure to perform its function without failure due to fatigue throughout the operational life of the airplane.

- The WG was unable to reach agreement on proposing this change. Half (six) of the WG supported this change (all four operator members and two OEM members) and the remaining six OEM members opposed this change.
- <u>Therefore, proposal is not recommended to FAA (no large majority supported or opposed this).</u>

Guidance Change Recommendations (Report Section 4) (Continued)

- Proposal 5 (Report Section 4.6.5.1)

  Update AC 25.571-1D to include a general description of current industry practice for establishing inspection intervals and addressing crack interaction (reference the four separate items listed in Section 4.5).

  - Only the four operator representative members in the WG supported this proposal. All eight OEM representative members opposed this proposal. Both supporting and opposing positions to this proposal are provided in report. Though operator members prefer recommending this particular proposal, they are not opposed to supporting the overall recommendation report submission to TAE WG & ARAC.
  - Therefore, recommended the FAA not pursue this as an update to AC 25.571-1D (large majority opposed).

Guidance Change Recommendations (Report Section 4) (Continued)

- Proposal 6 (Report Section 4.6.6.1 & 4.6.6.2)

  4.6.6.1: Update AC 25.571-1D to add a new sub-section under Paragraph 6 (Damage-Tolerance Evaluation) for subject of inspection intervals using text from GSHWG in 2003 recommendation report.

  4.6.6.2 (Alternative to 4.6.6.1): Update 25.571-1D add some details of this history to the Background section of AC 25.571-1X to point readers to existing guidance in AC 91-82A.

  - A simple majority of the WG members agreed that AC 25.571-1D should be updated to address inspection intervals (six or seven members supported vs. four or five opposed – depending on which option: 4.6.6.1 vs 4.6.6.2). This proposal did not reach the WG agreed standard of 2/3 member support to adopt a recommendation.
  - <u>Therefore, proposal is not recommended to FAA (no large majority supported or opposed this).</u>

Guidance Change Recommendations (Report Section 4) (Continued)

- Proposal 7 (Report Section 4.6.7.1)

  A third-party Standards Development Organization (SDO) may be engaged to determine optional means of compliance for applicants to address effects of crack interaction, using, but not limited to the recommendations to AC 25.571-1D contained in the report.

  - Only a minority (four voting members) of the WG members supported this notional proposal, recognizing additional work would be required to better define the tasking as noted.

  - Therefore, recommended the FAA not pursue this as an update to AC 25.571-1D.

Cost and Benefit Analysis (Report Section 5)

WG does not recommend any rule change.

- Since the AC is considered one means of compliance, an applicant will need to decide how it wants to show compliance.
- It is possible that through the guidance change updates the WG is recommending, some applicants and regulators may become newly aware of this expectation of what may be part of an “extent of damage” consideration. Clarification to guidance, even minor, is considered to provide incremental benefit to industry.
- In such case, there is a potential of new expenses associated for applicants who may elect to use methods not currently employed for their DTE. This is difficult to predict in terms of costs for applicants and operators as all members of this WG currently employ some approach to account for interaction.
- Therefore, WG position is that the recommendations would be cost-beneficial.

Additional discussion items:

- Request for revision to 2018 recommendation report to provide URL hyperlinks to associated reports available on FAA's website repository for ARAC Reports. Such reports include AAWG's reports on SDC, Rotorburst, the TAMCSWG's reports on SDC-SLP structure, structural bonding, and crack interaction (when completed), and other various appendices/links to past reports, etc.
- This would be a minor revision (no change to technical content) and need not require full WG participation. Expectation is that TAMCSWG Chair would simply prepare the revision, with FAA sponsor review, and submission to TAE/ARAC for acceptance.

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

Melissa Bravin
Allan van de Wall
Working Group Co-Chairs

19 October 2022

ICI Working Group Membership

Member Name	Organization	Role
Philip Haberlen	(FAA-ANE Standards) FAA Representative	FAA Representative
Melissa Bravin	Boeing Commercial Airplanes	WG Co-Chair – Airplane – P
Allan van de Wall	GE Aviation	WG Co-Chair – Engine – P
Aaron Cusher	Collins	Other – P
Adam Malone	Boeing	Consultant
Alberto Ramon	FAA	Non-voting role
Ashlie Flegel	NASA	Consultant
Bob Hettman	FAA	Non-voting role
Bryan Lesko	Air Line Pilots Association	Other – P
Daijiro Kawakami	JCAB	Non-voting role
Dan Fuleki	National Research Council Canada	Consultant
David Dischinger	Honeywell	Engine – P
David Johns	TCCA-probes	Non-voting role
Doug Bryant	FAA	Non-voting role
Eric Duvivier	EASA	Non-voting role
Eric Fleurent-Wilson	TCCA-engines	Non-voting role
Fausto Enokibara	ANAC	Non-voting role
Jeanne Mason	FAA	Consultant
Jim Loebig	Rolls-Royce	Engine – P

