AVIATION RULEMAKING ADVISORY COMMITTEE (ARAC) MEETING

June 13, 2024 ***2:00 PM – 4:00 PM

- Welcome and Introductions
- Federal Advisory Committee Act (FACA) Statement
- Ratification of Minutes
- Status Updates and Recommendation Reports
  - Airman Certification System Working Group – Mr. David Oord
  - Training Standardization Working Group – Mr. Brian Koester
  - Part 65.101 Repairman Certificate Portability Working Group (Present Recommendation Report to ARAC: September 2024) – Mr. Ric Peri
  - Transport Airplane and Engine (TAE) Subcommittee – Mr. Keith Morgan
    - Flight Test Harmonization Working Group – Mr. Brian P. Lee
      - ❖ Phase 4/ Topic 22: Derate Thrust Procedures (Present Recommendation Report to ARAC: September 2024)
      - ❖ Phase 4/Topic 26: Landing in Abnormal Configurations Recommendation Report
    - Ice Crystals Icing Working Group – Ms. Melissa Bravin and Mr. Allan van de Wall
    - Engine and Powerplant Interface Working Group – Melissa Bravin and Douglas Beneteau
- FAA Updates
  - Personnel Updates
  - Regulatory Activities
  - FAA Reauthorization Act of 2024
- Fiscal Year 2024 Remaining Meeting Dates
  - Thursday, September 12, 2024

AVIATION RULEMAKING ADVISORY COMMITTEE DRAFT RECORD OF MEETING

MEETING DATE: March 21, 2024

MEETING TIME: 1:00 pm - 4:00 pm ET

LOCATION: The Aviation Rulemaking Advisory Committee (ARAC) held a hybrid meeting in person at the FAA Headquarters at 800 Independence Ave, SW, Washington, DC, 20591, in room Conference Room 8AB, and virtually on 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 2, 2024 (89 FR 7436).

ATTENDEES:

Committee Members	
Sarah MacLeod	Aeronautical Repair Station Association (ARSA)
Stéphane Flori	Aerospace & Defense Industries Association of Europe (ASD)
Randy Kenagy (In-Person)	Air Line Pilots Association (ALPA)
Justin Barkowski	American Association of Airport Executives (AAAE)
Chris Witkowski	Association of Flight Attendants (AFA)
Larry Rooney	Coalition of Airline Pilots Association (CAPA)
Daniel Friedenzohn	Embry-Riddle Aeronautical University
Paul Hudson (In-Person)	FlyersRights.org
Walter Desrosier (In-Person)	General Aviation Manufacturers Association (GAMA)
Gail Dunham	National Air Disaster Alliance/Foundation (NADA/F)
Doug Carr	National Business Aviation Association (NBAA)
Chris Martino	Vertical Aviation International (VAI)
David Oord (In-Person)	Wisk, *ARAC Chair*

Non- Members	
Jim McClay	Airline Owners and Pilots Association (AOPA)
Justin Madden (In-Person)	Airlines for America
Melissa Bravin	Boeing *Ice Crystal Icing Working Group Co-Chair*
Phan Tran	Boeing
Tanya Boisseranc	Boeing
Brian Lee	Boeing Company *Flight Test Harmonization Working Group Chair*
Maryanne DeMarco	CAPA
Ludovic Aron (In-person)	European Aviation Safety Agency (EASA)
Matthew Land	Eve Air Mobility
Rob Hackman	Experimental Aircraft Association (EAA)
Jens Hennig (In-Person)	GAMA
Brian Koester (In-person)	NBAA
Jennifer Iverson	Regional Airline Association (RAA)
Julio Ceron	Transport Working Union of America (TWU)
FAA Staff	
Alberto Ramon	Policy, International Affairs, and Environment (APL)
Alan Strom	Aircraft Certification Service (AIR)
Aliah Duckett (In-person)	Office of Rulemaking (ARM)
Angela McCullough	UAS Integration Office (AUS)
Brandon Roberts (In-person)	ARM, *Designated Federal Officer*
Brent Hart	ARM
Bryan Davis	Flight Standards Service (AFS)
Elie Nasr	AFS
George Padalec	Aviation Safety (AVS)
Jabari Raphael	AFS

James Sapoznik	AFS
James Wilborn	AIR
Jeffrey Vincent	AUS
Joshua Tarkington	AFS
Michelle Ferritto (In-person)	ARM
Paul Cloutier	AFS
Puja Sardana (In-person)	FAA Contractor
Robert Ganley	AIR
Shannon Salinsky	AFS
Syerra Joyner (In-Person)	ARM – FAA Intern
Thuy Cooper (In-person)	ARM
Timothy Adams	AFS
Tyeshia Roberson-Curtis (In-person)	ARM
Yvette Rose (In-person)	ARM

Welcome and Introduction

Mr. Brandon Roberts, Designated Federal Officer (DFO), called the meeting to order at 1:03 pm ET. He reminded everyone that the meeting was being recorded, and he reviewed logistics for the hybrid meeting.

Mr. Roberts read the required Federal Advisory Committee Act (FACA) statement (Title 5 U.S.C. Chapter 10). He stated that members of the public may address ARAC with permission of the Chair, Mr. David Oord.

Ratification of Minutes

Mr. Oord asked for a motion to accept the December 14, 2023[1], ARAC meeting minutes. Mr. Walter Desrosier motioned to accept the minutes, and Mr. Paul Hudson seconded the motion.

[1] The December 14, 2023, meeting minutes can be found at: https://www.faa.gov/regulationspolicies/rulemaking/committees/documents/arac-meeting-packet-march-2024

All ARAC members voted in favor of ratifying the minutes.

Status Reports/Recommendation Reports

A copy of the March 21, 2024, meeting packet, which includes working group presentations, can be found at: https://www.faa.gov/regulationspolicies/rulemaking/committees/documents/arac-meeting-packet-march-2024.

