AVIATION RULEMAKING ADVISORY COMMITTEE (ARAC)

FEDERAL AVIATION ADMINISTRATION

September 14, 2017

ARAC MEETING 1:00 p.m.

- Welcome and Introductions
- Ratification of Minutes
- New Tasking
    - Airman Certification System Working Group – Expanding task to include revision of existing Airman Certification Standards
    - Avionics Systems Harmonization Working Group – Low Energy Alerting Requirements
    - Ice Crystal Icing Working Group – Mixed Phase and Ice Crystal Icing Envelope (Deep Convective Clouds) Requirements – Revision of Appendix D to 14 CFR Part 33
    - Part 145 Working Group
- Status Reports:
    - ARAC
        - Rotorcraft Bird Strike Working Group - Mr. Michel Smith and Mr. Cory Cummins (Tasked: 4/27/2016; Recommendations Due: 10/27/2017)
        - Loadmaster Certification Working Group - Mr. Mark Phaneuf (Tasked: 5/12/2016; Recommendations Due: 5/12/2018)
        - Airman Certification Systems Working Group - Mr. David Oord (Tasked #1: 1/29/14; Recommendations Due: 12/15/17; Tasked #2: 2/4/2016; Recommendations Due: 12/15/17)
        - Rotorcraft Occupant Protection Working Group- Mr. Dennis Shanahan (Tasked: 11/5/2015; Recommendations Due: Task 5 - 2/5/2018, Task 6 - 8/5/2018)
    - Transport Airplane and Engine (TAE) Subcommittee - Mr. Keith Morgan
        - Transport Airplane Metallic and Composite Structures Working Group - Transport Airplane Damage-Tolerance and Fatigue Evaluation (Tasked: 1/26/2015; Recommendations Due: 1/26/2018)

        - Flight Test Harmonization Working Group - Transport Airplane Performance and Handling Characteristics, Phase 3 Tasking

        - Transport Airplane Crashworthiness and Ditching Evaluation Working Group (Tasked: 6/4/2015; Recommendations Due: 3/4/2018)

        - Engine Harmonization Working Group - Engine Endurance Testing Requirements – Revision of Section 33.87 Final Report (Tasked:1/22/2014; Recommendations Due: 6/30/2017)

        - Flight Test Harmonization Working Group - Transport Airplane Performance and Handling Characteristics, Phase 2 Final Report (Tasked: 4/11/2014; Recommendations Due: 7/11/2017)

- Recommendation Report

    - ARAC Input to Support Regulatory Reform of Aviation Regulations

- Any Other Business

[4910-13]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

Aviation Rulemaking Advisory Committee - New Task

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of continuing a task assignment for the Aviation Rulemaking Advisory Committee (ARAC).

SUMMARY: The FAA assigned the Aviation Rulemaking Advisory Committee (ARAC) a continuation of a task to provide recommendations regarding standards, training guidance, test management, and reference materials for airman certification purposes. The FAA assigned the continuation of work on the Airline Transport Pilot certificate, the Instructor certificate, and the Aircraft Mechanic certificate. The FAA also expanded the task to include revisions to the standards, training guidance, test management, and reference materials for the Private Pilot, Commercial Pilot and Remote Pilot certificates and the Instrument rating, and added the Sport Pilot and Recreational Pilot certificates in all airplane categories, and the Private Pilot, Commercial Pilot, Airline Transport Pilot, and Instructor certificates and the Instrument rating in the remaining aircraft categories to include rotorcraft, powered lift, and glider to the list of certificates and ratings for which the ARAC will provide recommendations. This notice informs the public of the continuing ARAC activity and solicits additional membership in these areas for the existing Airman Certification System Working Group (ACS WG).

FOR FURTHER INFORMATION CONTACT: Van L. Kerns, Manager, Regulatory Support Division, FAA Flight Standards Service, AFS 600, FAA Mike Monroney

Aeronautical Center P.O. Box 25082 Oklahoma City, OK 73125; telephone (405) 954-4431, email van.l.kerns@faa.gov.

SUPPLEMENTARY INFORMATION:

ARAC Acceptance of Task

As a result of the September 14, 2017 ARAC meeting, the FAA assigned and ARAC accepted and designated this continuation of task to the ACS WG. The ACS WG continues to serve as staff to the ARAC and continues to provide advice and recommendations on the continued assigned task. The ARAC will review and accept the recommendation report and will submit it to the FAA.

Background

The FAA established the ARAC to provide information, advice, and recommendations on aviation related issues that could result in rulemaking to the FAA Administrator, through the Associate Administrator of Aviation Safety.

On December 19, 2013, ARAC accepted the FAA's assignment of a new task to establish an Airman Certification System Working Group (ACS WG) to assist in the development of standards, training guidance, test management, and reference materials for airman certification testing. The FAA announced the ARAC's acceptance of this task through a Federal Register Notice published on January 29, 2014 [79 FR 4800]. The original task focused on the Private Pilot, Commercial Pilot, Airline Transport Pilot, and Authorized Instructor certificates and the Instrument Rating in the airplane category. The task was expanded in February 2016 [81 FR 6099] to include the Aircraft Mechanic certificate with Airframe and/or Powerplant ratings. The ACS WG has completed a substantial portion of this work, with implementation of the initial Airman Certification Standards for the Private Pilot airplane certificate and Instrument-Airplane

rating in June 2016, and initial ACS for the Commercial Pilot airplane certificate in June 2017 along with the first revisions to the ACS for the Private Pilot airplane certificate and the Instrument-Airplane rating.

The FAA has assigned the ARAC ACS WG to continue work on the more complex Airman Certification Standards for the Airline Transport Pilot certificate, the Instructor certificate, and the Aircraft Mechanic certificate with Airframe and/or Powerplant ratings, to provide advice on periodic revisions to the ACS documents now in use, to expand the scope of the existing task to include development of recommended standards, training guidance, test management, and reference materials for the other aircraft categories to include rotorcraft, powered lift, and glider, and to add members with expertise in these categories to assist in this work. The expansion of the existing task arises from FAA and aviation industry recognition that expansion of the integrated Airman Certification Standards approach will contribute to safety.

The Task

The ACS WG will provide advice and recommendations to the ARAC on the continued development and maintenance of standards, training guidance, test management, and reference materials for airman certificates and ratings in the airplane category, to include Private Pilot, Commercial Pilot, Airline Transport Pilot, Instructor, Remote Pilot, and Aircraft Mechanic certificates and the Instrument rating, adding the rotorcraft, powered lift, and glider categories, and expand the scope to add the Sport Pilot and Recreational Pilot certificates in all categories. In developing this report, the ACS WG and its new members shall familiarize itself with:

a. A report to the FAA from the Airman Testing Standards and Training Aviation Rulemaking Committee: Recommendations to Enhance Airman

Knowledge Test Content and Its Processes and Methodologies for Training and Testing (www.faa.gov/aircraft/draft_docs/arc);

b. A report from the ACS WG to the ARAC;

c. Aeronautical knowledge and proficiency standards set forth in 14 CFR part 61, Certification: Pilots, Flight Instructors, and Ground Instructors; 14 CFR part 65 Certification: Airman Other Than Flight Crewmembers, subpart D, Mechanics, and Subpart E, Repairmen; 14 CFR part 107, Small Unmanned Aircraft Systems, Subpart C, Remote Pilot Certification;

d. FAA Airman Knowledge Test Guides in the FAA-G-8082 series;

e. Current Practical Test Standards or Airman Certification Standards documents for the affected certificates or ratings; and

f. Current FAA guidance materials, to include the Pilot's Handbook of Aeronautical Knowledge (FAA-H-8083-25); the Airplane Flying Handbook (FAA-H-8083-3); the Aviation Instructor's Handbook (FAA-H-8083-9); the Instrument Flying Handbook (FAA-H-8083-15); the Instrument Procedures Handbook (FAA-H-8083-1); the Risk Management Handbook (FAA-H-8083-2); the Aviation Maintenance Technician Handbook- General (FAA-H-8083-30), the Aviation Maintenance Technician Handbook Airframe (FAA-H-8083-31) Volumes 1 and 2; the Aviation Maintenance Technician Handbook Powerplant (FAA-H-8083-32) Volumes 1 and 2; the Aircraft Weight and Balance Handbook (FAA-H-8083-1); the Remote Pilot – Small Unmanned Systems Study Guide (FAA-G-8082-22); the Helicopter Flying Handbook

(FAA-H-8083-21A), the Glider Flying Handbook (FAA-H-8083-13A): and the appropriate FAA Airman Knowledge Testing Supplements (FAA-CT-8080 series documents).

1. The FAA has specifically tasked the ACS WG to support the FAA's goal to enhance aviation safety by providing a means for the aviation industry to provide expert assistance and industry views to the FAA's Flight Standards Service (AFS) on the development, modification, and continued alignment of the major components of the airman certification system, which include:
    a. The ACS for airman certificates and ratings (i.e. 8081-series documents);
    b. Associated training guidance material (e.g., H-series handbooks);
    c. Test management (e.g., test question development, test question boarding, test composition/test "mapping," and CT-8080-series figures); and
    d. Reference materials, to include AFS directives and Aviation Safety Inspector guidance; FAA Orders, Advisory Circulars (ACs), and other documents pertaining to the airman certification system.
2. 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.
3. After the FAA accepts the recommendation report, the FAA may task the ARAC ACS WG to complete the following additional tasks:

a. Provide recommendations for regular industry review of standards, guidance, and test management for each airman certificate or rating included in this task; and

b. Provide prioritized recommendations for applying the Airman Certification Standards framework to other airman certifications and ratings.

4. The ACS WG may be reinstated to assist the ARAC by responding to the FAA's questions or concerns after the recommendation report has been submitted.

Schedule

The recommendation report should be submitted to the FAA for review and acceptance no later than 30 months from the publication date in the *Federal Register*.

This tasking notice requires two recommendation reports.

- As tasked on December 19, 2013, published on January 29, 2014 [79 FR 4800], and amended at the ARAC's September 14, 2017 meeting, the ACS WG must submit an interim recommendation report covering the ARAC ACS Working Group's initial tasking for the Private Pilot, Commercial Pilot, Airline Transport Pilot, Instructor, and Aircraft Mechanic certificates and the Instrument Rating to the FAA for review and acceptance no later than March 2018.
- An interim recommendation report, to include the expanded task as described above and proposed timelines for full task completion, must be submitted to the FAA for review and acceptance no later than December 2019.

Working Group Activity

The ACS WG must comply with the procedures adopted by the ARAC and are as follows:

1. Conduct a review and analysis of the assigned tasks and any other related materials or documents.
2. Draft and submit a work plan for completion of the task, including the rationale supporting such a plan, for consideration by the ARAC.
3. Provide a status report at each ARAC meeting.
4. Draft and submit the recommendation report based on the review and analysis of the assigned tasks.
5. Present the recommendation reports at the ARAC meeting.

Continued Participation in the Working Group/Addition of New Members

The existing ACS WG continues to be comprised of technical experts having an interest in the assigned task and the FAA is now soliciting new members with expertise in the rotorcraft, powered lift, glider, and remote pilot training and testing fields. The provisions of the August 13, 2014, Office of Management and Budget guidance, "Revised Guidance on Appointment of Lobbyists to Federal Advisory Committees, Boards, and Commissions" (79 FR 47482), continues the ban on registered lobbyists participating on Agency Boards and Commissions if participating in their "individual capacity." The revised guidance now allows registered lobbyists to participate on Agency Boards and Commissions in a "representative capacity" for the "express purpose of providing a committee with the views of a nongovernmental entity, a recognizable group of persons or nongovernmental entities (an industry, sector, labor unions, or environmental groups, etc.) or state or local government." (For further information see Lobbying Disclosure Act of 1995 (LDA) as amended, 2 U.S.C 1603, 1604, and 1605.)

If you wish to become a member of the ACS WG for the purpose of assisting with the expanded task, write the person listed under the caption FOR FURTHER INFORMATION

CONTACT expressing that desire. Describe your interest in the task and state the expertise you would bring to the working group. The FAA must receive all requests by **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICANTION IN THE FEDERAL REGISTER.]** The ARAC and the FAA will review the requests and advise you whether or not your request is approved.

The members of the Airman Certification System Working Group must actively participate, attend all meetings, and provide written comments when requested. The members must devote the resources necessary to support the working group in meeting any assigned deadlines. The members must keep management and those represented advised of the working group activities and decisions to ensure the proposed technical solutions do not conflict with the position of those represented.

The Secretary of Transportation determined the formation and use of the ARAC is necessary and in the public interest in connection with the performance of duties imposed on the FAA by law.