Member Name	Organization	Role
John Fisher	FAA	Non-voting role
Jon Saint-Jacques	A4A/Atlas Air	Other – P
Josh Larson	Air Line Pilots Association	Other - P
Julien Delanoy	EASA	Non-voting role
Jun Izumi	JCAB	Non-voting role
Keith Morgan	Pratt & Whitney	ARAC Representative
Keith Wegehaupt	Honeywell	Engine – P
Mauricio Caio Rosin	TCCA	Non-voting role
Philip Chow	FAA	Consultant
Pierre-Emmanuel Arnaud	Airbus	Airplane – P
Rajeev Atluri	AeroSonic	Other - P
Roberto Marrano	Pratt & Whitney Canada	Engine – P
Roxanne Bochar	Pratt & Whitney	Engine – P
Shengfang Liao	Pratt & Whitney East Hartford	Engine – P
Shoichi Yamasaki	JCAB	Non-voting role
Takuya Mikami	JCAB	Non-voting role
Terry Tritz	Boeing	Consultant
Tom Dwier	Textron Aviation	Airplane – P
Tom Ratvasky	NASA	Consultant
Walter Strapp	Met Analytics Inc.	Consultant

Tasking Summary

- 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, Turboshaft 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

- 20 October 2022: FAA briefs ARAC WG on preliminary flight campaign results
- 01 – 03 November 2022: Face-to-Face meeting to finalize ARAC Interim Report
- 30 November 2022: ARAC Interim Report Due
- Q3-Q4 2022: FAA processes flight campaign 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.	Complete
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, Turboshaft 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

October 2022

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.

Report Submitted to TAE: September 2022

ASHWG Recommendations

Task Question 1 - Are the existing industry standards or guidance material sufficient…..?

- No, existing industry standards/guidance material are not sufficient
- Existing industry standards, regulations and associated advisory material including §25.1309/AC 25.1309-1A (System design and analysis), §25.1302/AC 25.1302-1 (Equipment used by the flight crew) are helpful in a system design, but there is no current standard nor guidance material that specifically requires a ground spoilers alert
- ASHWG proposes a new rule §25.704 “Landing Configuration Alerting System,” along with a proposed new AC 25.704

Proposed Rule

§ 25.704 Landing configuration alerting system

A landing configuration alerting system must be installed that meets the following requirements:

(a) The alert(s) required in the following paragraphs must be presented to allow sufficient time for the flight crew to take corrective action.

(b) For aircraft designs with automatic ground spoiler deployment at landing:

(1) If the ground spoilers are required to be manually armed prior to landing but are not armed, an alert must be activated prior to landing

(2) An alert must be provided if the ground spoilers fail to automatically deploy upon landing.

Proposed AC (TOC only)

1. Purpose
2. Related Regulations
3. Related Material
4. Background
5. Discussion
6. Landing Configuration Alerting System Design Considerations
7. Evaluation Using Analysis, Simulation, And/Or Flight Test

ASHWG Recommendations

Task Question 2 - Are the existing alerting standards in 14 CFR part 25 sufficient, or do you recommend changes to the existing alerting requirements?

- The ASHWG does not propose any changes to existing alerting standards
- The existing §25.1322 standard along with AC 25.1322-1 provides adequate requirements and guidance regarding development, evaluation, and determination of compliance of any specific alert, and does not need to be modified

ASHWG Recommendations

Task Question 3 - ….are there any additional considerations that the FAA should take into account regarding avoidance of landing without ground spoilers armed?

- No. Regarding ground spoilers the proposed rule and AC will be sufficient
- However
- The ASHWG strongly recommends a follow-on tasking to update the proposed §25.704 and proposed AC 25.704 to truly capture the broad topic of landing configuration alerting which would help mitigate the effect of a runway overrun
  - AC 91-79A CHG 2, "*Mitigating the Risks of a Runway Overrun Upon Landing*" points out that there are other identified hazards associated with runway overruns
- The ASHWG strongly recommends that EASA CS 25.705, Runway Overrun Awareness and Avoidance System (ROAAS), and AMC 25.705 be fully adopted by / harmonized with the FAA

Other Considerations

- Question 4: A draft was coordinated with FTHWG, feedback was reviewed, discussed and partially implemented based on ASHWG concurrence

- Alternative title “Ground Spoiler Alerting” specific to the proposed rule if the working group’s recommendation to broadening the proposed rule in the future (to include additional systems associated with the landing configuration) is not accepted. The title is at the FAA’s discretion.

- For purposes of §25.704 and the AC, the terms speed brakes and ground spoilers serve a similar purpose to meet the same safety objective: Extending the speed brakes or ground spoilers after landing increases aerodynamic drag and reduces lift, which increases the load applied to the main gear tires and makes the wheel brakes more effective.

AREAS of ARAC CONSIDERATION

- Review the submitted report
- Provide concurrence or questions to address prior to concurrence
- The ASHWG would like to review the draft NPRM prior to publication in the Federal Register

THANK YOU !

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