Airman Certification System Working Group (ACSWG)

Mr. Oord, ACSWG Chair, provided the working group's status report, noting that the group is in a holding pattern until the FAA finalizes the Airman Certification Standards and Practical Test Standards for Airmen; Incorporation by Reference (IBR) rulemaking. The group is still waiting on publication of the final rule. Mr. Oord noted that he hopes the final rule includes recommendations from the working group.

Training Standardization Working Group (TSWG)

Mr. Brian Koester reviewed the summary and status of tasking, noting that the group is working on revising the recommendations for the King Air 300 (BE-300) and for the Challenger 300 (CL-30). He said that the group would appreciate any guidance on expediting policy faster as training centers are waiting for the revised standards to revise curriculum.

Mr. Koester described the reason for the group's recommendation report, explaining that the FAA submitted six clarifying questions to the group in December 2023[2]. He described each of the questions and provided TSWG's response. He noted that several questions required more information, and others needed technical corrections.

Mr. Oord asked if there was a motion to accept the Revised HS-125 and CE-560XL Standardized Curriculum. Mr. Randy Kenagy motioned to accept the report, and Mr. Desrosier seconded the motion.

Mr. Hudson expressed concerns about the results of flight tests not being public information and asked if others in the industry had opinions on the subject on releasing data. Mr. Koester clarified that the data including the results of certification flight testing would be outside of the scope of the group's work. He further noted that any transparency concerns for pilot proficiency testing would be governed by the pilot record's database. Mr. Oord suggested holding the question for the Flight Test Harmonization Working Group (FTHWG).

All ARAC members voted in favor of accepting TWSG's revised recommendation report.

[2] https://www.faa.gov/sites/faa.gov/files/FAA%20Request%20for%20Clarification_Email-TSWG.pdf

Part 65.101 Repairman Certificate Portability Working Group

Ms. Sarah MacLeod stated that there have been no changes in membership, tasking, nor the schedule. She briefly reviewed the summary and status of tasking.

Mr. Hudson questioned if members of the public were able to obtain records for a repairman or a repair station. Ms. MacLeod noted that a certificate holder usually reports to an agency and that those business records are covered by Freedom of Information Act (FOIA). She noted that some safety information is required to be reported to the National Transportation Safety Board (NTSB) but uncertain on what specific information is released to the public nor when.

Transport Airplane and Engine (TAE) Subcommittee

Mr. Oord provided the TAE Subcommittee status report update, in Keith Morgan's absence. He reviewed membership, the schedule, and its three active working groups: Flight Test Harmonization (FTHWG), Ice Crystal Icing (ICIWG), and the newly established Engine and Powerplant Interface (EPIWG).

Flight Test Harmonization Working Group (FTHWG)

Mr. Brian Lee stated that membership is stable and that the group meets regularly. He described the summary and status of tasking and provided an overview of the work progress of each topic under Phase 4. Mr. Lee said that the group is starting to work on Phase 5 and noted his appreciation for the resolution of budgetary challenges with European Union Aviation Safety Agency (EASA).

Mr. Oord confirmed that TAE will hold the working group's interim report for approval, and the group's final report will be submitted to ARAC after work on Phase 5 is complete.

Mr. Hudson asked a question about the transparency/public availability of testing data. Mr. Lee noted that the group's tasking is to make recommendations to harmonize current regulations and the scope does not include the transparency of data. Mr. Oord suggested that Mr. Hudson explore public accident and incident databases and encouraged him to reach out to the appropriate offices that manage these databases. Mr. Kenagy agreed with Mr. Hudson's concern regarding a lack of transparency and availability of public safety information, noting that the lack of information and allowance for the protection of proprietary data under part 11 does not allow the industry to help evaluate and assist in solutions. He said that, often, important information is deemed proprietary to the agency. Ms. MacLeod also agreed, asking FAA staff to relay the ARAC member's concern about transparency to the agency.

Ice Crystal Icing Working Group (ICIWG)

Ms. Melissa Bravin stated that there were no changes in ICIWG membership nor the tasking. She reviewed the schedule and the status of tasking, noting that the joint probability study is delayed, as the group is awaiting completion of the FAA contract in work with NASA Langley. She noted that the study is currently set to be complete by the end of 2024.

Engine and Powerplant Interface Working Group (EPIWG)

Ms. Bravin stated the working group is tasked with providing recommendations on the most effective ways to resolve regulatory and guidance gaps and conflicts between part 33 and part 25.

She noted that EPIWG recommendations should maximize and harmonize airworthiness authority regulations and guidance to the extent practicable. She reviewed membership, the tasking, and the schedule.

Mr. Oord asked about the priority of workflow, and Ms. Bravin confirmed that the group is working to complete one task at a time (rather than tackling multiple concurrently), noting that some of the same experts will be needed for each task.

Other Business and FAA Updates

Mr. Roberts thanked ARAC for their feedback on transparency and confirmed that he will report their concerns to the agency. He also noted that the agency is working to correctly interpret what is or isn't proprietary. Mr. Desrosier asked if there is an existing guidance document explaining what information is proprietary, and Mr. Roberts noted that there is not. Ms. MacLeod stated that public transparency does not have to include specific data but should include any results or conclusions the agency has derived from these data. Mr. Hudson supported the idea of a guidance document on this subject.

Mr. Hudson asked about dissenting opinions as they relate to rulemaking committees. Mr. Oord and the FAA confirmed that dissenting opinions are always encouraged and included in both Aviation Rulemaking Committee and ARAC recommendation reports.

<u>FAA Personnel Updates</u>

Mr. Roberts acknowledged Chris Martino and congratulated his organization on their name change on February 26, 2024, from the Helicopter Association International (HAI) to the Vertical Aviation International (VAI).

Mr. Roberts noted following FAA personnel changes:

- David Hempe is the permanent Deputy Director of the Office of Accident Investigation and Prevention (AVP-2).

