

Certification Memorandum

Incomplete Passenger Cabin

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Regulatory requirement(s): 21.A.91

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Log of issues

Issue	Issue date	Change description
1	02.12.2019	First Issue

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1. Introduction

1.1. Purpose and scope

The purpose of this Certification Memorandum is to provide clarification and additional guidance regarding the classification of design changes to Large Aeroplanes (CS-25) that introduce a passenger cabin that lacks certain items and/or does not fully satisfy the applicable CS-25 requirements for passenger transportation unless appropriate operating limitations are introduced. For instance, it may be desired to ferry an aeroplane to a maintenance facility, with all passenger seats removed.

1.2. References & requirements

It is intended that the following reference materials should be used in conjunction with this Certification Memorandum:

Reference	Title	Code	Issue	Date
Regulation 748/2012	Regulation (EU) No 748/2012 as last amended by Commission Delegated Regulation (EU) 2019/897 of 12 March 2019			
EDD 2019/018/R	AMC and GM to Part 21 — Issue 2, Amendment 9			28.8.2019
CS-25	Certification specifications of Compliance for Large Aeroplanes			

1.3. Abbreviations

AMC	A cceptable M eans of C ompliance
CS	C ertification S pecification
EASA	E uropean Union A viation S afety A gency
GM	G uidance M aterial

2. Background

For practical reasons, some aeroplanes may need to be flown with a passenger cabin that lacks certain items (incomplete passenger cabin). This may not fully satisfy the applicable airworthiness requirements for passenger transportation and therefore appropriate operating limitations may be necessary.

These operations can be performed under a 'Permit to fly', with appropriate and agreed conditions and restrictions. This certification memorandum is not intended to cover any aspects of such operations.



It is also possible to consider the modification of the cabin as a design change, which may be approved under Subpart D (changes to TC/RTC) or E (STC) of Part 21.

The purpose of this CM is to provide additional guidance for the classification of the change in case the latter approach is chosen.

3. EASA Certification Policy

3.1. Design change classification issues

A change to a type certificate must be classified as either a 'minor change' or a 'major change', in accordance with point 21.A.91 and its associated guidance material.

According to 21.A.91;

“A ‘minor change’ is one that has no appreciable effect on the mass, balance, structural strength, reliability, operational characteristics, noise, fuel venting, exhaust emission, operational suitability data or other characteristics affecting the airworthiness of the product.”

For a change resulting in an incomplete cabin configuration two aspects are relevant, namely whether the change has an appreciable effect on the operational characteristics or on the mass and balance characteristics.

3.2. Operational characteristics

A passenger cabin with incomplete compliance to the applicable CS-25 requirements has an appreciable effect on the operational characteristics, in particular on the movement of crew and passengers within the cabin because e.g. some of the firm handholds or floor markings that are normally present might not be available.

Even if all the passenger seats are removed, there is an effect on the operational characteristics, because there may still be some remaining cabin crew seats and/or flight deck observer seats, and they cannot be occupied in the same way as in a complete cabin configuration.

The operational characteristics are furthermore affected in an appreciable manner in case of continued acceptability of items being placed in cabin stowage facilities (e.g. overhead bins, wardrobes). An incomplete cabin configuration with limitations for cabin occupants to move freely within the cabin, or even with no cabin occupants at all, will limit the possibility for the early detection of a smoke/fire in one of the facilities.

Where restrictions are introduced (e.g. on seat occupancy, or the use of stowage facilities) to address the above, these would even constitute a change to the operating limitations for the aeroplane, and according to Section 3.4 (e) of GM 21.A.91, if “the change alters the Airworthiness Limitations or the Operating Limitations”, then the change should also be classified as a 'major change'.



Note: The usual way to introduce appropriate operating limitations is by inserting them into an aircraft flight manual supplement, however, EASA does not consider that this is the only acceptable way.

3.3. Mass and balance characteristics

In addition, an incomplete passenger configuration has an appreciable effect on the mass and balance characteristics, if a large part of the cabin equipment is removed.

For example, for some types of aeroplane, if all the passenger seats are removed, it may no longer be possible for the aeroplane to remain within the approved mass and balance envelope. In such a case, ballast would need to be installed, and the design details of the installation may need to be agreed with EASA.

3.4. Conclusions

For the reasons outlined above, EASA considers that a design change which is needed for flights with incomplete passenger cabin is considered to be a 'major change', in accordance with point 21.A.91.

3.5. Who this Certification Memorandum affects

This CM affects Design Organizations who wish to introduce design changes to Large Aeroplanes.

4. Remarks

1. Comments regarding this EASA Certification Memorandum should be referred to the Certification Policy and Safety Information Department, Certification Directorate, EASA. E-mail CM@easa.europa.eu.
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