



## AVIATION RULEMAKING ADVISORY COMMITTEE (ARAC) MEETING

June 18, 2020 \*\*\*1:00 PM – 4:00 PM

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- Welcome and Introductions
  - Federal Advisory Committee Act (FACA) Statement
  - Ratification of Minutes
  - Status Reports
    - ARAC
      - Airman Certification System Working Group – Mr. David Oord
        - ❖ Previous Tasks to include Private, Commercial, ATP, Instructor, and AMT certificates and Instrument Rating (Present Interim Recommendation report to ARAC: 6/2018)
        - ❖ Expanded tasks of Sport Pilot and Recreational Pilot certificates and all additional remaining category and class pilot certificates and ratings (Present Recommendation Report to ARAC: 12/1/2021)
        - ❖ Interim Recommendation Report – Airplane Flying Handbook along with new Airman Certification Standards for Flight Instructor – Powered-Lift, Private Pilot – Balloon, and Airline Transport Pilot & Type Rating – Helicopter.
      - Part 145 Working Group – Ms. Sarah McLeod
        - ❖ Preliminary Report (Present Preliminary Report to ARAC: 9/10/2020)
        - ❖ Final Report (Present Recommendation Report to ARAC: 9/2021)
      - Designated Pilot Examiner Working Group (Present Recommendation Report to ARAC: 12/10/2020) – Mr. Sean Elliott
    - Transport Airplane and Engine (TAE) Subcommittee – Mr. Keith Morgan
      - Flight Test Harmonization Working Group – Mr. Brian P. Lee
        - ❖ Topic 16 Handling Qualities Rating Method (HQRМ) (Present Recommendation Report to ARAC: TBD)
      - Transport Airplane Metallic and Composite Structures Working Group – Mr. Doug Jury
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- ❖ Repeat Inspections and Crack Interaction (Present Recommendation Report to ARAC: 9/10/2020)
- ❖ Structural Damage Capability for Single Load Path Structure (Present Recommendation Report to ARAC: 9/10/2020)
- ❖ Structural Bonding and “Weak Bonds” (Present Recommendation Report to ARAC: TBD)
- Avionics System Harmonization Working Group (Present Recommendation Report to ARAC: 9/10/2020) – Mr. Clark Badie
- Ice Crystals Icing Working Group (Present Recommendation Report to ARAC: 12/10/2020) – Ms. Melissa Bravin and Mr. Allan van de Wall
- Recommendation Reports
  - Flight Test Harmonization Working Group – Mr. Brian P. Lee
    - Topic 15 Pilot Induced Oscillation
    - Topic 31 Definitions for Vdf/Mdf
- Any Other Business
  - Updated on the ARAC Training Standardization Working Group
  - FAA update on regulatory activities

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](https://www.faa.gov/regulations_policies/rulemaking/committees/documents/index.cfm/committee/browse/committeeID/1)

## AVIATION RULEMAKING ADVISORY COMMITTEE RECORD OF MEETING

**MEETING DATE:** March 19, 2020

**MEETING TIME:** 1:00 PM EST

**LOCATION:** Please note the ARAC held a “**virtual**” meeting only. The dial-in number and screen share information were emailed to participants prior to the meeting.

**PUBLIC ANNOUNCEMENT:** The Federal Aviation Administration (FAA) provided notice to the public of this Aviation Rulemaking Advisory Committee (ARAC) meeting in a *Federal Register* notice published on January 31, 2020 (85 FR 5768).

**ATTENDEES:** **Committee Members**

|                    |  |
|--------------------|--|
| Yvette A. Rose     | Cargo Airline Association (CAA)<br><i>ARAC Chair</i>                   |
| Michelle Betcher   | Airline Dispatchers Federation (ADF)                                   |
| Doug Carr          | National Business Aviation Association, Inc. (NBAA)                    |
| Tom Charpentier    | Experimental Aircraft Association (EAA)                                |
| Ambrose Clay       | National Organization to Insure a Sound Controlled Environment (NOISE) |
| Walter Desrosier   | General Aviation Manufacturers Association (GAMA)                      |
| Gail Dunham        | National Air Disaster Alliance Foundation (NADAF)                      |
| Stéphane Flori     | Aerospace & Defense Industries Association of Europe (ASD)             |
| Daniel Friedenzohn | Embry Riddle Aeronautical University (ERAU)                            |
| Paul Hudson        | FlyersRights.org   |
| Randy Kenagy       | Air Line Pilots Association (ALPA)                                     |

|                   |  |
|-------------------|--|
| Sarah Macleod     | Aeronautic Repair Station Association (ARSA)                                   |
| Chris Martino     | Helicopter Association International (HAI)                                     |
| Paul McGraw       | Airlines for America (A4A)   |
| Keith Morgan      | Pratt & Whitney, Chair of the Transport Aircraft and Engine (TAE) Subcommittee |
| George Paul       | National Air Carrier Association (NACA)  |
| Ric Peri          | Aircraft Electronics Association (AEA)   |
| Leslie Riegle     | Aerospace Industries Association (AIA)   |
| Larry Rooney      | Coalition of Airline Pilots Association (CAPA)                                 |
| Melissa Sabatine  | American Association of Airport Executives (AAAE)                              |
| Steven Udvar-Hazy | Aviation Capital Group   |
| Bill Whyte        | Regional Airline Association (RAA)   |
| Chris Witkowski   | Association of Flight Attendants (AFA)   |
| <b>Attendees</b>  |  |
| Andrew Appelbaum  | FlyersRights.org   |
| Clark Badie       | Honeywell, Avionics System Harmonization Working Group Chair                   |
| Melissa Bravin    | The Boeing Company   |
| Julie Brightwell  | The Boeing Company   |
| Brad Brown        | Southwest Airlines, Flightdeck Secondary Barrier Working Group Co-Chair        |
| Chris Cooper      | Aircraft Owners and Pilots Association (AOPA)                                  |
| Maryanne DeMarco  | Coalition of Airline Pilots Association  |
| Tobias Gilbert    | Government Accountability Office (GAO)   |

|                        |  |
|------------------------|--|
| Robert Jones           |  |
| Doug Jury              | Delta Air Lines  |
| Wolfgang Koch          | ALPA, Flightdeck Secondary Barrier Working Group<br>Co-Chair |
| Brian Lee              | The Boeing Company   |
| Nick Nadarski          | GAO  |
| David Oord             | Lilium, Airman Certification Systems Working Group<br>Chair  |
| Paul Siegmund          | The Boeing Company   |
| Larry Thomas           | GAO  |
| Kevin Woodward         | The Boeing Company   |
| <b>FAA</b>             |  |
| Marcia Alexander-Adams | Office of Communications                                     |
| Leisha Bell            | Flight Standards Service                                     |
| Kathleen Bradshaw      | Aircraft Certification Service                               |
| Rob Burke              | Flight Standards Service                                     |
| Paul Cloutier          | Flight Standards Service                                     |
| Thuy Cooper            | Office of Rulemaking   |
| Jim Crotty             | Office of Rulemaking   |
| Nia Fields             | FAA Intern   |

|                    |   |
|--------------------|---|
| Jeff Finley        | Aircraft Certification Service                                  |
| Quentin Flinn      | Office of Rulemaking  |
| Katie Foreman      | Office of Aviation Policy and Planning                          |
| Jeff Gardlin       | Aircraft Certification Service                                  |
| Andrew Giacini     | Office of Government and Industry Affairs                       |
| Christopher Glover | Office of the Chief Counsel                                     |
| Brent Hart         | Office of Rulemaking  |
| Joe Jacobsen       | Aircraft Certification Service                                  |
| Gary Kolb          | UAS Integration Office  |
| Daniel Leach       | Office of Aviation Policy and Planning                          |
| Eva Ngai           | Office of Communications  |
| George Padalec     | Flight Standards Service  |
| Lakisha Pearson    | Office of Rulemaking  |
| Bill Petrak        | Flight Standards Service  |
| Brandon Roberts    | Office of Rulemaking<br><i>Designated Federal Officer (DFO)</i> |
| Puja Sardana       | The Regulatory Group/FAA  |
| Mary Schooley      | Aircraft Certification Service                                  |
| Giles Strickler    | Office of Rulemaking  |
| Alan Strom         | Aircraft Certification Service                                  |
| Mary Thompson      | Flight Standards Service  |

|               |                                |
|---------------|--------------------------------|
| Larry West    | Flight Standards Service       |
| James Wilborn | Aircraft Certification Service |
| Brian Zane    | Office of Rulemaking           |

### ***Welcome and Introduction***

Ms. Yvette Rose, ARAC Chair, called the meeting to order at 1:05 p.m. Ms. Rose asked Mr. Brandon Roberts, Designated Federal Officer (DFO), to introduce features of Zoom, the teleconference platform that was used for the virtual meeting. Mr. Roberts emphasized the importance of not postponing this ARAC meeting and thanked everyone for their virtual participation. He reminded everyone that this, like all ARAC meetings, will be recorded. Mr. Roberts reviewed features of Zoom, including how to get the hosts' attention, how to speak using the group chat function, and how to access the participant list. Ms. Thuy Cooper asked that anyone who dialed-in on the phone (and did not log into Zoom) to send their names to the ARAC email to have their attendance recorded. Mr. Roberts noted that Federal Advisory Committee Act (FACA) rules will still apply, and speakers will be recognized by Ms. Rose.

Ms. Rose confirmed attendance of ARAC members and key participants based on that participant list provided by Zoom. She welcomed the newest ARAC member, Steven Udvar-Hazy. Ms. Rose requested other attendees and FAA staff email their names to the FAA.

Mr. Roberts read the required FACA, Title 5, United States Code (5 U.S.C.); Appendix 2 (2007) statement, and he confirmed that the meeting is public and that members of the public may address the ARAC with the permission of the Chair.

### ***Ratification of Minutes***

Ms. Rose asked if there was a motion to accept the minutes from the December 12, 2019, ARAC meeting. Mr. Daniel Friedenjohn moved to accept the minutes, and Mr. Paul Hudson seconded the motion. All ARAC members voted to ratify the minutes.

### ***Status Reports***

Ms. Rose noted that she received a clarification request from the FAA regarding the Engine Harmonization Working Group (EHWG)'s "Alternate Test to 14 CFR 33.87 Endurance Test EHWG task from Federal Register Vol.79, #14 Jan 22<sup>nd</sup> 2014" final recommendation report from 2017. Ms. Rose submitted the letter to the TAE Subcommittee chair, Mr. Keith Morgan. Mr. Morgan confirmed that the EHWG would

provide a clarification. Ms. Rose noted that a copy of the letter will be distributed to ARAC members.

The following status reports were then presented to the ARAC. Please note that presentations presented at the March 19, 2020, meeting may be found at [https://www.faa.gov/regulations\\_policies/rulemaking/committees/documents/index.cfm/document/information?documentID=4322](https://www.faa.gov/regulations_policies/rulemaking/committees/documents/index.cfm/document/information?documentID=4322).

