

Maintenance for Experimental and Light Sport Aircraft

BY RIC PERI

For years I have heard the argument made by the experimenters that their aircraft are experimental and outside of the Federal Aviation Regulations and, therefore, don't need the services of avionics professionals. Well, with the introduction of the Light Sport Aircraft (LSA) Rule and the growth of the experimental aircraft marketplace, perhaps a review of the FARs might be in order.

It is true that 14 Code of Federal Regulations (CFR) Part 43 does not apply to any aircraft for which an experimental airworthiness certificate has been issued, with the exception that Part 43 does apply to any experimental aircraft for which a different kind of airworthiness certificate had previously been issued for that aircraft.

However, in the final rule for Light Sport Aircraft, section 43.1 has been revised such that Part 43 will now also apply to any aircraft issued a special airworthiness certificate in the light-sport category.

Although the revision to Part 43 also exempts LSAs from some of the Part 43 requirements, the repair or alteration form specified in sections 43.5(b) and 43.9(d) is not required to be completed for products not pro-



duced under an FAA approval; major repairs and major alterations for products not produced under an FAA approval are not required to be recorded in accordance with Part 43 appendix B; and the listing of major alterations and major repairs specified in paragraphs (a) and (b) of Part 43 appendix A of this part is not applicable.

So, although Part 43 does not apply to aircraft with an experimental certificate, it does apply to those aircraft with a new light sport aircraft certificate.

What's Covered in Part 43?

But what exactly does Part 43 address? Generally speaking, Part 43 prescribes the rules governing the maintenance, preventive maintenance, rebuilding, and alteration of any aircraft having a U.S. airworthiness certificate.

So from a purely technical perspective, experimental aircraft may not be bound to Part 43

for the performance of maintenance and recordkeeping. The Experimental Aircraft Association (EAA) addresses this issue by providing the following information on their web site:

“Although FAR Part 43 specifically states that it does not apply to experimental airworthiness certificates, the operating limitations on your homebuilt will include the following (or something similar):

No person shall operate this aircraft unless within the preceding 12 calendar months it has had a condition inspection performed in accordance with the scope and detail of appendix D to Part 43, or other FAA-approved programs, and found to be in a condition for safe operation.”

Part 43 appendix D requires that each person performing an annual or 100 hour inspection shall inspect the radio and electronic equipment for improper

installation and insecure mounting; the wiring and conduits for improper routing, insecure mounting, and obvious defects; bonding and shielding for improper installation and poor condition; and all antennas (including trailing antennas) for poor condition, insecure mounting, and improper operation.

EAA further explains who can perform a Condition Inspection by explaining that the inspection can be performed by any licensed A&P mechanic, an FAA Approved Repair Station, or by the builder of the airplane provided the builder obtains a "Repairman's Certificate" from the FAA. They note, however, that unlike an annual for a type certificated aircraft, the A&P mechanic does NOT have to have his/her "Inspection Authorization."

Since FAR Part 43 specifically states that the rules of that part do not apply to amateur-built airplanes, EAA concludes that any maintenance on an experimental airplane can be performed virtually by anyone regardless of credentials.

While this view is certainly sound from a Part 43 perspective, there are other regulations that apply to avionics. Primarily, there are other FAA requirements and the regulations of the Federal Communication Commission (FCC); specifically, Title 47 of the Code of Federal Regulations (Telecommunication), Chapter I, (Federal Communications Commission), Part 87, Aviation Services.

The following information applies to ALL aircraft, whether they have an experimental, light sport aircraft or standard category airworthiness certificate.

In an October 18, 1996 notice,

the FCC proposed to remove the individual radio licensing requirement for exempt vessels and aircraft. For aircraft, they proposed to permit pilots to operate a VHF aircraft radio and/or any type of emergency locator transmitter (ELT) without an individual license.

This change in FCC regulation applied to the aircraft's station license. It did not change the requirements for maintenance and repair of aircraft radios, only the operation of them.

In a section on "Who Needs A Commercial Operator License?" the FCC states that the answer will depend on whether you wish to operate or repair and maintain radio stations. The FCC cautions that the listings only describe when a commercial operator license is necessary, and warns that a commercial operator license does not constitute or imply FCC authorization to transmit radio signals. Before anyone operates any radio station, they should make certain that the station is licensed as required by the FCC.

The FCC states that an individual needs a commercial radio operator license to operate aircraft radio stations, except those that use only VHF frequencies on domestic flights. (As a note: hand held VHF radios used outside of the aircraft are required to be licensed.) But then the FCC goes on to state that for radio maintenance and repair (which includes installation), the individual needs a commercial radio operator license to repair and maintain all aircraft stations and aeronautical ground stations (including hand-carried portable units) used to communicate with aircraft.

Therefore, avionics main-

tenance on an experimental airplane must be performed by someone with a commercial radio operator license issued by the FCC.

And while Part 43 may not directly apply to experimental aircraft, Part 91 does, and Part 91 contains a number of avionics maintenance related requirements that apply to all civil aircraft.

Recognizing that the foundation of experimental aircraft operations are contained in section 91.319, which requires each person operating an aircraft that has an experimental certificate to operate under VFR, day only, unless otherwise specifically authorized by the Administrator, we would be remiss in not acknowledging the growth in the development and certification of experimental aircraft capable of IFR flight.

Section 91.411 prohibits any person from operating an airplane or helicopter in controlled airspace under IFR unless within the preceding 24 calendar months, each static pressure system, each altimeter instrument, and each automatic pressure altitude reporting system has been tested and inspected and found to comply with appendix E of Part 43.

Section 91.411 also requires that following any opening and closing of the static pressure

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system, (except for the use of system drain and alternate static pressure valves) the system must be tested and inspected and found to comply with paragraph (a), appendices E and F of Part 43.

And following installation or maintenance on the automatic pressure altitude reporting system of the ATC transponder where data correspondence error could be introduced, section 91.411 requires the integrated system to be tested, inspected, and found to comply with paragraph (c), appendix E of Part 43.

For all aircraft flying in controlled airspace section 91.215 prohibits any person from operating an aircraft in Class A, Class B, and Class C airspace unless that aircraft is equipped with an operable coded radar beacon transponder.

Section 91.217 provides more maintenance requirements by prohibiting any person from operating any automatic pressure altitude reporting equipment associated with a radar beacon transponder unless, as installed, that equipment was tested and calibrated to transmit altitude data corresponding within 125 feet (on a 95 percent probability basis) of the indicated or calibrated datum of the altimeter normally used to maintain flight altitude or the altimeters and digitizers in that equipment meet the standards of TSO-C10b and TSO-C88, respectively.

Section 91.413 also prohibits any person from using an ATC transponder that is specified in section 91.215(a), unless, within the preceding 24 calendar months, the ATC transponder has been tested and inspected and found to comply with appendix F of Part 43 of this chapter; and

following any installation or maintenance on an ATC transponder where data correspondence error could be introduced, the integrated system has been tested, inspected, and found to comply with paragraph (c), appendix E, of Part 43 of this chapter.

So while Part 43 may not apply to experimental aircraft, that does not preclude the requirements of Part 91 which requires compliance with specific paragraphs of Part 43 for operations in U.S. airspace nor does it preclude the requirements of the FCC which requires a commercial radio operator's license for the installations, maintenance and repair of aircraft radios.

From an avionics perspective, there really isn't much difference in aircraft regardless of the type or airworthiness certificate they carry.

Are your avionics maintained properly? ■