



[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.

SUMMARY: The FAA assigned the Aviation Rulemaking Advisory Committee (ARAC) a new task to provide recommendations regarding occupant protection rulemaking in normal and transport category rotorcraft for older certification basis type designs that are still in production.

The FAA amended regulations to incorporate occupant protection rules, including those for emergency landing conditions and fuel system crash resistance, for new type designs in the 1980s and 1990s. These rule changes do not apply to newly manufactured rotorcraft with older type designs or to derivative type designs that keep the certification basis of the original type design. This approach has resulted in a very low incorporation rate of occupant protection features into the rotorcraft fleet, and fatal accidents remain unacceptably high. At the end of 2014, only 16% of U.S. fleet had complied with the crash resistant fuel system requirements effective 20 years earlier, and only 10% had complied with the emergency landing requirements effective 25 years earlier. A recent fatal accident study has shown these measures would have been effective in saving lives.

This notice informs the public of the new ARAC activity and solicits membership for the new Rotorcraft Occupant Protection Working Group.

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SUPPLEMENTARY INFORMATION:

ARAC Acceptance of Task

As a result of the September 17, 2015, ARAC meeting, the FAA assigned and ARAC accepted this task establishing the Rotorcraft Occupant Protection Working Group. The Rotorcraft Occupant Protection 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 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.

The Rotorcraft Occupant Protection Working Group will provide advice and recommendations to the ARAC on occupant protection rulemaking, including both initial certification and continued airworthiness. The basic concept of occupant protection is to give all occupants the greatest possible chance to egress an aircraft without serious injury after a survivable emergency landing or accident. While the number of U.S. helicopter accidents and the corresponding accident rate over the past 10 years have steadily decreased, during that same time period data associated with fatal helicopter accidents and fatalities remains virtually unchanged. A number of regulations were promulgated in the 1980s and 1990s to address and greatly improve occupant protection in a survivable emergency landing or accident. These occupant protection improvements involve seat systems that reduce the likelihood of fatal injuries to the occupant in a crash (14 CFR 27.562, 27.785, 29.562, and 29.785); structural requirements that maintain a survivable volume and restrain large items of mass above and behind the occupant (14 CFR

27.561 and 29.561); and fuel systems that reduce the likelihood of an immediate post-crash fire (14 CFR 27.952 and 29.952). If the occupant protection improvement rules are not incorporated in new production helicopters, there will be no meaningful reduction in the number of fatalities in helicopter accidents.

Following a series of accidents involving post-crash fires, the Australian Civil Aviation Safety Authority asked the FAA for assistance in determining the airworthiness of certain helicopters. This request resulted in a collaborative post-crash fire/blunt force trauma study performed by the FAA's Rotorcraft Directorate and Civil Aerospace Medical Institute (CAMI). The data consisted of 97 fatal accidents involving U.S. registered, type-certificated helicopters in a five-year timeframe from 2008 to 2013. Part 27 rotorcraft comprised the largest mass of data (87 of 97 fatal accidents, 90% of the total) in the study. The post-crash fire portion of the study found that post-crash fires occurred in 30 of 76 (39%) of fatal accidents involving part 27 helicopters without fuel systems that meet the full crash resistance requirements of 14 CFR 27.952. The post-crash fire contributed to a fatality in 20% of these fatal accidents. While the data set for part 29 rotorcraft was much smaller (10 of 97 fatal accidents, 10% of the total), the results were comparable. Through the course of the study, the Rotorcraft Directorate further discovered that there were only about 16% of U.S. registered, type-certificated rotorcraft that fully complied with the fuel system crash resistance provisions in §§ 27.952 and 29.952, despite those rules having been in effect for 20 years at the time of the study.

In the time since increased rotorcraft occupant protection standards became effective as federal regulations, research efforts have studied injury patterns in fatal rotorcraft accidents. In April 2003, *Aviation, Space, and Environmental Medicine* published Narinder Taneja and Douglas A. Wiegmann's "Analysis of Injuries Among Pilots Killed in Fatal Helicopter Accidents." Using autopsy data from 1993 to 1999, Taneja and Wiegmann analyzed the pattern of specific bony

injuries (ribs, skull, and pelvis) and organ/visceral injuries (brain, lung, and heart) documented in 74 fatal rotorcraft accidents. They found blunt trauma as the cause of death in 88% of the cases, with the highest percentages of injuries to the head and core body regions. Among the implications cited in their study was, “Protection of the occupants exposed to a crash is a realistic objective that can be achieved if crashworthiness becomes a primary element of initial helicopter design and future upgrade programs.”