### **Airman Certification Systems Working Group (ACSWG)**

Mr. David Oord, ACSWG Chair, provided the status report for the ACSWG, including an overview of membership, a summary of tasking, a look at the group's schedule, the status of tasking, and areas for ARAC consideration.

Mr. Oord reviewed the summary of tasking, which included:

- Provide recommendations regarding standards, training guidance, test management, and reference materials for airman certification purposes.
- Continuation of Air Transport Pilot (ATP), 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.

Mr. Oord summarized the schedule and stated the final recommendation should be complete by June 2020. Mr. Oord reported that the working group recently canceled a meeting due to COVID-19, and their next meeting is scheduled for June 23-24, 2020.

In the status of tasking update, Mr. Oord said that progress has been made on the Aviation Instructor's Handbook. He reported that the working group should have a formal request for the Airplane Flying Handbook by the June ARAC meeting. Mr. Oord noted that the Risk Management Handbook and the refinement and improvement of existing standards are actively being worked on, and the new test management service is going well with a completion goal of next January.

Under areas of ARAC consideration, Mr. Oord formally requested an extension, from June 2020 to December 2021 (provided no more government shutdowns or pandemics), to complete all taskings.

Ms. Sarah Macleod motioned to accept the extension, and Mr. Paul McGraw seconded the motion. All members of the ARAC voted in favor to grant the extension until December 1, 2021.

## **Part 145 Working Group**

Ms. MacLeod provided the Part 145 status report, including an overview of membership, a summary of tasking, a look at the working group's schedule, and a status of tasking.

Ms. MacLeod noted that membership had changed slightly. She stated that the working group had not had any formal meetings, but there have been several exchanges between the co-chairs to outline and start drafting the recommendation report. Ms. MacLeod said the working group has begun drafting the recommendation report, and it plans to continue working on it until August to make the preliminary report deadline of September. Ms. Rose asked Ms. MacLeod to clarify if that September deadline referred to this year, 2020, which Ms. MacLeod replied in the affirmative. Ms. MacLeod stated that the working group is planning to have the report completed by September 2020 in order to get it to the ARAC a month before the December 2020 ARAC meeting. An ARAC member, seeking further clarity, asked if a preliminary report would be submitted this year (in 2020) and a final report would be submitted next year (in 2021). Ms. MacLeod confirmed that was correct. Ms. MacLeod further explained that the preliminary report will include everything the working group has been addressing and propositions on how to move forward, and the final recommendation report will be an actual product.

## **Designated Pilot Examiners Working Group (DPEWG)**

Ms. Rose asked if Mr. Sean Elliott (EAA) was available to provide an update for the DPEWG. Mr. Tom Charpentier noted that Mr. Elliott was currently attending a DPEWG meeting and that there are currently no updates to report.

## **Transport Aircraft and Engine (TAE) Subcommittee**

Mr. Keith Morgan, TAE Subcommittee Chair, provided the TAE Subcommittee status report. He stated that membership is constant, and the subcommittee recently held a virtual meeting (instead of a face-to-face meeting) because of COVID-19. He reviewed the upcoming meeting schedule, which included a telecom scheduled in July and a face-to-face meeting scheduled in October.

Mr. Morgan stated that there are currently five active TAE Subcommittee working groups: Flight Test Harmonization, Transport Airplane Metallic and Composite Structure, Ice Crystal Icing, Avionic Systems Harmonization, and Secondary Cockpit Barriers. Mr. Morgan said that he would provide a brief overview for four of the TAE Subcommittee working groups, and the co-chairs will provide the overview for the Secondary Cockpit Barriers working group.

Mr. Morgan reviewed the TAE's Subcommittee deliverables plan, which included: the Flightdeck Secondary Barriers report scheduled for March 2020, four reports (TAMCSWG SDC-SLP, FTHWG Vdf/Mdf, FTHWG Pilot Induced Oscillation, and ASHWG final report) scheduled for June 2020, two reports (TAMSCWG Structural

bonding and TAMCSWG Crack Interaction) due in September 2020, and ICIWG final report scheduled for 2021.

Ms. Rose expressed some concern for the schedule, and Mr. Morgan said they had the flexibility to adjust if needed.

### ***Flight Test Harmonization Working Group (FTHWG)***

Mr. Morgan provided the report for the FTHWG, including an overview of membership, a summary of tasking, the schedule, and a status of tasking.

Mr. Morgan reviewed current membership and the expectations for membership in phase 4. He noted that there has not yet been a formal request for task 4, and the last two topics (Pilot Induced Oscillation and Definitions of Vdf/Mdf) of phase 3 should be done by June 2020.

Mr. Morgan expressed that there may be some interruption in face-to-face meetings, but progress will continue. He reminded ARAC that the working group is ready for the formal tasking of phase 4.

### ***Transport Airplane Metallic and Composite Structures Working Group (TAMCSWG)***

Mr. Morgan provided the status report for the Transport Airplane Metallic and Composite Structures Working Group, including an overview of membership, a summary of tasking, the schedule, and a status of tasking.

Mr. Morgan quickly reviewed membership and the original summary of tasking. He made note of these three items in the extended summary of tasking:

1. Structural Damage Capability (SDC) for Single Load Path (SLP) structure: He noted that the FAA requested that the working group develop requirements and guidance material for single load path (SLP) structure, which by definition has no SDC.
2. Structural Bonding and “Weak Bonds”: He noted that the FAA requested further clarification from the working group on how to address disbands and weak bonds as a manufacturing defect.
3. Repeat Inspections & Crack Interaction: Advisory Circular (AC) 91-82A provides evaluation considerations for establishing inspection thresholds and repeat intervals, including consideration of crack interaction with little guidance in the AC. He noted that the FAA requested information from the working group on how to address crack interaction when establishing inspection programs.

Mr. Morgan stated the reports for items 1 and 2 are expected to be done by June 2020, and the report for item 3 should be done and submitted to the ARAC at the September 2020 meeting.

### ***Ice Crystals Icing Working Group (ICIWG)***

Mr. Morgan provided the status report for the Ice Crystals Icing Working Group, including an overview of membership, a summary of tasking, the schedule, and a status of tasking.

Mr. Morgan made note of the following new request:

Under Tasks 1 and 2, 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).

Mr. Morgan explained that the working group is assessing the request and any implications it will have to the schedule or to the final report.

Mr. Morgan said the working group is very active and has many meetings on the schedule. He noted that, if the meetings cannot be done face-to-face, then they will be held virtually.

Ms. Rose asked for clarity about the working group's request for an extension. Mr. Morgan explained that they do not need an extension at this point, but it may be possible in the future based on phase 4.

Mr. Morgan summarized details on how the working group is proceeding with the status of tasking, and he noted that the working group currently does not need any help or support from ARAC at this time.

Ms. MacLeod asked where the new phase 4 tasking came from, and Mr. Morgan replied that it came from the FAA. Mr. Morgan clarified that a formal request had not been made. ARAC discussed the correct process of assigning a new task. Mr. Roberts confirmed that, if the FAA were to provide a different task or the scope of the original tasking was changed, then there would be an obligation to take that tasking through a formal process. Mr. Alan Strom (the FAA Lead on the ICIWG) explained that the new request questions the adequacy of the existing information to meet safety standards. Mr. Strom clarified that the working group believes the request fits within the scope of existing tasking, as it focuses on gathering more data related to the working group's current work. Ms. MacLeod said she understood that the new request was to gather additional data for an existing tasking. She asked for an edit to be made in the way the

request is listed on page 24 of the ARAC meeting packet to be reflected as an adjustment to an existing task, not a new task. A working group member confirmed that the new request would be more accurate as a sub-bullet (under number 2), rather than as its own item (listed as number 9) on the slide.

### ***Avionics System Harmonization Working Group (ASHWG)***

Mr. Morgan provided the status update on the Avionics System Harmonization Working Group (ASHWG). He reviewed the summary of tasking. Mr. Clark Badie noted that the upcoming meeting will likely be virtual, and he will keep the working group updated after that meeting.

Mr. Morgan reviewed the working group's roster and stated that it does not need any help or support from ARAC at this time.

### ***Recommendation Reports***

#### ***Flightdeck Secondary Barrier Working Group***

Mr. Wolfgang Koch and Mr. Bradley Brown, the working group co-chairs, provided the recommendation report for the Flight Deck Secondary Barrier working group.

Mr. Brown reviewed the working group's members, summary of tasking, and schedule, and recommendations.

Mr. Brown explained that the report identifies a full range of options and contains 21 recommendations, determines applicability for the FAA's order, and provides cost benefit analysis. He provided information on implementation steps for the recommended options. Mr. Brown reviewed the following consensus summaries for the working group's recommendations:

- Recommendations 1, 3 –14 and 16 –18 had consensus from the working group members.
- Recommendations 2 and 15 had a majority of general consensus from the working group with dissent(s).
- Recommendations 19, 20 and 21 did not have consensus amongst the working group members. Each recommendation had two proposals with the working group members endorsing one or the other.

Regarding Recommendation 15, Mr. Brown indicated that the working group had very little time to meet face-to-face, so there was not enough time to address rule applicability. Mr. Brown then summarized Recommendations 16 through 18. Ms. Rose recognized Mr. Larry Rooney for a question/comment. Mr. Rooney provided clarity regarding CAPA's

dissent to Recommendation 15. Mr. Rooney explained that CAPA's dissent revolves around the working group not being able to get to a clear understanding of the scope and limits of the items contained in Recommendation 15. However, CAPA fully supports the work done by the working group.

Mr. Koch described Recommendations 19 through 21, including information on dissenting opinions.

Mr. Randy Kenagy motioned to accept the Flightdeck Secondary Barrier Working Group's recommendation report, and Ms. Michelle Betcher seconded the motion.

Mr. Bill Whyte asked if the ARAC was voting on the alternative proposals listed within the recommendations or the entire recommendation as a whole. Ms. Rose clarified that the alternate proposals are listed as options, but the vote is for the entire recommendation report. Mr. Brown also indicated that the working group wanted to make sure that the FAA received more information rather than less.

All ARAC members voted to accept the recommendation report, and Ms. Rose confirmed she will send the report to FAA. Ms. Rose and Mr. Morgan commended the working group for its work, which was done in a timely manner.

### ***New Tasking***

Ms. Rose inquired about a new tasking that came from the FAA. Mr. Roberts asked Ms. Mary Thompson (FAA Flight Standards, Air Transportation Division) to provide information on the new tasking. Ms. Thompson explained the FAA is seeking ARAC's advice and recommendations to establish training standardization to increase safety and address inefficiencies between part 135 and part 142 oversight models that would be implemented on a national level. Ms. Thompson stated the FAA would implement the curriculum through guidance, so no regulatory action would be required.

Ms. Sarah MacLeod motioned to accept the tasking, and Mr. Randy Kenagy seconded the motion.