The ARAC meetings are open to the public. However, meetings of the ACS WG are not open to the public, except to the extent individuals with an interest and expertise are selected to participate. The FAA will make no public announcement of working group meetings.

Issued in Washington, DC, on

Lirio Liu
Designated Federal Officer
Aviation Rulemaking Advisory Committee

[4910-13]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

Aviation Rulemaking Advisory Committee - New Task

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of a new task assignment for the Aviation Rulemaking Advisory Committee (ARAC).

SUMMARY: The FAA assigned the Aviation Rulemaking Advisory Committee (ARAC) a new task to identify and develop recommendations on low energy alerting requirements to supplement previous work accomplished on low speed alerting in new transport category airplanes. This notice informs the public of the new ARAC activity.

FOR FURTHER INFORMATION CONTACT: Joe Jacobsen, Airplane & Flight Crew Interface Branch, ANM-111, Transport Airplane Directorate, Federal Aviation Administration, 1601 Lind Ave SW, Renton, Washington, 98057; telephone (425) 227-2011, facsimile (425) 227-1149; e-mail joe.jacobsen@faa.gov.

SUPPLEMENTARY INFORMATION:

ARAC Acceptance of Task

As a result of the [date of the ARAC meeting] ARAC meeting, the FAA assigned, and ARAC accepted, this task and designated it to the Transport Airplane and Engine (TAE) Subcommittee, which will assign the task to the existing Avionics Systems Harmonization Working Group (ASHWG). The ASHWG will serve as staff to the ARAC, through the TAE Subcommittee, and will provide advice and recommendations on the assigned task. The TAE Subcommittee will review and approve the recommendation report and will send the approved

recommendation report to the ARAC for acceptance. After ARAC accepts the recommendation report, it will submit the recommendation report to the FAA.

Background

The FAA established the ARAC to provide information, advice, and recommendations on aviation related issues that could result in rulemaking to the FAA Administrator, through the Associate Administrator of Aviation Safety.

The FAA previously examined low speed alerting requirements and tasked the ARAC to provide information to develop standards and guidance material for low speed alerting systems. The information from that tasking may result in additional standards that complement existing low speed alerting requirements. However, as a result of the Asiana Flight 214 accident, the FAA needs additional recommendations related to context-dependent low energy safeguards with respect to low speed protection and alerting.

Following the Asiana Flight 214 accident investigation, the National Transportation Safety Board (NTSB) issued the following recommendation to the FAA:

> Task a panel of human factors, aviation operations, and aircraft design specialists, such as the Avionics Systems Harmonization Working Group, to develop design requirements for context-dependent low energy alerting systems for airplanes engaged in commercial operations (NTSB Safety Recommendation A-14-043).

The Task

The ASHWG will provide advice and recommendations to the ARAC through the TAE Subcommittee in a report that addresses the following questions relative to new airplane designs. The report should include rationale for the responses.

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, Flight Test)? 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.

Schedule

The recommendation report should be submitted to the FAA for review and acceptance no later than twenty-four (24) months from the publication date in the Federal Register.

Working Group Activity

The ASHWG must comply with the procedures adopted by the ARAC. As part of the procedures, the working group must:

1. Conduct a review and analysis of the assigned tasks and any other related materials or documents.
2. Draft and submit a work plan for completion of the task, including the rationale supporting such a plan, for consideration by the TAE Subcommittee.
3. Provide a status report at each TAE Subcommittee meeting.
4. Draft and submit the recommendation report based on the review and analysis of the assigned tasks.
5. Present the recommendation report at the TAE Subcommittee meeting.

Participation in the Working Group

The ASHWG comprises technical experts having an interest in the assigned task. A working group member need not be a member representative of the ARAC TAE Subcommittee.

In accordance with the provisions of the August 13, 2014, Office of Management and Budget guidance, "Revised Guidance on Appointment of Lobbyists to Federal Advisory Committees, Boards, and Commissions" (79 FR 47482), continues the ban on registered lobbyists participating on Agency Boards and Commissions if participating in their "individual capacity." The revised guidance now allows registered lobbyists to participate on Agency Boards and Commissions in a "representative capacity" for the "express purpose of providing a committee with the views of a nongovernmental entity, a recognizable group of persons or nongovernmental entities (an industry, sector, labor unions, or environmental groups, etc.) or state or local government." (For further information see Lobbying Disclosure Act of 1995 (LDA) as amended, 2 U.S.C 1603, 1604, and 1605.)

All members of the ASHWG who wish to participate in this task must actively participate in the working group, attend all meetings, and provide written comments when requested. You

must devote the resources necessary to support the working group in meeting any assigned deadlines. Each member must keep your management and those you may represent advised of working group activities and decisions to ensure the proposed technical solutions do not conflict with the position of those you represent. Once the working group has begun deliberations, members will not be added or substituted without the approval of the TAE Subcommittee Chair, the FAA Subcommittee member, and the Working Group Chair.

The Secretary of Transportation determined the formation and use of the ARAC is necessary and in the public interest in connection with the performance of duties imposed on the FAA by law.

The ARAC meetings are open to the public. However, meetings of the ASHWG are not open to the public, except to the extent individuals with an interest and expertise are selected to participate. The FAA will make no public announcement of working group meetings.

Issued in Washington, DC, on

Lirio Liu

Designated Federal Officer

Aviation Rulemaking Advisory Committee

[4910-13]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

Aviation Rulemaking Advisory Committee Mixed Phase and Ice Crystal Icing Envelope (Deep Convective Clouds) Requirements – Revision of Appendix D to 14 CFR Part 33 - New Task

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of a new task assignment for the Aviation Rulemaking Advisory Committee (ARAC).

SUMMARY: The FAA assigned the Aviation Rulemaking Advisory Committee (ARAC) a new task to provide recommendations on the ice crystal icing (ICI) requirements of Title 14 CFR part 33, appendix D. Because more extensive ICI data is available today, the FAA needs to determine if appendix D accurately reflects the existing ICI environment. This notice informs the public of the new ARAC activity and solicits membership for the new Ice Crystal Icing Working Group (ICIWG).

FOR FURTHER INFORMATION CONTACT: Alan Strom, Federal Aviation Administration, Rulemaking and Policy Branch, ANE-111, Engine and Propeller Directorate, Aircraft Certification Service, 1200 District Avenue, Burlington, MA 01803-9997, email alan.strom@faa.gov, phone (781) 238-7143, facsimile (781) 238-7199.

SUPPLEMENTARY INFORMATION:

ARAC Acceptance of Task

As a result of the [date of the ARAC meeting] ARAC meeting, the FAA assigned and ARAC accepted and designated this task to the Transport Airplane and Engine (TAE) Subcommittee to establish the ICIWG. The working group will serve as staff to the ARAC,

through the TAE Subcommittee, and provide advice and recommendations on the assigned task. The TAE Subcommittee will review and approve the recommendation report and will send the approved recommendation report to the ARAC for acceptance. After ARAC accepts the recommendation report, it will send the recommendation report to the FAA.

Background

The FAA established the ARAC to provide information, advice, and recommendations on aviation related issues that could result in rulemaking to the FAA Administrator, through the Associate Administrator of Aviation Safety. This includes obtaining advice and recommendations on the FAA's commitments to harmonize Title 14 of the Code of Federal Regulations (14 CFR) with the European Aviation Safety Agency (EASA).

Amendment 33-34, published in the Federal Register (79 FR 65507, dated 11/4/14), revised airplane and engine certification requirements in supercooled large drop, mixed phase, and ICI conditions. Appendix D to part 33 - Mixed Phase and ICI Envelope (Deep Convective Clouds) was added to depict the ICI envelope derived from adiabatic lapse calculations based on a theoretical atmospheric model. These requirements were adopted, in part, as a response to the National Transportation Safety Board safety recommendations A-96-54 and A-96-56. Since that time, the FAA in concert with other Federal agencies, civil airworthiness agencies, and industry sponsored three separate flight test campaigns to gather detailed ICI environmental test data. This flight test data has enabled a more accurate representation of ICI threat to aircraft turbojet, turbofan, and turboprop engines encountered in service. The objective of the ARAC task is to evaluate whether current engine or airplane air data probe responses to ICI warrant the use of an environmental envelope different from those existing in appendix D to part 33.

The Task

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 applicable.

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 air 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.

6. Recommend changes to the advisory circular, AC 20-147A, *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

The recommendation report should be submitted to the FAA for review and acceptance no later than 24 months from the publication date in the *Federal Register*. The ICIWG will remain in existence for 30 months.

Working Group Activity

The ICIWG must comply with the procedures adopted by the ARAC as follows:

1. Conduct a review and analysis of the assigned tasks and any other related materials or documents.
2. Draft and submit a work plan for completion of the task, including the rationale supporting such a plan for consideration by the TAE Subcommittee.
3. Provide a status report at each TAE Subcommittee meeting.
4. Draft and submit the recommendation report based on the review and analysis of the assigned tasks.
5. Present the recommendation report at the TAE Subcommittee meeting.

Participation in the Working Group

The ICIWG will be comprised of technical experts having an interest in the assigned task. A working group member need not be a member representative of the ARAC or the TAE

Subcommittee. The FAA would like a wide range of members to ensure all aspects of the tasks are considered in development of the recommendations. The provisions of the August 13, 2014, Office of Management and Budget guidance, *"Revised Guidance on Appointment of Lobbyists to Federal Advisory Committees, Boards, and Commissions"* (79 FR 47482), continues the ban on registered lobbyists participating on Agency Boards and Commissions if participating in their "individual capacity." The revised guidance now allows registered lobbyists to participate on Agency Boards and Commissions in a "representative capacity" for the "express purpose of providing a committee with the views of a nongovernmental entity, a recognizable group of persons or nongovernmental entities (an industry, sector, labor unions, or environmental groups, etc.) or state or local government." (For further information see Lobbying Disclosure Act of 1995 (LDA) as amended, 2 U.S.C 1603, 1604, and 1605.)

If you wish to become a member of the ICIWG, write the person listed under the caption "**FOR FURTHER INFORMATION CONTACT"** expressing that desire. Describe your interest in the task and state the expertise you would bring to the working group. The FAA must receive all requests by **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER.]** The ARAC, through the TAE Subcommittee, and the FAA will review the requests and advise you whether or not your request is approved.

If you are chosen for membership on the working group, you must actively participate in the working group, attend all meetings, and provide written comments when requested. You must devote the resources necessary to support the working group in meeting any assigned deadlines. You must keep your management and those you may represent advised of working group activities and decisions to ensure the proposed technical solutions do not conflict with the position of those you represent. Once the working group has begun deliberations, members will not be added or substituted without the approval of the ARAC Chair and the TAE Subcommittee Chair, the FAA, including the Designated Federal Officer, and the Working Group Chair.

The Secretary of Transportation determined the formation and use of the ARAC is necessary and in the public interest in connection with the performance of duties imposed on the FAA by law.

The ARAC meetings are open to the public. However, meetings of the ICIWG are not open to the public, except to the extent individuals with an interest and expertise are selected to participate. The FAA will make no public announcement of working group meetings.

Issued in Washington, DC, on

Lirio Liu
Designated Federal Officer
Aviation Rulemaking Advisory Committee

[4910-13]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

Aviation Rulemaking Advisory Committee - New Task

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of a new task assignment for the Aviation Rulemaking Advisory Committee (ARAC).

SUMMARY: The FAA has assigned the Aviation Rulemaking Advisory Committee (ARAC) a new task to provide recommendations regarding the agency's guidance on the certification and oversight of all part 145 repair stations. This notice informs the public of the new ARAC activity and solicits membership for the new Part 145 Working Group.

FOR FURTHER INFORMATION CONTACT: Paul M. Cloutier, Federal Aviation Administration, AFS-300, 800 Independence Avenue, SW, Washington, DC 20591 , paul.m.cloutier@faa.gov, (858) 999-7671, (202) 267-1812.

SUPPLEMENTARY INFORMATION:

ARAC Acceptance of Task

As a result of its September 14, 2017, ARAC meeting, the ARAC accepted this tasking to establish a Part 145 Working Group. The Part 145 Working Group will serve as staff to the ARAC and provide advice and recommendations on the assigned task. The ARAC will review and accept the initial and final recommendation reports and will submit them to the FAA.

Background

The FAA established the ARAC to provide information, advice, and recommendations on aviation-related issues to the FAA Administrator, through the Associate Administrator of Aviation Safety.

