

Frequently Asked Questions

TOPIC: Type Design

QUESTION:

What is a type design and how is it used?

ANSWER:

Type design is all of the drawings and the specifications that show compliance with the certification basis of the original aircraft and all of the data necessary to show that subsequent airplanes conform to the approved type design.

Most of us have been raised with the definition and limitations of alterations as specified in the definitions of Part 1 of the Federal Aviation Regulations (FAR) and the performance and recordkeeping criteria of alterations contained in Parts 43 and 65. However, when determining the approval of alterations, that information is contained in Part 21. Specifically, section 21.93 classifies changes in type design; section 21.95 defines the approval of minor changes in type design; section 21.97 defines approval of major changes in type design; and section 21.113 requires that any person who alters a product by introducing a major change in type design shall apply to the Administrator for a supplemental type certificate, or in the case of a holder of a type certificate, for the product they may apply for amendment of the original type certificate.

The modern FARs do not contain a definition of what a type design is, but in the Civil Aeronautics Manual 3 dated May 1962, the Federal Aviation Agency did. In this manual, the FAA describes type design as “the drawing and the specifications as are necessary to disclose the configuration of the airplane and all design features covering the requirements of the part, such information on dimensions, materials, and processes as is necessary to define the structural strength of the airplane, and such other data as are necessary to permit

by comparison the determination of the airworthiness of subsequent airplanes of the same type.”

In the process of producing aircraft, the FAA issues three certificates: First, after approving the type design the FAA issues a Type Certificate. Second, after inspecting the production facility, the FAA issues a Production Certificate and finally, when the production aircraft is inspected for conformity to the original type design, the aircraft is issued an Airworthiness Certificate.

In the process of upgrading aircraft systems, we routinely find the need to alter the original type design. Part 21 gives us that authority to make a change to the type design depending on the effect the proposed alteration has on the type certificated product. Major changes to type design require us to apply for an STC. However, minor changes to type design are approved in a manner acceptable to the Administrator. With few exceptions, the Administrator has stated that minor changes in type design that meet the definition of a minor alteration can use acceptable data and can be approved for return to service by an appropriately rated mechanic or repair station. The Administrator also has stated that minor type design changes that meet the definition of a major alteration need to use approved data and can be returned to service by a mechanic who has received Inspection Authorization or a properly rated repair station.

We have used type design every day of our aviation careers. We use it in certifying the airworthiness of a customer’s aircraft, in developing repair strategies and in determining the certification basis of alterations. For more information on type design refer to the Federal Aviation Regulation (FAR) Part 21 Subpart D. □

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