



# Notification of a Proposal to issue a Certification Memorandum

## Incomplete Passenger Cabin

**EASA Proposed CM No.: Proposed CM–CS-010-001 Issue 01 issued 24 May 2018**

**Regulatory requirement(s): 21.A.91, CS-25**

EASA Certification Memoranda clarify the European Aviation Safety Agency's general course of action on specific certification items. They are intended to provide guidance on a particular subject and, as non-binding material, may provide complementary information and guidance for compliance demonstration with current standards. Certification Memoranda are provided for information purposes only and must not be misconstrued as formally adopted Acceptable Means of Compliance (AMC) or as Guidance Material (GM). Certification Memoranda are not intended to introduce new certification requirements or to modify existing certification requirements and do not constitute any legal obligation.

EASA Certification Memoranda are living documents into which either additional criteria or additional issues can be incorporated as soon as a need is identified by EASA.



## Log of issues

Issue	Issue date	Change description
1	24.05.2018	

## Table of Content

Log of issues.....	2
Table of Content .....	2
1. Introduction.....	3
1.1. Purpose and scope .....	3
1.2. References & requirements .....	3
1.3. Abbreviations.....	3
2. Background.....	3
3. EASA Certification Policy .....	4
3.1. Design change classification issues .....	4
3.2. Operational characteristics.....	4
3.3. Mass and balance characteristics.....	5
3.4. Conclusions.....	5
3.5. Who this Certification Memorandum affects.....	5
4. Remarks.....	5



## 1. Introduction

### 1.1. Purpose and scope

The purpose of this Certification Memorandum is to provide clarification and additional guidance regarding the procedures to be followed when an aeroplane needs to be approved for flight with a passenger cabin that lacks certain items and/or does not fully satisfy the applicable airworthiness requirements for passenger transportation and therefore needs a limitation. 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
21.A.91	Classification of changes in type design	748/2012		21.02.2016
CS-25	Certification specifications for large aeroplanes		20	24.08.2017

### 1.3. Abbreviations

CS	<b>C</b> ertification <b>S</b> pecification
EASA	<b>E</b> uropean <b>A</b> viation <b>S</b> afety <b>A</b> gency
GM	<b>G</b> uidance <b>M</b> aterial

## 2. Background

EASA understands that 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 a limitation may be necessary.

EASA is aware that some of these operations have been performed under the ‘Permit to fly’ procedure, with appropriate and agreed limitations. This is, of course, acceptable, and this certification memo is not intended to cover any aspects of such operations.

However, it has also been noticed that in some cases, the design changes to permit aeroplanes to fly with incomplete passenger cabins have been classified as ‘minor changes’.

EASA has considered this practice and has concluded that it is not acceptable. A design change to allow flights to take place with an incomplete passenger cabin should therefore be classified as a ‘major change’.



### 3. EASA Certification Policy

#### 3.1. Design change classification issues

A change to an aeroplane Type Design must be classified as either a ‘minor change’ or a ‘major change’, in accordance with 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.”*

Considering this definition, two aspects of a design change required for flights with incomplete passenger cabin can be noticed, as described in 3.2 and 3.3.

#### 3.2. Operational characteristics

A passenger cabin with incomplete compliance to the applicable airworthiness requirements will only be safe for flight if certain limitations are introduced.

For instance, if some of the passenger seats are removed, then in order to maintain safety levels, the movement of crew and passengers within the cabin would need to be restricted, or the use of the remaining crew and passenger seats would need to be prohibited. This is because some of the firm handholds or floor markings that are normally present might not be available.

If all the passenger seats are removed, there may still be some remaining cabin crew seats and/or flight deck observer seats, and the occupancy of those seats would need to be reconsidered.

Another safety aspect to be considered is the continued acceptability of items being placed in cabin stowage facilities (e.g. overhead bins, wardrobes). If limitations are imposed that restrict cabin occupants from moving freely within the cabin, or if there will be no cabin occupants at all, the early detection of a smoke/fire in one of the facilities cannot be assured. In such cases, restrictions on usage of the stowage facilities will therefore be needed.

If restrictions need to be introduced (e.g. on seat occupancy, or the use of stowage facilities), these would constitute a change to the airworthiness limitations for the aeroplane, and according to Section 3.3 (V) of GM 21.A.91, if “the change alters the Airworthiness Limitations or the Operating Limitations”, then the change should be classified as a ‘major change’.

The need for any limitations would depend on the particular intended cabin configuration. As discussed above, an incomplete passenger cabin that does not fully comply with the airworthiness requirements for passenger transportation would reduce the safety of the occupants, so there would be a need for some appropriate limitations to be developed and agreed with EASA as part of the ‘major change’ approval process.

The usual way to introduce the required 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 to the issues described above, there are other aspects that needs to be considered in determining whether the introduction of an incomplete passenger cabin may need to be classified as a 'major' change. If a large part of the cabin equipment is removed, this could have an appreciable effect on the mass and balance of the aeroplane. That would disqualify the change from being classified as 'minor' according to the definition shown above in Chapter 3.1, as a minor change should have no appreciable effect on mass or balance.

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 should be considered to be a 'major change', in accordance with 21.A.91.

### 3.5. Who this Certification Memorandum affects

This CM affects applicants who wish to introduce a change to allow an aeroplane to fly with a passenger cabin that does not fully comply with the applicable airworthiness requirements.

Both EU and non-EU design organisations are affected by this Certification Memorandum.

## 4. Remarks

1. This EASA Proposed Certification Memorandum will be closed for public consultation on the **6<sup>th</sup> of July 2018**. Comments received after the indicated closing date for consultation might not be taken into account.
2. Comments regarding this EASA Proposed Certification Memorandum should be referred to the Certification Policy and Safety Information Department, Certification Directorate, EASA. E-mail [CM@easa.europa.eu](mailto:CM@easa.europa.eu).
3. For any question concerning the technical content of this EASA Proposed Certification Memorandum, please contact:

Name, First Name: Manthey, Thomas

Function: Cabin Safety Expert

Phone: +49 (0)221 89990 4354

E-mail: [thomas.manthey@easa.europa.eu](mailto:thomas.manthey@easa.europa.eu)