The FAA recognizes the critercal role that guidance documents play. Well-designed guidance documents serve many important or even critical functions both within an organization and externally to the regulatory programs they support. While guidance documents do not have the force of law in the way regulations do, they are often heavily relied on internally to establish, issue, and describe agency policy, responsibilities, methods, and procedures. When guidance documents do not reflect current regulatory requirements and FAA, AVS, and AFS policies, the outcome is an uneven and inconsistent application of agency guidance and standards. The Part 145 Working Group will provide recommendatins to the FAA to support the goal of consistent and clear guidance documents.

The Tasks

The Working Group is tasked to:

(1) Perform a comprehensive review of the internal and external guidance material, in relation to the current regualtions, that pertain to certificating and overseeing all part 145 repair stations.

    (a) This review will include FAA Orders, Notices, Advisory Circulars, Job Aids and Data Collection Tools.

(2) Develop recommendations on improvements to—

    (a) Internal and external guidance material to ensure it is:

        (i) Is aligned with the regulations; and,

(ii) Developed to communicate the agency's expectations for compliance to the public in a comprehensive and consistent manner.

(b) Ensure oversight by the FAA's domestic and foreign workforce vis-à-vis the amount, type, scope, and complexity of work being performed and the certificate holders' size.

3) Develop a preliminary and final report containing recommendations based on the analysis and findings. The reports 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 in responding to the FAA's questions or concerns after the recommendation report has been submitted.

Schedule

The preliminary and final recommendation reports should be submitted to the ARAC for review and acceptance, for submission to the FAA. The preliminary report will be submitted no later than 24 months from the first meeting of the Part 145 Working Group. The final report will be submitted no later than 12 months after the preliminary report is submitted.

Working Group Activity

The Part 145 Working Group must comply with the procedures adopted by the ARAC and are as follows:

1. Conduct a review and analysis of the assigned tasks and any other related materials or documents.
2. Draft and submit a work plan for completion of each task, including the rationale supporting such a plan, for consideration by the ARAC.
3. Provide a status report at each ARAC meeting.

4. Draft and submit the preliminary and final recommendation reports based on the review and analysis of the assigned tasks.
5. Present the preliminary and final recommendation reports to the ARAC at a scheduled meeting for public discussion.

Participation in the Working Group

The Working Group will be comprised of technical experts having an interest in the assigned task. A working group member need not be a member representative of the ARAC. The FAA would like a wide range of stakeholders to ensure all aspects of the tasks are considered in development of the recommendations. The provisions of the August 13, 2014, Office of Management and Budget guidance, "Revised Guidance on Appointment of Lobbyists to Federal Advisory Committees, Boards, and Commissions" (79 FR 47482), continues the ban on registered lobbyists participating on Agency Boards and Commissions if participating in their "individual capacity." The revised guidance now allows registered lobbyists to participate on Agency Boards and Commissions in a "representative capacity" for the "express purpose of providing a committee with the views of a nongovernmental entity, a recognizable group of persons or nongovernmental entities (an industry, sector, labor unions, or environmental groups, etc.) or state or local government." (For further information see Lobbying Disclosure Act of 1995 as amended, 2 U.S.C 1603, 1604, and 1605.)

If you wish to become a member of the Part 145 Working Group, contact the person listed under the caption **FOR FURTHER INFORMATION CONTACT** expressing that desire. Describe your interest in the task and state the expertise you would bring to the deliberations. The FAA must receive all requests by [INSERT DATE 30 DAYS AFTER DATE OF

PUBLICANTION IN THE FEDERAL REGISTER.] The ARAC and the FAA will review the requests and advise you whether or not your request is approved.

If you are chosen for membership on the working group, you must actively participate in the working group, attend all meetings, and provide written comments when requested. You must devote the resources necessary to support the working group in meeting any assigned deadlines. You must keep your management and those you may represent advised of working group activities and decisions to ensure the proposed technical solutions do not conflict with the position of those you represent. Once the working group has begun deliberations, members will not be added or substituted without the approval of the ARAC Chair, the FAA, including the Designated Federal Officer, and the Working Group Chair.

The Secretary of Transportation determined the formation and use of the ARAC is necessary and in the public interest in connection with the performance of duties imposed on the FAA by law. The ARAC meetings are open to the public. However, meetings of the Part 145 Working Group are not open to the public, except to the extent individuals with an interest and expertise are selected to participate. The FAA will make no public announcement of working group meetings.

Issued in Washington, DC, on

Lirio Liu

Designated Federal Officer,

Aviation Rulemaking Advisory Committee

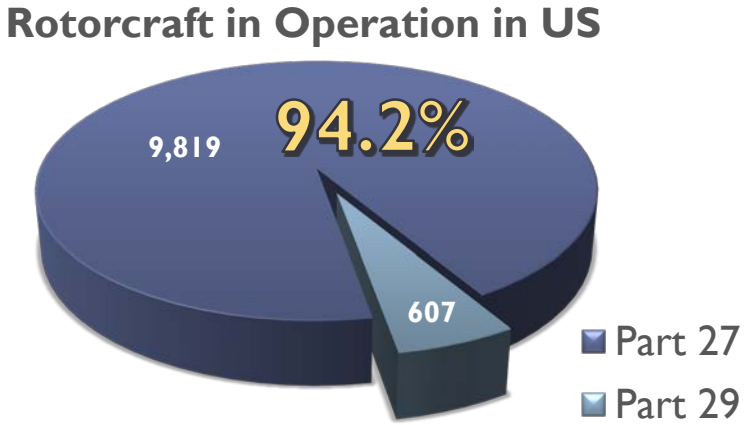
ARAC
Rotorcraft Bird Strike Working Group

August 22, 2017

94% of Operating Rotorcraft Have No Bird Strike Regulation

ARAC RBSWG

- Part 27 normal category rotorcraft
  - 9 seats or less (crew + passengers)

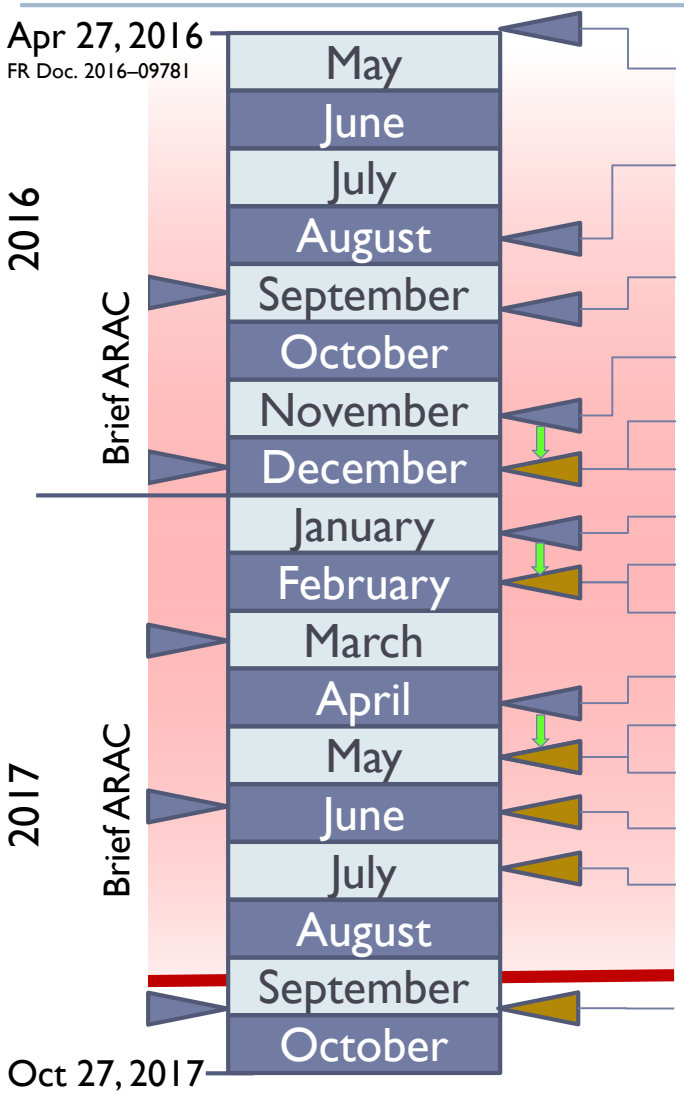


- Part 29 transport category rotorcraft
  - 10 or more seats (crew + passengers)

RBSWG Assigned Tasks

- **Task 1** – *For normal category rotorcraft, specifically advise … on how to:*
  - *Incorporate bird strike protection requirements into the **part 27** airworthiness standards for **newly type certificated** rotorcraft.*
- **Task 2** – *For normal category rotorcraft, specifically advise … on:*
  - *How the bird strike protection requirements in Task 1 should be made effective **via § 27.2** for **newly manufactured** rotorcraft.*
- **Task 3** – *For transport category rotorcraft, specifically advise … on how to:*
  - ***Enhance § 29.631** bird strike protection airworthiness standard … for **newly type certificated** rotorcraft.*
- **Task 4** – *For transport category rotorcraft, specifically advise … on:*
  - *How the bird strike protection requirements in Task 3 should be made effective **via § 29.2** for **newly manufactured** rotorcraft.*
- **Task 5** – *For normal and transport category rotorcraft, … advise … on:*
  - *Incorporating rotorcraft bird strike protection improvements and standards into the **existing rotorcraft** fleet.*
- **Task 6** – *For Tasks 1–5, consider existing **non-traditional bird strike protection technology** …*
- **Task 7** – *Advise and make written recommendations for the associated **policy and guidance** …*
- **Task 8** – *Estimate what regulated **parties would do differently** … how much it would **cost; safety improvements**; and **any other benefits**.*
- **Task 9** – *Develop a **report** containing recommendations on the findings and results of the tasks …*
- **Task 10** – *Assist ARAC in responding to FAA's questions or concerns after submitting report.*

18-Month Working Group Schedule



ARAC RBSWG – Publication in FR Doc. 2016–09781

Kick-off Meeting at HAI in Alexandria, Virginia (Aug 18-19)

Meeting at USDA in Sandusky, Ohio (Sep 28-29)

Meeting at helicopter operator in Lake Charles, LA (Nov 29-30)

Task 1 – Advise on Part 27 for newly *type certificated* rotorcraft

Task 3 – Advise on Part 29 for newly *type certificated* rotorcraft

Meeting at research facility in San Antonio, Texas (Jan 17-18)

Task 2 – Advise on Part 27 for newly *manufactured* rotorcraft

Task 4 – Advise on Part 29 for newly *manufactured* rotorcraft

Meeting at helicopter tour operator in Kauai, Hawaii (Apr 18-20)

Task 5 – Advise on Parts 27 & 29 for *retrofit existing* rotorcraft

Task 6 – Existing *non-traditional* bird strike protection technology

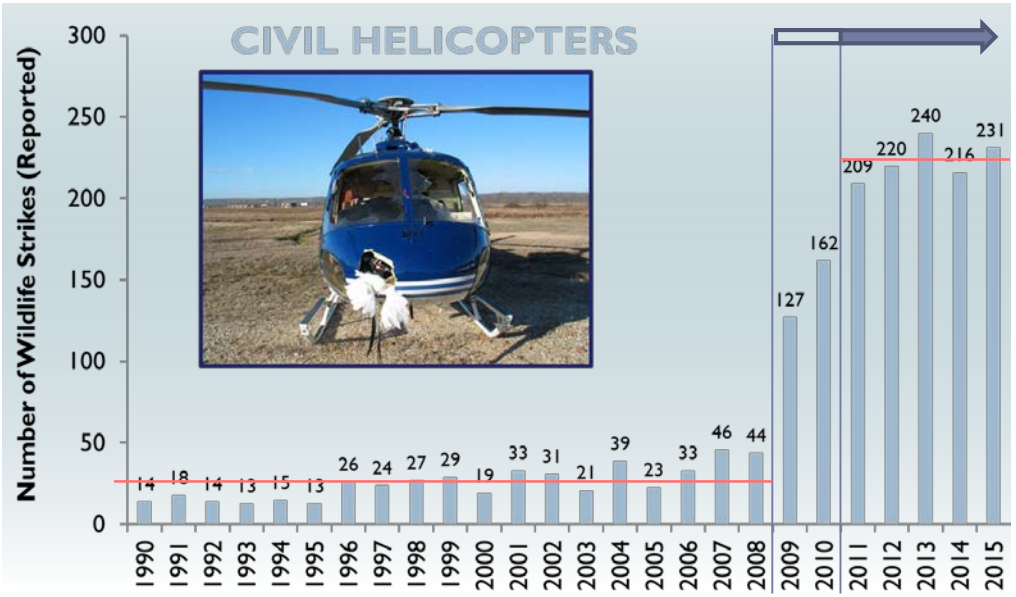
Task 7 – Advise on Parts 27 & 29 *policy & guidance*

