

Notification of a Proposal to issue a Certification Memorandum

CS-31HB Hot Air Balloons: Classification of design changes

EASA CM No.: Proposed CM-21.A-D-003 Issue 01 issued 14th of November 2019

Regulatory requirement(s): 21.A.91, GM 21.A.91

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Log of issues

Issue	Issue date	Change description
Issue 01	14.11.2019	First issue

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1. Introduction

1.1. Purpose and scope

The purpose of this Certification Memorandum is to provide specific guidance for the classification, according to point 21.A.91, of changes to type-certificate of hot air balloons certified according to CS-31HB.

1.2. Abbreviations

APDOA	Alternative Procedures to DOA to demonstrate design capabilities
AMC	Acceptable Means of Compliance
DOA	Design Organisation Approval
EU	European Union
CM	Certification Memorandum
GM	Guidance Material
RMTOM	Reduced Maximum Take-Off Mass
RV	Rotation Vent (turning vent)
MM	Maintenance Manual
TC	Type Certificate
3D	Three-Dimensional

2. Background

Point 21.A.91 reads as follows:

‘Changes to a type-certificate 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, operational suitability data 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.’

This CM addresses guidance for the application of point 21.A.91, specifically for the classification of changes to hot air balloons. It follows the same philosophy as GM 21.A.91 by providing a list of examples of changes and their point 21.A.91 classification for hot air balloons.

3. EASA Certification Policy

Changes to hot air balloons should be classified as follows in accordance with point 21.A.91:

Item	Scope of the design change	Classification	Possibility to obtain privilege as per 21.A.263(c)8
1.	Change of envelope volume	Major	
2.	Change of envelope artwork, e.g. 2D	Minor	
3.	Addition of inflated artwork, e.g. 3D	Major	X
4.	Introduction of a new Special Shape envelope	Major	X
5.	Change of a panel pattern without changing the basic curvature of an envelope	Minor	
6.	Introduction of a new fast deflation system or rotation vent	Major	X
7.	Changing the rotation vent position due to artwork, not invalidating the assumptions of the initial certification	Minor	
8.	Change to parachute or fast deflation system	Major	X
9.	Changing flying wire length	Minor	
10.	Change of a pulley position, maintaining operating forces and function	Minor	
11.	Exchange of material combinations of fabric and tape previously approved under the type design	Minor	
12.	Change in scoop or skirt size	Minor	
13.	Change of a basket size within approved limits	Minor	
14.	Change of the basket wicker work, not invalidating the assumptions of the initial certification	Minor	
15.	Installation of equipment required for the operation and not affecting airworthiness limitations, e.g. radio, transponder, fire extinguisher, etc.	Minor	
16.	Installation of components significantly affecting construction of a basket or operational procedures (e.g. door, seat, movable partition, lights)	Major	
17.	Fitting individual serial numbers with e.g. approved doors, seats, movable partitions or lights and their modification due to customer requests, not invalidating the assumptions of the initial certification	Minor	
18.	Change in the number of compartments and occupancy of the baskets	Major	X

Item	Scope of the design change	Classification	Possibility to obtain privilege as per 21.A.263(c)8
19.	Reducing MTOM (RMTOM)	Minor	
20.	Change of the configuration of burner jet nozzles, not adversely affecting burner performance	Minor	
21.	Change of burner installation, not using other manufacturers' equipment	Major	X
22.	Change to the burner frame	Major	X
23.	Change of fuel cylinder equipment, e.g. valves, pressure gauge, fuel hose connector etc.	Major	X
24.	Change to the fuel hose	Major	X
25.	Change of an attachment principle of the fuel cylinder	Major	X
26.	Change to the airworthiness limitation, e.g. MTOM, number of occupants, maximum windspeed, etc.	Major	
27.	Change of Maintenance Manual other than Airworthiness Limitation	Minor	
28.	Change to Normal and Emergency Procedure	Major	
29.	Change to approved combination of envelope, basket and heater system, e.g. using other manufacturer's equipment	Major	X
30.	Change in basic materials	Major	X
31.	Change of a construction principle of primary construction components	Major	
32.	Change to the primary load path	Major	X
33.	Influence on the technical data in TCDS (note editorial changes are not a change)	Major	

The third column '21.A.263(c)8' indicates those major changes that could be eligible to be approved by a DOA holder under a 21.A.263(c)(8) privilege if a DOA holders applies for such privilege, demonstrates that the eligibility criteria in section 2.1 of **AMC No 1 to 21.A.263(c)(5), (8) and (9) are met** and follows the process as described in the AMC No. 1 and 2 to **21.A.263(c)(5), (8) and (9)**.

As alternative to AMC No 1 to 21.A.263(c)(5), (8) and (9) Scope and criteria, the TCDS can be updated, for items 3 and 4 due to the simple and specific design of Hot Air Balloons, as well as the limited associated safety risk, following the below process:



1. After approval of the major change under a 21.263(c)(8) privilege, the DOA holder sends a draft amended TCDS to EASA (generalaviation@easa.europa.eu) together with the approval, statement of compliance and the request to update the TCDS.
2. After EASA acceptance, the TCDS update will be published.

3.1. Who this Certification Memorandum affects

This Certification Memorandum affects Design Organisations that develop changes to hot air balloons.

Changes classified as Minor Change can also be applied for by any natural or legal person (point 21.A.92(b)).

4. Remarks

1. This EASA Proposed Certification Memorandum will be closed for public consultation on the 6th of December 2019. Comments received after the indicated closing date for consultation might not be taken into account.
2. Suggestions for amendment(s) to this EASA Certification Memorandum should be referred to the Certification Policy and Planning Department, Certification Directorate, EASA. E-mail CM@easa.europa.eu.
3. For any question concerning the technical content of this EASA Certification Memorandum, please contact:
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