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[Page 9923-9925]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 21

[Docket No. AIR-100-9601]

Replacement and Modification Parts: "Standard" Parts;

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of Interpretation.

SUMMARY: The FAA is notifying the public that the interpretation of an acceptable U.S. government or Industry accepted specification may include specifications that may be limited to detailed performance criteria, complete testing procedures, and uniform marking criteria. Manufacturers of parts that conform to such specifications are excepted as "standard parts" from the requirement to obtain FAA Parts Manufacturer Approval. The FAA is aware that specifications meeting the above criteria exist for discrete electrical or electronic component parts.

EFFECTIVE DATE: January 31, 1997

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SUPPLEMENTARY INFORMATION: Section 21.303(a) of Title 14 of the Code of Federal Regulations (CFR), Replacement and Modification Parts, prohibits a person from producing a part for sale for installation on a type certificated product unless that person produces the part pursuant to an FAA Parts Manufacturer Approval (PMA). Section 21.303(b) provides four exceptions to the requirement in § 21.303(a). One of these exceptions is for "Standard parts (such as bolts and nuts) conforming to established industry or U.S. specifications." (14 CFR § 21.303(b)(4).)

"Standard part" is not otherwise defined in Title 14. Section 21.303(b)(4) has come to be understood by the aviation and manufacturing public as meaning a part, the specification for which has been published by a standard setting organization or by the U.S. government, and the FAA has traditionally regulated parts production with that understanding. Examples of such "traditional" standard part specifications include National Aerospace Standards (NAS), Air Force-Navy Aeronautical Standard (AN), Society of Automotive Engineers (SAE), SAE Aerospace Standard (AS), and Military Standard (MS). The FAA will continue to consider parts conforming to these specifications as standard parts.

Prior to this notice, for a specification to be acceptable, it had to include information on the design, materials, manufacture, and uniform identification requirements. The specification had to include all the information necessary to produce the part and ensure its conformity to the specification. Furthermore, the specification must be publicly available, so that any party is capable of manufacturing the part. The above examples of accepted specifications fulfill those criteria.

In the past the FAA has applied §21.303(b)(4) to parts that have specifications where a determination of physical conformity to a design could be made. This application largely excluded classes of parts where the parts are conformed not on the basis of their physical configuration but by meeting the specified performance criteria. These types of parts are best exemplified by discrete electrical and electronic parts.

Much of the componentry used in electronic devices are manufactured under standard industry practices, often to published specifications developed by standards organizations such as the Society of Automotive Engineers (SAE), the American Electronics Association, Semitec, Joint Electron Device Engineering Council, Joint Electron Tube Engineering Council, and the American National Standards Institute (ANSI). Such standards development by these bodies is overseen by the Institute of Electrical and Electronics Engineers (IEEE), the IEEE Standards Committee, as well as the electrical and electronics industry, at large, who depends upon characteristic design standards for consistency in operation and performance.

The FAA has determined that certain kinds of electrical and electronic parts fit within the limits of the § 21.303(b)(4) exception; these include resistors, capacitors, diodes, transistors, and non-programmable integrated circuits (e.g. amplifiers, bridges, switches, gates, etc.). Conversely, large scale, application-specific, or programmable integrated circuits; hybrids, gate arrays, memories, CPU’s, or other programmable logic devices would not be considered standard parts, such components are not ‘discretes’ since they require programming that controls their timing, functionality, performance, and overall operating parameters.

It is important to remember that 14 CFR Part 21 §21.303 deals with the production of parts for sale for installation on type certificated products. Installation of replacement or modification parts including owner/operator-produced and standard parts, must be

accomplished in compliance with part 43 of Title 14 of the CFR (Part 43). Generally, a standard part may be replaced with an identical standard part, in accordance with the manufacturers maintenance instructions, without a further demonstration of compliance with the airworthiness regulations. Substitution of a standard part with another would require a demonstration of acceptability in accordance with part 43.

DISCUSSION OF COMMENTS: The FAA published (61 FR 47671, September 10, 1996) a proposed expanded interpretation for "standard part" and requested comments from the public on the ability of producers to conform discrete electrical and electronic parts, and other kinds of parts, to specified performance criteria. The FAA also requested comment on the ability of producers to distinctly identify such parts.

A total of 19 comments were received in response the notice. These commenters represent air carriers, aircraft manufacturers; associations representing aircraft manufacturers, aircraft maintenance personnel, and fixed base operators/air charter/air taxi operators/scheduled operators; component manufacturers; and the Joint Aviation Authorities. All but one commenter voice general support for the proposal. Five commenters concur with no additional comment. Six commenters concur and express the desire to include specifications for other types of parts (beyond discrete electrical and electronic parts) under this expanded interpretation.