Task 8 – Estimate changes, cost, safety improvements & benefits

Task 9 – Submit report with recommendations on findings and results

Stabilized Reporting of Bird Strikes

- Step increase in bird strike reporting occurred following two significant events early in 2009 with stabilized reporting 2011 and beyond
  - Jan 4, 2009 PHI N748P fatal crash outside Morgan City, Louisiana – the *only* fatal bird strike rotorcraft accident in the FAA's Nat'l Wildlife Strike Database
  - Jan 15, 2009 US Airways Flt 1549 ditched in the Hudson River following bird strikes
- **Jan 2009 – Feb 2016** is used for RBSWG study
  - Under-reporting skews conclusions drawn from data
  - Encompasses the only fatal rotorcraft crash due to bird strike

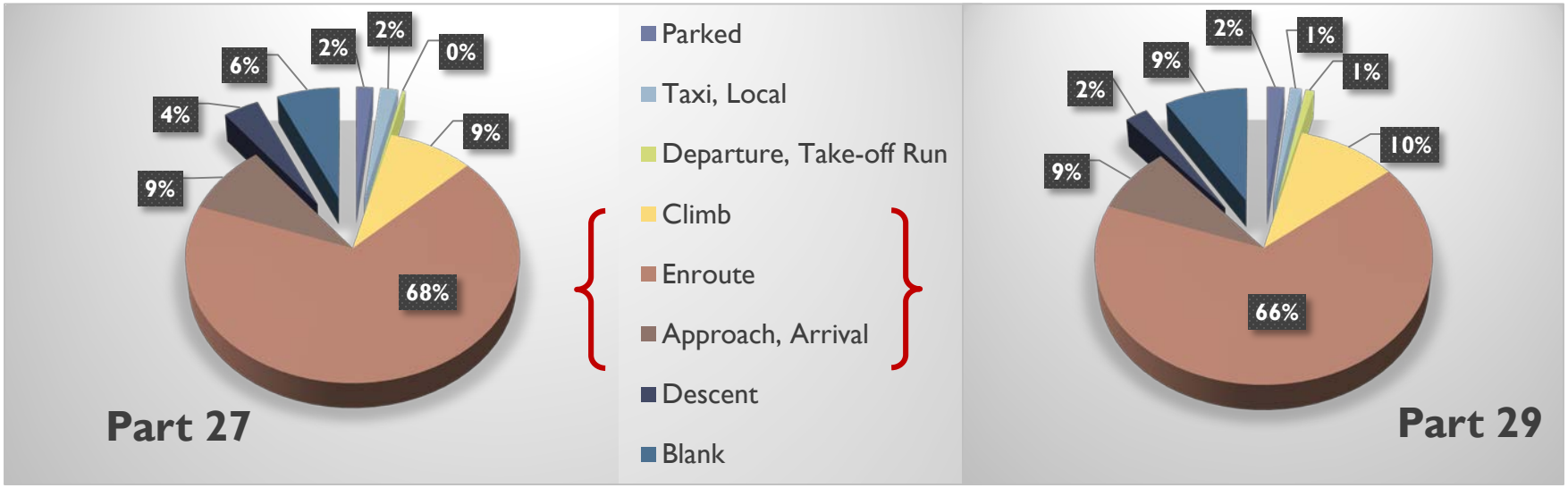


1990-2008 Mean = 25.4 strikes
2011-2015 Mean = 223.2 strikes

FAA's National Wildlife Strike Database (NWSD)

Bird Strikes During Flight Phase

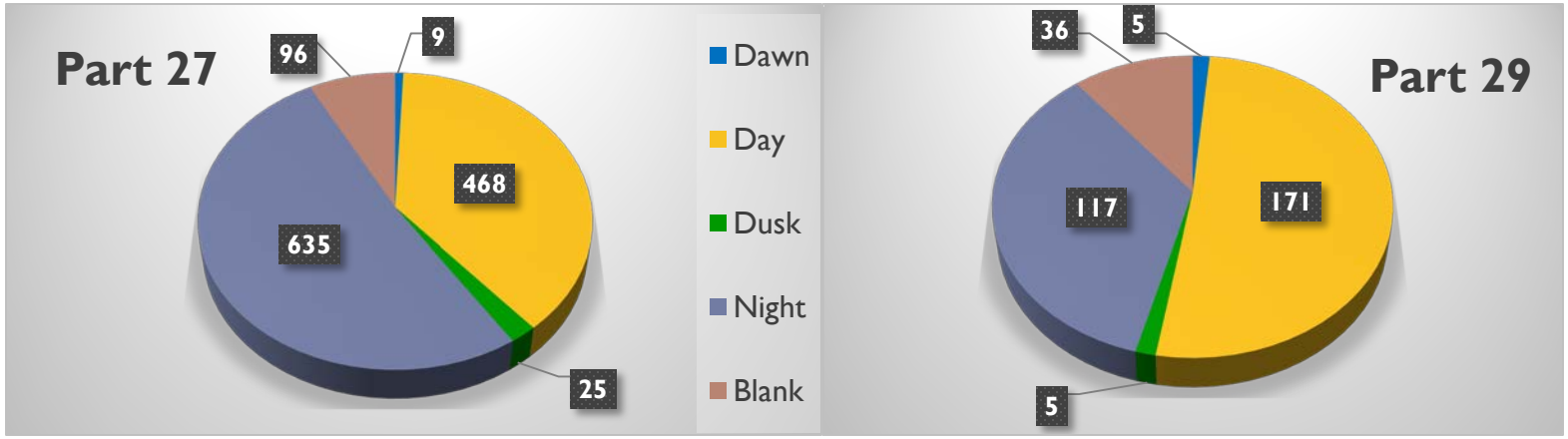
- All bird strikes in FAA's Nat'l Wildlife Strike Database between Jan 1990 – Feb 2016
  - Two-thirds (66-68%) occurred during the *enroute* phase
  - 8-9% during *approach*
  - 9-10% during *climb*
  - These three flight phases contain 85% of the reported bird strikes



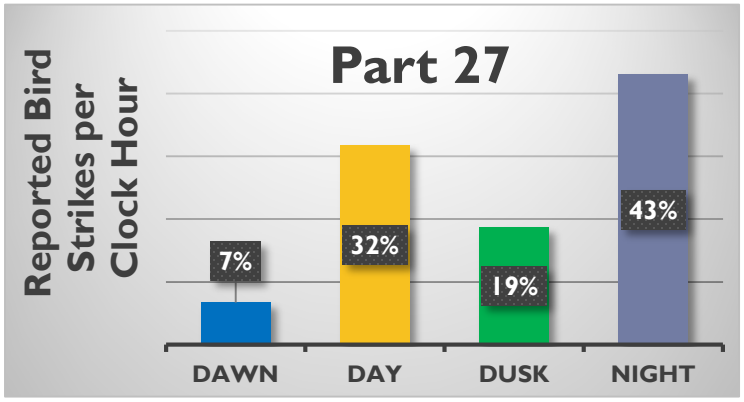
Rotorcraft bird strike threat could best be mitigated, not at airport, but with inflight detection: by bird (lighting); by flightcrew (inflight radar)

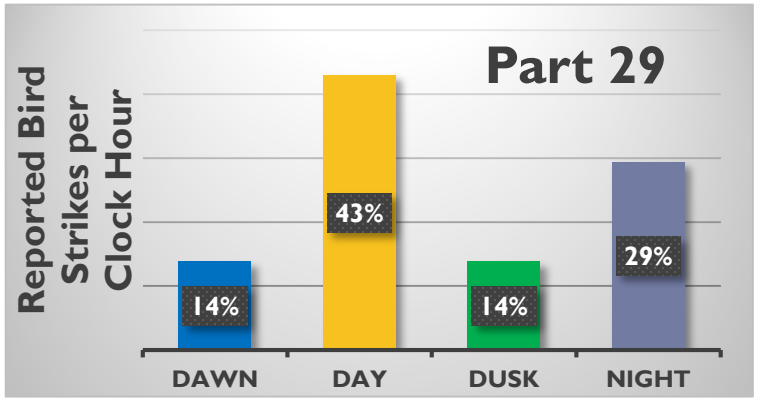
When Do Most Bird Strikes Occur

- Bird strikes in FAA's NWSD between Jan 1990 – Feb 2016



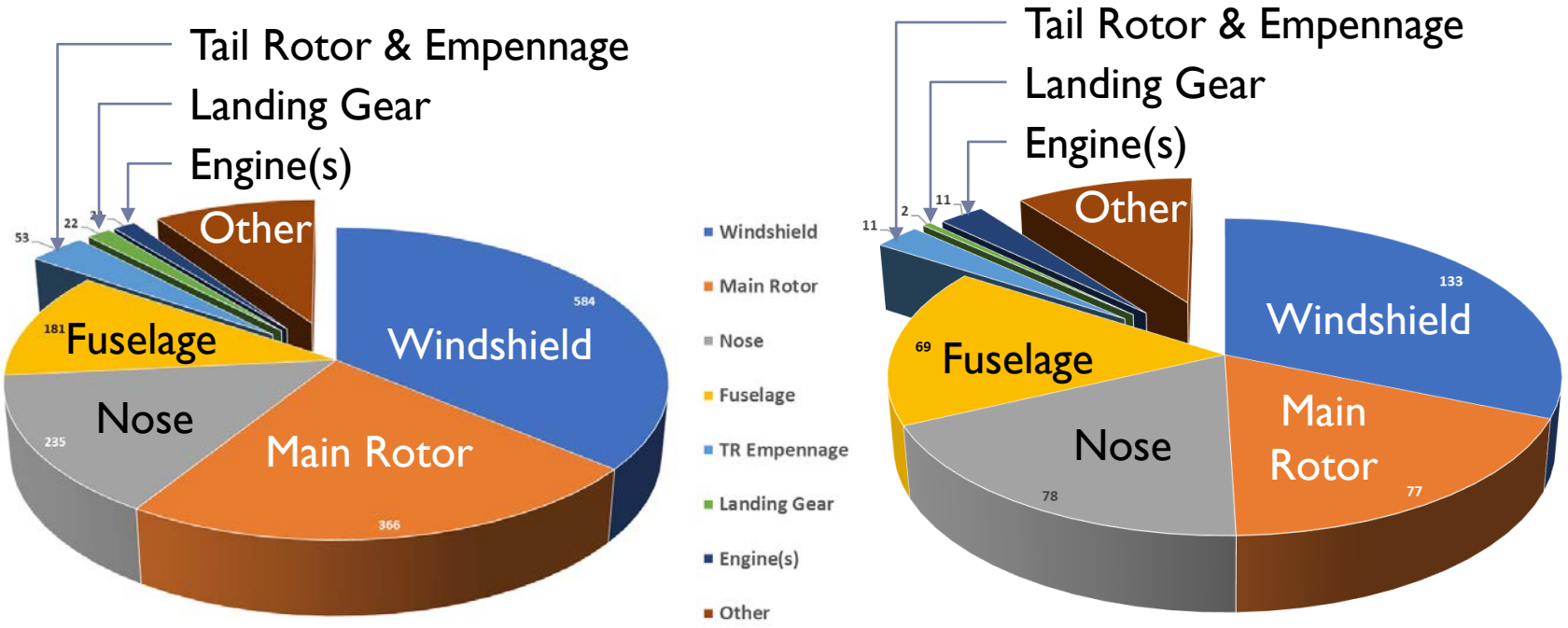
- Normalized by the duration of each time of day





