

**Advisory Circular 21.93, Determining the
Classification of a Change to Type Design (draft)**

Comments on the Draft Advisory Circular

Submitted by email to 9-AWA-AVS-Draft-AC-21-93@faa.gov

**Submitted by the
Modification and Replacement Parts Association**

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October 9, 2009

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Dear Mr. Sawhney:

Please accept these comments on the proposed AC, which was offered to the public for comment.

Table of Contents

Who is MARPA?	3
Summary of the Comments	3
Comments on the Rule	4
1. What's right about the AC?	4
2. What Can Be Improved About the Proposed AC?	4
a. The Implication That a Written Analysis Is Always Necessary is Inconsistent with Current Law and Therefore the Implication Should Be Removed From The Draft	4
b. The Approach Outlined in this AC Relies on Failure Modes that are Divorced from the Regulatory Distinction Between Major and Minor Change, and Thus Fail to Provide Meaningful Guidance to Interpret the Regulation.....	6

c. A Discussion of What Constitutes a Change to Type Design Would Be Useful	7
d. The FAA May Not Impose Recordkeeping Requirements without OMB Approval, so Chapter Four Should be Removed	7
e. Reliance on the ARAC Recommendation May Provide a More Useful Definition of Appreciable Effect	7
Conclusion	9

Who is MARPA?

The Modification and Replacement Parts Association was founded to support PMA manufacturers and their customers. Aircraft parts are a vital sector of the aviation industry, and MARPA acts to represent the interests of the manufacturers of this vital resource before the FAA and other government agencies.

MARPA is a Washington, D.C.-based, non-profit association that supports its members' business efforts by promoting excellence in production standards for PMA parts. The Association represents its members before aviation policy makers, giving them a voice in Washington D.C. to prevent unnecessary or unfair regulatory burden while at the same time working with the FAA to help improve the aviation industry's already-impressive safety record.

The only major trade group exclusively representing the PMA industry, MARPA represents a diverse group of interests all dedicated to excellence in producing aircraft parts. Board members and other individuals involved in the association have years of expertise in the PMA world, and all MARPA member companies benefit from the collective experience within the group.

Summary of the Comments

MARPA applauds the FAA's efforts to provide a useful analytical tool to the industry. MARPA has several proposed changes to the AC, with explanations of why the changes are necessary. MARPA has also provided a redline-marked version of the draft AC that shows where the AC may be changed to make it consistent with existing law.

Comments on the Rule

1. What's right about the AC?

This draft AC represents an admirable first draft of a procedure that may be used to help distinguish whether a proposed change is a major or minor change to type design. While we have some criticisms and proposals to improve the draft, we nonetheless applaud the FAA for taking the initiative in providing a first draft of a process that permits development of the data that may underlie the decision for distinguishing whether a proposed change is a major or minor change to type design.

Please do not take our comments as a critique of the underlying concept of guidance on this important subject area. We believe strongly that guidance is necessary. We hope that the FAA will take our comments as an opportunity to redraft this guidance to better meet the requirements of the law and the regulations.

Better understanding of the distinction among major and minor changes to type design would be very useful to the industry. We look forward to the next draft of this proposed advisory circular in the hope that it will provide even more useful guidance to the industry.

2. What Can Be Improved About the Proposed AC?

a. The Implication That a Written Analysis Is Always Necessary is Inconsistent with Current Law and Therefore the Implication Should Be Removed From The Draft

Taken in its entirety, the draft Advisory Circular could be read to impose a new recordkeeping obligation that is not currently engrained in the regulations. In particular, the draft Advisory Circular provides a mechanism for distinguishing major changes to type design from minor changes to type design, but it implies that such a mechanism, or an FAA-acceptable alternative, must always be used when distinguishing major changes from minor ones.

There is no regulatory requirement to perform a written analysis to distinguish major changes from minor ones. The Paperwork Reduction Act makes it clear that the agency may not impose a new recordkeeping obligation without a specific OMB approval, and without a regulatory change or a prior OMB approval, there is no opportunity to obtain such approval. Past history shows

that minor changes to type design - like PMA parts that are physically identical to the original parts – are frequently developed with substantiating data, but without a formal analysis distinguishing the change as minor.