The substantive issues raised by the commenters are discussed in the following discussion of comments.

Comment: Two commenters expressed concern about standard parts in general. They commented that some manufacturers claim to build their parts to these standards but do not have any proof that the parts meet the requirements and that just because a part is marked with the standard part type number or marking does not demonstrate that the part in fact conforms to the established industry or U.S. Government specifications. One commenter suggested the FAA survey suppliers to determine if they are reliable candidates to meet the requirements of various standards.

FAA Response: A standard part is one that conforms to the established specification. Beyond just physical configuration and performance testing almost all specifications have quality control and testing requirements. The FAA in conducting an investigation of standard part manufacturers would be looking for complete compliance with the specification, and would look for the existence and proper execution of records necessary to prove conformity. Non-conformities would be cause for enforcement action by the FAA and could be cause for a criminal investigation by the appropriate law enforcement agencies.

The marking of a part is the manufacturer's certification that the part conforms to the specification. The ability of the manufacturer to make that certification at the time of manufacture is based on the specification requirements which include production system requirements, test & acceptance procedures, and any additional internal quality control

requirements. The marking of parts also serves as a means by which an installer may identify a part and establish its eligibility for installation on an aircraft. The end users confidence in that manufacturer's certification is based on their experience with that manufacturer and is supplemented by their receiving inspection, and the final determination of airworthiness as required by FAR 43.13.

Standard part manufacturers are subject to continuing in-depth audits by their customers whether they be commercial airplane manufacturers, the automotive industry, or the U.S. Government. The FAA feels that these continuing process checks provide an appropriate degree of confidence.

Comment: Three commenters expressed concern that a part meeting a standard specification may be used by a design approval holder in an application that is safety-critical or outside the specified operating tolerances requiring greater scrutiny of that part. For this reason one commenter stipulated that parts must be designated as standard by the design approval holder.

FAA Response: The qualification and quality control requirements for any part installed on a product is established by the design approval holder for that product. If a design approval holder utilizes a standard part design in a safety critical application (and/or an application requiring the part to perform outside its specified operating tolerances) but imposes qualification or quality control requirements beyond those of the standard specification for the part, then that altered part would no longer be a "standard part.

Certain design approval holders are required to provide instructions for continued airworthiness including data necessary for maintenance. It is these maintenance instructions that are to be followed by maintenance personnel. It would be incorrect for a design approval holder to identify a part as a "standard part" in their maintenance instructions when their qualification or quality control procedures exceed those of the standard part specification.

Comment: Several Commenters voiced the need for including I.S.O. and European government and industry standards.

FAA Response: The FAA can recognize any industry established specification regardless of country of origin. However, under present language of Part 21 21.303(b)(4) acceptable government specifications are limited to those published by the U.S. Government. The Aviation Rulemaking Advisory Committee (ARAC), Aircraft Certification Procedures Issues Group (Part 21), Parts & Production Working Group is currently developing a draft notice of proposed rulemaking (NPRM), for submittal to the FAA, addressing the approval of replacement and modification parts. This issue is under consideration; changes could be incorporated into the forthcoming NPRM.

Comment: Several commenters expressed the desire to allow various other categories of parts such as lamps, electrical connectors, and bearings.

FAA Response: The FAA's Notice solicited information as to the merits of including categories of parts other than discrete electrical or electronic components under the interpretation. The commenters did not state how the conformity of the parts could be established solely on the basis of meeting a performance specification. Thus, the FAA still regards the standard parts exclusion as applicable to a narrow segment of the entire population of part designs.

Comment: One commenter expressed the desire to allow programmable devices to be considered standard parts when there are approved pin-for-pin alternatives. Such components only become notionally non-standard after programming for a specific application.

FAA Response: Programmable devices were specifically excluded in the proposed expanded interpretation because their performance characteristics may vary with the instructions programmed within or provided to such devices, or due to different applied voltages and signals affecting logical switching conditions. Even though such devices may be pin-to-pin compatible, the performance characteristics cannot be assured, thus making such devices ineligible for consideration of the "performance" based interpretation of the definition.

The interpretation for standard parts is effective on January 31, 1997. The FAA is compiling a list of standard setting bodies and U.S. government entities that establish specifications for standard parts. That list will be published on the Aircraft Certification Home Page on the World Wide Web by June 30, 1997.

Issued in Washington, DC on January 31, 1997.