



EASA

European Aviation Safety Agency



**Federal Aviation
Administration**

ETSO workshop 2018

Clarifications related to the presentation of the Seat Industry (Ad Hoc Committee)

Sue McCormick

Design Certification Standards, AIR-6C1

Policy and Innovation Division

Federal Aviation Administration

Enzo Canari

Cabin Safety Expert

EASA Certification Directorate

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Summary



- Introduction
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- Classification of changes: aircraft level vs. equipment level
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Introduction



With this presentation the FAA and EASA intend to provide clarifications on some of the issues raised in the presentation delivered by the Seat Industry (Ad hoc Committee). A more detailed feedback will be provided on in the dedicated session that will be held on Friday 21st September (13:45-15:45).

ETSO Workshop 2018
Seat Industry (Ad Hoc Committee) Presentation
Minor Changes Under ETSO & Other Topics

Cologne, Germany
20th September 2018

Presented by:

Airbus	Geven	Stelia Aerospace
ACRO Aircraft Seating	HAECO Cabin Solutions	Thompson
Adient Aerospace	RECARO Aircraft Seating	Zodiac Seats
Boeing	Rockwell Collins	



FAA PS-AIR100-9/8/2003 applicability



- FAA PS-AIR100-9/8/2003 does not address (E)TSO-C127b.
- The title of the PS is:
Classification of Design Changes to TSO-C39b, TSO-C127, and TSO-C127a Articles
- The guidance of the PS was not developed considering the requirements that are now part of the scope of (E)TSO-C127b
- New guidance on classification of changes needs to be developed by FAA and EASA, in cooperation with the Industry, to address the extension of the scope of the (E)TSO as well as the evolution of passenger seat design in the last 15 years.



Classification of changes: aircraft level vs. equipment level



- This memo is used by all European seat manufacturers in addition to EASA Part 21.A.91. It is used throughout industry as the criteria to determine whether a change is minor.

➤ EASA Part 21.A.91 does not apply to ETSO:

21.A.91 Classification of changes in type design

Changes in type design are classified as minor and major. A 'minor change' is one that has no appreciable effect on the mass, balance, structural strength, reliability, operational characteristics, noise, fuel venting, exhaust emission, or other characteristics affecting the airworthiness of the product. Without prejudice to point 21.A.19, all other changes are 'major changes' under this Subpart. Major and minor changes shall be approved in accordance with points 21.A.95 or 21.A.97 as appropriate, and shall be adequately identified.



Classification of changes: aircraft level vs. equipment level



► Classification of design changes to ETSO Articles is regulated by SA Part 21.A.611:

21.A.611 Design changes

- (a) The holder of the ETSO authorisation may make minor design changes (any change other than a major change) without further authorisation by the Agency. In this case, the changed article keeps the original model number (part number changes or amendments shall be used to identify minor changes) and the holder shall forward to the Agency any revised data that are necessary for compliance with point 21.A.603(b).
- (b) Any design change by the holder of the ETSO authorisation that is extensive enough to require a substantially complete investigation to determine compliance with an ETSO is a major change. Before making such a change, the holder shall assign a new type or model designation to the article and apply for a new authorisation under point 21.A.603.
- (c) No design change by any natural or legal person other than the holder of the ETSO authorisation who submitted the statement of compliance for the article is eligible for approval under this Subpart O unless the person seeking the approval applies under point 21.A.603 for a separate ETSO authorisation.



Classification of changes: aircraft level vs. equipment level



Subpart O vs. Subpart D

- Minor changes to an article under Subpart O may be major changes under Subpart D
- Major changes to TSO articles (and therefore a new TSOA) may be a minor change under Subpart D
- FAA Order 8150.1 and Advisory Circular 21-49 provide additional guidance on TSO articles and considerations for their installation
- FAA is drafting policy memo on classification of changes in type design
 - Specific to certificate holders but...
 - It includes clarification on this subject





Classification of changes: aircraft level vs. equipment level



- EASA expressed that if a change must be substantiated by a dynamic test then the change could be classified as major. Per FAA PS-AIR100-9/8/2003 dynamic testing can be used to substantiate TSO minor changes.
- EASA agrees that the need to perform a dynamic test does not necessarily mean that a change must be classified as major.
- The extent of the investigation is the main driver for classification.
- At aircraft level, a change involving the installation/modification of seats on aeroplanes required to comply with 25.562 is to be classified as major.
- For dynamic seats, minor changes at ETSO level are very likely to be classified as major at aircraft level.