Section 1(a) of this Advisory Circular incorrectly states that “Title 14 CFR § 21.93 (a) requires that changes to a type design be classified as minor or major to establish the subsequent approval process.” This is not true. Section 21.93 distinguishes major and from minor, but it imposes no burden on the public to perform any analysis nor to perform any recordkeeping. A review of the original Federal Register publication of the final rule demonstrates that there was no such burden imposed on the public by section 21.93.

The AC purports to shift to industry a regulatory burden that is currently borne by the FAA. Under current law, if a person makes a major-minor decision and the FAA disagrees with that decision, then the burden falls on the FAA to prove that the person made the wrong decision. See, e.g., Garvey v. Weaver, SE-16529 (NTSB, August 15, 2002) (indicating that the burden of proof fell on the Administrator and finding that the Administrator failed to sustain its burden of proof to prove that an alteration was a major one); Engen v. Wright, SE-7196 (January 15, 1987) (relying on the 21.93 distinction and finding that the Administrator failed to meet a burden to demonstrate that the defect was a major change to the type design).

According to this proposed Advisory Circular, though, the public would have a new burden imposed on them to affirmatively demonstrate that their decision was a correct one – the public would either have to conform to the entire advisory circular schema (see section 1(c): “if you use the means described in this AC, you must follow it in all important respects”) or develop an alternative method and confirm that the alternative method is acceptable to the Administrator (“You may elect to follow an alternate method, provided the alternate method is acceptable to the Administrator”). Either way, though, the AC certainly implies that affirmative determination is required by the regulations. This implication is contrary to the regulations.

Affirmative written distinction of a whether a design change is major or minor is not required by the regulations. A person who performs a minor design change, but fails to affirmatively confirm that the minor design change is minor, has committed no regulatory violation by virtue of the failure to confirm. One may argue that the party is merely “compliant by luck” rather than “compliant by design,” but compliance is all that the regulations require in this instance.

In light of the fact that the Advisory Circular appears to impose a new recordkeeping burden on the public – a burden that has not been approved by the Office of Management and Budget – we request that this Advisory Circular be rewritten to remove such an implication. Attached to this comment as appendix “A” is a redlined version of the draft AC that demonstrates proposed changes to

the draft AC designed to correct the imposition of any new recordkeeping requirement, while preserving the remainder of the AC.

b. The Approach Outlined in this AC Relies on Failure Modes that are Divorced from the Regulatory Distinction Between Major and Minor Change, and Thus Fail to Provide Meaningful Guidance to Interpret the Regulation

According to 14 CFR 21.93(a), a change to type design that has an appreciable effect on airworthiness conditions (including those listed in the rule) is major; otherwise the change is minor.

The problem with the proposed analysis is that it addresses failure modes that may already exist in the existing design. For example, a change from a OEM part to an identical PMA part is a minor change in type design, because the physics associated with an identical part dictate that change cannot have an appreciable effect on airworthiness conditions; nonetheless, if the OEM part's failure mode shows that failure would prevent continued safe operation, then the failure mode of the identical part must be identical. Having identified a delta (insignificant differences, like part nomenclature), the analysis proposed in the AC can lead to a failure mode for the otherwise identical replacement part that drives the analysis to a conclusion of major change, despite the fact that physics, regulatory analysis and/or common sense would each lead to the opposite conclusion.

The guidance for the severity scale found in figure four dictates that level four severity and level five severity always represent a major change in type design. The problem with this conclusion is that if the failure analysis of the original equipment would have resulted in a level four or five severity then the failure analysis of the change will lead to level four or five severity – *regardless of the quantum of change*. Under the current regulations, neither complexity alone nor failure modes alone represent the measure of whether a change to type design is major – the sole measure in the regulation is appreciable effect and without appreciable effect to the underlying airworthiness conditions, there can be no major change to type design.