Where Do Most Bird Strikes Occur

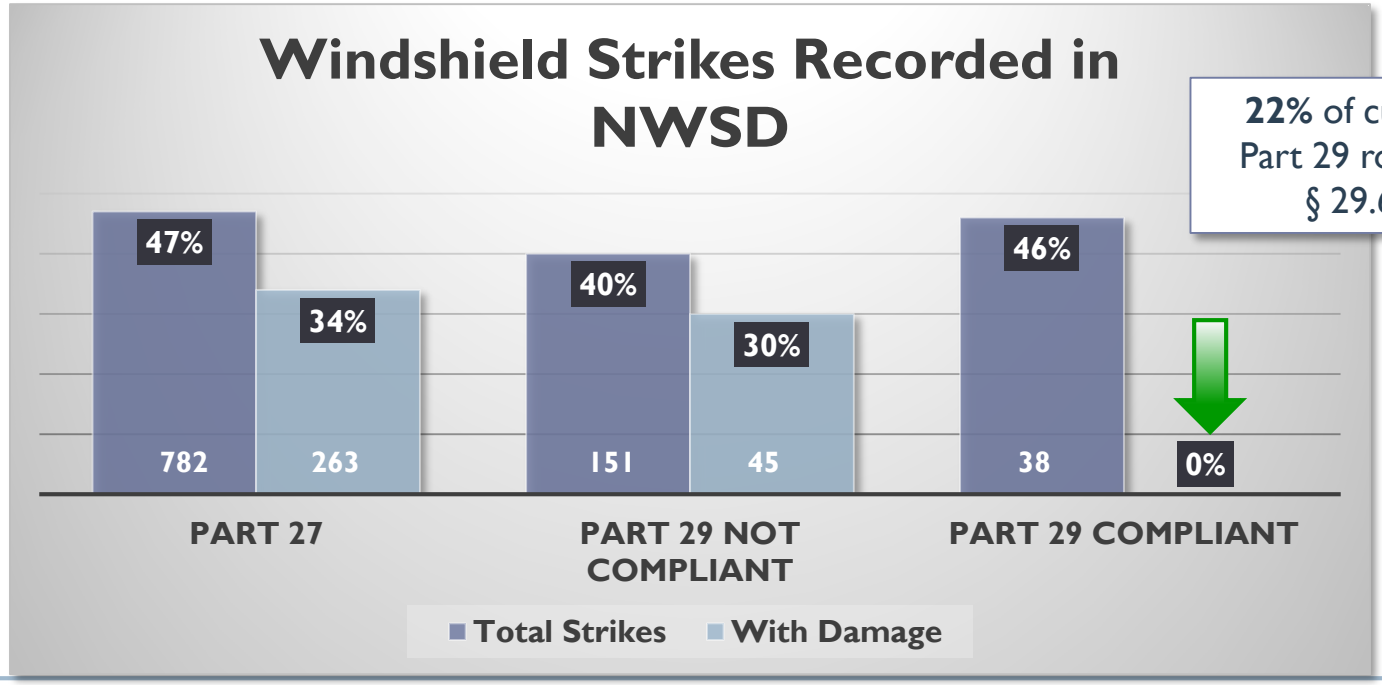
- Of all bird strikes in the FAA's Nat'l Wildlife Strike Database between Jan 1990 – Feb 2016
  - 84-85% of all bird strikes occur forward of the main rotor mast
  - 3-4% occur on the tail rotor or empennage



Part 27 **Part 29**

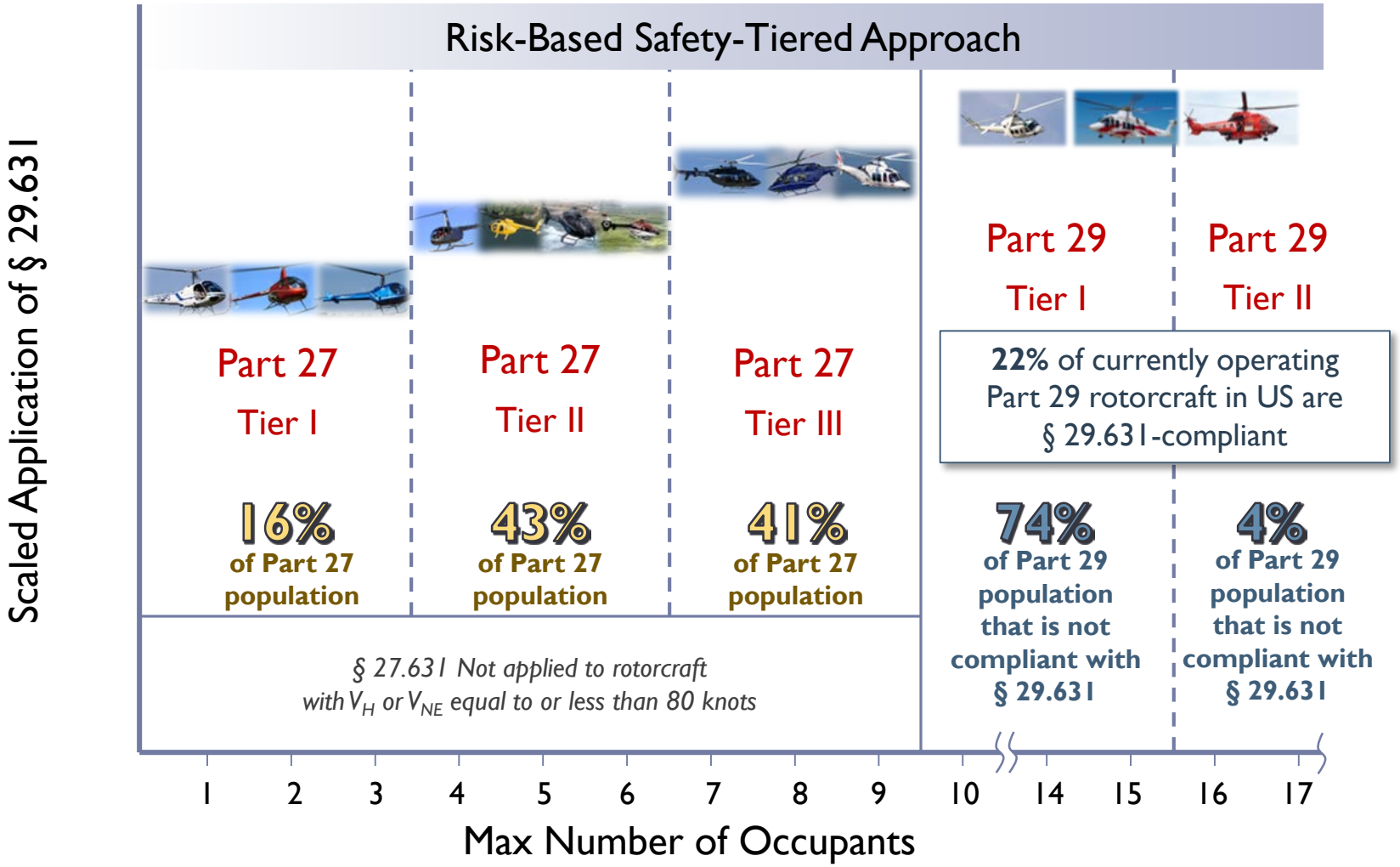
How Effective is Current Rule?

- 40-47% of reported bird strikes occurred on windshields for all rotorcraft during Jan 1990 – Feb 2016
  - No statistical difference between Part 27 & Part 29 helicopters
- 30-34% of strikes onto windshields resulted in damage for rotorcraft that were not certified to FAA bird strike airworthiness standard
- ZERO strikes onto windshields certified to § 29.631 resulted in damage (i.e., penetration) – *THIS IS STATISTICALLY SIGNIFICANT*



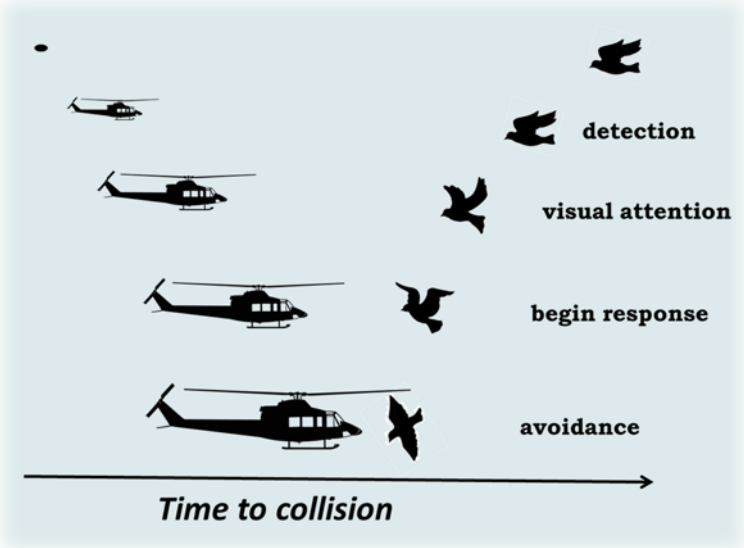
22% of currently operating Part 29 rotorcraft in US are § 29.631-compliant

Proposed Safety Continuum Tiered Approach



Non-Traditional Means: Speed

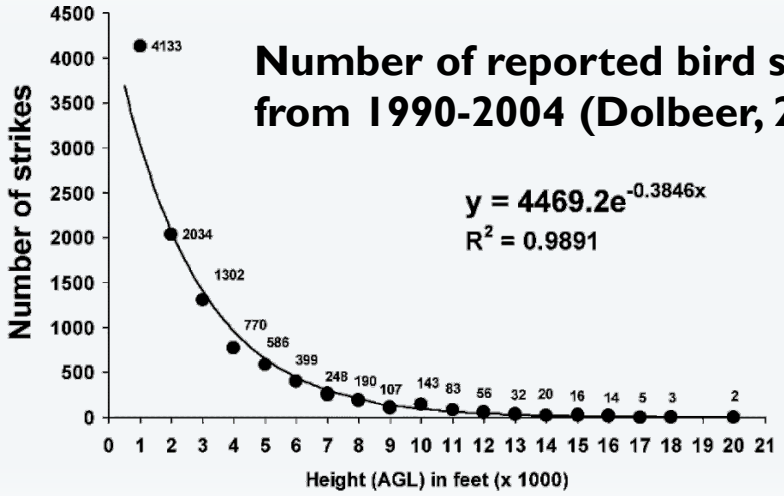
- Speed matters
  - Below 50-85 knots birds detect approaching rotorcraft and initiate evasion
  - Laboratory-based research indicates birds are less likely to avoid oncoming aircraft successfully as aircraft speed increases
  - Operators of rotorcraft have found strikes with some bird species can be reduced when limiting flight speeds to 80 knots



CAUTION
In areas of known high avian concentration, avoid airspeeds above 80 knots when possible

Non-Traditional Means: Altitude

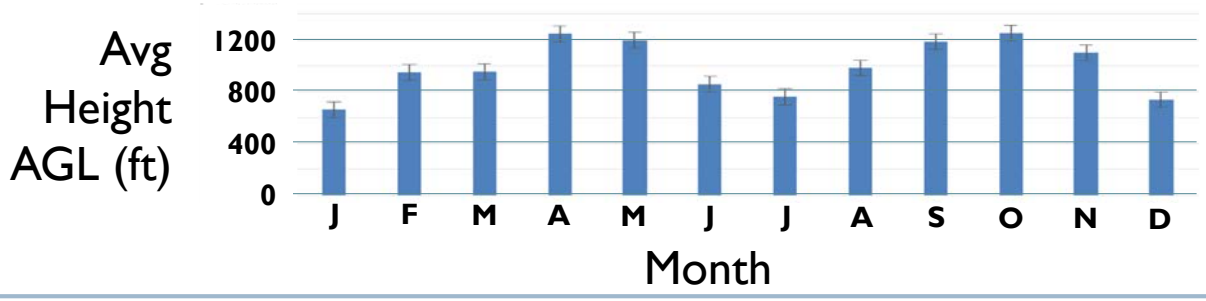
- Altitude matters
  - Presence of birds (i.e., threat) declines 32% for each 1,000-ft in altitude



Number of reported bird strikes with civil aircraft in the US from 1990-2004 (Dolbeer, 2006)

Dolbeer, R. A. (2006). Height Distribution of Birds Recorded by Collisions with Civil Aircraft, Wildlife Damage Management, Internet Center for USDA National Wildlife Research Center. *Internet Center for Wildlife Damage Management, USDA National Wildlife Research Center, Staff Publications, University of Nebraska – Lincoln*, 1345-1350

  - Altitude tends to be higher in spring and fall (probably due to migration) and at night



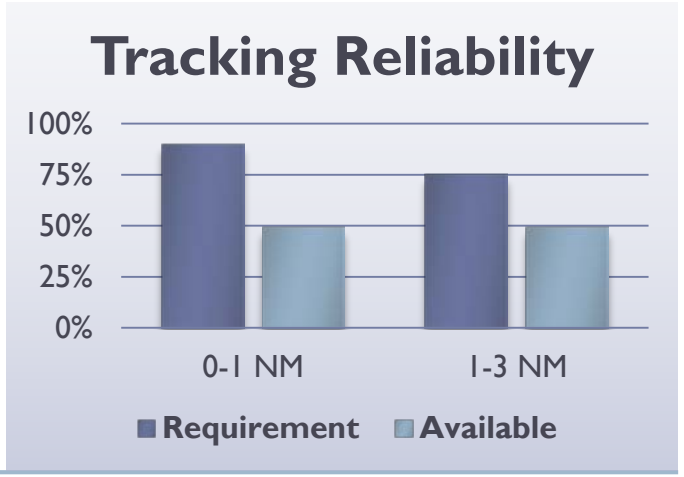
Non-Traditional Means: Visual Lighting Aid