Mr. Kenagy asked that the new working group ensure that the type of training with actual aircraft and simulators not be addressed. Ms. Thompson clarified that the curriculum would not create any changes to existing regulations (including in regards to what can be conducted in an aircraft versus a simulator). She explained the curriculum is just a way to comply. Mr. Kenagy noted that it may be a good idea to specifically note that there are no changes to the current regulatory requirements, and Ms. Thompson agreed. Mr. Doug Carr (after noting his support for the request) asked if the ARAC was the correct place for this tasking or if it should be the creation of a new ARC. Ms. Thompson noted that an ARC was considered (and information will be found in an upcoming Advisory Circular), but because these curricula will serve as a standard, the ARAC is best suited for this request. Ms. Gail Dunham asked for clarification on the dates of the request. Ms.

Thompson explained that some dates on the request were left blank to give discretion to the working group, and a master schedule would be produced after the working group is formed. Ms. MacLeod noted that dates are normally added after ARAC accepts a task. Ms. MacLeod then asked if this request was specifically part 142 curriculum. Ms. Thompson clarified that this would be standard curricula to qualify pilots under part 135 that will be delivered by part 142 training centers. Ms. Rose noted that these notices no longer go in the Federal Register, but the FAA will add dates to the request when it gets posted. Ms. Rose also expressed support for Mr. Kenagy's suggestion to clarify the language of the task in relation to parts 142 and 135 to better explain the scope.

All members of the ARAC voted to accept the task.

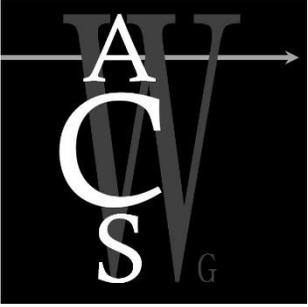
### ***Updates to Regulatory Activities***

Mr. Roberts thanked everyone for their virtual participation and for staying in accordance with the FACA requirement. Mr. Roberts noted that FAA currently has 54 active rulemaking projects in queue. He made note of the Remote Identification of Unmanned Systems Notice of Proposed Rulemaking (which garnered over 53,000 comments that the FAA is still reading through) and the Pilot Professional Development Final Rule which will become effective April 27, 2020.

Mr. Roberts mentioned the Spring Unified Agenda should publish in May. For future meetings, the FAA program offices will provide a status of submitted ARAC recommendation reports. He noted that the FAA is working on renewing the ARAC charter, which expires on September 14, 2020. Mr. Roberts said he expects to have the charter renewed for 2 years before the upcoming expiration date. He reminded all ARAC members to email their name to the ARAC email address to record proper attendance. He also reminded everyone that the next ARAC meeting is scheduled for June 18 and the last one for this fiscal year is September 10 (before the current charter expires). Mr. Roberts stated that if anyone has questions on the DOT website stance on coronavirus, please refer to the guidance on the U.S. DOT website.

### ***Adjournment***

Ms. Rose concluded that while in-person meetings are preferable, she supported using the Zoom platform and others agreed. Ms. Rose then thanked everyone for their attendance and participation and adjourned the meeting at 2:55 p.m.



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

**David Oord**  
Working Group Chair

May 28, 2020

# MEMBERS of ACSWG - INDUSTRY

- David Oord, Liliium
- Paul Alp, Jenner & Block
- Cindy Brickner, SSA
- Paul Cairns, ERAU
- Kevin Comstock, ALPA
- Chris Cooper, AOPA
- Mariellen Couppee, Honeywell
- 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, KittyHawk
- Lauren Haertlein, GAMA
- 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 “Mac” McWhinney, King Schools
- Crystal Maguire, ATEC
- Nick Mayhew, L3
- Phillip Poynor, NAFI
- Jimmy Rollison, FedEx
- JR Russell, NBAA
- Mary Schu, Mary Schu Aviation
- Roger Sharp, Independent
- Jackie Spanitz, ASA
- Burt Stevens, Oxford Flying Club, Inc.
- 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
- Brianna Aragon
- Robert Burke
- 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
- Richard Orentzel
- Katie Patrick
- Andrew Pierce
- Robert Reckert
- Jason Smith
- Shelly Waddell Smith
- Jeff Spangler
- Robert Terry
- Matt Waldrop
- Larry West
- Stephanie Williams
- Bill Witzig
- Jimmy Wynne



# SUMMARY OF TASKING

- Provide recommendations regarding standards, training guidance, test management, and reference materials for airman certification purposes.
- Continuation of ATP, 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 1, 2021
  - 18-month charter extension approved at last meeting

# SCHEDULE

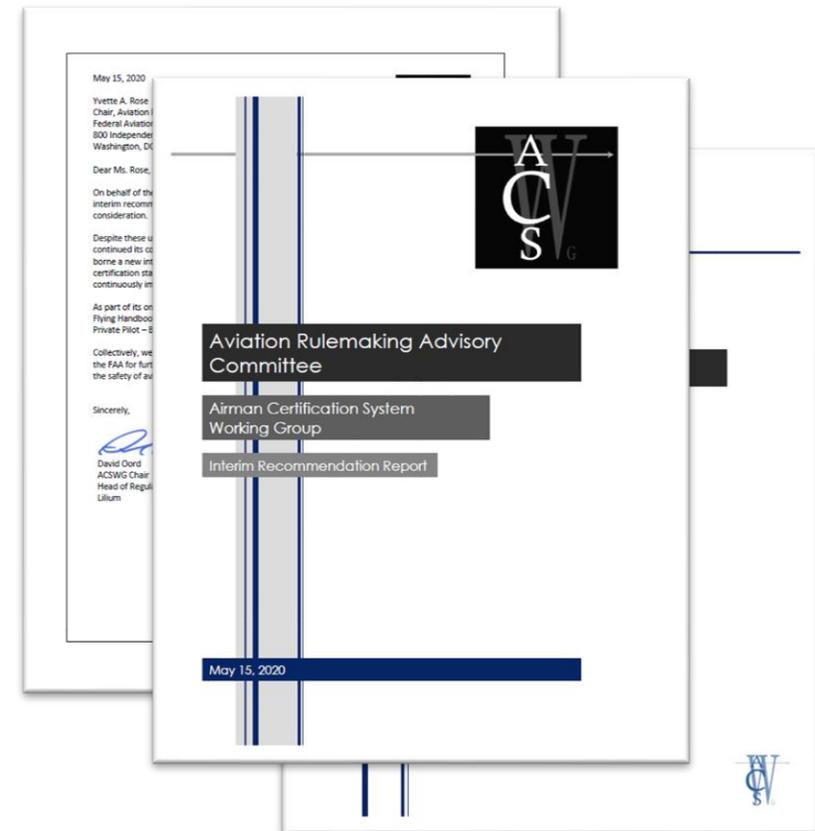
- 2020 Meetings –
  - March 17 & 18 (cancelled)
  - June 23 (virtual meeting)
  - TBD

# STATUS OF TASKING

- Continued progress on Standards, Guidance, and Test Management
  - Airplane Flying Handbook
  - Risk Management Handbook
  - Refinement and improvement of existing Standards
    - Change management process
  - New test management service implemented
  - New draft Airman Certification Standards

# AREAS of ARAC CONSIDERATION

- **Interim Recommendation Report –**
  - Handbook Recommendation
    - Airplane Flying Handbook (FAA-H-8083-3B)
  - Airman Certification Standards (ACS)
    - Flight Instructor – Powered-Lift
    - Private Pilot – Balloon
    - Airline Transport Pilot & Type Rating - Helicopter



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

**Sarah MacLeod and Ric Peri**

Working Group Chairs

June 2020 Meeting

# Members of the Part 145 Working Group

Paul Cloutier  
Working Group Representative

Brent Hart  
Analyst

Thuy Cooper  
Analyst

Justin Smith  
Director of Operations

Craig Fabian  
Regulatory Compliance Leader

Sarah MacLeod  
Executive Director

FAA—Flight Standard Services  
Repair Station Branch

Federal Aviation Administration  
Office of Rulemaking

Federal Aviation Administration  
Office of Rulemaking

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

GE Engines

Aeronautical Repair Station Association

# Members of the Part 145 Working Group

Rick Tober

Director of Quality

Tim Miller

Vice President / Safety, Quality & Technical Training

Richard Macklosky

Manager, Regulatory Management Civil Aviation

Jeff Eagle

Senior Regulatory Compliance Specialist

Eric M. Monte

Principal Quality Assurance Engineer

Triumph Group Operations

Aviation Technical Services

United Technologies Corporation

United Technologies Corporation

Pratt & Whitney

Rockwell Collins

# Members of the Part 145 Working Group

David Stapes

Manager, Regulatory Compliance

Delta TechOps

David Fitzsimmons

Program Manager

Delta TechOps

Rodney Markesbery

Program Manager

Regulatory Compliance

Delta TechOps

Richard (Ric) Peri

Vice President Government & Industry Affairs

Aircraft Electronics Association

Sam Porter

Senior Quality Manager

Sikorsky

A Lockheed Martin Company

# Members of the Part 145 Working Group

|  |   |
|--|---|
| Joe Sambiase<br>Director Airworthiness & Maintenance             | General Aviation Manufacturers Association      |
| Jeremy Bryck<br>Senior Director 145 Maintenance                  | Air Methods Corporation                         |
| Justin Madden<br>Legislative Affairs Director                    | Aircraft Mechanics Fraternal Association (AMFA) |
| Stephanie Branscomb<br>Director of Operations<br>Quality Manager | Wysong Enterprise                               |
| Gary Daniel<br>Avionic Certification                             | Wysong Enterprise                               |
| Stephen R. Wysong<br>President                                   | Wysong Enterprise                               |

# Members of the Part 145 Working Group

John Fox

Accountable Manager

Senior Manager, Quality Control

Steven Brewer

Manager Structure Engineering

Bill Hanf

Owner

Samuel Edwards

Administrative Manager

Jeffrey Orth

Senior Regulatory & Compliance Specialist

United Airlines, Inc.

Kalitta Air

Green Mountain Avionics

Boeing Commercial Airplanes

Boeing Global Services

# Recognized Observers to the Part 145 Working Group

Brian Koester  
Manager, Flight Operations & Regulation

Carol Giles  
Aircraft Maintenance and Systems  
Technology Committee Liaison

Art Smith  
Vice President-Chief Quality Officer

Steve Douglas  
Vice President  
Certification, Compliance & Safety

National Business Aircraft Association

National Air Transportation Association

AAR Corporation

Oliver Wyman - CAVOK

# SUMMARY OF TASKING

- Comprehensive review of internal and external guidance material – relate to laws and regulations – on certificating and overseeing all part 145 repair stations
  - ✓ Orders, notices, advisory circulars, job aids and safety assurance system (SAS) Data Collection Tools (DCTs)
  - ✓ Laws, executive orders
- Recommend improvements to guidance documents to ensure they—
  - ✓ Align with regulations, laws and executive orders
  - ✓ Annotate the applicable regulations, laws or executive orders
  - ✓ Are numbered to establish a relationship between the guidance and the underlying regulation
  - ✓ Communicate agency expectation of compliance to the public and FAA workforce in a comprehensive and consistent manner, with tools to ensure application and evaluation is based on performance-based oversight
  - ✓ Account for oversight of repair stations vis-à-vis amount, type, scope and complexity of the certificate holders' work and its size
- Develop a preliminary and final report containing the recommendations

# SCHEDULE

- Preliminary report within 24 months from the first meeting of the Part 145 Working Group (December 11, 2018 means no later than Friday, December 11, 2020)
- Final report will be submitted no later than 12 months after the preliminary report is forwarded to the FAA by ARAC (earliest week of December 13, 2021).
  - ✓ Chair and Co-Chair have regular meetings to—
    - ✓ Draft preliminary report, and
    - ✓ Work on AMC
  - ✓ Virtual meeting in late August or September to approve the interim report and progress on AMC

# STATUS OF TASKING

- Have developed template for collecting regulatory compliance information in one place so interrelationships can be shown and taught
  - Numbering is 145-1-A-X-X followed by the regulation copied verbatim from 14 CFR
  - Scope—the legal authority expressed by the plain language
  - Acceptable Means of Compliance—the parameters and expectations of the showing and finding of compliance
  - Guidance Material—FAA unique information which will not repeat what is available in the Acceptable Means of Compliance
  - Related Regulations—regulations related directly and indirectly to the Acceptable Means of Compliance with no more than a sentence explaining why the section or paragraph is being referenced.
  - Additional Information—legal opinions or interpretations and other legal references for the verbiage in Scope or Acceptable Means of Compliance

# AREAS of ARAC CONSIDERATION

Hopefully always none, unless otherwise advised.