- Wes Mooty is the Deputy Executive Director of the Aircraft Certification Service (AIR-2).
- Hugh Thomas is the Acting Flight Standards Service Deputy Director (AFX-2A).
- Angela McCullough is the permanent Deputy Director of the Unmanned Aircraft Integration Office (AUS-2).
- Jonathan Gray is the Acting Deputy Executive Director for the Air Traffic Oversight Service (AOV-2).

Regulatory Updates

Mr. Roberts stated that since the December meeting, the FAA published the following two Final Rules and six Notice of Proposed Rulemakings (NPRM).

Final Rule

- Airplane Fuel Efficiency Certification published on February 16, 2024.
- Extension of the Prohibition Against Certain Flights in the Damascus Flight Information Region published on December 26, 2023.

NPRM

- Falsification, Reproduction, Alteration, Omission, or Incorrect Statements published on February 8, 2024; the comment period closes on April 8, 2024.
- Inspection Programs for Single-Engine Turbine-Powered Airplanes and Unmanned Aircraft; Miscellaneous Maintenance-Related Updates published on January 30, 2024. The initial comment period was set to close on April 1, 2024; however, it has been extended to May 1, 2024.
- Modernization of Special Airworthiness Certification (MOSAIC) comment period reopened on February 8, 2024, until March 11, 2024. This allowed commenters to review and comment on a Memorandum to the Docket that the FAA posted on February 1, 2024 (regarding an ex parté communication between the FAA and representatives of American Society for Testing and Materials (ASTM) International.)
- Disclosure of Safety Critical Information published on January 25, 2024. The initial comment period was set to close on March 25, 2024; however, it has been extended to May 9, 2024.

FAA Rulemaking Process

Mr. Roberts gave a presentation to ARAC on changes to the FAA's rulemaking process. He explained that the FAA tasked a third party, The Regulatory Group, Inc. (TRG), to conduct a review of the FAA's rulemaking process. He discussed changes to the rulemaking process as a result of the review and further work conducted by an

interagency working group. Mr. Roberts stated that the agency is attempting to promote more transparent communications.

Ms. MacLeod asked if 'every [FAA] staff touching rulemaking' is required to take regulatory training (specifically noting courses taught by TRG). She stressed the importance of having trained staff working on rulemaking. Mr. Roberts noted that many of the experienced subject matter and rulemaking experts have retired, and that the agency does maintain training requirements. Ms. MacLeod suggested everyone, including attorneys, should be required to take rulemaking training.

Ms. MacLeod emphasized that ex parté is only applicable when the topic is in the rulemaking process (after the publication of an NPRM). She noted that ex parté does not apply to non-docketed information. Mr. Roberts agreed, noting that the agency, and DOT policy, encourages FAA staff to discuss information and answer questions on topics that are not part of any active rulemaking.

Mr. Oord asked if the findings of The Regulatory Group's study could be shared, and Mr. Roberts confirmed that it could not, but the changes made to the process based on those findings are being shared.

Mr. Hudson asked for an update on emergency evacuation standards and asked which office in FAA is handling this topic. Mr. Roberts noted that the FAA has taken the following actions on emergency evacuation so far: completed an ARC, conducted a test study, and put out a public request for comment. He said that the subject matter involves multiple FAA offices including (but not limited to): aircraft certification, general counsel, rulemaking, airspace medicine, and other DOT agencies that deal with air travel.

Mr. Roberts continued describing the FAA's rulemaking process, emphasizing the importance of committee work (ARCs and ARAC). He clarified that, although they sometimes do, the agency is not required to make ARC committee reports available to the public.

Mr. Roberts stated the FAA would email the presentation to ARAC members and post it to the FAA Committee website[3].

ARAC Membership Update

Mr. Roberts did not have any updates on ARAC membership. He noted that on November 2, 2023, the General Services Administration (GSA) proposed to amend the Federal Management Regulation (FMR) to update the regulations concerning Federal Advisory Committee Management[4]. Mr. Roberts noted that the changes in the proposed rule (RIN 3090-AK59) include increasing committee Transparency, Diversity, Equity,

[3] https://www.faa.gov/regulations_policies/rulemaking/committees
[4] https://www.federalregister.gov/documents/2023/11/02/2023-24181/federal-management-regulation-federal-advisory-committee-management

Access, Accessibility, and Inclusion, ensuring agencies attain a fairly balanced membership. He noted that the final rule is currently under review with the Office of Information and Regulatory Affairs (OIRA).

Adjournment

Mr. Oord stated that the next meeting will be moved to June 13, 2024, at 1:00 pm, to occur after the FAA-EASA Safety Conference. He concluded the meeting at 3:16 pm.

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

David Oord
Working Group Chair

June 2024

MEMBERS of ACSWG - INDUSTRY

- David Oord, Wisk
- Paul Alp, Independent
- Cindy Brickner, SSA
- Paul Cairns, Independent
- Kevin Comstock, ALPA
- Mariellen Couppee, Independent
- Eric Crump, Aerospace Center for Excellence
- David Dagenais, Independent
- Maryanne DeMarco, CAPA
- Rick Durden, Independent
- 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, A4A
- John McWhinney, King Schools
- Crystal Maguire, ATEC
- Nick Mayhew, CAE
- Jimmy Rollison, Independent
- Mary Schu, Mary Schu Aviation
- Roger Sharp, Independent
- Jackie Spanitz, ASA
- Burt Stevens, CFI Care
- Robert Stewart, Independent
- Tim Tucker, Robinson
- Donna Wilt, SAFE
- Roger Woods, Leonardo
- Philipp Wynands, Metro Aviation

MEMBERS of ACSWG – FAA

- Barbara Adams
- Bill Anderson
- James Ciccone
- Bryan Davis
- Joel Dickinson
- Mike Duffy
- Troy Fields
- Ramona Fillmore
- Adam Giraldes
- Laurin J. Kaasa
- Jeffrey Kerr
- Mike Millard
- Anne Moore
- Kevin Morgan
- Margaret Morrison
- Katie Patrick
- Andrew Pierce
- Jason Smith
- Shelly Waddell Smith
- Robert Terry
- Chris Thomas
- Matt Waldrop
- Stephanie Williams
- Bill Witzig

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 report
  - With Incorporation by Reference (IBR) final rule, working through scope of work, priorities, and timelines.