- Lighting (pulsing, lasers, etc.)
  - Research suggests enhanced avian detection of approaching vehicle with appropriate contrast of vehicle to background conditions
    - Continuous full-spectrum light in sunny conditions
    - 2-Hz pulse of full-spectrum light in partly cloudy conditions

- Paint schemes
  - Aircraft coloring may provide specific species of birds with early detection of approaching aircraft allowing them to evade
- Further research is needed to support a recommendation requiring visual lighting aid technology

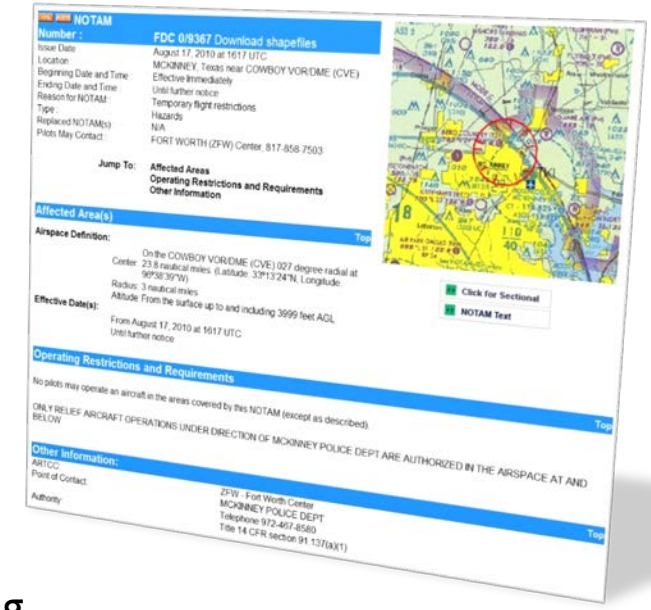
Non-Traditional Means: Detection

- Electronic Devices for avoidance radar & inflight bird detection
  - Research to date does not yet support a recommendation for this technology
  - Gerringer, Lima, & DeVault (2016) showed:
    - Commercially available radar systems were able to track a large bird at 4 NM but less than 50% of the time.
    - Dish antenna (narrow beam) radar systems demonstrated 49% probability that a large bird in the beam was tracked within 3 NM.
  - FAA Advisory Circular on Avian Radar requires the ability to detect a medium bird (crow-sized target) with:
    - 90% confidence level up to 1 NM
    - 75% confidence level from 1 NM to 3 NM



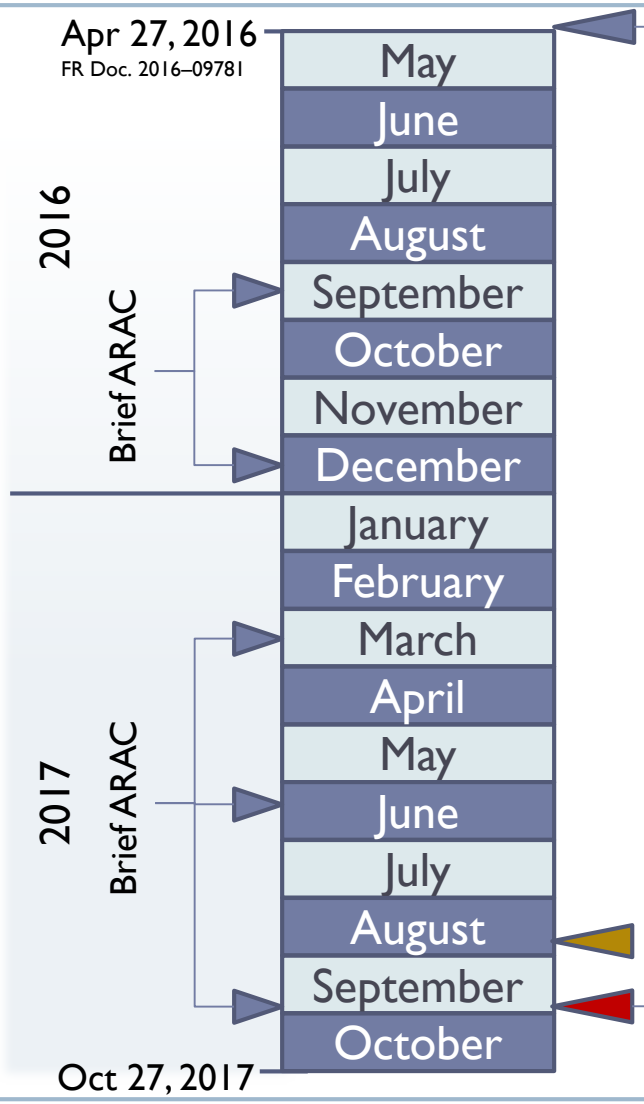
Non-Traditional Means: Awareness

- Training
  - Preflight planning should include brief on:
    - Location of bird concentrations during seasonal migrations
    - Local bird nesting and roosting habitats
    - Recent bird strike events
  - Locations of high probability of avian concentrations should be:
    - Published by FAA FSDO in Flight Service Briefing
    - Included in alert bulletins and flight service notifications to airmen (NOTAMs)



- Personal Protective Equipment (PPE)
  - When possible flight crews should use helmets and visors
  - Not applicable for all operations (e.g., tour operators)

Final Report Due to the FAA Oct 27th



ARAC RBSWG – Publication in FR Doc. 2016–09781

Task 9 – Submit report to ARAC with recommendations on findings and results 30 days prior to Oct 27th, 2017

Aviation Rulemaking Advisory Committee

September 2017 - Loadmaster Certification Working Group Status Report

Progress since last briefing:

- Completed Fifth face-to-face meeting August 15-16, 2017 at ALPAs HQ, Herndon, VA
- The team continues to review progress being made to update Advisory Circular 120-85A, Air Cargo Operations that includes Bulk Cargo, Certified Unit Load Device (ULD) and Special Cargo definitions. This is an ongoing effort, which is outside of the Loadmaster Certification group but it's in our best interest to stay connected to the progress of these developments.
    - Received a briefing from FAA AFS-200 on Aug 17, 2017 at the Air Cargo Safety Symposium regarding A002, A196 (Bulk / ULD) and A396 (Special Cargo) Operation Specifications
    - According to the FAA, Special cargo requires expert knowledge
- Determining which persons are responsible for performing the functions necessary for special cargo movements (Loadmaster is undefined in the commercial world):
    - SCAF (Special Cargo Analysis Function) – load analysis and planning for special cargo loads
    - Special Cargo Loading Supervisor – validation that special cargo loading plan was implemented correctly
- The team has unanimously agreed that the SCAF function, if certificated, would make a positive enhancement to safety
- Team reviewed 8 options for certification and assigned those options to small teams for a deep dive analysis to report back to the group
    - This has continued to be the bulk of our work
    - We continue to use the Likert scale and scoring methodology
    - This was a helpful exercise which clearly illustrated the effectiveness for enhancing safety for each option
    - The team has consensus on one of those options
- Team is in the process of determining what method should be used and what the most effective process would look like
- Our FAA economist from FAA APO continues to work with the team and a has developed a generalized cost/scoring model to apply his economic analysis and scoring as our decisions narrow with the options. The team continues to drill down into the list of Part 121 'special cargo' accidents and has scored accidents using the Commercial Aviation Safety Teams / Joint Implementation Measurement and Data Analysis Team CAST/JIMDAT criteria for scoring accidents
- We continue to be on schedule towards completion of our final report and recommendation.

Upcoming Meetings

Tuesday, Sept 12, 2017, 1 p.m. EDT—via Telecon
Tuesday/Wednesday, Oct 24-25 location TBD—face-to-face
Tuesday, Dec 12, 2017; 1 p.m. EDT—via Telecon
Tuesday, Mar 13, 2018; 1 p.m. EDT—via Telecon

Submitted on behalf of the Loadmaster Certification Working Group
By
Mark Phaneuf, LCWG Chair
Martin McKinney, LCWG Vice Chair

The **Likert Scale** is a five (or seven) point scale which is used to allow the individual to express how much they agree or disagree with a particular statement(s).

It is the most widely used approach to scaling responses in survey research, such that the term (or more accurately the Likert-type scale) is often used interchangeably with rating scale, even though the two are not synonymous. The scale is named after its inventor, psychologist Rensis Likert.

A Likert scale is being used by the LCWG to evaluate the multiple facets of certification options explored by the team. A 0-10 scale is used with 10 being the positive outcome for the category, and 0 being the most negative. Initially no factoring will be used and all categories will have the same weight. The team will determine later if any factoring should occur. The highest total score will indicate that this solution is the most beneficial, however the group may elect to support a lower option based on factors discussed at meetings.

Definitions being used by the team for scoring:

- Enhancement to safety (Accident/incident prevention (equipment, loss of life), awareness)
- Operational impact (Ease of implementation)
- Portability (Flexibility to go between operators)
- FAA impact (Oversight, training material creation, administration)
- Industry impact (Oversight, training material creation, administration)
- Overall financial (Cost of change, cost of individuals)

Loadmaster Certification Working Group
Work Plan

Scope:

The Loadmaster Certification Working Group (LCWG) will provide to the Aviation Rulemaking Advisory Committee (ARAC) recommendations regarding the certification of persons engaged in operations involving the loading of special cargo. The FAA is seeking input on the decision to certificate person(s) engaged in part 121 cargo operations involved in the carriage of "Special Cargo" and if so, what method of certification should be used.

Operating Boundaries:

- Operate within the ARAC processes and procedures, including following the FACA requirements
- Remain within scope of the tasking

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

Members:
Chairperson:
Mark Phaneuf of Air Line Pilots Association (ALPA)

Vice Chair:
Martin McKinney of United Parcel Service

Working Group:
Darrin Noe of Boeing
Richard Brose of Federal Express
Steve Brewer of Kalitta Air
Erik Kaupa of the Professional Loadmaster Association
George Paul representing National Air Carrier Association (NACA)
Yvette Rose of Cargo Airline Association (CAA)
Stephen Banks of National Airlines
Jeff Olver of Alaska Airlines
Peter Mejia of Northern Air Cargo
Lawrence 'Rusty' Fine of Atlas Air

FAA:
Paul Greer Senior Attorney
Stephen Grota Cargo Focus Team
Jose Castedo FAA Economist (added after submission to ARAC)
Julia Greenway Office of Rulemaking/ARM-100 (added after submission to ARAC)

Contractor:
Sandra Lamparello of PAI

Other Participants/Subject Matter Experts:
Subject matter experts may be invited to support the working group as a resource on an "as needed" basis. Observers may be allowed upon request to the Chair and approval of the working group.

Goals/Objectives/Expectations:

- Conduct a review and analysis of the assigned task and become familiar with any other related materials or documents.
- Draft and submit a work plan for completion of the task, including the rationale supporting such a plan, for consideration by the ARAC.
- Provide a status report at each ARAC meeting.
- Draft and submit the recommendation report based on the review and analysis of the assigned tasks.
- Present the recommendation report at the ARAC meeting.

Tasking:

The Loadmaster Certification Working Group is tasked to:

1. Provide advice and recommendations to the ARAC on whether safety would be enhanced if persons engaged in the loading and supervision of the loading of special cargo, to include the preparation and accuracy of special cargo load plans, be certificated. If the Working Group recommends certification of these persons, it should also provide recommendations regarding which specific operations should require the use of these certificated persons. Additionally, it should also recommend appropriate knowledge, experience, and skill requirements for the issuance of the certificates and appropriate privileges and limitations.

2. Determine the effect of its recommendations on impacted parties.

3. Develop a report containing recommendations based upon its analysis and findings. The report should document both majority and dissenting positions on its recommendations and findings and the rationale for each position. Any disagreements should be documented, including the rationale for each position and the reasons for the disagreement.

In developing this report, the Working Group shall familiarize itself with:

1. NTSB Aircraft Accident Report NTSB/AAR–15/01 PB2015–104951NTSB, with particular attention provided to Safety Recommendation A–15–14.
2. AC 120–85A, Air Cargo Operations.
3. Minutes of the July 30, 2015 B747 Special Cargo Load Meeting.

