



THE VIEW FROM WASHINGTON

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Analog Regulations Meet Modern Business

During the summer months, I worked some issues where the membership and the agency were at odds with each other. Business is pushing the boundaries of regulations, and the agencies are trying to keep up. This dynamic industry is trying to move at the speed of light or 299,792,458 meters per second. Meanwhile, the agency is hampered by an overly burdened regulatory system and moving at glacial speed. OK, maybe it's not quite this extreme, but it sure seems like it at times.

Each year, the AEA staff attends AirVenture to promote the AEA membership and the avionics industry. Traditionally, new, updated and rebuilt products are publicly announced at this event. The show is a wonderful window into the products that will hit the shop shelves in the next 12 to 24 months. Personally, I don't look at the products for the benefit to CNS (communication, navigation and surveillance) or the gee-whiz gadgetry. Instead, I look to the regulatory challenges that the shops will face once your customers begin to request these products.

The line between the laissez-faire oversight of amateur-built aircraft avionics and the regulated cockpit of certified aircraft continues to blur. This year, along with the new radios, traffic, weather and datalink products, there were a few that really caught my eye, including: voice-controlled flight plans directly into navigators; wireless linking of flight planning PDAs and the multifunction displays; and Bluetooth linking of cellphones to audio panels (admittedly a bit older than this year's AirVenture). Add these items to touchscreen

technology announced at the AEA International Convention & Trade Show last March, and you have the public clamoring for new gadgets and the agencies looking for solutions. Are these extreme technologies? No, not by today's commercial standards. But, by yesterday's analog regulatory standards, we're speaking a foreign language.

The agency, or at least some in the agency, recognize the challenges of industry and have committed to rulemaking to fix some of these problems. We have two activities that

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are projected for this year and one to start in early 2012. We know there is a Part 145 NPRM (notice of proposed rulemaking) working its way through the regulatory morass of checks and balances within the U.S. government bureaucracy. We have heard rumors of the direction that the agency would like to go on this. When we put together the rumors and history of this particular rulemaking, it is not too difficult to put the puzzle pieces together and get a picture of a significant proposal to change radio and instrument ratings.

If you remember back in 2000, the agency attempted to rewrite the regulations regarding repair station ratings and revise the repair station quality system. The quality system

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failed due to the realization that the cost to achieve a regulatory (read administrative) increase in the quality system wasn't supported by documented failures of the current system. Rumor has it this element didn't make the cut in the NPRM either. But, we won't know for sure until the NPRM is published later this year.

We are reasonably sure the ratings for airframe, radio and instrument are likely to see significant changes. There has been a long-held desire to align the rating systems of the U.S. with Europe. This makes sense and would certainly help standardize the understanding in the global marketplace. Unfortunately, the FAA regulatory system is very different than Europe's system, and we cannot adopt their rating system.

The European Aviation Safety Agency defines an aircraft as "a machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the Earth's surface." The FAA defines an airframe as "The fuselage, booms, nacelles, cowlings, fairings, airfoil surfaces (including rotors but excluding propellers and rotating airfoils of engines), and landing gear of an aircraft and their accessories and controls."

At first brush, the idea of an "aircraft" rating over an airframe rating is welcomed relief. The aircraft is the machine and its components; the airframe is the fuselage, booms, nacelles, cowlings, fairings, airfoil surfaces, and landing gear of an aircraft plus their accessories. But to control this, EASA has more than just an A&P license. It also has an avionics rating; a B-2. So, while the facility may have more capability, it isn't without the properly rated engineers. In order for the FAA regulatory "system" to adopt the EASA

model of a repair station, it must adopt the entire system, not just randomly adopt bits and pieces.

Later this year, we also will see some activity on the design and certification of normal and utility category aircraft. In 2009, the FAA and industry got together and performed a fairly extensive study of the small airplane certification process, and it is online at www.aea.net. The primary objective of the Part 23 certification process study was to assess the adequacy of the current airworthiness standards throughout a small airplane's service life while anticipating future requirements. Working groups comprised of various members of the aviation industry were assigned to the five areas of this study to identify issues and develop recommendations. The study was not limited to certification standards. Study team members reviewed other topics affecting general aviation, including pilot training, operations and maintenance.

The study offered a variety of short-term and long-term recommendations. These recommendations serve as the basis for a Part 23 regulatory review scheduled to begin later this year. It has been more than 20 years since the last Part 23 regulatory review. Not only is it time for a complete review of Part 23, it is also time to review the original assumptions for Part 23, including operations and maintenance. The airplanes being certified today have changed significantly since the inception of Part 23, and this evolution will likely continue. Some recommendations from the study that will directly affect shops and warrant following are: updating the approved model list supplemental type

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certificate process to include system interface considerations; developing training for the AML/STC process; replacing equipment for "Part 23 required equipment" as "approved" equipment; defining major/minor alteration criteria; and developing a regulatory approach to evaluate changes to the type design consistent for Part 21 through Part 43.

The next area for rulemaking, which has been promised for 2012, is where Parts 43 and 65 simply haven't kept up with the digital age. The issues are not new but have led to inconsistent application of regulations, such as the definition of instruments, repair and alterations and how they are applied to cockpit displays and software.

14 CFR Section 65.81 provides the general privileges and limitations for the airframe and powerplant mechanics. Paragraph 65.81(a) specifically prohibits a certificated mechanic from performing any repair to, or alteration of, instruments. Cockpit displays are generally considered to be instruments, considering they visually show the attitude, altitude or operation of an aircraft or aircraft part. In the days of steam gauges, this was a really simple issue. The instrument needed to go to an instrument shop, as the instrument was going to be opened.

Let us fast-forward to the digital age of the 21st century. Today, instruments are "repair and altered" using digital code or software. So, the question to the FAA becomes, "Is an A&P authorized to perform repair and alterations (adding functionality) to cockpit displays?" The regulation says no.

Of course, this makes some assumptions. If it is assumed that the operating system software update is intended to "correct" a deficiency with the current software revision level, it is a repair. If the software update is intended to add capability, it is an alteration. Since an A&P mechanic is prohibited from per-

forming a repair to or alteration of an instrument, this maintenance action would reasonably fall outside the authority of an A&P.

In addition, Part 43 defines the calibration of instruments and radio equipment as an appliance major repair. In the days when the rule was written, this was typically a manual adjustment. Today, these functions are performed electronically. Again, logical or not, Part 65 prohibits an A&P mechanic from calibrating displays or radios. We look forward to reviewing the regulations and providing input in the areas that may or may not need clarification.

As you interact with your inspectors, take time to realize that they are bound by a set of regulations written more than 50 years ago with few changes. Your inspector cannot authorize you to deviate from the regulations. In many

cases, industry will need to petition for exemptions from the plain language interpretation of the regulations to allow for reasonable application in the digital age.

Prohibition didn't work in the 1920s, and it won't work now. Aircraft owners and operators will continue to push the boundaries of equipment installations and functionalities. We can, as history taught us, attempt to prohibit the manufacturing, sales and installation of modern technology and drive the business underground, or we can acknowledge the shortfalls of a set of analog regulations, clear the slate and set out to create up-to-date rules to support 21st century technologies. It won't happen overnight, but the writing is on the wall. We can repeat prohibition, or we can facilitate the technology. And, for the FAA... your call. □

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