SCHEDULE

- **2023 Meetings –**
  - April 18 (virtual)
  - September 19 (virtual)
- **2024 Meetings**
  - Bi-monthly meetings of airworthiness subgroup
  - Working to establish cadence for future meetings of working group and associated subgroups

STATUS OF TASKING

- Incorporation by Reference (IBR) Final Rule published on April 1, 2024
  - Working to prioritize batch/group converting the Practical Test Standards (PTS) to ACS
  - FAA team re-org – still working through and discovering what the ACS development process looks like
- Publications
  - Working to develop process for ACS and Handook revisions
  - Once finalized and approved, revision schedule to be developed and based on prioritized list.
- Establishing sub-groups of volunteers to work through list.
  - Mechanic ACS subgroup to be established and begin work once FAA can provide their internal processes.

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

June 13, 2024

MEMBERS of Training Standardization Working Group

Thomas	Benvenuto	Solairus Aviation
Stephen	Bragg	Executive Jet Management
Greg	Brown	Helicopter Association International
Doug	Carr	National Business Aviation Association
Gene	Copeland	Jet Aviation
Jon	Dodd	Coalition of Airline Pilots Associations
Aimee	Hein	CAE, Inc.
Jens	Hennig	General Aviation Manufacturers Association
Brian	Koester	National Business Aviation Association
Todd	Lisak	Air Line Pilots Association
Steve	Maloney	Sun Air Jets
Brian	Neuhoff	Airbus Helicopters
Fabricio	Oliveira de Toledo	Embraer
Janine	Schwahn	Summit Aviation, Inc.
Brian	Small	FlightSafety International
Annmarie	Stasi	Northwell
Daniel	Von Bargen	Pilot
Brian	Roggenbaum	Textron

FAA Partners
Josh Tarkington
David Ryon
Shannon Salinsky
James Sapoznik
Kristin Tullius

**Membership pending DOT review*

SUMMARY OF TASKING

1) 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:

2) Recommend a detailed master schedule for the development of part 135 standardized curricula for each aircraft or series of aircraft;

3) Develop and recommend a standardized curriculum to qualify training center instructors and evaluators (check pilots) to provide part 135 training, testing, and checking;

4) 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;

5) Recommend continuous improvements to each part 135 standardized curriculum for a specific aircraft or series of aircraft; and

6) 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

- The voting members of the TSWG meet quarterly
- Action Teams meet weekly

AREAS of ARAC CONSIDERATION

- Current Action Team:
  - CL-30 Challenger 300 Series Action Team
  - Curriculum developed
  - Recommendation report ready by September
- Next Team:
  - BE-300 King Air Action Team
- FAA is working to publish guidance for Adaptive Recurrent Training
- Reviewing methods to expedite the recommendation process

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

Ric Peri

Working Group Chair

June 2024

MEMBERS of Repairman Portability WG

- Working Group membership:
  - Ric Peri – Aircraft Electronics Association (Chair)
  - Sarah MacLeod – Aeronautical Repair Station Association
  - Jeff King – Duncan Aviation
  - Ben Wigton – Garmin International
  - Martin Segraves – Texas State Technical College **
  - David Dowen -- Aviation Technical Services
  - Fred Dyen – University of Alaska Anchorage
- 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.

Schedule:

- This tasking notice requires two reports.
  - The preliminary report was due to the ARAC no later than 12 months after the first working group meeting.

    (Completed)

  - The final recommendation report is due to the ARAC no later than 12 months after ARAC forwards the preliminary report to the FAA.

    On target for 3rd Qtr 2024.

Final Report:

- The final recommendation report is due to the FAA no later than 12 months after ARAC forwards the preliminary report (Dec 2023) to the FAA.
  - Submitted June 1, 2024, for review and discussion at the November ARAC meeting.

Recommendations:

- The recommendations from the Preliminary Report (June 2023) are incorporated by reference in the Final Report.

Recommendations: Rulemaking

- To realize the full benefits of a repairman certificate issued under 14 CFR § 65.101, the Working Group continues to recommend—
  - A change to part 65 to allow the repairman to retain the certificate when it becomes ineffective between employers, rather than return it to the FAA as currently required by section 65.15(c).
  - The replacement of the term “repairman” with the term “limited mechanic” to reflect the similarity in the aeronautical knowledge, risk management, and skills of a 14 CFR part 65 subpart D mechanic.

Recommendations: Without rulemaking

- To allow portability within the current regulations the Final Report updates the recommendations from the Preliminary Report by …

Recommendations: Without rulemaking

- Assigning a permanent airman certificate number to repairman.

Recommendations: Without rulemaking

- Adding a repairman limitation to the 14 CFR part 65, subpart D mechanic certificate.

Recommendations: Without rulemaking

- Standardizing the aeronautical knowledge, risk management, and skill requirements to those developed for mechanics to recognize repairmen as limited mechanics.

Recommendations: Without rulemaking

- To facilitate adoption of the recommended changes, complete draft rewrites of:
  - Advisory Circular (AC) 65-24, and
  - FAA Order 8900.1, Volume 5, Chapter 5, Section 4.

Questions?

