General Aviation
Joint Steering Committee
Safety Enhancement Topic

FAA
Aviation Safety

Regulatory Roadblock Reduction

Leveraging the rapid growth and evolution of technology in the aviation industry can be an important component of reducing general aviation (GA) accidents. The General Aviation Joint Steering Committee (GAJSC) believes that the FAA must continue to find ways to help reduce the cost to install safety enhancing technology. Installation of this technology can offer substantial safety benefits, often with minimal risk. The GAJSC also feels that the FAA needs to identify the appropriate level of certification for installation of risk-mitigating avionics. Successful integration of this technology may help the GA fleet reap the potential benefit of reward with a balanced risk approach.

Breaking Barriers

The high cost of certification has traditionally been a significant barrier for the aviation industry over the years. However, the FAA has made important strides toward improving that trend.

Implementation of the Sport Pilot/Light-Sport Aircraft rules in 2004 marked an important milestone in bringing new aircraft choices to the table. The rule allowed ASTM consensus standards as a means of certification for LSA. In addition, the safety and technological advances these new designs brought to both airframes and avionics helped drive several more recent developments.

Among these are the simplified design approval requirements for angle of attack (AOA) indicators in which the GAJSC played a major role in helping to coordinate. The success of this initiative led the FAA to expand this approach to a broader range of equipment.

Seeing NORSEE

Published in July 2016, the FAA's Non-required Safety Enhancing Equipment (NORSEE) policy includes avionics, electronic instruments, displays, and mechanical equipment for Title 14 Code of Federal Regulations (14 CFR) parts 23, 27, and 29 aircraft. Equipment approved as NORSEE can enhance overall situational awareness and provide a range of information such as data, other than the aircraft primary system; independent warning, cautionary, or advisory indications; and additional occupant safety protection. Examples of NORSEE equipment include traffic advisory systems; terrain awareness and warning systems; attitude indicators; fire extinguishing systems, and autopilot or stability augmentation systems.

Part 23 Reform

On August 30, 2017, the final rule overhauling airworthiness standards for general aviation airplanes officially went into effect. With this rule, a substantial overhaul of 14 CFR part 23, the FAA intends to enable faster installation of

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innovative, safety-enhancing technologies into small airplanes, while reducing costs for the aviation industry. The rule applies to airplanes weighing 19,000 pounds or less and with 19 or fewer passenger seats.

The performance-based standards approach in this rule recognizes that there is more than one way to deliver on safety, and it offers a way for industry and the FAA to collaborate on new and existing technologies and to keep pace with evolving aviation designs and concepts. This regulatory change is also a leading example of how the FAA is transforming its Aircraft Certification Service into an agile organization that can support aviation industry innovation in the coming years.

Part 23 regulations will continue to be used as a means of certification, but the administrator has deemed the ASTM standards to provide "at least the same level of safety as the corresponding requirements in part 23, amendment 23-64."

ASTM Consensus Standards F3264 - 17 identify the industry standards that, as determined by the FAA, demonstrate compliance to the requirements for Level 1, 2, 3, and 4 normal category airplanes. The FAA announced its acceptance of 30 published ASTM International consensus standards for certification of normal category part 23 airplanes. The new Means of Compliance (MOC) are, according to the FAA, “an acceptable means, but not the only means, of showing compliance to the applicable regulations in part 23 [and] provide at least the same level of safety as the corresponding requirements.”

What does the Change Mean for Me?

The big change in part 23 was the removal of the prescriptive requirements that had previously been at the heart of the rule. The FAA replaced them with desired, end-state criteria. This approach puts the emphasis on the airplane’s or system’s safety performance, not on how well it does in a series of pre-defined tests.

This in turn is helping aircraft manufacturers streamline their certification process and reduce costs. It is also helping aircraft part and avionics manufacturers bring more innovative, cost-effective, and safety-enhancing products to the market.

One exciting concept that is being advanced by the part 23 change is the EZ Fly program, a joint venture led by the FAA, NASA, academia, and industry. EZ Fly aims to leverage technology to create an intuitive user interface that reduces pilot workload. The idea is to use increased automation to move the pilot’s limited attention away from immediate mechanical tasks and toward overall management of the flight. The expected outcome is not a discrete system or set of components, but a MOC that would allow manufacturers to use these systems in future projects. Part 23 is an important enabler of not only this research and development, but also the technology’s eventual integration into finished products.

Resources

⇒ The Quiet Revolution — What Part 23 Changes Mean For You, *FAA Safety Briefing,* May/June 2019: https://adobe.ly/2V4hosH

⇒ Seeing NORSEE Benefits — How This Innovative FAA Safety Enhancement Program Is Performing, *FAA Safety Briefing,* May/June 2019: https://adobe.ly/2IMxFMx

⇒ The Transformation of Certification — Adopting Consensus Standards for LSA, *FAA Safety Briefing*, May/June 2019: https://adobe.ly/2UIIikY