

SUBJECT : **Additional Requirements for Launch Restraints for Balloons**

REQUIREMENTS incl. Amdt. : **CS 31HB.28 Amdt. 1**

ASSOCIATED IM/MoC¹ : Yes / No

ADVISORY MATERIAL :

INTRODUCTORY NOTE:

The following Special Condition (SC) has been classified as important and as such shall be subject to public consultation in accordance with EASA Management Board decision 12/2007 dated 11 September 2007, Article 3 (2.) which states:

"2. Deviations from the applicable airworthiness codes, environmental protection certification specifications and/or acceptable means of compliance with Part 21, as well as important special conditions and equivalent safety findings, shall be submitted to the panel of experts and be subject to a public consultation of at least 3 weeks, except if they have been previously agreed and published in the Official Publication of the Agency. The final decision shall be published in the Official Publication of the Agency."

IDENTIFICATION OF ISSUE:

Occurrence reporting has shown an increase in break-aways during balloon rigging and inflation. Therefore, EASA is considering additional requirements for launch restraints for balloons.

The launch restraint assures a safe inflation of the balloon during the rigging and take-off phase. The objective is to prevent excessive premature movement or break-away due to gusts, before sufficient lift has been generated and the crew is ready for launch.

In this case the balloon is secured to the ground or chase vehicle by a restraint which can be released by the pilot from the basket by means of a quick-release device.

Considering all the above, the following Special Condition is proposed:

¹ In case of SC, the associated Interpretative Material and/or Means of Compliance may be published for awareness only and they are not subject to public consultation.

Special Condition SC-CS31HB.28-01 “Additional requirements for launch restraints for balloons”

1. The effects of the loads associated with the use of a launch restraint system on the balloon’s components (particularly the burner frame/load frame or basket structure) and any additional equipment (if required) must be considered in the design. (see AMC 1)
2. The pilot must be able to disconnect the launch restraint using a quick-release device, easily accessible to the pilot. (see AMC 2)
3. The launch restraint must prevent uncontrolled movement (see AMC 3).
4. The quick-release device, after activation by the operator must not expose the occupants.
5. The launch restraint must support normal operating conditions up to the maximum wind limitations. The operator must be aware when operating limitations are exceeded and the launch must be aborted.

If the launch restraint design features a weak link, failure of the weak link must not lead to a break-away of the balloon (see AMC 4, 5).
6. CS 31HB.81 and 31HB.82 apply (see AMC 6).

Means of Compliance

The associated Means of Compliance is published for awareness only and is not subject to public consultation.

1.
 - a) The strength of the weakest part of the whole launch restraint system has to be identified, whereas the most unfavourable operating conditions have to be assumed.
 - b) The attachment points of the launch restraint at the balloon (e.g. burner frame) should comply with CS 31HB.28.
2. The force required to operate the quick-release device should comply with the figures of CS 31HB.57(a)(2) and (e)(2). Instead of a minimum opening force an independent safe guard preventing inadvertent activation is also considered compliant.
3. The launch restraint should not be longer than 5 m.
4. If the design features a weak link,
 - a) it should be rated according to the maximum operating (wind) limitations.
 - b) it should be built in parallel to a primary load path, to indicate to the pilot and chase crew when wind limitations have been exceeded.
 - c) it should be rated to allow operation up to 1.2 times the maximum operating (wind) limitations.
 - d) in case of failure, the pilot must stop the launch and take-off procedure immediately by deflating the envelope.
5. The launch restraint parts (e.g. carabiner, rope, quick-release) should be designed with a load factor of at least 2 and a safety factor of 1.5.
6. The launch restraint should be listed in the minimum equipment list and its use described under normal and emergency procedures. The ICA should contain sufficient information to allow operators to acquire ropes and carabiners to anchor the balloon.