IFR Saves Lives

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If more than 300 people were killed in a single airline accident that was avoidable by simple action from the US Federal Aviation Administration (FAA), then the National Transportation Safety Board (NTSB), Congress and the public would be all over the FAA until action was taken.

However, after more than 300 people have been killed in rotorcraft in nearly 200 repetitions of the same problem, no such action has occurred, despite broad industry consensus on an inexpensive and common-sense solution.

From 2001 to 2013, there were 194 accidents worldwide for Part 27 single-engine helicopters — with 326 fatalities — involving controlled flight into terrain (CFIT), loss of control after continued flight into instrument meteorological conditions (IMC), or attempts to "scud run" — flying close to the ground to navigate in bad weather. Due to FAA restrictions, none of these aircraft were certified for instrument flight rules (IFR) operations. Most or possibly all of these accidents could have been avoided if affordable and practical IFR solutions were available for single-engine rotorcraft. Wider adoption of IFR operations would also promote a culture of increased IFR use in rotorcraft operations that would extend to larger, multi-engine rotorcraft.

In July 2015, a coalition of helicopter manufacturers, operators and associations — the General Aircraft Manufacturers Association (GAMA), AHS International, Aircraft Electronics Association (AEA) and Helicopter Association International (HAI) — made public a 31-page white paper that detailed the safety case for easing the process for IFR certification for single-engine rotorcraft (see **www.vtol.org/se-ifr**).

The FAA certifies four general categories of aircraft:

- Part 23 — small and commuter airplanes up to 19,000 lb (8.6 t) with 19 or fewer passengers
- Part 25 — all larger, transport category airplanes
- Part 27 — normal category rotorcraft weighing up 7,000 lb (3.2 t) with 9 or fewer passengers
- Part 29 — all larger, transport category rotorcraft

Unfortunately, since 1999, the FAA has levied the same redundancy and certification requirements for equipment on Part 27 helicopters as for a Part 25 airliner: a single-engine helicopter has to have the same unlikelihood of a catastrophic failure — 10^{-9} (one chance in a billion) — as a commercial airliner, while an equivalent-sized fixed-wing airplane is required to have 10^{-7} (one chance in ten million).

In March 2017, the FAA released its draft "Safety Continuum for Part 27 Normal Category Rotorcraft Systems and Equipment," which was expected to address the safety concerns expressed in the industry white paper. In a July 2016 letter addressing the white paper, the FAA had stated that the "purpose of this safety continuum concept is to facilitate a more rapid incorporation of advances in technology for systems and equipment by recognizing a balanced approach between the risk and safety benefits for installing such technology."

As a result, industry was hoping for a rational framework within which to assess the pros and cons of harnessing modern technology to improve safety. Instead, the draft policy was, to some extent, a step backwards with regards to allowing single-engine IFR operations: although some minor relief was provided in areas unlikely to promote IFR equipage, additional requirements were levied that increase the certification burden to applicants. Nearly 50 objections to the draft policy were raised by the associations, companies and individuals, but the final policy PS-ASW-27-15 was released on June 30, 2017 with no significant relief to facilitate practical equipage of single-engine helicopters for IFR operations.

This is a classic case of "Perfect is the enemy of good." The industry consensus recommendations seek to reduce accidents that are currently caused by risky operational practices (flying in questionable weather), but in doing so, would require the FAA to accept a slightly higher probability that a systems and equipment failure might contribute to an accident.

When the FAA went through the same trade-off in 1999 for Part 23 regulations, it required leadership within the agency to bring the measures forward. It also helped that many involved in the Part 23 standards staff were airplane owners, operators or pilots themselves who were able to relate to the benefits of big-picture thinking.

This August, Part 23 makes another significant leap in regulatory reform that broadens the ability to use industry practices and standards for certified airplane equipment. This is great news for small aircraft, and hopefully is a forerunner of things to come for Part 27 and Part 29 rotorcraft. However, rotorcraft get most of their avionics from manufacturers that build for the much larger Part 23 market — so what is good for airplanes will be bad for a rotorcraft industry stuck in the old certification stigma. The unique, more limiting certification requirements for rotorcraft systems will make vertical flight avionics a smaller niche, relegating rotorcraft to more expensive and possibly less capable technology.

Unless FAA leadership steps in to address the obstacles to safety aggravated by this widening disparity, costs will increase, capability will decrease and lives will continue to be lost.

There is broad consensus throughout the rotorcraft industry and operational community that equipage and training for IFR operations in single-engine helicopters has the potential to make a significant impact on safety. It has the potential to change the entire culture of common IFR use in helicopter operations, providing safety benefits to all classes of helicopters. The more familiarity a pilot has with flying on instruments, the more likely he or she would avoid an accident in marginal weather. So piloting experience in IFR operations on single-engine helicopters would likely save lives in multi-engine helicopters as well.

AHS International and our partner associations continue to believe that the unacceptable number of lives lost due to inadvertent IMC or CFIT accidents in single-engine helicopters that result from low-level flight to avoid weather can be easily addressed if the FAA amends the policy to facilitate IFR certification of single-engine helicopters.

We hope that the FAA will re-engage with industry to work towards the widespread adoption of IFR operations by all rotorcraft and reduce accidences caused by trying to fly in bad weather without IFR equipment and training. After nearly 20 years of industry criticism and far too many deaths, allowing pilots to take advantage of commonplace off-the-shelf technologies should be a no-brainer.

There is some hope, however, with the recent reorganization of the FAA's entire Aircraft Certification Service (see "FAA Certification Service Reorganized," pg. 10). With the aggregation of the Small Airplane Directorate (responsible for Part 23), the Rotorcraft Directorate (Part 27 and Part 29), the Transport Directorate (Part 25) and the Engine and Propeller Directorate into a single "Compliance and Airworthiness Division," perhaps the glaring inconsistencies between the requirements for small airplanes and small helicopters will finally be resolved.

What do you think? Let me know at ***director@vtol.org***.