NPRM Comment:

# Response to Docket No. FAA-2005-22840, Airplane Performance and Handling Qualities in Icing Conditions

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Summary

This Federal Aviation Administration Notice of Proposed Rulemaking, published November 4, 2005, addresses a revision of certain sections of Part 25 of Title 14 of the Code of Federal Regulations (14 CFR). The sections in question address airworthiness standards for type certification of transport category aircraft, but do not include specific regulations for aircraft performance or handling qualities in icing conditions. Part 25 does currently require aircraft equipped with ice protection systems to be able to operate safely in icing conditions, but does not define that standard. There are also no set standards to apply in cases where an applicant is seeking a type certification for an aircraft unequipped with an ice protection system.

The proposed revision seeks to establish a set of requirements for airplane performance and handling qualities during icing conditions that will not be less than those which currently apply during non-icing conditions. It would also set the level of ice accretion that will be allowed during each phase of flight. Finally, it would harmonize U.S. and European airworthiness standards for flight in icing conditions. Addressed in the proposed rulemaking is: means of proving compliance, stall speeds, takeoffs, landings, climbs, enroute flight paths, general controllability and maneuverability, winds, high-speed characteristics, inlet, engine and exhaust capabilities, and ice protection systems. If adopted, this rulemaking will affect manufacturers, modifiers and operators of transport category aircraft.

As is stated in the proposal, there have been nine accidents since 1983 that could have been prevented were this rule in place. Some of these are discussed in Appendix 3 of the document, with the resulting NTSB recommendations. I will not delve into those, but they did state that additional regulation of icing standards was necessary to help solve the safety issues presented by the accidents. These accidents resulted in many fatalities, and it was the professional opinion of the investigators that these deaths could have been prevented, had there been adequate regulations regarding flight maneuvers and operations during and after exposure to icing conditions.

The section of the United States Code which gives the FAA authority for this action is Title 49, Subtitle VII, part A, subpart III, section 44701, ‘‘General requirements.’’ Under that section, the FAA is charged with promoting safe flight of civil aircraft in air commerce by prescribing minimum standards required in the interest of safety for the design and performance of aircraft. This regulation is within the scope of that authority because it prescribes new safety standards for the design of transport category airplanes.

Comments

The proposed rulemaking seems a necessary and indeed unavoidable regulatory action by the FAA. The number of accidents due to the problem of icing conditions in the last 20 years indicates a lack of clear understanding on the part of transport category aircraft flight crews of both the dangers associated with this phenomenon, and the necessary preventative steps to be taken in conditions favorable to ice accumulation. One of the major roles of the FAA in its regulatory capacity is to introduce measures which will increase the safety of aviators and the general public by minimizing the risks

associated with pilot error due to human factors such as poor judgment, wrong decisions under stress, and insufficient experience to deal with unexpected weather conditions.

A recent article in Air Safety Week (July, 2005) brings out the gap which has been evident in this area of the FAA's current regulations: "Reducing the dangers from in-flight icing are on the NTSB's "Most Wanted" list of safety improvements. The NTSB has characterized as "unacceptable" the FAA's response to its two recommendations: "Use current research on freezing rain and large water droplets to revise the way aircraft are designed and approved for flight in icing conditions," and "Give flight crews accurate information to quickly recognize dangers of all types of icing and maintain airspeeds to avoid loss of aircraft control."

Even more recently, industry associations representing business aviation have expressed concern over the unusual number of ice-related accidents. According to an October article in Flight International (Warwick, 2005), the General Aviation Manufacturers Association (GAMA), the National Air Transportation Association (NATA), and the National Business Aviation Association (NBAA) joined together in a letter to aircraft and fixed-base operators stating their belief that this is a problem which needs to be addressed. "A review of the 2004 and first half of 2005 accident data for commercial and private business aircraft is troubling," they say, and although the accidents may still be under investigation, "it is believed that in-flight and ground icing may have been a factor in some."

As these professional opinions indicate, icing has been a fatal matter of concern which has not been before adequately addressed by the FAA. After study of the problem, I am in favor of the rulemaking and am pleased to see the FAA address the NTSB

recommendations in this area. The proposed rulemaking is certainly a step in the right direction which will aid flight crews in making appropriate and life-saving judgments in dangerous icing conditions. It is inside the scope of the FAA's legal authority, and seems a thorough proposal which addresses the majority of foreseeable situations and conditions in which regulation of icing condition standards for transport category aircraft would be suitable.

# References

Federal Aviation Administration. (2005, November 4). *14 CFR Part 25 Airplane Performance and Handling Qualities in Icing Conditions; Proposed Advisory Circular 25.21–1X, Performance and Handling Characteristics in the Icing Conditions Specified in Part 25, Appendix C; Proposed Rule and Notice.* (Docket No. FAA-2005-22840; Notice No. 05–10). Washington, DC: Federal Register. Retrieved November 7, 2005, from http://dmses.dot.gov/docimages/p82/368066.pdf

Industry Ill-Prepared for Flying In Severe Icing Conditions. (2005, July 18). *Air Safety Week, Vol. 19, No. 28.* Retrieved November 7, 2005, from Lexis-Nexis newsletter database.

Warwick. (2005, October 18). Increase in Icing Accidents Prompts Safety Campaign. *Flight International.* Retrieved November 7, 2005, from Lexis-Nexis magazine and journal database.