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

Keith R. Morgan
Subcommittee Chair

13 JUNE 2024

Members of the Transport Aircraft and Engines Subcommittee

Pratt & Whitney

ALPA

A4A

Airbus

Boeing

GAMA

Embraer

SRCA

FAA

EASA

TCCA

TAE Meeting Schedule

- 2024 Meetings
  - January 23
  - April 23
  - July 23
  - October 22 (face-to-face Washington DC)

Active Working Groups

- Flight Test Harmonization (FTHWG)
- Engine Ice Crystal Icing (ICIWG)
- Engine Powerplant Interface (EPIWG)

Look Ahead Report Submittal Schedule to ARAC

June 2024

- FTHWG Landing Distance for Abnormal Configurations

September 2024

- FTHWG Reduced/Derated Thrust Takeoff Procedures

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

23 April, 2024

MEMBERS of Flight Test Harmonization Working Group Phase 4

Authorities	OEM's			Observers
FAA Joe Prickett Troy Brown (sponsor)	Airbus Philippe Genissel + SME's	Embraer Murilo Ribeiro + SME's	ATR Matthieu Ollivier Thierry Pauliard +SME's	JCAB (Japan) Shinsuke Yamauchi
				CAAI (Israel) Yshmael Bettoun
EASA Lorenzo Prieto Saiz	Boeing Brian Lee (Acting) Ryan Westbrock + SME's	Gulfstream Mike Watson +SME's	Airbus Canada Dimitri Cuesta +SME's	Norwegian Airlines John Lande
Transport Canada Lee Fasken	Bombardier Tony Spinelli +SME's	Textron Kurt Laurie +SME's	DeHavilland Canada Eric Herrmann +SME's	
				Operators
ANAC (Brazil) Marcos Carvalho	Dassault Philippe Eichel +SME's			ALPA John Cinnamon Brandon Miller

Status of Working Group Activities

- Regular Meetings
  - Quarterly face-to-face meeting (two in Europe, two in North America)
  - Weekly scheduled telecons
- Additional working meetings
  - Subteams of FAME are meeting regularly (IN ADDITION) in support of the larger group
    - Effects of Environmental Factors
    - Flight Envelope for assessing failures

STATUS OF TASKING

- Work is continuing on 3 topics:
  - FAME (how to deal with failures affecting Handling Qualities)
  - Landing Distance for Abnormal Configurations (Draft report is very close)
  - Reduced/Derated Thrust Takeoff Procedures (Draft report in discussion)

- Leadership planning for Phase 5 tasking Complete
  - FAA sponsor has sent tasking statement for publication

Phase 4 FTHWG Topic Technical Status (1 of 2)

045

- Topic #16 Failure Assessment Methodology & Evaluation (FAME)
  - Now fully engaged (including good interaction with System Safety SME's) making progress
    - EASA is mostly back with us
  - 2 sub-teams chartered and meeting regularly
    - Recommend Consistent Flight Envelope for failure evaluations
    - Recommend Consistent Environmental Conditions for failure evaluations
  - Interactions with CATA regarding 25.672: Questions have gone both directions, on-going
  - Team has generated evaluation procedures, processes, rating scales, and application of environmental conditions, etc.
    - Asked each member organization to begin using these in pilot studies, compare to previous known results
  - Team expects to not finish by June, 2024, propose to carry into Phase 5. Team wants this to be done right

Phase 4 FTHWG Topic Technical Status (2 of 2)

- Topic # 26 Landing in Abnormal Configurations
- Scrambling at the end
- Significant discussion of contaminated runway landing factors
  - Team anticipates
    - TAE by end of April, 2024 (although it might be after the scheduled TAE meeting)
    - To facilitate going to ARAC in June, 2024
- Topic # 22 Derate Thrust Procedures has begun
  - Team has encountered a snag regarding demonstration of throttle push during a de-rated thrust takeoff, which might be below Vmc
    - This will result in a dissenting opinion (attempts to harmonize and avoid the dissent distracted from other topics in the report)
  - Team is working toward delivery of recommendation by end of May
    - We understand that puts TAE in a bind: we will miss ARAC in June
    - Otherwise, we are sure we can get the recommendation to TAE by July meeting
    - Focus for the team is finishing this recommendation

Phase 5 Planning

- Planning for Phase 5 complete (due dates from tasking date)
  - Tasking Statement transmitted for publication in Federal Register
    - (16) FAME (continue from Phase 4) (30 months)
      - Includes System Safety and Propulsion SME's (for 901C3)
    - (21) Narrow Runway (Baseline finished, now move to "narrower than baseline") (30 months)
      - Delayed start to allow for System Safety participation
    - (42) Use of Simulation for Certification (36 months)
      - Harmonize and improve wording in current guidance to encourage more use
    - (24) HUD/Autoland Landing Distance (18 months)
      - Improve consistency during landing operations
    - (34) Vmc Limit during Approach (24 months)
      - Generate equivalent to Vmc_L for approach flaps
    - (38) Stall ID / Protection Systems (36 months)
      - Harmonize guidance for pusher systems
    - (23) Tail Clearance during Certification Testing (18 months)
      - Harmonize philosophy for inadvertent contact with the tailskid

AREAS for ARAC CONSIDERATION

- We would like to continue to encourage Authorities to support this activity across necessary disciplines (as other members are)
  - This situation has gotten better! Thank you!

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

Melissa Bravin
Allan van de Wall
Working Group Co-Chairs

8 May 2024

ICI Working Group Membership

No Change

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
Dayne Olmstead	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

No Change

- 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.

2024 Schedule

- F2F meeting held 6-8 February 2024 @ Honeywell, Phoenix, AZ
- Other F2F meetings subject to need
- Monthly telecons as needed planned for 2024
  - Awaiting more information from joint probability study (details on next slide)

STATUS OF TASKING – 1 / 2

1. **COMPLETE -** Evaluate recent ICI environment data obtained from both government and industry to determine whether flight testing data supports the existing Appendix D envelope.

2. **IN-WORK -** Evaluate the results carried out in Task 1 and recommend changes to the existing Appendix D envelope, as required.

   a) **Joint Probability Study IN-WORK -** 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).