While the Administrator is permitted to interpret its own guidance, the Administrator is not permitted to implement new regulatory standards through non-regulatory means; nor is the Administrator permitted to use advisory guidance to establish new regulatory interpretations that are at odds with the plain language of the existing regulations.

We recommend that the severity analysis based on failure modes be abandoned in favor of an analysis that defines the term “appreciable” to provide objective standards for the quantum of change that will be deemed “appreciable.” For

further guidance on this issue, the Administrator may wish to review the final report and findings of the ARAC “Major/Minor” Working Group (issued in 2001).

Please note that the mark-up of the draft AC *does not* include a remedy to this issue, because the analysis is so central to the substance of this guidance. MARPA would nonetheless be happy to work cooperatively with the FAA to help develop replacement language that would more closely align with the regulatory standards for distinguishing major changes from minor changes.

c. A Discussion of What Constitutes a Change to Type Design Would Be Useful

The draft AC would benefit from an explanation of what is a change to type design. We have proposed language that is included in the draft AC 21.93 mark-up.

d. The FAA May Not Impose Recordkeeping Requirements without OMB Approval, so Chapter Four Should be Removed

Chapter Four of the draft AC establishes a paperwork requirement to document the findings described in this AC. However, in light of the fact that the Paperwork Reduction Act forbids imposition of a recordkeeping requirement without OMB approval (even a conditional requirement such as the one described in this AC), this entire Chapter should be removed from the AC.

e. Reliance on the ARAC Recommendation May Provide a More Useful Definition of Appreciable Effect

Appendix 1(c) defines the term “appreciable effect” as follows:

Appreciable effect: The magnitude of impact a change will have on characteristics affecting the airworthiness of a product. The magnitude of impact is appreciable when a proposed change to an existing type design will invalidate previous compliance to certain applicable airworthiness standards.

The first sentence of this definition is simply misplaced. In the context of 21.93, an appreciable effect is not “The magnitude of impact a change will have on characteristics affecting the airworthiness of a product.” If this were correct then every change would be an “appreciable effect,” because there is a magnitude to every change. Appreciable effect should be thought of as a threshold among magnitudes.

Likewise, the second sentence fails to provide any useful guidance as to what this term means. The second sentence ties “appreciable effect” to a proposed change that would invalidate previous type certificate compliance to certain applicable airworthiness standards. But this is a circular definition, in light of the fact that a minor change to type design requires no change to the type certificate, and a major change requires a supplemental type certificate.

This definition therefore provide no useful guidance in order to help distinguish major changes in type design from minor change to type design.

The Aviation Rulemaking Advisory Committee (ARAC) was tasked with addressing the issue of better distinguishing major from minor in the context of repairs and alterations. These major/minor distinctions also turn on the phrase “appreciable effect.” In its 2001 report to the Administrator, ARAC explained the history of the term and provided a comparative analysis that explained how the major/minor distinction had been addressed in Canada and in Europe. The conclusion of that Report was that “appreciable effect” was to be distinguished from two other levels of results: “no effect” and “some effect.” The Report also concluded that in the context of a major/minor distinction, the term “appreciable effect” meant the same thing as “significant effect.” The Report recommended that the regulations be changed to substitute the phrase “significant effect” for “appreciable effect.”

While there has been no significant change in 14 C.F.R. § 21.93 permitting implementation of the proposal since that Report was issued, the recommendation of the Report still makes good sense. We recommend that the definition of “appreciable effect” be consistent with the recommendation of the ARAC Major/Minor Report and that the term “appreciable effect” be defined as follows:

Appreciable effect: A significant effect. A change that leads to an appreciable effect on an airworthiness condition can represent a major change to type design. Appreciable effect may be contrasted with some effect or no effect, which each lead to a determination of minor change.

Conclusion

Your consideration of these comments is greatly appreciated.

Respectfully Submitted,

A handwritten signature in black ink that reads "Jason Dickstein". The signature is written in a cursive style with a large, prominent "J" and "D".

Jason Dickstein
President

Modification and Replacement Parts Association