Issues/Actions:

- Review related documents and materials specific to special cargo, including SCWG notes and recommendations, and FAA guidance and policies
- Scrutinize AC 120-85A definition of "special cargo" as it relates to certification and determine if any changes are needed
- Determine scope of possible certification of person responsible for:
    - Special cargo analysis function (SCAF)
    - Special cargo loading supervision
- Determine process for approval, including who holds or manages the certificate
- Evaluate operational impact/safety benefits, including economics

Meetings:

Quarterly face-to-face meetings
Monthly TELCONs with screen sharing capability

Ground Rules:

- Accountability to the group with personal commitment
- Respectful behavior
    - Attack the problem, not the person
    - Punctuality is critical - Start/end meetings on time
    - One person talks at a time
- Actively participate in work-group meetings and task-group meetings
- Advocate for tasking; ensure safety is always met
- Represent organization without a personal agenda
- Work together to achieve the common goal of the tasking
- Be a student of the task; show up as learners
- Rely on each other's strengths and expertise; support each other

Schedule:

Meeting 1 – August 30-31, 2016 at FAA HQ 800 Independence Ave.
Meeting 2 – November 9-10, 2016 at Atlas Air Cargo, Huntsville, AL
Meeting 3 – February 7-8, 2017 at NACA HQ, Arlington, VA
Meeting 4 – May 9-10, 2017 AK Alaska Airlines HQ, Seattle, WA
Meeting 5 – August 15-16, 2017 at ALPA HQ, Herndon, VA
Future Meeting 6 – October 24-25, 2017 location TBD
Teleconferences will be held on the second Tuesday of the month at 1 PM starting in October 2016.

Aviation Rulemaking Advisory Committee

Airman Certification System Work Group Update

- **Developments since last briefing**
  - **Airman Certification Standards**
    - Revisions of Private and Instrument ACS, along with initial Commercial-Airplane ACS published and effective June 12
      - Airman Certification Standards
      - Presentation – What's New and What's Next?
      - AOPA Story
    - Instructor ACS
      - Final review stage
      - Next Steps
        - Publication to Airman Testing page for comments – 3Q FY17
    - ATP ACS
      - FAA revising based of changes to Private, Commercial, and Instrument Rating
      - Publication to Airman Testing page for comments - 3Q FY17
    - AMT
      - WG completed draft; AEB using to review FAA Knowledge Exams and refine subject elements within ACS
      - Oral & Practical Exam policies and practices reviewed and refined to align with ACS
      - Tabletop prototype process being developed based on revised O&P ACS process
  - **Testing**
    - Instrument Supplement (CT-8080-3F) released June 2017, implementing WG feedback and recommendations
    - ACS Exam Review Board continues to review test banks
    - FAA test management services solicitation
      - RFP out – goal to select in 2017

        - Total test management services with implementation in 2018

- **Guidance**
    - FAA reviewing working group recommendations for new edition of AMT General Handbook (FAA-H-8083-30A)
        - New edition of AMT General published in September 2017
        - New editions of AMT Airframe and Powerplant published in September 2018
    - Aviation Instructor Handbook (FAA-H-8083-9B)
        - AIH should be relevant to AMT Instructors as well
            - Currently focused on pilot
        - AMT WG members reviewing draft handbook and providing input
        - New edition ETA September 2018
- **Change Management**
    - Change drivers – Regulations, procedures, equipment, industry, and any other changes that impact standards, guidance, and/or testing
        - As we become aware of a change, it will be added to the list
        - To be discussed within ACS working group to determine whether or not a "Hot Sheet" is warranted and/or what changes will be needed for future revisions to FAA publications and testing
    - Recommendation to align AMT regulation and guidance with ACS (attached)
    - Continued outreach, stories, webinars, presentations and seminars
        - FAA - What's New and Upcoming in Airman Testing – Revised June 2017
        - AirVenture 2017
- **Next Meetings**
    - September 12-13, NBAA
    - December – Date and Location TBD

Submitted on behalf of the ACS working group
By
David Oord
Sr. Director, Regulatory Affairs
Aircraft Owners and Pilots Association
ACSWG Chair

June 28, 2017

Mr. Kevin Morgan, Supervisory Aviation Safety Inspector
Flight Standards Service, General Aviation Branch, Aircraft Maintenance Division (AFS-350)
Federal Aviation Administration
800 Independence Ave SW
Washington DC 20591-0001
kevin.morgan@faa.gov

Dear Mr. Morgan,

The Aviation Rulemaking Advisory Committee's (ARAC) Airman Certification System Working Group submits for Federal Aviation Administration's (FAA) consideration, recommendations to align training regulation and guidance with the airman testing standards.

The ARAC working group was tasked with developing recommended testing standards, training guidance, test management, and reference materials for the aircraft mechanic certificate with airframe and powerplant (A&P) ratings. The Aviation Maintenance Technician (AMT) Airman Certification Standards (ACS) will replace current practical test standards (PTS), and clearly define minimum knowledge, risk management and skill requirements for A&P mechanics. Once completed, it will provide the framework for the Knowledge Exam (written), oral and practical mechanic tests; and subsequently, a guide for revising handbooks, oral questions, practical projects and the knowledge test bank.

As you know, 14 Code of Federal Regulations (CFR) part 147 governs certification requirements for aviation maintenance technician schools (AMTS). Completion of an AMTS program is one way to satisfy experience requirements for an A&P certificate (see § 65.77). In the absence of a comprehensive testing standard, training standards (i.e., curriculum requirements) provided in part 147 has effectively provided the framework for the skill and knowledge required of an A&P mechanic. While we understand and appreciate how we got to this point, it is the working group's opinion that the standard is misplaced.

Title 14 CFR part 65 sets forth the knowledge, experience and skill requirements for a mechanic certificate (see §65.75, §65.77 and §65.79). Requisite knowledge and skill is verified through written, oral and practical tests (see §65.75(b) and §65.79). The AMT ACS is the guidance that sets forth specifics on what a candidate must know, consider and do to successfully pass those tests. Part 65 is therefore the impetus for testing *and* training. In contrast, part 147 should be reserved for dictating AMTS certification and operating requirements, not mechanic knowledge and skill standards.

The working group therefore makes the following recommendations:

1. **Revise part 65 to provide the baseline standard for mechanic knowledge and skill requirements**

Incorporating general knowledge and skill elements in part 65 would ensure that testing and training standards fall directly out of the regulation.

Until formal rulemaking can take place, the AMT ACS would provide the requisite specificity. The standard would be "enforceable" through part 65, which requires applicants to pass an agency-developed and -controlled mechanic test.

2. **Remove any reference to curriculum requirements or subject areas from part 147**

As stated above, part 65 is the impetus for testing *and* training. The inclusion of required curriculum or subject headings in part 147 creates a separate, inflexible, and inconsistent standard that training organizations will be forced to reconcile for decades to come.

3. **Reference the AMT ACS in AMTS operations specifications to ensure that training and testing are directly correlated**

Utilizing the AMT ACS as the basis for curriculum ensures that the agency can enforce AMTS adherence to the standard, requires schools to adjust their curriculum as mechanic knowledge and skill requirements evolve, and utilizes less government resources to maintain and update separate training specifications.

If the agency elects to dictate any specific curriculum requirements through the part 147 operation specification, it should directly mirror the subject areas provided for in the AMT ACS (see attachment 1). The agency should also ensure there is a mechanism available to update AMTS operations specifications as the AMT ACS periodically evolves.

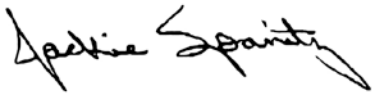
4. **Utilize the ARAC Airman Certification System Working Group as the driver for changes to training requirements**

The working group will periodically review and update the AMT ACS to ensure it is in line with mechanic knowledge and skill requirements as technology evolves. The working group would therefore be the vehicle to ensure that training and testing keeps up with ever-evolving safety considerations.

We thank you for your consideration of these recommendations and stand by to provide support and expertise as needed.

Sincerely,

David Oord, ACSWG Chair
Senior Director, Regulatory Affairs
Aircraft Owners and Pilots Association



Jackie Spanitz, AMT ACS Subgroup Co-chair
Curriculum Director
Aviation Supplies & Academics, Inc.

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Attachment 1 AMT ACS subjects

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Attachment 1
AMT ACS (FAA-S-ACS-1) Subjects

General
Fundamentals of Electricity and Electronics
Aircraft Drawings
Weight and Balance
Fluid Lines and Fittings
Aircraft Materials, Hardware, and Processes
Ground Operations and Servicing
Cleaning and Corrosion Control
Mathematics
Regulations, Maintenance Forms, Records, and Publications
Physics for Aviation
Inspection Concepts and Techniques
Human Factors

Airframe Structures
Metallic Structures
Non-Metallic Structures
Aircraft Finishes
Flight Controls
Airframe Inspection

Airframe Systems
Landing Gear Systems
Hydraulic and Pneumatic Systems
Environmental Systems
Aircraft Instrument Systems
Communication and Navigation Systems
Aircraft Fuel Systems
Aircraft Electrical Systems
Ice and Rain Control Systems
Airframe Fire Protection Systems
Rotorcraft Fundamentals

Powerplant Theory and Maintenance
Reciprocating Engines
Turbine Engines
Engine Inspection

Powerplant Systems and Components
Engine Instrument Systems
Engine Fire Protection Systems
Engine Electrical Systems
Lubrication Systems
Ignition and Starting Systems
Fuel Metering Systems
Engine Fuel Systems
Engine Induction Systems
Engine Cooling Systems
Engine Exhaust and Reverser Systems
Propellers

ROTORCRAFT OCCUPANT PROTECTION WORKING GROUP PROGRESS REPORT TO ARAC

September 14, 2017

Dennis F. Shanahan, M.D., M.P.H.
Chairman, ARAC ROPWG

FEDERAL REGISTER-FAA TASKING TO ARAC
Task 3
November 5, 2015

- Either make specific written recommendations on how all or part of the existing occupant protection standards 14 CFR 27/29.561, 27/29.562, 27/29.785, 27/29.952, should be made effective via §§ 27.2 and 29.2 for newly manufactured rotorcraft
- Or propose new alternative performance-based occupant protection safety regulations for newly manufactured rotorcraft that will be effective via §§ 27.2 and 29.2.

FAA TASKING LETTER, JANUARY 25, 2017

- **FAA accepted Task 2 ROPWG Cost Benefit Analysis report submitted on December 21, 2016**
- **FAA tasked the ROPWG to make recommendations on which paragraphs of each section of the existing occupant protection standards be made effective for newly manufactured rotorcraft within 3 years after the effective date of change**
- **Additionally, ROPWG tasked to make recommendations for full compliance within 10 years after the effective date**
- **Task 3 final report date is January 25, 2018, based on date of FAA tasking letter**

TERMINOLOGY

- **CRFS:**
  - **27/29.952 – Fuel System Crash Resistance**
  - **[27/29.963 – Fuel Bladder Puncture Resistance]**
  - **[27/29.975 – Rollover Vent Valves]**
- **CRSS:**
  - **27/29.561 – Emergency Landing Conditions-General**
  - **27/29.562 – Emergency Landing Dynamic Conditions**
  - **27/29.785 – Seats, Berths, Litters, Safety Belts, & Harnesses**

CRFS Analysis

METHOD

- We analyzed the crash performance of fully-compliant helicopters in the Task 2 report
  - No thermal injuries due to fuel-fed fires in survivable crashes (Severity 1-3)
- Performed a similar analysis of crashes of “partially-compliant” helicopters over a 20-year period
  - Analyzed crash performance of helicopters with upgraded fuel systems that meet some of the 27/29.952 requirements (n=274; 6 helicopter models; 3 OEMs)
- Also analyzed helicopters with “standard” fuel systems
- Compared fully-compliant to partially-compliant

Survivability Criteria

Table 18. Definition of Accident Severity Levels Utilized for the CRFS Review		
Severity	Description	Details/Example
0	Non-crash	Rotorcraft normal landing after damage to the rotorcraft.
1	Minor	Hard landing where the landing gear does not fully collapse and the rotorcraft remains upright. Most auto-rotations would fall in this category.
2	Moderate	Enough crash energy to fully collapse the landing gear and cause some fuselage crush, and/or any crash with a rollover or tipping on the side.
3	Severe	Significant impact energy and fuselage crush. Occupant living volume is maintained for at least one occupant.
4	Extreme	High energy impact where volume is compromised for all occupants. An example would be CFIT. This level of crash severity is often called “non-survivable.”