   - **UPDATES:**
     - **Funding released for FAA / NASA Langley contract, anticipated to kick off June 2024**
     - **Current prediction is that joint probability study projected to complete in by end of 2024**
     - **ICIWG requested and received approval for new end date of December 2025**

3. **COMPLETE -** 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. **COMPLETE -** 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

STATUS OF TASKING – 2 / 2

5. **COMPLETE -** 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. **COMPLETE -** 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. **COMPLETE -** Assist the FAA in determining the initial qualitative and quantitative costs, and benefits that may result from the working group's recommendations.
8. **FINAL REPORT IN-WORK -** 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.
   - ARAC Report ECD December 2025

AREAS of ARAC CONSIDERATION

- None

Engine Powerplant Interface Working Group Status Report Transport Aircraft and Engines Subcommittee

Melissa Bravin
Doug Beneteau
Working Group Co-Chairs

23 April 2024

EPIWG Introduction

- The EPIWG will provide advice and recommendations to the ARAC on the most effective ways to resolve regulatory and guidance gaps and conflicts between part 33 and part 25. EPIWG recommendations should maximize harmonization of airworthiness authority regulations and guidance to the extent practicable.

EPIWG Working Group Membership

Name	Organization	Role	Voting Member
Rob Esteve	PW		Yes
Doug Marchese	ALPA		Yes
Pierre-Emmanuel Arnaud	Airbus		Yes
Philippe Vigarios	Airbus		Yes
Dominique Bernard Tosolini	Safran		Yes
Doug Beneteau	GE Aerospace	Co-Chair	Yes
David Berger	GE Aerospace		Yes
Marco Fraternale	Leonardo Helicopters (Italy)		Yes
Ian Morris	Leonardo Helicopters (Yeovil)		Yes
Michael Dwight Danielson	Bombardier		Yes
James Barter	Bombardier		Yes
Melissa Bravin	Boeing	Co-Chair	Yes
Dylan Welsh	Boeing		Yes
Allison Bassett	Boeing		Yes
Maria Fernanda Dalla Rosa	Embraer		Yes
Thomas Andrew Rothermel	Gulfstream		Yes

Name	Organization	Role	Voting Member
Federica Musella	Rolls-Royce		Yes
Peter Turyk	PWC		Yes
Philippe Conchon	Dassault		Yes
Shawna Greiner	Honeywell Aerospace		Yes
Nathalie Goudin	ATR		Yes
Alan Strom	FAA AIR-62A	FAA Representative	No
Tim Mouzakis	FAA AIR-625		No
Jeff Stillinger	FAA AIR-625		No
Doug Bryant	FAA AIR-625		No
Brian Kierstead	FAA AIR-625		No
Deepak Kamath	FAA AIR-625		No
Phil Dang	FAA AIR-625		No
Philippe Hemeury	EASA		No
Angus Abrams	EASA		No
Marcelo Saito	ANAC		No
Roop Dhaliwal	TCCA		No
Grant Taylor	TCCA		No

EPIWG SMEs for Task a) Rotor Blade Fragments

Name	Company
Antoine Pilon	Airbus
Torben Syberg	Boeing
Andrew Kulak	Boeing
Alexander Girgenti	PW
Bill Graves	PW
Kevin Kirkeng	GE Aerospace
Juan van der Merwe	Rolls-Royce
Alain Bassot	Safran
Matthew Kappes	Rolls-Royce
Moritz Wirth	Rolls-Royce
Michael Bolis	Boeing
Katherine Cerra	Boeing

Tasking Summary

In work

a) Rotor Blade Fragments: Propose revisions and new data reporting requirements under § § 33.19 and 33.94 and b) guidance for compliance with part 25 to ensure that engine containment test data can be properly evaluated at the aircraft level. This task would include both airplane and engine recommendations to completely address the current policy gaps regarding rotor burst.

b) Function & Reliability Testing: Review 14 CFR part 33 to determine how it supports the engine function and reliability flight test requirements of 14 CFR § 21.35(b)(2) and (f). If needed, propose amendments to the relevant regulations or guidance.

c) Engine Restart/Relight: Provide recommendations to resolve part 33 and part 25 regulatory or guidance gaps, or conflicts with respect to rapid restart/high power fuel cuts and quick windmill relight requirements.

d) Inhibition of engine protection systems used to comply with part 33: Address if and when part 25 aircraft systems should be able to deliberately inhibit the operation of engine systems used to meet part 33 safety requirements (e.g., software used as a means of compliance to prevent hazardous engine conditions resulting from shaft failure under § 33.27(a) and (c)). As a minimum, recommend whether additional allowance for aircraft inhibition of engine protection systems should go beyond the conditions described in FAA Policy Statement PS-AIR-33.27-02, "Turbine, Compressor, Fan, and Turbosupercharger Rotor Overspeed Engine Control Systems, 14 CFR § 33.27(c) & (e)," Dated February 2, 2023.

e) Electrical Wiring Interconnection Systems (EWIS): Propose changes to part 33 to ensure the engine would meet the part 25 subpart H and Appendix H25.5 EWIS requirements at the time of engine certification, without additional FAA certification findings at the part 25 level.

f) Thrust Reverser Aircraft Requirement Guidance: Recommend changes to AC 20-18B, "Qualification Testing of Turbojet and Turbofan Engine Thrust Reversers," dated July 7, 2015, to include additional part 25-specific thrust reverser requirements.

g) Where applicable, for any changes to FAA regulations proposed under each sub-task, provide quantitative and qualitative estimates of the resulting costs and benefits.

h) Develop reports for each task containing recommendations on the findings and results of the tasks explained above.
   a. The recommendation report should document both majority and dissenting positions on the findings and the rationale for each position.
   b. Any disagreements should be documented, including the rationale for each position and the reasons for the disagreement.
   c. The working group may submit incremental reports covering individual sub-tasks to the TAE for consideration by the ARAC.

Tasking Summary Change Request

From:

Rotor Blade Fragments: Propose revisions and new data reporting requirements under § § 33.19 and 33.94 and b) guidance for compliance with part 25 to ensure that engine containment test data can be properly evaluated at the aircraft level. This task would include both airplane and engine recommendations to completely address the current policy gaps regarding rotor burst.