# DPE Reform Working Group Status Report to the Aviation Rulemaking Advisory Committee

**Sean Elliott, EAA Vice President**  
Working Group Chair

June 18<sup>th</sup>, 2020

# MEMBERS/OBSERVERS of DPE Reform Working Group

|          |           |  |             |         |           |                                 |                  |
|----------|-----------|--|-------------|---------|-----------|---------------------------------|------------------|
| Jason    | Blair     | Independent                                | WG Member   | Thom    | Holden    | Federal Aviation Administration | WG Support       |
| Paul     | Cairns    | Embry Riddle Aeronautical University       | WG Member   | Jay     | Kitchens  | Federal Aviation Administration | WG Support       |
| Lisa     | Campbell  | Air-Mods Flight Training Center            | WG Member   | John    | Kovar     | Federal Aviation Administration | WG Support       |
| Chris    | Cooper    | Aircraft Owners and Pilots Association     | WG Member   | Trey    | McClure   | Federal Aviation Administration | FAA Lead Support |
| MaryAnne | DeMarco   | Coalition of Airline Pilots Association    | WG Observer | Susan   | Parson    | Federal Aviation Administration | WG Support       |
| Mark     | Dilullo   | Threshold Technologies, Inc.               | WG Member   | Robert  | Reckert   | Federal Aviation Administration | WG Support       |
| Jon      | Dodd      | Coalition of Airline Pilots Association    | WG Member   | Bruce   | Rengstorf | Federal Aviation Administration | WG Support       |
| Mark     | Ducorsky  | Independent                                | WG Member   | Mallory | Woodcock  | Federal Aviation Administration | WG Support       |
| Sean     | Elliott   | Experimental Aircraft Association          | WG Chair    |         |           |                                 |                  |
| Dan      | Fluke     | Air Line Pilots Association                | WG Member   |         |           |                                 |                  |
| Jonathan | Freye     | National Air Transportation Association    | WG Member   |         |           |                                 |                  |
| Stephen  | Gatlin    | Pan Am Internatioanl Flight Academy        | WG Member   |         |           |                                 |                  |
| Lauren   | Haertlein | General Aviation Manufacturers Association | WG Observer |         |           |                                 |                  |
| Thom     | Holden    | Federal Aviation Administration            | WG Member   |         |           |                                 |                  |
| John     | Kovar     | Federal Aviation Administration            | WG Member   |         |           |                                 |                  |
| Zachary  | Noble     | Helicopter Association International       | WG Member   |         |           |                                 |                  |
| Randy    | Rowles    | Helicopter Institute / HAI                 | WG Member   |         |           |                                 |                  |
| David    | Sullivan  | Independent                                | WG Member   |         |           |                                 |                  |
| Tim      | Tucker    | Robinson Helicopter Company                | WG Member   |         |           |                                 |                  |

# SUMMARY OF TASKING

The DPE Reforms WG will:

- Provide advice and recommendations to the ARAC on the most effective ways to identify areas of needed reform with respect to regulatory and policy changes necessary to ensure an adequate number of designated pilot examiners are deployed and available to perform their duties to meet the growing public need.
- The Group should review any relevant materials to assist in achieving their objective.
- Review all regulatory and policies related to designated pilot examiners appointed under 14 CFR 183.23. Specific areas include, but are not limited to, 14 CFR part 183, 14 CFR part 61, FAA Order 8900.1, FAA Order 8900.2, and FAA Order 8000.95.

## SUMMARY OF TASKING (con't)

- Will make recommendations with respect to the regulatory and policy changes if necessary to allow a designated pilot examiner perform a daily limit of 3 new check rides with no limit for partial check rides and to serve as a designed pilot examiner without regard to any individual managing office.
- If the task could result in recommendations with substantive changes to policies and rulemaking, then the working group will consider the role of potential qualitative and quantitative costs and benefits, including impacts to resources, of these recommendations compared to their alternatives.
  - If available, the working group should provide preliminary cost and benefit information in the report.
- Develop a report containing recommendations on the findings and results of the tasks explained above.
  - The recommendation report should document both majority and dissenting positions on the findings and the rationale for each position.
  - Any disagreements should be documented, including the rationale for each position and the reasons for the disagreement.
- The working group may be reinstated to assist the ARAC by responding to the FAA's questions or concerns after the recommendation report has been submitted.

# SCHEDULE

- Full WG #1 meeting held October 29, 30, 31<sup>st</sup> in Washington, D.C.
- Three Subgroups Launched during the WG 1<sup>st</sup> meeting. Subgroups electronically meeting bi-weekly until tasks complete and ready for update and review during in person WG mtg #2
- COVID 19 impacts require termination of in person meetings – shifted to virtual format for a timeframe TBD.
- Full WG #2 meeting held virtually on March 19<sup>th</sup> via a Go2Meeting platform. Reviewed progress of all 3 subgroups.
- Full WG #3 meeting held virtually on May 21<sup>st</sup> via a Zoom platform. Briefings from senior FAA leadership, AFS status on Airman Certification ODA policy, and progress review for all 3 subgroups.
- Full WG #4 meeting is scheduled for June 24<sup>th</sup>.
- Status reports schedule for each quarterly ARAC meeting until final report complete
- Final report back to ARAC due date needs an extension consideration due to COVID. Determination made that WG will need a minimum of 2 in person meetings before final report can be successfully completed. **Recommend an additional 6 month time frame. Recommend in-person (when able to reinstate) meeting location other than the Washington D.C. be approved for the purposed of minimizing risk to meeting participants – i.e. a lower COVID outbreak location**

# STATUS OF TASKING

- DPE Reform Work Group has completed 3 full group meetings. Outputs include:
  - Full review of ARAC WG process, rules of WG, milestones, and timeline
  - Full review of current state elements for DPE selection, training, deployment, & oversight
  - Three subgroups identified and sub group chairs selected. Specifically tasked with developing recommendations and process around:
    - DPE Selection Process
    - Training Elements and Mentoring
    - Deployment/Oversight
  - All 3 groups are considering the following while developing recommendations:
    - No GEO boundaries
    - Maximum testing limitation for Designees
    - Mentorship opportunities
    - ODA Elements
    - Other models/parallel processes
  - Significant progress with a three areas of focus as outlined. Specific ties to ARAC tasking and recommended measures of success are being incorporated into each subgroup's recommendations. A few recommendations will be outside of scope, but impactful/necessary. Those will be clearly identified separate from WG tasking recommendations.
- June 24<sup>th</sup>, 2020 next full WG in person meeting to review progress of sub group recommendations and develop next steps for refinement – Virtual meetings will continue until state and national guidance allows travel and group gatherings
  - DPERWG work plan is being included with this presentation

# AREAS of ARAC CONSIDERATION

- Recommend ARAC authorize an additional 6 month time frame Extending final ARAC report timeframe to June 2021.
- Recommend ARAC authorize in-person (when able to reinstate) meeting location other than the Washington D.C. for final two meetings.

## Designated Pilot Examiner Reforms Working Group Work Plan

### *Scope:*

On October 5, 2018, Congress enacted the FAA Reauthorization Act of 2018 (P.L. 115-254). Section 319 (Designated Pilot Examiner Reforms) of P.L. 115-254 requires the Administrator assign to the Aviation Rulemaking Advisory Committee (ARAC) the task of reviewing all regulations and policies related to designated pilot examiners (DPE) appointed under §183.23 of title 14, Code of Federal Regulations. The ARAC shall focus on the processes and requirements by which the FAA selects, trains, and deploys individuals as DPEs, and provide recommendations with respect to the regulatory and policy changes necessary to ensure an adequate number of DPEs are deployed and available to perform their duties. The ARAC also shall make recommendations with respect to the regulatory and policy changes if necessary to allow a DPE to perform a daily limit of 3 new check rides with no limit for partial check rides and to serve as a DPE without regard to any individual managing office.

On June 20, 2019, the FAA assigned this task to ARAC, which ARAC designated to the Designated Pilot Examiner Reforms (DPER) Working Group. The working group will provide advice and recommendations on the assigned task. ARAC must deliberate and discuss the report prior to voting on whether to submit the recommendation report to the FAA.

### *Operating Boundaries:*

- Operate within the ARAC processes and procedures, including complying with Federal Advisory Committee Act (FACA).
- The FAA's Office of Chief Counsel (AGC) must vet individuals before they may be appointed to serve on the DPER Working Group.
- Alternates are permitted.
- Only Working Members may vote.
- The DPER Working Group Chair may approve observers to attend Working Group meetings.
- Meetings are closed.
- Members are encouraged to think outside and beyond the established system as it relates to the DPE selection, training, and emplacement.

**Authorized by:** The FAA authorized and ARAC accepted this tasking.

### *Members:*

| <b>Member Name</b> | <b>Organization</b>               | <b>Role</b>         |
|--------------------|-----------------------------------|---------------------|
| Sean Elliott       | Experimental Aircraft Association | Working Group Chair |
| Adam Barkley       | Independent/FSANA Member          | WG Member           |
| Jason Blair        | Independent/FSANA Member          | WG Member           |

|                |                          |           |
|----------------|--------------------------|-----------|
| Paul Cairns    | ERAU                     | WG Member |
| Lisa Campbell  | FSANA Board member       | WG Member |
| Chris Cooper   | AOPA                     | WG Member |
| Mark Dilullo   | Threshold Aviation Group | WG Member |
| Jon Dodd       | CAPA                     | WG Member |
| Mark Ducorsky  | Independent              | WG Member |
| Dan Fluke      | ALPA                     | WG Member |
| Jonathan Freye | NATA                     | WG Member |
| Stephen Gatlin | Pan Am                   | WG Member |
| Zac Noble      | HAI                      | WG Member |
| Randy Rowles   | HAI                      | WG Member |
| David Sullivan | Independent              | WG Member |
| Tim Tucker     | Robinson Helicopter      | WG Member |

***Other Participants/Subject Matter Experts:***

| <b>Member Name</b> | <b>Organization</b> | <b>Role</b> |
|--------------------|---------------------|-------------|
| MaryAnne DeMarco   | CAPA                | Observer    |
| Paul McDuffee      | Boeing              | Observer    |

Invited to support the working group as a resource on an “as needed” basis.

