THE VIEW FROM WASHINGTON

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Back to Basics: Knowing Your Parts

This industry relys heavily on parts: new radios, used radios, instruments, accessories, materials, wires, etc. Knowing the basics about parts is essential for cost-effective regulatory compliance and for producing a technically correct aviation product.

First, let me go ahead and shake up the status quo: Parts do not have to be "FAA-approved." Now, before you label me a heretic and call for tar and feathering, read on.

There still are rules. In fact, there are strict rules about parts that are "acceptable for installation" in aircraft. However, like most of the regulatory sessions I have taught during the past 20 years, it's all in the language.

In FAA Order 8120.16, "Processing Reports of Suspected Unapproved Parts," the FAA states that the term "approved parts," in quotations, is not synonymous with "a part that has received a formal FAA approval."

We have inappropriately used the term "approved" parts for any part acceptable for installation.

Don't agree?

Can I use an AN bolt or rivet, an MS screw or mil spec wires? Of course. As an industry, we install them hundreds (if not thousands) of times every day. Did you know they are not "a part approved" by the Administrator? 14 CFR, Section 21.303(b)(4) states, "This section does not apply to standard parts (such as bolts and nuts) conforming to established industry or U.S. specifications."

What is the basis for approved parts? Most people incorrectly cite one of two rules: 14 CFR 21.303, "Replacement and Modification Parts," or 14 CFR 21.305, "Approval of Materials, Parts, Processes and Appliances."

Why are these incorrect? Because they are only part of the answer; they are not the only answers.

14 CFR 21.303 states, "No person may produce a modification or replacement part for sale for installation on a type-certificated product unless it is produced pursuant to a Parts Manufacturer Approval issued under this subpart."

To whom does this rule apply? "A person who produces a modification or replacement part for sale for installation on a type-certificated product."

KNOWING THE BASICS ABOUT PARTS IS ESSENTIAL FOR COST-EFFECTIVE REGULATORY COMPLIANCE AND FOR PRODUCING A TECHNICALLY CORRECT AVIATION PRODUCT.

Let's look at the three key elements of this rule: You produce the part; the part is for sale for installation; and the installation will be on a type-certificated product. If these three elements do not apply to you, this rule doesn't apply.

The rule further states, "This section does not apply to parts produced under a type or production certificate; or parts produced by an owner or operator for maintaining or altering his own product; or parts produced under an FAA Technical Standard Order; or standard parts (such as bolts and nuts) conforming to established industry or U.S. specifications."

These parts are outside of the approval requirements of Section 21.303. Remember, it states, "This section does not apply to" owner-produced parts or standard parts.

What About 14 CFR 21.305?

According to 14 CFR, Section 21.305, "Whenever a material, part, process or appliance is required to be approved under this chapter, it may be approved under a Parts Manufacturer Approval issued under AC 21.303; or under a Technical Standard Order issued by the Administrator; or in conjunction with type certification procedures for a product; or in any other manner approved by the Administrator."

Let's look closely at Section 21.305, which applies "whenever a material, part, process or appliance is required to be approved under this chapter." If the regulations do not require the part to be "approved," then Section 21.305 does not apply.

Nowhere in either Section 21.303 or 21.305 does it state only "approved" parts can be installed. Section 21.303 is for the production of parts, while Section 21.305 is applicable when the regulation requires the part be approved.

An example of an "approved equipment" requirement is 14 CFR 91.207, "Emergency Locator Transmitters."

The regulation requires that "no person may operate a U.S.-registered civil airplane unless there is attached to the air-

plane an approved automatic type emergency locator transmitter." Clearly, the ELT must be "approved" and, therefore, must meet one of the criterions of 14 CFR 21.305.

Section 91.221 requires that "any traffic alert and collision avoidance system installed in a U.S.-registered civil aircraft must be approved by the Administrator." Again, this requires TCAS systems to meet the approval requirements of Section 21.305.

So, if standard parts aren't approved, what are "acceptable" parts?

FAA Advisory Circular 20-62D provides information and guidance for use in determining the quality, eligibility and traceability of aeronautical parts and materials intended for installation on U.S. type-certificated products and to enable compliance with the applicable regulations. The AC describes both "approved" parts and "acceptable" parts.

In the AC, the FAA defines "approved parts" in line with Section 21.305. "Approved" parts are parts produced under an FAA-approved production system and which conform to FAA-approved data."

According to the FAA, the part "may be approved under a Parts Manufacturer Approval issued under Section 21.303; or a Technical Standard Order authorization issued by the Administrator; or in conjunction with type certification procedures for a product."

AC 20-62D further clarifies acceptable parts. According to the AC, the following parts may be found to be acceptable for installation on a type-certificated product:

• Standard parts (such as nuts and bolts) conforming to an established industry or U.S. specification.

• Parts produced by an owner or operator for maintaining or altering their own product and which are shown to conform with FAA-approved data.

• Parts for which inspections and tests have been accomplished by appropriately certificated persons authorized to determine conformity to FAA-approved design data.

So, we have looked at the rules affecting manufacturers and when the regulations "require" equipment. Now, what rules apply when you are not a manufacturer and the parts are not required?

There are two rules directly affecting avionics shops: The maintenance performance rules (14 CFR 43.13) and the rules governing statements about products, parts, appliances and materials (14 CFR 3.5).

The performance rules require that "each person maintaining or altering, or performing preventive maintenance, shall use materials of such a quality that the condition of the aircraft, airframe, aircraft engine, propeller or appliance worked on will be at least equal to its original or properly altered condition (with regard to aerodynamic function, structural strength, resistance to vibration and deterioration, and other qualities affecting airworthiness)."

The "other qualities affecting airworthiness" are of most concern for avionics technicians. "Other qualities" certainly includes things such as electrical integrity, flammability, meeting its intended function, and not compromising the function of any already installed equipment.

Meeting the requirements of the certification rules essentially means the equipment would have been tested by the aircraft manufacturer had the equipment been forward-fit in the original aircraft. For many of today's avionics, the original certification rules simply did not address today's modern technology. For those installations, the latest certification rules applicable to that size of aircraft would apply.

Statements about products, parts, appliances and materials are critical. The FAA strictly prohibits any fraudulent and intentionally false statements about products, parts, appliances and materials.

When conveying information related to an advertisement or sales transaction, no person may make "any fraudulent or intentionally false statement in any record about the acceptability of any product, part, appliance or material for installation on a type-certificated product." This includes work orders, logbooks and sales receipts.

While this rule was intended to apply to distributors and parts houses, it also clearly applies to avionics (and maintenance) shops selling "any product, part, appliance or material."

FOR MANY OF TODAY'S AVIONICS, THE ORIGINAL CERTIFICATION RULES SIMPLY DID NOT ADDRESS TODAY'S MODERN TECHNOLOGY. FOR THOSE INSTALLATIONS, THE LATEST CERTIFICATION RULES APPLICABLE TO THAT SIZE OF AIRCRAFT WOULD APPLY.

In order not to violate 14 CFR 3.3, it is essential for shops to be able to "show that the product, part, appliance or material is acceptable for installation on a type-certificated product" before they advertise to their customers. In this case, for non-approved parts or accessories, shops need to be able to show the accessory meets the general requirements of 14 CFR 43.13 (which is the regulation, not the AC 43.13).

While it is easier for a shop to deal only in "approved" parts and accessories, with the huge growth in affordable electronics technology available to the average general aviation aircraft owner, it is almost impossible not to install this technology for your customers. However, when you choose to install this equipment, it is absolutely imperative you follow the rules. ❑

If you have comments or questions about this article, send e-mails to avionicsnews@aea.net.