The second component of the Rotorcraft Directorate/CAMI study involved blunt force trauma. Blunt force trauma accounted for cause of death in 92% of the 2008-2013 fatal accident data. In addition, blunt force trauma also was the cause of death in 80% of the part 27 fatal rotorcraft accidents where a post-crash fire occurred. The Rotorcraft Directorate and CAMI built their study using the framework and methodology previously established by Taneja and Wiegmann’s 2003 study. Further, they used the percentages of bony injuries and organ/visceral injuries documented in Taneja and Wiegmann’s study as a baseline for comparison. The intent was to see if a statistically significant change occurred in blunt force trauma injury patterns in fatal rotorcraft accidents in the 10 years since the previous study. They concluded there was no statistically significant difference across most categories of bony injuries and across all categories of organ/visceral injuries. The Rotorcraft Directorate further discovered that only 10% of U.S. registered, type-certificated rotorcraft complied with increased occupant protection measures related to blunt force trauma mandated in the §§ 27.562 and 29.562 rules, despite the rules being in effect for 25 years at the time of the study. The provisions of §§ 27.562 and 29.562 were specifically designed for increased protection of the head and core body regions, the same regions documented with the highest levels of injury in the fatal accident studies conducted by Taneja and Wiegmann and the Rotorcraft Directorate/CAMI.

Additional research found that about 9,000 occupants had been involved in U.S. helicopter accidents in the 25 years since §§ 27.562 and 29.562 became effective. Only 2% of helicopters in those accidents were compliant with §§ 27.562 and 29.562. Over 1,300 occupants were killed in accidents involving the 98% of helicopters that were not compliant with §§ 27.562 and 29.562.

The Task

The Rotorcraft Occupant Protection Working Group is tasked to:

1. Perform a cost-benefit analysis for incorporating the existing occupant protection standards 14 CFR §§ 27.561, 27.562, 27.785, 27.952, 29.561, 29.562, 29.785, and 29.952 via §§ 27.2 and 29.2 for newly manufactured rotorcraft that addresses the following:
 - a. Estimate what the regulated parties would do differently as a result of the proposed regulation and how much it would cost.
 - b. Estimate the improvement in survivability of future accidents.
 - c. Estimate any other benefits (e.g., reduced administrative burden) or costs that would result from implementation of the occupant protection standards identified above.
2. Develop a cost-benefit analysis report containing the information explained in task 1 above.
3. After the FAA accepts and considers the cost benefit analysis report, the FAA will task the Rotorcraft Occupant Protection Working Group either to make specific written recommendations on how all or part of the existing occupant protection standards 14 CFR §§ 27.561, 27.562, 27.785, 27.952, 29.561, 29.562, 29.785, and 29.952 should be made effective via §§ 27.2 and 29.2 for newly manufactured rotorcraft, or to propose new alternative performance-based occupant protection safety regulations for newly manufactured rotorcraft that will be effective via §§ 27.2 and 29.2.

4. If new alternative performance-based occupant protection safety regulations effective via §§ 27.2 and 29.2 are proposed, perform a cost-benefit analysis that addresses the following:
 - a. Estimate what the regulated parties would do differently as a result of the proposed regulation and how much it would cost.
 - b. Estimate the improvement in survivability of future accidents from the proposed recommendations.
 - c. Estimate any other benefits (e.g., reduced administrative burden) or costs that would result from implementation of the recommendations.
5. Develop an initial report containing recommendations on the findings and results of the tasks explained above.
 - a. The initial 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.
6. Complete the following after the FAA accepts the initial recommendation report identified in task 5:
 - a. Specifically advise and make written recommendations on incorporating rotorcraft occupant protection improvements and standards into the existing rotorcraft fleet. Occupant protection standards include either all or part of 14 CFR §§ 27.561, 27.562, 27.785, 27.952, 29.561, 29.562, 29.785, and 29.952, or new alternative proposed performance-based regulations.
 - b. Develop an addendum report containing recommendations on the findings and results of the tasks explained above.

- c. Document both majority and dissenting positions on the findings and the rationale for each position.
 - d. Any disagreements should be documented, including the rationale for each position and the reasons for the disagreement.
7. The working group may be reinstated to assist the ARAC in responding to the FAA's questions or concerns after the recommendation report has been submitted.

Schedule

This tasking notice requires three reports.

- The task 2 cost-benefit analysis report must be submitted to the FAA for review and acceptance no later than 6 months after publication of this notice in the *Federal Register*.
- The task 5 initial recommendation report must be submitted to the FAA for review and acceptance no later than 12 months after initiation of task 3 above.
- The task 6 addendum recommendation report must be submitted to the FAA for review and acceptance no later than 6 months after the initial recommendation report is submitted.

Working Group Activity

The Rotorcraft Occupant Protection Working Group 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 ARAC.
3. Provide a status report at each ARAC meeting.
4. Draft and submit the recommendation reports based on review and analysis of the assigned tasks.

5. Present the cost-benefit analysis report in task 2 at the ARAC meeting.
6. Present the initial recommendation report at the ARAC meeting.
7. Present the findings from the addendum recommendation report at the ARAC meeting.

Participation in the Working Group

The Rotorcraft Occupant Protection 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 members (normal category rotorcraft manufacturers, transport category rotorcraft manufacturers, and rotorcraft operators from various segments of the industry such as oil and gas exploration, emergency medical services, and air tour operators) 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 Rotorcraft Occupant Protection Working Group, 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.

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 Rotorcraft Occupant Protection 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 October 30, 2015.

Lirio Liu,
Designated Federal Officer,
Aviation Rulemaking Advisory Committee.
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