***Goals/Objectives/Expectations:***

In response to P.L. 115-254, the DPER Working Group will provide advice and recommendations to the ARAC on the most effective ways to identify areas of needed reform with respect to regulatory and policy changes necessary to ensure an adequate number of designated pilot examiners are deployed and available to perform their duties to meet the growing public need.

***Tasking:***

1. The working group will review all regulatory and policies related to designated pilot examiners appointed under 14 CFR 183.23. Specific areas include, but are not limited to, 14 CFR part 183, 14 CFR part 61, FAA Order 8900.1, FAA Order 8900.2, and FAA Order 8000.95.
2. The working group will focus on the processes and requirements by which the FAA selects, trains, and deploys individuals as designated pilot examiners, and provide recommendations with respect to the regulatory and policy changes necessary to ensure an adequate number of designated pilot examiners are deployed and available to perform their duties.

3. The working group will make recommendations with respect to the regulatory and policy changes if necessary to allow a designated pilot examiner perform a daily limit of 3 new check rides with no limit for partial check rides and to serve as a designated pilot examiner without regard to any individual managing office.
4. If the task could result in recommendations with substantive changes to policies and rulemaking, then the working group will consider the role of potential qualitative and quantitative costs and benefits, including impacts to resources, of these recommendations compared to their alternatives. If available, the working group should provide preliminary cost and benefit information in the report.
5. Develop a report 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.

### ***Background Information:***

Currently, we have approximately 1000 Designated Pilot Examiners (DPEs) conducting most all of the pilot certification practical tests. Some of these DPEs may also conduct specialized activities actions such as Seaplane, Glider, Warbirds, Vintage Aircraft, Military Competency administrative actions, and Flight Instructor renewals/reinstatements. Due to the increase need to conduct practical tests nationally, DPER WG will consider options to increase proficiency and capacity of the DPE cadre.

### ***Stakeholders:***

Stakeholders potentially affected by the work conducted by the DPER WG are certificated airmen (manned and UAS), potential certificated airmen (manned and UAS), flight schools conducting training and certifications, independent flight instructors, aircraft owners, recreational enthusiasts, FAA ASIs, designated pilot examiners, air carriers, etc.

### ***Issues:***

The DPER WG is working to improve support for the work being accomplished by DPEs. Opportunities exist for better Designee onboarding/development and an improved oversight system. The DPER WG is working to reduce the wait time associated with a pilot certification practical test. In some areas nationally, the wait time can be several months. Although there are some conditions out of anyone's control, such as weather and

maintenance, the DPER WG will look at adequate numbers of Designated Pilot Examiners and regulatory/policy procedures that can increase efficiency of the system.

### ***Task Groups:***

The DPER WG members agreed to form the following three subgroups to research and analyze:

- DPE selection
- DPE training (to include DPE mentoring)
- DPE deployment (to include oversight).

In addition, the DPER WG is reviewing DPE best practices developed and implemented by FAA offices in geographic areas with high pilot certification activity and/or complex airspace.

While not assigned to a specific task group, it has been generally recognized that there is a lack of available specialty examining (seaplanes, warbirds, gliders, etc) expertise amongst today's FAA inspectors, and thus oversight is both challenging and costly for a relatively low return on investment. The possibility of delegating authority (Airman Certification ODA) to niche industry organizations is being explored as a possible part of the recommendations for improvement. An ODA approach for these low volume, niche aspects of training/testing could be a possible streamlining solution for these examiners that otherwise do very little mainstream certification.

### ***Meetings:***

DPER WG plan to meet in person once a quarter. These meetings will be held for two to three days depending on the subject matter to discuss.

Subgroups will meet virtually, typically bi-weekly, until tasks are complete and ready for the full DPER WG discussion. These virtual meetings are hosted by the Subgroup industry leads and supported by FAA members. The DPER WG will present its final report for ARAC's consideration at the December 2020 ARAC meeting.

### ***Schedule:***

- October 29-31, 2019: 1<sup>st</sup> Face to Face (F2F) meeting in Washington, DC
- March 19, 2020: 2<sup>nd</sup> DPER WG – Held virtually using a virtual meeting platform
- May 21, 2020 3<sup>rd</sup> DPER WG – Held virtually using a virtual meeting platform
- TBD: 4<sup>th</sup> & 5<sup>th</sup> F2F meeting

- DPER WG will require a minimum of 2 F2F meetings before final recommendations will be completed for ARAC report
- Subgroups will meet virtually as required between the F2F meetings.
- November 2020: Planned submission of final report for December 2020 ARAC meeting pending accomplishment of final 2 F2F meetings.

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

**Keith R. Morgan**  
Subcommittee Chair

18 JUNE 2020

# MEMBERS of the Transport Aircraft and Engines Committee

Pratt & Whitney

ALPA

A4A

ASD

Airbus

Boeing

GAMA

AIA

Bombardier

NADA/F

Embraer

SRCA

# SCHEDULE

- 2020 Meetings:
  - Telecom January 28, 2020
  - Face-to-face April 21, 2020 (Washington)
  - Telecom July 28, 2020
  - Face-to-face October 27, 2020 (Washington)

# Active Working Groups

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

# Planned 2020 Report Submittal Schedule to ARAC

- June 2020
  - FTHWG Vdf/Mdf
  - FTHWG Pilot Induced Oscillation
- September 2020
  - TAMCSWG SDC-SLP
  - TAMCSWG Structural bonding
  - ASHWG final report
- December 2020
  - TAMCSWG Crack Interaction

# Flight Test Harmonization Working Group Status Report to the Aviation Rulemaking Advisory Committee

**Brian P. Lee (Boeing)**  
**Laurent Capra (Airbus)**  
Working Group Co-Chairs

June, 2020

# MEMBERS of Flight Test Harmonization Working Group

| Authorities                                       | OEM's   |                                      | Operators                           | Observers  |
|---|---|--------------------------------------|-------------------------------------|--|
| FAA<br>Joe Jacobsen<br>Bob Stoney<br>Paul Giesman | Airbus<br>Laurent Capra<br>+ SME's            | Embraer<br>Murilo Ribeiro<br>+ SME's | ALPA<br>Rikki Gardonio<br>Len Quiat | JCAB (Japan)<br>Takahiro Suzuki<br>Atsushi Fukui |
| EASA<br>John Matthews<br>Marco Locatelli          | Boeing<br>Paul Bolds-<br>Moorehead<br>+ SME's | Gulfstream<br>Mike Watson<br>+SME's  |                                     | CAAI (Israel)<br>Yshmael Bettoun                 |
| Transport Canada<br>Lee Fasken                    | Bombardier<br>Tony Spinelli<br>+SME's         | Textron<br>Kurt Laurie<br>+SME's     |                                     | Norwegian Airlines<br>John Lande                 |
| ANAC (Brazil)<br>Pedro Donato                     | Dassault<br>Philippe Eichel<br>+SME's         |                                      |                                     |  |

# MEMBERS of Flight Test Harmonization Working Group (Phase 4)

| Authorities  | OEM's   |   |   | Observers   |
|--|---|---|---|---|
| FAA<br>Joe Jacobsen<br>Bob Stoney<br>Paul Giesman  | Airbus<br><b>Philippe Genissel</b><br>+ SME's | Embraer<br>Murilo Ribeiro<br><b>Tiago Costa</b><br>+ SME's  | <b>ATR</b><br><b>Matthieu Ollivier</b><br><b>Jean-Pierre Marre</b><br><b>+SME's</b>   | JCAB (Japan)<br><b>Shinsuke Yamauchi</b><br><b>Teruke Koike</b> |
|  |   |   |   | CAAI (Israel)<br>Yshmael Bettoun                                |
| EASA<br><b>Matthias Schmidt</b><br>Marco Locatelli | Boeing<br><b>Matt Muehlhausen</b><br>+ SME's  | Gulfstream<br>Mike Watson<br>+SME's   | <b>Airbus Canada</b><br><b>Scott Black</b><br><b>Joel Boudreault</b><br><b>+SME's</b> | Norwegian Airlines<br>John Lande                                |
|  |   |   |   | <b>Delta Airlines</b><br><b>David Anvid</b>                     |
| Transport Canada<br>Lee Fasken                     | Bombardier<br>Tony Spinelli<br>+SME's         | Textron<br>Kurt Laurie<br>+SME's  | <b>DeHavilland Canada</b><br><b>Eric Herrmann</b><br><b>+SME's</b>                    | <b>Centre d'Essais en Vol</b><br><b>Francois MEIGNIEN</b>       |
|  |   |   |   | <b>Operators</b>  |
| ANAC (Brazil)<br>Pedro Donato                      | Dassault<br>Philippe Eichel<br>+SME's         | <del>Boeing Brazil</del> — <b>No</b><br><del>Commercial</del> <b>More</b><br><del>— Murilo Ribeiro</del><br><del>— +SME's</del> |   | ALPA<br>Rikki Gardonio<br><b>John Cinnamon</b>                  |

# STATUS OF TASKING

- Phase 3: FTHWG considers activity on-track / on-schedule
  - Directional Control below Vmc on Slippery Surfaces - **COMPLETE**
  - Wet Runway Stopping (extended from Phase 2) - **COMPLETE**
  - Go-Around Performance (Topic 18) - **COMPLETE**
  - Return to Land - **COMPLETE**
  - Vdf/Mdf for protected aircraft – **COMPLETE (will brief today)**
  - HQRM
    - Harmonization of this topic is proving more difficult and multi-faceted than originally envisioned; we didn't have the right population of expertise.
      - Task to be re-started in Phase 4 with added SME's from Systems Safety and Flight Controls disciplines.
  - Pilot Induced Oscillation – **COMPLETE (will brief today)**
- Phase 4 Planning Complete – ready for formal tasking
- **ASHWG: Low Energy Alerting**
  - FTHWG is participating (B. Lee is the liaison)
  - Addressed by FTHWG in December, telecons in January to consolidate comments
    - ASHWG has converged on regulatory wording; now working on guidance
  - Telecoms each 2 weeks

# STATUS OF TASKING ACTIVITIES

- →FTHWG-53: 2-6 Mar 20 Meeting Bordeaux (Dassault)
  - 10 March Vdf/Mdf
  - 17 March PIO+Vdf/Mdf
  - 24 March PIO
  - 31 March TALPA
  - 7 April PIO+Vdf/Mdf
  - 14 April ----
  - 21 April ----
  - 28 April TALPA
  - 5 May RLD Dry
  - 12 May TALPA
  - 19 May RLD Dry
  - 26 May Narrow Runway
  - 2 June TALPA
  
- →FTHWG-54: 8-12 June, Seattle (Boeing) – Contingency Planning: Likely virtual (less efficient)

