

# **Consultation paper**

Deviation

Doc. No.: DEV D-21

Issue : 1

Date : 05/03/2020

Proposed  $\boxtimes$  Final  $\square$  Deadline for comments: 26/03/2020

SUBJECT : Deviation to CS 29.735 (c) (2) - Electric Brake Slope Landing

REQUIREMENTS incl. Amdt. : CS 29.735 (c) (2) Amdt. 3

**ASSOCIATED IM/AMC**<sup>1</sup> : Yes  $\square$  / No  $\boxtimes$ 

ADVISORY MATERIAL : N/A

#### **INTRODUCTORY NOTE:**

The following Deviation (DEV) 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:**

The Brakes and Braking Control System claimed by Airbus Helicopters (AH) for the type certification of the H160 helicopter are electrically powered.

Flight Testing showed that this electric brake system (EBS) is not able to hold the rotorcraft parked on a 10 degree slope. This represents a non-compliance to CS 29.735, specifically to sub-paragraph (c)(2) which reads:

For rotorcraft with wheel-type landing gear, a braking device must be installed that is:
....
(c) Adequate to:
....
(2) Hold the rotorcraft parked on a 10° slope on a dry, smooth pavement.

AH has initiated the development of a modified hydraulically-actuated brake system intended to be designed in full compliance with the CS 29.735 (c) (2) requirement. This new system will be retrofitted to all aircraft delivered with EBS, however, will not be available before the EASA TC is issued.

Therefore, this Deviation is issued to identify the mitigating factors to be put in place to ensure that the type is compliant with the essential requirements for airworthiness in Annex II of the regulation (EU) 2018/1139.

Considering the above, the following Deviation is proposed:

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



TE.CERT.00075-001© European Union Aviation Safety Agency. All rights reserved. ISO9001 Certified. Proprietary document. Copies are not controlled. Confirm revision status through the EASA-Internet/Intranet.



# **Consultation paper**

**Deviation** 

Doc. No.: DEV D-21

Issue : 1

Date : 05/03/2020

Proposed  $\boxtimes$  Final  $\square$  Deadline for comments: 26/03/2020

# Deviation to CS 29.735 (c) (2) Amdt. 3 Electric Brake Slope Landing Applicable to Airbus Helicopters H160

### **MITIGATING FACTORS**

EASA has determined the following mitigating factors for the acceptance of the identified Deviation to CS 735 (c) (2):

- An operating limitation is established in the Rotorcraft Flight Manual (RFM) to limit landing and parking of the helicopter to a 5 degree (5°) slope.
  - This RFM limitation is justified based on the results obtained from:
    - dedicated flight test program,
    - qualification bench test campaign, and
    - technical analysis and safety assessment.
  - This RFM limitation is considered adequately safe as:
    - 5° slope angle is fully compatible with H160 operational use,
    - 5° slope angle has been evaluated as an angle easily identifiable on H160 cockpit attitude indicator, and
    - A slope landing angle limitation is typical operating information provided in RFMs.
- There is no adverse impact on compliance with CS 29.53(a), CS 29.79(b), CS 29.231, CS 29.735 (a),
   (b), (c) (1), CS 29.1301 and CS 29.1309.
- A very limited number of H160 helicopters will be manufactured and delivered with the EBS. A brand
  new braking system, with conventional hydraulic architecture and technology, fully compliant with
  CS 29.735 (c) (2) will be developed and EASA certified by mid 2021. All in-service helicopters
  equipped with EBS will be retrofitted with this hydraulic braking system in accordance with a Retrofit
  Plan under the supervision of EASA.

## **EASA** position

The safe 5° slope limitation for landing and parking will be included into the RFM.

The Deviation is time limited and associated to a Retrofit Plan of in-service helicopters, which implementation will be kept under close monitoring of EASA.

Under the conditions specified above, EASA agrees with the proposed mitigating factors and determines that the Deviation to CS 29.735 (c) (2) at Amdt 3 meets the essential requirements for airworthiness in Annex II to Regulation (EU) No 2018/1139.