Anticipated vs. non anticipated



- Some of EASA's perspective on minor change was recently shared at the SAE Seat Committee meeting in August 2018 at Cologne. New terms "Minor Anticipated" and "Minor Non-Anticipated" were introduced (not currently in Part 21).

► EASA Part 21.A.603 introduces the concept of anticipated minor changes:

21.A.603 Application

- (a) An application for an ETSO authorisation shall be made in a form and manner established by the Agency and shall include an outline of the information required by point 21.A.605.
- (b) When a series of minor changes in accordance with point 21.A.611 is anticipated, the applicant shall set forth in its application the basic model number of the article and the associated part numbers with open brackets after it to denote that suffix change letters or numbers (or combinations of them) will be added from time to time.



Anticipated vs. non anticipated



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Design Changes (4 / 13)

Part Numbering System & Use of Open Brackets

➤ Anticipated

- ✦ Before the application for an ETSOA, the applicant could identify possible minor changes to the ETSO article.
- ✦ Such identification shall be based on classification criteria that are reported in their procedures previously accepted and approved by the Agency (DO Section).
- ✦ The part numbering system for the identification of the ETSO articles shall be part of those procedures.



22/01/2008

AP to DOA

Slide 30

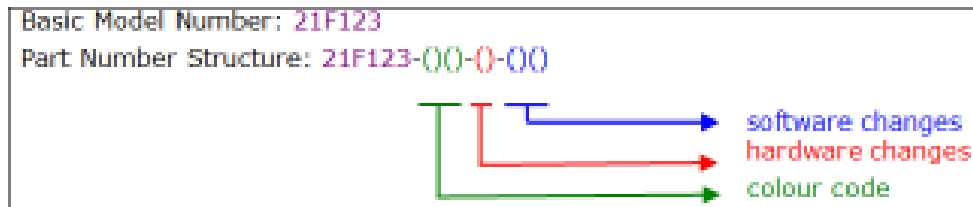


Anticipated vs. non anticipated



Part Numbering & design changes

- ▶ 21.A.603 (b) *When a series of minor changes in accordance with point 21.A.611 is anticipated, the applicant shall set forth in its application the basic model number of the article and the associated part numbers with open brackets after it to denote that suffix change letters or numbers (or combinations of them) will be added from time to time.*



- ▶ Design changes under the ETSO certificate
→ anticipate in P/N
- ▶ Eventhough anticipated ,
those changes should only be minor ...



Seats with adapter plates



- Development of clear definition and process for seat family selection for premium seats with adapter plates.
- The guidance given in FAA AC 25.562-1B does not explicitly address seats installed on adapter plates. This includes seat family definition and floor warpage simulation.
- The definition of seat families should be based on a design review/rationale analysis of the impact that the adapter design has on the way the load is transferred from the component that comes before to the component that comes after the adapter itself in the primary load path.
- In absence of design review/rationale analysis in support of the proposed seat families definition, EASA follows a conservative approach and starts from the request to test each type of adapter plate, i.e. each adapter plate type is associated to a different seat family.
- Floor warpage selection must be supported by adequate rationale.



EASA position on FAA AC 21-49



- Please clarify EASA's position and direction on utilization of AC 21-49 for ETSO applications.
- The applicability of some of the provisioning of the AC are not compatible with EASA Part 21 requirements.
- EASA is reviewing proposals for the use of the guidance of the AC on a case-by-case basis.



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Thank you for your attention!

Any questions?

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