Activity since  
March, 2020

2020

TAE : 28 January, 21 April, 28 July, 27 October

ARAC: 19 March, 18 June, 10 September, 10 December

# FTHWG Phase 4

- We are anticipating Phase 4 Tasking
  - Topic 32 Codification of TALPA recommendations
  - Topic 33 Dry runway braking methodology for landing
  - Topic 21 Narrow Runway Certification
  - Topic 16 (formerly HQRМ, Proposed working title: Failure Assessment Methodology and Evaluation)
  - Topic 22 Derate thrust
  - Topic 26 Landing in Abnormal Configurations
- Initial Phase 4 Planning complete (anticipating tasking)
- Initial conversations have begun on Dry Runway Braking and TALPA
- Initial conversations (Topic leaders and Co-Chairs) have begun on Topic 16 (FAME)

# Phase 4 Planning (Pre Coronavirus)

057

|                                       | Dassault<br>Bordeaux | Boeing<br>Seattle | EASA<br>Cologne | FAA<br>Long<br>Beach | Airbus<br>Toulouse | Textron<br>Wichita | Dassault<br>Paris | Embraer<br>Melbourne | EASA<br>Cologne | TCCA<br>Ottawa | Airbus<br>Toulouse |
|---------------------------------------|----------------------|-------------------|-----------------|----------------------|--------------------|--------------------|-------------------|----------------------|-----------------|----------------|--------------------|
|                                       | March<br>2020        | June<br>2020      | Sept<br>2020    | Dec 2020             | March<br>2021      | June<br>2021       | Sept<br>2021      | Dec 2021             | March<br>2022   | June<br>2022   | Sept<br>2022       |
| 16 FAME                               |                      |                   |                 |                      |                    |                    |                   |                      |                 |                |                    |
| 32. TALPA                             |                      |                   |                 |                      |                    |                    |                   |                      |                 |                |                    |
| 33. Dry<br>Runway<br>Stopping         |                      |                   |                 |                      |                    |                    |                   |                      |                 |                |                    |
| 21.<br>Narrow<br>Runway               |                      |                   |                 |                      |                    |                    |                   |                      |                 |                |                    |
| 22. Derate<br>Thrust                  |                      |                   |                 |                      |                    |                    |                   |                      |                 |                |                    |
| 26.<br>Landing<br>Abnormal<br>Configs |                      |                   |                 |                      |                    |                    |                   |                      |                 |                |                    |

X = report complete and to TAE

# FTHWG Phase 4 Plan (Accommodating coronavirus)

|                              | Dassault<br>Bordeaux | Telecons<br>..... | EASA<br>Cologne ?? | FAA<br>Long Beach | Airbus<br>Toulouse | Textron<br>Wichita | Dassault<br>Paris | Embraer<br>Melbourne | EASA<br>Cologne | TCCA<br>Ottawa | Airbus<br>Toulouse | TBD      |
|------------------------------|----------------------|-------------------|--------------------|-------------------|--------------------|--------------------|-------------------|----------------------|-----------------|----------------|--------------------|----------|
|                              | March<br>2020        | June 2020         | Sept 2020          | Dec 2020          | March<br>2021      | June 2021          | Sept 2021         | Dec 2021             | March<br>2022   | June 2022      | Sept 2022          | Dec 2022 |
| 16 Failure Assessment        |                      |                   |                    |                   |                    |                    |                   |                      |                 |                |                    | X        |
| 32. TALPA                    |                      |                   |                    |                   |                    |                    | X                 | Report to ARAC       |                 |                |                    |          |
| 33. Dry Runway Stopping      |                      |                   |                    |                   |                    |                    | X                 | Report to ARAC       |                 |                |                    |          |
| 21. Narrow Runway            |                      |                   |                    |                   |                    |                    |                   |                      |                 | X              | Report to ARAC     |          |
| 22. Derate Thrust            |                      |                   |                    |                   |                    |                    |                   |                      | X               | Report to ARAC |                    |          |
| 26. Landing Abnormal Configs |                      |                   |                    |                   |                    |                    |                   |                      |                 | X              | Report to ARAC     |          |

Press on via telecons even without formal tasking



Tasking start is unknown  
Coronavirus will delay start of (very large) Failure Assessment topic

# AREAS for ARAC CONSIDERATION

- Many new members for Phase 4, all are anxious to get started
  - FAA vetting is complete (Thank you)
- We have received notice from EASA
  - Budget for support of FTHWG in 2020 has been set to ZERO
    - No Travel
    - Hosting of face-to-face meeting in September is in question (maybe anyway)
  - Telecon support may continue
- We have asked for and received advice from many industrial partners that budget for FTHWG support in 2020 may be difficult

# Transport Airplane Metallic and Composite Structures Working Group

Status Report, Extension Topics, Briefing to the  
TAE – April, 2020 meeting

**Doug Jury (Delta Air Lines)**

Working Group Chair

April 21, 2020

# Members of the Working Group

- Industry WG voting members:

1. Michael Gruber (Boeing)
  2. Chantal Fualdes (Airbus)
  3. Salamon Haravan (Bombardier)
  4. Benoit Morlet (Dassault Aviation)
  5. Antonio Fernando Barbosa (Embraer)
  6. Kevin Jones (Gulfstream)
  7. Toshiyasu Fukuoka (Mitsubishi Aircraft)
  8. David Nelson (Textron Aviation)
  9. Phil Ashwell (British Airways)
  10. Doug Jury (Delta Air Lines) –Chairperson
  11. Mark Boudreau (FedEx)
  12. Eric Chesmar (United Airlines)
- NAAs: FAA (Walt Sippel, Larry Ilcewicz, Michael Gorelik, Patrick Safarian; EASA (Richard Minter, Simon Waite); ANAC (Pedro Caldeira, Marco Villaron, Fabiano Hernandes); TCCA (Jackie Yu, Natasa Mudrinic); JCAB (Hiroshi Komamura – new participant)

# SUMMARY OF ORIGINAL TASKING

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

Tasking was divided up into the following 12 focus areas:

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

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

# SUMMARY OF TASKING – extended topics

Three additional items for rule & guidance recommendation development

1. Structural Damage Capability (SDC) for Single Load Path (SLP) structure:

- Develop requirements and guidance material for single load path (SLP) structure, which by definition has no SDC

2. Structural Bonding and “Weak Bonds”

- FAA requests further clarification from the working group on how to address disbonds and weak bonds as a manufacturing defect

3. Repeat Inspections & Crack Interaction

- Advisory Circular 91-82A provides evaluation considerations for establishing inspection thresholds and repeat intervals, including consideration of crack interaction with little guidance in AC. Based on this, the FAA is requesting information from the working group on how to address crack interaction when establishing inspection programs.

# SUMMARY OF TASKING – extended topics (continued)

Working Group continues to work through each of these three items through smaller tasking groups, consisting of 4-8 WG member teams (aka subteam)

Working Group face-to-face meeting in Atlanta, GA (Delta Air Lines TechOps facility): 10/8-11/2019

Final report delivery scheme will be three separate reports

Overall progress is favorable – some expected challenges with meeting crack interaction report deliverable date have been confirmed at face-to-face

- SDC/SLP & structural bonds guidance development is progressing with little challenge to-date.
- **At present, no rule change expected for any of the tasks. Guidance change only.**
- Evident there is wider variety of engineering positions on guidance for crack interaction – some generally favorable direction on development of guidance recommendations.

# SUMMARY OF TASKING – extended topics (continued)

## Item 1: Structural Damage Capability (SDC) and Single Load Path (SLP) Structure

- develop requirements and guidance material for single load path (SLP) structure, which by definition has no SDC
- **Draft report has been in circulation with smaller “sub-team” and shared with larger WG body for feedback**
- no rule change - original recommendation for impractical has been revisited & recommendation is to rescind original
  - Report will intend to clearly lay out case to why previous position is changing:
    - Difficult to establish what is “impractical”
    - Seeking to avoid prescriptive rules
    - Proposed rule change may not achieve safety improvement relative to overall cost
- Recommended Guidance Changes:
  - 4 separate aspects for consideration when using SLP (incrementally different from standard MLP construction):
    - Minimization of environmental & accidental damage
    - Perform fatigue test to demonstrate acceptable level of fatigue reliability
      - WG working to resolve “target” reliability – likely not a prescriptive target value
      - **One final item for resolution by “sub-team” is nuanced definition of “reliability” in context of this fatigue discussion**
    - Perform testing to demonstrate controlled, slow crack growth
    - Develop manufacturing control plan
  - Additional discussion in report on integrally stiffened panels as SLP
- Proposed recommendation has matured past concept and is in process with iterative draft & review process by smaller team – expected to get full WG review starting mid-Feb
- Because we are relatively close to having a report to be submitted, WG focus is to get this provided to TAE

# SUMMARY OF TASKING – extended topics (continued)

066

## Item 2: Structural bonds & Weak Bonds

- FAA requests further clarification from the working group on how to address disbands and weak bonds as a manufacturing defect
  - “Weak bonds listed under manufacturing defects is somewhat confusing because, although it is clearly a manufacturing defect, it is unlike any of the other manufacturing defects that are typically listed (i.e., all others are relatively small and either starter flaws for metal fatigue or allowable defects for composites).”
  - “Bonding may be acceptable to use if stringent/reliable manufacturing in-process quality control practices are in place to ensure that a weak bond is: 1) extremely rare (justifying the size constrained by 2.) and 2) localized to a size at or within arresting design features.”
- No rule change proposed.
- Guidance changes under consideration:
  - AC 20-107B: additional modification – proposed change recommendations for WG review: Parag. 6, 8, 10
  - AC 25.571-1D: under the original report (section 3.1.2 wrt metal-to-metal bonding)
  - AC 21-26: reviewed but no changes proposed because of no mention of structural bonding
  - BRSL – proposed edits to para. 10 in AC 20-107B; objective: alignment with BRSL
- Rationale for quality control document content
- New commitment from WG participant organization to dedicate resources to translate recommendation “outline” to a draft report – **much of work prepared, but he is retiring in two weeks.**
- Expect once SLP team report is produced, path for structural bonds and crack interaction reports should be somewhat easier
- **Sub-team drafted report to be shared with full WG by mid-May, expect ~1 month of WG member review and resolution of comments/questions**

# SUMMARY OF TASKING – extended topics (continued)

067

## Item 3: Crack interaction

- Team direction:
  - Rule change:
    - No – general consensus position as of now
    - Currently one dissenting position related to harmonization with EASA rule language – group to be re-queried with new information discussed at F2F
  - Guidance changes:
    - No voiced opposition with notional direction
    - Example cracking scenarios (real images, FAA participant recommended example, other schematic model examples?)
    - EASA language from AMC 20-20 in 25.571-1D
    - Airbus, Embraer, Bombardier proposal language: crack interaction to be considered in cases where it is expected – **do not have full consensus on this proposal (general disagreement is that proposal does not go far enough)**
    - **Also proposal to simply add reference in AC 25.571-1D to AC 91-82A did not receive consensus (similar disagreement that proposal should go further).**
    - **Remaining difference between WG members about what crack interaction is (i.e., crack interaction vs. load redistribution).**
      - **Clear that this must be resolved in report**
  - Report items:
    - Tasking boundary between WFD scenarios discussion for report
    - Omission of threshold and rationale discussion
    - Are recommendations warranted from safety perspective? Discussion about inclusion of AD surveys needs documentation of methodology and results, otherwise need to remove this position – also need some discussion about other DAHs not included in this WG (STC holders, etc). If this is not well presented in compelling way, will likely be omitted from report.
- ECDs will be subject to agreement and comments received from WG members on content in draft

