STANDARD PARTS

WHAT IS A STANDARD PART? Mentioning standard parts usually brings to mind the thought of merely "nuts or bolts" when, in fact, other types of parts as well as materials used to produce aviation parts may fall under the category of "standard part."

A standard part is a part or material that conforms to an established industry or U.S. Government-published specification. The FAA's acceptance of a standard part as an approved part is based on the certification that the part has been designed and produced in accordance with an independent established set of specifications and criteria.

"Standard part" is not defined in Title 14 of the Code of Federal Regulations. Section 21.303(b) provides four exceptions to the requirement to hold a Parts Manufacturer Approval to produce replacement and modification aircraft parts. Section 21.303(b)(4) provides the exception for standard parts -- bolts and nuts -- which are parts that conform to established industry or U.S. specifications.

The FAA has published a non-regulatory definition of "standard part" as well as interpretative information regarding what criteria parts must meet to come under the standard part category. Advisory Circular 21-29 (pdf), Detecting and Reporting Suspected Unapproved Parts, provides the following definition of "standard part":

> A part manufactured in complete compliance with an established industry or U.S. Government specification which includes design, manufacturing, test and acceptance criteria, and uniform identification requirements; or for a type of part which the Administrator has found demonstrates conformity based solely on meeting performance criteria, is in complete compliance with an established industry or U.S. Government specification which contains performance criteria, test and acceptance criteria, and uniform identification requirements. The specification must include all information necessary to produce and conform the part and be published so that any party may manufacture the part. Examples include, but are not limited to, National Aerospace Standard (NAS), Army-Navy Aeronautical Standard (AN), Society of Automotive Engineers (SAE), SAE Sematec, Joint Electron Device Engineering Council, Joint Electron Tube Engineering Council, and American National Standards Institute (ANSI).

This definition incorporates two categories of standard part criteria. Initially, the FAA recognized as "standard" those parts that met published specifications that included information clearly establishing design, materials, manufacture, and uniform identification requirements. The FAA issued a subsequent interpretation of standard part that provided for a class of parts conforming to a standard not based on their physical configuration but on their meeting a specified performance criterion. The FAA stated this second category of standard parts is best exemplified by discrete electrical and electronic parts. See 62 Fed. Reg. 9,923 (1997). The FAA must make a specific finding of applicability to a class of parts before the "performance only" criterion can be used.

REGULATORY OVERSIGHT. The FAA does not certificate manufacturers of standard parts. However, when a type design calls for the installation of a standard part, the FAA may conduct surveillance of the manufacturer and/or supplier of that part.

The FAA has previously noted that standard part manufacturers are subject to continuing in-depth audits by their customers, and these audits provide an appropriate degree of confidence that the standards are being met. A standard part must conform to the designated part specification in order to qualify as a standard part. Accordingly, the production of a standard part offered for sale for installation on a type-certificated product where that part does not conform to the standard part specification may be a violation of section 21.303(a).

Recognizing that billions of fasteners are used in the American economy each year, Congress enacted the Fastener Quality Act (FQA) (15 U.S.C. 5401). Enacted in 1990, the FQA has been subsequently amended several times. However, the basic intent remains the same, i.e., to ensure the quality of fasteners and to prevent mismarked, misrepresented, and counterfeit fasteners from entering the commercial market. Numerous articles have been written about the FQA, and several points presented in them are noteworthy.

For purposes of the FQA, "fastener" is defined as:

> A metallic screw, nut, bolt, or stud having internal or external threads, with a nominal diameter of 6 millimeters or greater, in the case of such items described in metric terms, or ¼ inch or greater, in the case of such items described in terms of the English system of measurement, or a load-indicating washer that is through-hardened or represented as meeting a consensus standard that calls for through-hardening, and that is grade-identification marked or represented as meeting a consensus standard that requires grade-identification marking…

The FQA then provides various types and configurations of fasteners that are exempt from the Act, including fasteners specifically manufactured for use on an aircraft if the quality and suitability of those fasteners have been approved by the FAA or by a foreign airworthiness authority. Although the U.S. Department of Commerce is responsible for the implementation and enforcement of the FQA, this exemption provides for the FAA to have the regulatory oversight and enforcement for fasteners approved for installation on aircraft.

STANDARD OR OTHERWISE. Standard parts are produced per *published* specifications and criteria. After the FAA initiated an enhanced enforcement program to bring parts manufacturers into compliance with section 21.303, it became apparent that many specialized fasteners, seals, and bearings were manufactured to specifications known only to the manufacturer. It would not be practical to obtain a Parts Manufacturer Approval for such specialized groups of fasteners, seals, and bearings, but these groups of parts fall outside the criteria for standard parts since their specifications are not published.

To provide approvals under which these groups of parts could be produced, the FAA issued the following Technical Standard Orders (TSO): TSO-C148, Aircraft Fasteners; TSO-C149, Aircraft Bearings; and TSO-C150, Aircraft Seals. Authorizations for these TSO's are not issued for standard parts nor for parts used in critical applications. In contrast to "standard part" nuts, bolts, etc., these fasteners, bearings, and seals must meet the TSO minimum performance, marking, and installation approval requirements.

CONSIDERATIONS. When purchasing and installing standard parts, consider the following:

- A Certificate of Conformity (C of C) should be provided by the producer of a standard part.

- A standard part should carry a mark indicating the part has been produced in accordance with the specification requirements.

- A part is no longer considered "standard" if it is used in a critical application that imposes qualification or quality control requirements beyond the standard specification.

- To facilitate traceability, commingling like fasteners from different lots is not recommended.

- Section 21.303(b)(4) provides that acceptable government specifications are limited to those published by the U.S. Government. Parts produced to a foreign standard may, however, be acceptable for installation on foreign type-certificated aircraft and products.

- Installation of a standard part must be in accordance with the requirements of part 43. Generally, a standard part may be replaced with an identical standard part; however, substituting standard parts would require a demonstration of acceptability in accordance with part 43.