RESULTS

- **Partially compliant helicopters from three OEMs demonstrated equivalent crash performance relating to post-crash, fuel-fed fires as fully-compliant helicopter models:**
  - **No significant post-crash, fuel-fed fires in survivable crashes**
  - **No thermal injuries in survivable crashes**
- **Helicopters with “standard” fuel systems had an 11% rate of fuel-fed, post-crash fires in survivable crashes**

CONCLUSIONS

- **“Partially-compliant” helicopters demonstrate equivalent CRFS performance as fully-compliant models in survivable crashes**
- **Based on demonstrated equivalent performance, it is not necessary to require newly-manufactured, legacy helicopters to meet all the requirements of 27/29.952 and associated guidance (AC 27-1B)**

Conclusions (Cont.)

- The fielded “partially-compliant” helicopters we studied do not meet identical CRFS design specifications
- They do have a number of commonalities including:
  - Crash-resistant fuel bladders
  - Flexible and/or lengthened fuel lines at stress points
  - Separation of fuel and ignition sources
  - +/- rollover vent valves
- Although these features are in common, the exact design specifications vary among helicopter models and in relationship to the requirements of 27/29.952 and associated guidance

ROPWG CRFS CURRENT RECOMMENDATIONS

Table 2. 27.952 Regulatory Recommendations for Newly Manufactured Legacy Helicopters		
Regulation	**Recommendation**	**Notes**
27.952(a)(1)(2)(3)(5)(6): Drop test requirements	Recommended	Regulation should also allow bladder-only drop test (i.e., no surrounding structure required).
27.952(a)(4) Drop test requirements	NOT recommended	
27.952(b): Fuel tank load factors	NOT recommended	N/A
27.952(c): Flexible fuel hoses and breakaway fittings	**Recommended w/limitations**	
27.952(d): Frangible or deformable structural attachments	NOT recommended	27.952(f) and the associated AC guidance address these same items, but have a regulatory standard that is more appropriate for incorporation into a previously-approved legacy aircraft
27.952(e): Separation of fuel and ignition sources	NOT recommended	
27.952(f): Other basic mechanical design criteria	Recommended	The AC guidance for new production legacy rotorcraft should be drafted to additionally include elements of 27.963(g) (fuel tank puncture resistance) and 27.975(b) (rollover vent valves). Acceptable methods of compliance should ensure the legacy helicopters found to provide effective post-crash fire protection will be considered compliant.
27.952(g): Rigid or semi-rigid fuel tanks	**Recommended w/limitations**	
Requirement for full compliance 10 years after approval of new CRFS rules	NOT recommended	Data for partially-compliant helicopters show that the recommendations in this report would be equally effective at preventing post-crash fires and thermal injuries, but with a substantially lower weight penalty and monetary cost.

RECOMMENDATIONS

- **ROPWG recommends that newly-manufactured, legacy helicopters not be required to meet the full requirements of 27/29.952**
- **ROPWG recommends that newly-manufactured, legacy helicopters only be required to meet the modified 27/29.952 requirements and associated AC27-1B guidance noted in the previous slide**
- **ROPWG expects to produce recommendations regarding 27/29.963 (puncture resistance) and 27/29.975 (rollover vent valves) at its September 12-13, 2017 meeting**

CRSS Analysis

BACKGROUND

- **In its Task 2 Report, ROPWG determined that full compliance with current CRSS requirements was not practical for newly manufactured, legacy rotorcraft since the weight and cost penalties far exceeded the benefits and would result in the discontinuation of several helicopter models**
- **Consequently, ROPWG will likely recommend partial compliance or non-compliance with several applicable regulations and supporting guidance (AC27-1B) as we did for CRFS**

BACKGROUND (Cont.)

- **Rigorous analysis of CRSS performance in rotorcraft crashes cannot be performed based on data contained in current NTSB or FAA databases or dockets:**
  - **Lack of non-fatal injury data to determine flail injuries or spinal injuries**
  - **Lack of data on failures of seats, restraints, or associated attachments**
  - **Lack of data on high mass item retention or its effect on injury causation**
  - **Lack of impact data to determine survivability of crashes**

BACKGROUND (Cont.)

- **Since the rate of CRSS item failures and resulting injury causation are not available, ROPWG analysis of CRSS is based primarily on the feasibility of currently manufactured, legacy rotorcraft to be updated to current occupant protection standards**
- **The following slides summarize current progress on ROPWG recommendations for the three applicable CRSS standards**

27/29.561 – Ultimate Inertial Load Factors

- These requirements pose the greatest problem for legacy helicopters
  - Many legacy models, particularly Part 27 models, cannot significantly increase inertial load factors without major airframe structural changes
  - To accomplish this in some models would require a complete redesign of the helicopter and ultimately result in unacceptable cost and weight increases rendering the helicopter impractical to continue to manufacture
- ROPWG is getting additional cost data from OEMs before finalizing its recommendations to ARAC on this section

27/29.562 – Dynamic Conditions

- **Most rotorcraft with rail-mounted seats will be able to comply with the current dynamic test requirements**
- **Rotorcraft models with integrated seat designs that mount seats to structure may not be able to comply with current requirements without significant structural changes and/or without modifying the fuel systems which underlie some current seating positions**
- **ROPWG is considering a compromise solution for these special seating positions involving a change in the dynamic test crash pulse requirements**

27/29.785 – Seats, Berths, Litters, Safety Belts, Harnesses

- **Most newly manufactured, legacy helicopters can comply with the tie-down strength requirements for restraint systems with relatively minor modifications**
- **ROPWG has requested data from OEMs regarding the practicality and cost of meeting the current requirements for each of their currently manufactured, legacy rotorcraft**

Transport Airplane and Engine (TAE) Report

September 14, 2017

TAE Working Groups
Status

Status	Working Group	Comments
G	Engine Harmonization	150 Hour Engine Endurance Testing (14 CFR 33.87) Due date: 2Q 2017 Report submitted to the TAE – approved July 6, 2017
G	Flight Test Harmonization	Transport Airplane Performance and Handling Characteristics - Phase 2 Due date: July 2017 (approved on Sep. 15, 2016) Report submitted to the TAE – approved July 6, 2017
G	Metallic and Composite Structures	Recommendations regarding damage tolerance analysis (DTA) and fatigue requirements Due date: January 2018 (approved on Sep. 15, 2016) On Target
G	Crashworthiness and Ditching	Recommendations regarding incorporation of airframe level crashworthiness and ditching standards into Part 25 Due date: March 2018 (approved on Sept. 15, 2016) On Target

TAE Working Groups
Upcoming Meetings

Status	Working Group	Next Meeting
G	Engine Harmonization	None planned - report approved by TAE, submitted to ARAC
G	Flight Test Harmonization	September 2017 Cologne
G	Metallic and Composite Structures	Last meeting June 2017 Everett, WA
G	Crashworthiness and Ditching	September 2017 Vancouver, BC

FTHWG Review of Phase 2 Results for TAE

Brian Lee, Ph. D., P. E., Aero Stability and Control
US Co-Chair, Flight Test Harmonization Working Group (FTHWG)
6 July, 2017

Executive Summary: FTHWG Phase 2

- **ARAC Tasking: Transport Performance and Handling Characteristics**
  - Phase 1: June, 2013 - June, 2014 (Complete)
    - Prioritize list of tasks, write work plans, plan events
  - Phase 2: June, 2014- January, 2017 (complete – TAE on 11 May)
    - Work top 10 items in the prioritization list
- **Status for Phase 2: Complete**
  - FTHWG Submitted its report in January, as scheduled
    - What the FTHWG agreed on
    - What the FTHWG did not agree on
    - Recommended next steps
    - Rev A Submitted April, 2017

FTHWG Membership

Organization	OEM's	Operators	Observers
FAA	Airbus	American Airlines	JCAB (Japan)
EASA	Boeing	ALPA	CAAI (Israel)
Transport Canada	Bombardier		Delta Airlines
~~ANAC (Brazil~~)	Dassault		
	Embraer		
	Gulfstream		
	Textron		

Phase 2 Report

- **Report represents significant amount of work**
  - Nearly 3 years
  - 10 one-week-long face-to-face meetings
  - 62 3-hour teleconferences (some ran 4 hours)
  - Many, many more informal conferences, e-mail, and phone calls
  - Daily for the last 2 weeks!
  - 532 pages! Rev A = 561 pages!
- **10 topics = 10 individual reports + a “wrapper” report**
- **Consensus:**
  - Mostly agreed on the big items
  - Most dissenting opinions around specific wording
  - Some details not yet complete
    - Wet runway formally extended to July
    - Other details still being vetted (identified in the reports)

Topics

- Topic 1: Envelope Protection
- Topic 2: Flight in Icing (for airplanes with limiting)
- Topic 6: Stability
- Topic 7: Sidesticks
- Topic 9: Wet Runway Stopping Performance
- Topic 10: Runway Excursion Hazard Classification
- Topic 11: Stall in Ground Effect
- Topic 12: Steep Approach Landing
- Topic 13: Out of Trim Characteristics
- Topic 14: Tailwinds/Crosswinds

Conclusions

- **The processes moved more slowly than hoped when the original schedule was set out.**
  - The presumed most difficult tasks were undertaken first (envelope protection, icing)
  - The over-all schedule was at risk, as several tasks (per the original work plans will exceed the scheduled time for the total task)
    - This was discussed with TAE (and ARAC), schedule revisions made
  - Nevertheless, the FTHWG submitted its report on time

150 Hour Endurance Test ARAC

EHWG task from Federal Register Vol.79, #14 Jan 22nd 2014

ARAC Meeting Sept 14th 2017

[FR Doc. 2017-17426 Filed: 8/17/2017 8:45 am; Publication Date: 8/18/2017]

Keith Morgan for Pete Thompson (Team Chair)

Team Membership

- Airbus
- Boeing
- EASA
- FAA
- GE Aviation
- HEICO
- Honeywell
- Pratt & Whitney
- Pratt & Whitney Canada
- Rolls-Royce Derby
- Rolls-Royce Indianapolis
- Safran Aircraft Engines
- Transport Canada
- Williams International

Working Group Schedule

WG received an extension of 18 months (to mid 2017) to complete its efforts, with following schedule:

- ✓Kick off meeting April ‘14
- ✓Team telecons every 2 weeks
- ✓Face to face meetings 4 to 5 times per year
- ✓Gather necessary supporting data from OEMs to support development of the Alternate Test – 1Q16
- ✓Draft report for internal OEM & FAA review – 3Q16
- ✓Incorporate feedback – report ready to submit 1/31/17
- ✓Submit report to TAE – 7/6/17 – submission accepted
- Submit report to ARAC – 9/14/17

Background

The Endurance Test prescribed in 14CFR33.87 was first introduced in the 1928 Certification Requirements for piston engines.

Modifications were introduced in the 1950s for the Commercial “Jet Age” and the current prescriptive test cycle was codified in 1957.

Since then Gas Turbine Aircraft Propulsion Systems have become ever more complex in terms of improved efficiency and noise and emissions reductions.

As engine designs have evolved from simple low pressure ratio single shaft pure jets (low by-pass with simple hydromechanical controls), to modern high pressure ratio, multi shaft, high by-pass ratio designs with complex integrated (with the aircraft) electronic controls, it has become readily apparent **the current prescriptive rule no longer allows the engine to be tested in its intended type design**.

Working Group Summary

- Consensus reached that current 14 CFR 33.87 rule is outdated relative to modern high bypass ratio, high pressure ratio engines
  - Significant modifications, that take the engine away from type design, are required just to run the prescribed test
  - Modern high bypass ratio, high pressure ratio engines do not reach triple red line conditions in service and rarely, if ever, reach double red lines
  - Low bypass, low pressure ratio, hydro mechanical control engines are more able to reach triple red-line conditions at SL and don't require extensive modifications like high bypass engines
- New test is required which will meet the intent of an accelerated endurance run on a type design engine configuration
  - Team evaluated a cyclic test which includes same EGT R/L demonstrations, a revised demonstration of R/L speed capability and more LCF content than today's test, and retains the oil & fuel pressure/temperature, bleed, starts etc. of today's test
    - The test is more severe than typical field operation
- Details of proposed test included in report

Current developments

At least two engine OEMs have or are in the process of requesting their agencies allow them to use an Alternate Test which fits closely within the concept outlined in the report the WG has submitted for approval.

One of the OEMs has worked through the process with their agency to the stage where a proposed Special Condition (SC) has been published for comments to allow the use of an Alternate Test.

Recommendations

1. The WG recommends acceptance of the report as submitted
2. The relevant agencies should work with industry to evaluate if the Alternate Test proposal may be incorporated into Advisory Material or if 14CFR33.87 should be re-written to allow the Alternate Test proposal based on the engine's ability to perform today's test without deviation from type design