To:

Rotor Blade Fragments: Propose revisions and new data reporting requirements under § § 33.19 and 33.94 and b) guidance for compliance with part 25 to ensure that engine containment test data can be properly evaluated at the aircraft level. This task would include both airplane and engine recommendations to completely address the current policy gaps regarding rotor blade failure.

The committee proposes this update as ‘rotor burst’ refers to disk failure, not blade failure as is the intention. This change has been coordinated with the FAA Representative (Alan Strom).

2024 Schedule

✓Kickoff meeting held 9-11 January @ FAA, Burlington, MA

- June 11-13, 2024 – F2F meeting @ GE, Cincinnati, OH
- September 2024 – F2F meeting @ Boeing, Seattle, WA
- November 2024 – F2F meeting in EU @ Rolls Royce

- Telecons every 2 weeks

Tasking Status

- WG decided to limit work to one task at a time due to resource constraints (at least initially)
- Task (a) was introduced at kickoff meeting
- Follow-up telecons began in February
- Efforts to date focused on building detailed text to enable specific steps to be identified
  - Examples: review of field events, which components are of interest when evaluating blade-out capability, industry modeling capability for this complex scenario, etc.
- June F2F expected to deliver a granular plan to move the tasking forward

Areas of ARAC Consideration

- None

Landing in Abnormal Configurations

FTHWG Recommendation Summary

Presented to ARAC

13 June, 2024

B. P. Lee

FTHWG US Co-Chair

Executive Summary: Topic 26 Abnormal Config Landing

- **No FAA/ANAC/TCCA advisory material is available to provide guidance with respect to the scheduling of data for landing in abnormal configurations.**

- **EASA has introduced in CS 25 Amdt 21 the requirement 25.1587(c), and its associated AMC which was based on generic JAA/EASA CRI "Landing in abnormal configurations".**

- **FTHWG was tasked to determine the best way to harmonize this situation and to provide proposed rulemaking and associated guidance to implement the harmonized result.**

The Recommendation

…after much discussion of many details

- The best place for a requirement for landing distance following annunciated failures is in the Time of Arrival Landing Distance specification, 25.1592 (not 25.1587(c) as used by EASA)
  - Updated text for 14 CFR 25.1592 (based on the requirements recommended in Topic 32 - Codification of Part 25 Takeoff and Landing Performance Assessment (TALPA)) which will require information to be provided in the Airplane Flight Manual (AFM) for landing distances in abnormal configurations
  - Updated AC 25-1592 (based on the AC recommended in Topic 32 - Codification of Part 25 Takeoff and Landing Performance Assessment (TALPA) Recommendation Report) to incorporate advisory material for determination of landing distances in abnormal configurations
  - EASA replacement of CS 25.1587(c) (resp. AMC 25.1587(c)) by CS 25.1592 (resp. AMC 25.1592)
  - No update in 14 CFR / CS 25.1581 requirement and guidance
  - No update in FAA AC 25-7X

The Details (1 of 4)

- AFM Data presentation
  - Factors, increments, or absolute distances…After review, existing methods would be acceptable
- Use of LDTA Concept
  - Guidance material consistent with LDTA concepts (e.g. operationally representative) to be integrated into AC 25.1592 (from Topic 32)
- Input Parameters and Runway Surface Considerations
  - Accounting for each parameter independently or conservatively enveloping effects involves a balance of conservatism vs ease of use and the potential of over-conservatism leading to unwarranted diversions. Guidance allows flexibility.
  - Similarly, the effect of surface condition can be accounted specifically or by enveloping effects, as long as it is clear what data the pilot should use for the reported runway conditions.

The Details (2 of 4)

- Approach Speed Additives
  - Distances must be based on speed at the threshold
  - Approach Speed must include additives necessary to cope with the failure plus icing
  - Speed additives for other reasons (e.g. auto-throttle, winds, etc. remain at the discretion of the crew
  - Up to 10 knot overspeed consideration may not be applicable, e.g. if the speed additive for the failure plus 10 knots exceeds the maximum recommended approach speed.
- Landing Distance Safety Factor
  - Absolute (unfactored) landing distance is the most appropriate mechanism to allow crews to evaluate risks of landing or diversion
- Credit for Reverse Thrust
  - Reverse thrust credit can be included, without regard for reliability, if it is available considering the failures encountered.

The Details (3 of 4)

- Criteria for Failure Selection for provision of landing data
  - Failure probability >1E-7 considered as a threshold for provision of data
  - Decided not to be prescriptive regarding combinations of failures
- Air Distance for Failures
  - Operationally representative LDTA methods can be used
  - For failures affecting the flare, this should be justified
- Delays for deceleration devices
  - Delays should be kept for computing distances with failures
- Dry Runway Friction Coefficient
  - Friction Coefficient for Dry Runways should be same as for LDTA (95% of measured friction)
- Guidance for nominal distance computation (for methods using factors)
  - Agreed to not be prescriptive as long as it was clear how to compute the overall abnormal distance

The Details (4 of 4)

- Maximum Weight for consideration
  - Concluded that landing distances should include weights up to maximum takeoff weight to a practicable extent, but should not introduce an undue need for a diversion.

Additional Comments (Recommendations)

- Time of Arrival Climb Gradient with Failures
  - This task was about landing distance
  - It is recommended that this be considered in the future
- Brake Energy and Tire Speed
  - This task was about landing distance
  - Exceeding of brake energy or tire speed limits may happen in only limited number of cases. Nevertheless, it is recommended that this be considered in the future.
- Castoring Nosewheel to simulate contaminated surfaces
  - Use of castoring nosewheel has been established as a conservative method for reduced friction on wet runways, but not technically justified for contaminated surfaces.
  - Both the TALPA recommendations and EASA CRI for reverse thrust credit on contaminated surfaces extend this for contaminated surfaces.
  - Given the impractical nature of collecting specific test data or modelling tire-ground interactions in simulation, the Working Group accepts this practice.