# Deliverable & Schedule

Deliverable: three reports containing:

- Recommendations on appropriate performance-based requirements
- Recommendations on any new guidance or changes to existing guidance
- Qualitative and quantitative costs and benefits of the recommendations
- May find impact to WG member availability to participate due to COVID-10 related business decisions (furloughs, leave of absences, etc)

## Milestones:

|   |  |
|---|--|
| •TAE Status 2                                       | March 2019   |
| •WG face to face meeting (San Francisco)            | April 2019   |
| •TAE Status 3                                       | May 2019   |
| •Second Face to Face, ATL                           | Oct 2019   |
| •TAE Status   | Nov 2019   |
| •Three recommendation reports – submitted to TAE    |  |
| •1: Structural Damage Capability – Single Load Path | May 2020 (we had intended final report to be shared with TAE now, but ECD is about month |
| •2: Structural Bonding                              | June 2020  |
| •3: Crack Interaction                               | ECD (possibly Fall 2020)   |

## *Meeting cadence:*

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

# Ice Crystal Icing Working Group Status Report to the Aviation Rulemaking Advisory Committee

**Melissa Bravin**

**Allan van de Wall**

Working Group Co-Chairs

1 June 2020

# MEMBERS of ICI WG

| Member Name            | Organization                                  | Role                       |
|------------------------|---|----------------------------|
| Alan Strom             | (FAA-ANE Standards) <u>FAA Representative</u> | FAA Representative         |
| Keith Morgan           | Pratt & Whitney                               | ARAC Representative        |
| Melissa Bravin         | Boeing Commercial Airplanes                   | WG Co-Chair – Airplane – P |
| Allan van de Wall      | GE Aviation                                   | WG Co-Chair – Engine – P   |
| Tom Dwier              | Textron Aviation                              | Airplane – P               |
| Pierre-Emmanuel Arnaud | Airbus  | Airplane – P               |
| Bryan Lesko            | Air Line Pilots Association                   | Other – P                  |
| Rikki Gardonio         | Air Line Pilots Association                   | Other – B                  |
| Jon Saint-Jacques      | A4A/Atlas Air                                 | Other – P                  |
| David Dischinger       | Honeywell                                     | Engine – P                 |
| Keith Wegehaupt        | Honeywell                                     | Engine – P                 |
| Jim Loebig             | Rolls-Royce                                   | Engine – P                 |
| Roberto Marrano        | Pratt & Whitney Canada                        | Engine – P                 |
| Shengfang Liao         | Pratt & Whitney East Hartford                 | Engine – P                 |
| Christopher Baczynski  | Mitsubishi MITAC ( <i>left company</i> )      | Airplane – P               |
| Kohei Oyabu            | Mitsubishi MITAC                              | Airplane – B               |
| Brian Matheis          | UTAS  | Other (probe) – P          |
| John Harvell           | Rolls-Royce                                   | Engine – P                 |
| Roxanne Bochar         | Pratt & Whitney                               | Engine - P                 |

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

# SUMMARY OF TASKING

- The ICIWG will provide advice and recommendations to the ARAC through the TAE Subcommittee on Appendix D to Part 33, and harmonization of §33.68 *Induction System Icing* requirements as follows:
  1. Evaluate recent ICI environment data obtained from both government and industry to determine whether flight testing data supports the existing Appendix D envelope.
  2. Evaluate the results carried out in Task 1 and recommend changes to the existing Appendix D envelope, as required.
    - a) Under Tasks 1 and 2, 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

- ✓ April 30 – May 1 2019 – FAA, Burlington, MA
- ✓ July 9-11 2019 – Rolls-Royce, Indianapolis, IN
- ✓ November 6-8 2019 – Boeing, Seattle, WA
- ✓ January 29-30 2020 – Honeywell, Phoenix, AZ
- ~~April 29 – May 1 2020 – General Electric, Munich, Germany~~
- ~~September 15-16 2020 – Pratt & Whitney, East Hartford, CT~~
- ~~December 2-3 – EASA, Cologne, Germany~~
- **Current plan is to continue with telecons every 3 weeks for the rest of 2020**
- February 2021 – Honeywell, Phoenix, AZ
- ARAC membership agreed to timeline extension pending data (see next slides)

# STATUS OF TASKING

- Current status is no face-to-face meetings; co-chairs are revising Work Plan to reflect telecons and extended timeline due to COVID-19 + possibility of high aerosol flight campaign data
- ARAC Membership Decisions:
  1. Incorporate TWC data from an upcoming FAA high aerosol flight campaign. In-situ data may show an increase in TWC for high aerosol environments, vs. the current HAIC-HIWC dataset.
  2. Extend timeline of ARAC to allow incorporation of high aerosol flight campaign data into environmental definition.
  3. Initial decrement to maximum TWC threshold using adiabatic model matched to Method 2 -40°C point, using a decrement value of 0.427 to align with HAIC-HIWC dataset.
  4. Extrapolate maximum TWC threshold using adiabatic model and preliminary decrement (0.427) to -90 C due to minimum measured temperature levels reaching tropopause in warm tropical environments.
- Future Agenda Topics:
  1. Conclude discussions on lake effect TWC, mixed phase environment definitions
  2. Investigating in-service engine and probe ICI events to evaluate altitude-temperature envelope boundaries.
  3. Discuss TWC threshold difference between FAA & EASA

# AREAS of ARAC CONSIDERATION

- None

**Avionic Systems Harmonization Working  
Group  
Status Report to the  
Aviation Rulemaking Advisory Committee**

**Clark Badie  
Working Group Chair**

January 2020

# ASHWG Task

## Task:

Identify and develop recommendations on low energy alerting requirements to supplement previous work

## Background:

ASHWG previously tasked to develop standards and guidance material for low speed alerting systems, that may complement existing low speed alerting requirements.

## Update:

As a result of the Asiana Flight 214 accident, NTSB recommended to the FAA to “develop design requirements for context-dependent low energy alerting systems for airplanes engaged in commercial operations” (NTSB Safety Recommendation A–14–043)

[https://www.nts.gov/\\_layouts/nts.recsearch/Recommendation.aspx?Rec=A-14-043](https://www.nts.gov/_layouts/nts.recsearch/Recommendation.aspx?Rec=A-14-043)

# ASHWG Task

- Task Deliverable: Provide advice and recommendations to the ARAC through the TAE Committee in a report that addresses the following questions relative to new airplane designs, along with rationale.
  1. Do you recommend any changes to the existing low speed alerting requirements to provide additional pilot reaction time in cases where the airplane is both slow and close to the ground?
  2. Do you recommend any new or revised guidance material to define an acceptable low energy alert?
  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 low energy conditions?
  4. Is coordination necessary with other harmonization working groups (e.g., Human Factors, FlightTest)? If yes, coordinate with that working group and report on that coordination.
  5. Develop a report 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.

# Current Roster

|                         |                  |  |
|-------------------------|------------------|--|
| Joe Jacobsen            | FAA              | <a href="mailto:Joe.Jacobsen@faa.gov">Joe.Jacobsen@faa.gov</a>                     |
| Bob Myers               | Boeing           | <a href="mailto:Robert.j.myers@boeing.com">Robert.j.myers@boeing.com</a>           |
| Dave Leopold            | Boeing           | <a href="mailto:David.D.Leopold@boeing.com">David.D.Leopold@boeing.com</a>         |
| Brian Lee               | Boeing           | <a href="mailto:brian.p.lee@boeing.com">brian.p.lee@boeing.com</a>                 |
| Karl Minter             | ALPA             | <a href="mailto:Karl.minter@alpa.org">Karl.minter@alpa.org</a>                     |
| Chris Heck              | ALPA             | <a href="mailto:Chris.heck@alpa.org">Chris.heck@alpa.org</a>                       |
| Christine Thibaudat     | Airbus           | <a href="mailto:christine.thibaudat@airbus.com">christine.thibaudat@airbus.com</a> |
| Thierry Bourret         | Airbus           | <a href="mailto:thierry.bourret@airbus.com">thierry.bourret@airbus.com</a>         |
| Tim Buker               | Gulfstream       | <a href="mailto:Timothy.Buker@gulfstream.com">Timothy.Buker@gulfstream.com</a>     |
| Janiece Lorey           | Gulfstream       | <a href="mailto:janiece.lorey@gulfstream.com">janiece.lorey@gulfstream.com</a>     |
| Robin Brulotte          | Transport Canada | <a href="mailto:Robin.brulotte@tc.gc.ca">Robin.brulotte@tc.gc.ca</a>               |
| Kajetan Litwin          | Transport Canada | <a href="mailto:Kajetan.Litwin@tc.gc.ca">Kajetan.Litwin@tc.gc.ca</a>               |
| Marcelo de Lima Camargo | Embraer          | <a href="mailto:macamargo@embraer.com.br">macamargo@embraer.com.br</a>             |
| Loran Haworth           | NASA             | <a href="mailto:loran.a.haworth@nasa.gov">loran.a.haworth@nasa.gov</a>             |
| Bob Stoney              | FAA              | <a href="mailto:Robert.stoney@faa.gov">Robert.stoney@faa.gov</a>                   |
| Clark Badie             | Honeywell        | <a href="mailto:Clark.badie@Honeywell.com">Clark.badie@Honeywell.com</a>           |

# AREAS of ARAC CONSIDERATION

- None

# Engine Harmonization Working Group Status Report to the Aviation Rulemaking Advisory Committee

**Neill Forrest**  
Working Group Chair

1 June 2020

# Members of the Working Group

## ***Members:***

|                        |                          |                     |
|------------------------|--------------------------|---------------------|
| Alan Strom             | (FAA-ANE Standards)      | FAA Representative  |
| Keith Morgan           | (Pratt & Whitney)        | ARAC Representative |
| Neill Forrest*         | (Rolls-Royce plc)        | WG Chair            |
| Ed Barry               | (GE Aviation)            |                     |
| Yves Cousineau*        | (Transport Canada)       |                     |
| Antony Boud*           | (EASA)                   |                     |
| Peter Turyk*           | (Pratt & Whitney Canada) |                     |
| Pat Markham*           | (HEICO)                  |                     |
| Dave Manion            | (Boeing)                 |                     |
| Joelle Rambour         | (SAFRAN)                 |                     |
| Pierre-Emmanuel Arnaud | (Airbus)                 |                     |
| Doug Hogge*            | (Williams International) |                     |

\* Continuing from original EHWG Endurance Test ARAC working group

## ***Other Participants/Subject Matter Experts:***

Brent Hart – Office of Rulemaking, FAA

Phil Haberlin – FAA-ANE Standards

# EHWG Task

The FAA requests clarification regarding the following areas of the original Endurance Test recommendation report-

1. Severity equivalence process and its intended purpose.
2. Severity equivalence process for other than creep failure modes, including failure modes not currently addressed by § 33.87 regulation.
3. Constraints for implementing the recommended hybrid performance-based and prescriptive solutions.
4. Role of the engine CPA.
5. Simplify the possible approaches by removing the Tmetal option.
6. Various acceptable outcomes for an alternate endurance test.

# EHWG Approach

- Develop and submit to the TAE a white paper containing responses to the questions posed by 31 March 2021. (evaluate after assessing effort in 1<sup>st</sup> question)
- Working group sharing of proprietary information: data will be sanitized and will not define the engine model, or other proprietary information; however, information will be sufficient for the purpose to address the task.
- Collaboration means
  - Sharepoint site where documents will be loaded for review and record keeping. The Alternate Endurance Test Sharepoint site is still active. Employ innovative techniques for problem solving
  - Identify any subgroups, as needed

# EHWG Status

- Meetings shall be virtual / teleconference due to COVID-19 related travel restrictions anticipated to be effective for the majority of this activity.
- Initial meeting (kickoff) held May 7<sup>th</sup> 2020, planning meeting held May 19<sup>th</sup> 2020
- Follow-on meetings to be held at a frequency of once per week starting June 2<sup>nd</sup> 2020, each focusing on progress towards responses to individual questions and compilation of the final document.
- Agenda for each subsequent meeting will be agreed at the end of the previous mtg. and issued with any minutes.

# AREAS of ARAC CONSIDERATION

Approval of new WG members

# Flight Test Harmonization Working Group Recommendation Report Briefing to the Aviation Rulemaking Advisory Committee

## Pilot Induced Oscillations and Bio-Dynamic Coupling

**Brian P. Lee (Boeing)**

**Laurent Capra (Airbus)**

Working Group Co-Chairs

June, 2020

# FTHWG MEMBERS for Phase 3

| Authorities                                       | OEM's   |                                      | Operators                           | Observers  |
|---|---|--------------------------------------|-------------------------------------|--|
| FAA<br>Joe Jacobsen<br>Bob Stoney<br>Paul Giesman | Airbus<br>Laurent Capra<br>+ SME's            | Embraer<br>Murilo Ribeiro<br>+ SME's | ALPA<br>Rikki Gardonio<br>Len Quiat | JCAB (Japan)<br>Takahiro Suzuki<br>Atsushi Fukui |
| EASA<br>John Matthews<br>Marco Locatelli          | Boeing<br>Paul Bolds-<br>Moorehead<br>+ SME's | Gulfstream<br>Mike Watson<br>+SME's  |                                     | CAAI (Israel)<br>Yshmael Bettoun                 |
| Transport Canada<br>Lee Fasken                    | Bombardier<br>Tony Spinelli<br>+SME's         | Textron<br>Kurt Laurie<br>+SME's     |                                     | Norwegian Airlines<br>John Lande                 |
| ANAC (Brazil)<br>Pedro Donato                     | Dassault<br>Philippe Eichel<br>+SME's         |                                      |                                     |  |

# SUMMARY OF TASKING

- Guidance provided in AC 25-7C\* for evaluation of PIO/APC is not well accepted by airplane manufacturers, is not harmonized with EASA, and has been superseded to some extent in recent certification programs.
- The FTHWG is tasked to recommend changes to the intent of guidance provided in AC 25-7C\* to both simplify and standardize the methods for evaluating an airplane's susceptibility to PIO/APC.

\*Since the tasking was written, AC 25-7D has been released and is used as the baseline for our recommendations.

# SCHEDULE

- This Task: Topic 15 of Phase 3 activities
  - Began June, 2018
  - Was addressed in 6 face-to-face meetings
  - 15 formal telecons
  - Many, many more informal telcons, conversations, and e-mail exchanges
- Scheduled Completion: May, 2020
- Completion date: May, 2020

# RECOMMENDATION(S)

- Regulations:
  - The working group considers that 25.143(a), (b), and (k), amended as proposed in our Phase 2 activities is:
    - Complete for consideration of PIO / BDC
    - Appropriate for consideration of PIO / BDC
    - Completely harmonized across FAA, EASA, TCCA, and ANAC
- Guidance:
  - The working group recommends revision to guidance in AC 25-7 (and similar documents for other authorities)
    - Proposed text was generated
      - Robust with regard to completeness
      - Achievable with regard to certification program schedules
    - Completely harmonized across FAA, EASA, TCCA, and ANAC

# RECOMMENDATION(S)

- Essence of the Recommendation:
- The best approach to showing compliance with regard to PIO / BDC is 2-pronged
  - An evaluation throughout the flight test campaign, in which the airplane is exercised throughout the flight envelope.
  - A set of very specific, high demand maneuvers specifically designed to expose PIO tendencies.
- Guidance Material includes new “background” information
  - Highlights industry best practice and lessons learned

# DISSENT(S)

- The Recommendations of the working group are unanimous
- No dissenting opinions

# Flight Test Harmonization Working Group Recommendation Report Briefing to the Aviation Rulemaking Advisory Committee

$V_{DF} / M_{DF}$

**Brian P. Lee (Boeing)**

**Laurent Capra (Airbus)**

Working Group Chairs

June, 2020

# FTHWG MEMBERS for Phase 3

## Very Important: included Structures SME's

| Authorities                                       | OEM's   |                                      | Operators                           | Observers  |
|---|---|--------------------------------------|-------------------------------------|--|
| FAA<br>Joe Jacobsen<br>Bob Stoney<br>Paul Giesman | Airbus<br>Laurent Capra<br>+ SME's            | Embraer<br>Murilo Ribeiro<br>+ SME's | ALPA<br>Rikki Gardonio<br>Len Quiat | JCAB (Japan)<br>Takahiro Suzuki<br>Atsushi Fukui |
| EASA<br>John Matthews<br>Marco Locatelli          | Boeing<br>Paul Bolds-<br>Moorehead<br>+ SME's | Gulfstream<br>Mike Watson<br>+SME's  |                                     | CAAI (Israel)<br>Yshmael Bettoun                 |
| Transport Canada<br>Lee Fasken                    | Bombardier<br>Tony Spinelli<br>+SME's         | Textron<br>Kurt Laurie<br>+SME's     |                                     | Norwegian Airlines<br>John Lande                 |
| ANAC (Brazil)<br>Pedro Donato                     | Dassault<br>Philippe Eichel<br>+SME's         |                                      |                                     |  |

# SUMMARY OF TASKING

- [Phase 2 activities identified inconsistencies requiring resolution]
  - Between authorities
  - Between Subparts B and C
- [Tasking:] Assessing the definition and use of design and demonstrated dive speeds when high speed flight envelope protection is used.
- FTHWG drew in SME's from structures loads and dynamics from both authorities and industry to collaborate

# SCHEDULE

- Work began in June, 2017 (we started a bit ahead of the formal tasking)
- Topic was addressed in
  - More than scheduled face-to-face meetings
  - Many more formal telecons
  - Many, many more informal telecons, conversations, and e-mail exchanges, including several subteams to work specific issues
- Scheduled completion: March, 2019
- Completion date: April, 2020 (still within the tasking schedule window)
- The deliberations were
  - Lengthy
  - Broadly multi-disciplinary
  - Very deep, very detailed, topics were tightly intertwined
  - Required a number of re-starts, re-thinking, revisiting previous assumptions
  - Complimentary to Phase 2 Topics 1, 7, and 13

# RECOMMENDATION(S) (Context and Perspective)

- 14FR25.1505 (Subpart G) requires that Minimum Speed Margins from structural design ( $V_C/M_C$  to  $V_D/M_D$ ) must also be observed between Maximum Operating Speeds ( $V_{MO}/M_{MO}$ ) and maximum speed demonstrated in flight ( $V_{DF}/M_{DF}$ ).
- Many modern airplanes with high speed protection systems cannot achieve the desired  $V_{DF}/M_{DF}$  with systems operating normally.
- This inconsistency, combined with lack of precise definition for  $V_{DF}/M_{DF}$  and lack of clear guidance for envelope-protected airplanes has led OEM's and Authorities to different interpretations and different practices in flight test of handling qualities, vibration, and flutter.
- The FTHWG invited Loads and Structures experts from OEM's and Authorities to harmonize these issues. The group also reviewed in-service events involving significant overspeed occurrences.

# RECOMMENDATION(S)

- Harmonization of §25.335(b)(1) regulation and guidance, including a new (-15 deg) dedicated flight path upset, clarification of means of compliance, and a requirement for non-overridable envelope protection failure conditions.
- Update to AC 25.335-1A, including clarification of necessary conditions for credit of reduced structural design speeds if equipped with non-overridable protection functions, atmospheric variations, and instrument errors and production variations, where applicable.
- Update to §25.253(b) to establish that  $V_{FC}/M_{FC}$  need not exceed the speed achievable with full forward control input for protected airplanes.
- Inclusion of a new regulation §25.253(d) to precisely define  $V_{DF}/M_{DF}$  to be inclusive of the §25.335 upset and gust conditions and have defined appropriate evaluation maneuvers.
- Regulations and/or guidance amended for Handling Qualities paragraphs 251, 253, 255, and flutter flight tests of 629(e) to allow disabling or modifying protection functions for flight test purposes. Some quantitative criteria modified to qualitative in line with control law modifications required. Quantitative criteria of §25.255(f) modified to address protected and unprotected airplanes.
- Regulation and Guidance §25.1505 revised for clarity of intent regarding structural speed margins ( $V_C/M_C$  to  $V_D/M_D$ ) and speed margins demonstrated in flight ( $V_{MO}/M_{MO}$  to  $V_{DF}/M_{DF}$ ). Criteria for failure conditions are also included.

# One Comment (Not a DISSENT) (paraphrased)

The comment:

ANAC considers that an OEM should demonstrate no force reversal up to the load factors of §25.255(c) at speeds reached in §25.253(a)(1) upsets. ANAC is concerned that an OEM might ignore the need to compromise between exploring the envelope and not requiring extreme maneuvers and read the proposed guidance to allow testing at significantly lower speeds.

The response:

The working group acknowledges the concern and offers that a control law which would hold the gradual acceleration overspeed too short of the speeds achieved in §25.253(a) would likely exhibit load factors in excess of 1.5 g in the recovery. The working group does not envision a reason why an OEM would propose such a control law. The proposed guidance is consistent with current practice. In addition, qualitative evaluations should be done as part of §25.253(a) compliance, as noted.

ANAC was satisfied with the result of the discussion, but wanted their comment noted in the report.

# One (Administrative) Dissent (paraphrased)

FAA held that the proposed change to §25.253(a)(4) could instead be made in guidance, avoiding the administrative burden of additional regulatory change.

The majority of the FTHWG voting members believe that the new language proposed for §25.253(a)(4) would be helpful in the sense that it adds clarity to the intended range of speeds to be tested. Moreover, the group considers these changes to be minor compared to the complete set of changes recommended in this report.