Consensus

- The working group has arrived at this recommendation unanimously
- There were no dissenting opinions.

Engine Powerplant Interface Working Group Status Report Transport Aircraft and Engines Subcommittee

Melissa Bravin
Doug Beneteau
Working Group Co-Chairs

13 June 2024

Engine Powerplant Interface Working Group (EPIWG)

- Purpose: To provide recommendations to the ARAC on the most effective ways to resolve regulatory and guidance gaps and conflicts between 14 CFR Part 25 & 33.

- Recommendations should maximize harmonization of airworthiness authority regulations and guidance to the extent practicable (FAA, EASA, ANAC, TCCA)

Working Group Membership

Name	Organization	Role	Voting Member
Rob Esteve	PW		Yes
Doug Marchese	ALPA		Yes
Pierre-Emmanuel Arnaud	Airbus		Yes
Philippe Vigarios	Airbus		Yes
Dominique Bernard Tosolini	Safran		Yes
Doug Beneteau	GE Aerospace	Co-Chair	Yes
David Berger	GE Aerospace		Yes
Marco Fraternale	Leonardo Helicopters (Italy)		Yes
Ian Morris	Leonardo Helicopters (Yeovil)		Yes
Michael Dwight Danielson	Bombardier		Yes
James Barter	Bombardier		Yes
Melissa Bravin	Boeing	Co-Chair	Yes
Dylan Welsh	Boeing		Yes
Allison Bassett	Boeing		Yes
Maria Fernanda Dalla Rosa	Embraer		Yes
Thomas Andrew Rothermel	Gulfstream		Yes

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Shawna Greiner	Honeywell Aerospace		Yes
Nathalie Goudin	ATR		Yes
Alan Strom	FAA AIR-62A	FAA Representative	No
Tim Mouzakis	FAA AIR-625		No
Jeff Stillinger	FAA AIR-625		No
Doug Bryant	FAA AIR-625		No
Brian Kierstead	FAA AIR-625		No
Deepak Kamath	FAA AIR-625		No
Phil Dang	FAA AIR-625		No
Philippe Hemeury	EASA		No
Angus Abrams	EASA		No
Marcelo Saito	ANAC		No
Roop Dhaliwal	TCCA		No
Grant Taylor	TCCA		No

Tasking Summary

In work

a) Rotor Blade Fragments: Propose revisions and new data reporting requirements under § § 33.19 and 33.94 and b) guidance for compliance with part 25 to ensure that engine containment test data can be properly evaluated at the aircraft level. This task would include both airplane and engine recommendations to completely address the current policy gaps regarding rotor blade failure.

b) Function & Reliability Testing: Review 14 CFR part 33 to determine how it supports the engine function and reliability flight test requirements of 14 CFR § 21.35(b)(2) and (f). If needed, propose amendments to the relevant regulations or guidance.

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g) Where applicable, for any changes to FAA regulations proposed under each sub-task, provide quantitative and qualitative estimates of the resulting costs and benefits.

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   a. The recommendation report should document both majority and dissenting positions on the findings and the rationale for each position.
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   c. The working group may submit incremental reports covering individual sub-tasks to the TAE for consideration by the ARAC.

EPIWG SMEs for Task a) Rotor Blade Fragments

Name	Company
Antoine Pilon	Airbus
Torben Syberg	Boeing
Andrew Kulak	Boeing
Alexander Girgenti	PW
Bill Graves	PW
Kevin Kirkeng	GE Aerospace
Juan van der Merwe	Rolls-Royce
Alain Bassot	Safran
Matthew Kappes	Rolls-Royce
Moritz Wirth	Rolls-Royce
Michael Bolis	Boeing
Katherine Cerra	Boeing

2024 Schedule

✓Kickoff meeting held 9-11 January @ FAA, Burlington, MA

✓June 11-13, 2024 – F2F meeting @ GE, Cincinnati, OH

- September 17-19, 2024 – F2F meeting @ Boeing, Seattle, WA
- December 3-5, 2024 – F2F meeting in @ Rolls Royce, Berlin, Germany

- Telecons every 2 weeks

Tasking Status

- WG decided to limit work to one task at a time due to resource constraints (at least initially)
- Task (a) was introduced at kickoff meeting
- Follow-up telecons began in February
- Efforts to date focused on building detailed text to enable specific steps to be identified
  - Examples: review of field events, which components are of interest when evaluating blade-out capability, industry modeling capability for this complex scenario, etc.
- June F2F further developed detailed plan and report outline

June 11-13 F2F Outcomes

- Re-enforced tasking is specific to Fan Blade-out (FBO), does not pertain to other Low and High Pressure modules
- Reviewed existing regulations to begin understanding differences and intent (14 CFR Part 25/33 & CS-E), including recent CS-E amendment 7 updates specifying fragment aircraft assessment
- Agreement on initial terminology related to FBO events
- Identified data needed & timing within collaborative engine/aircraft design phase to support airframe OEM hardware capability evaluations (in addition to 14 CFR 33.94 redline)
  - Critical Point Analysis (CPA): Fan blade release @ various speeds for blade fragmentation, trajectories and aircraft structure loads
- Reviewed select engine OEM modeling capabilities to enable airframe OEM assessments, predictive capability focused on primary and secondary fragment trajectory within the containment case. Discussions to continue.
  - Opportunity to identify funding sources to enhance capabilities (Research, Engineering, and Development Advisory Committee – REDAC)
- Initiated report outline … to be reviewed with TAE
- May initiate task 2 (Function and Reliability Testing) late ’24 or early ‘25 depending on Task 1 progress

On track to deliver initial recommendation report for the first sub-task to the ARAC not later than 24 months after the first working group meeting

Areas of ARAC Consideration

- None