

SUBJECT : ESF to CS-VLA.161, Longitudinal Trim

REQUIREMENTS incl. Amdt. : CS VLA.161 (b)(2)(ii) amdt. 1

ASSOCIATED IM/AMC : Yes ☐ / No ☒

ADVISORY MATERIAL :

INTRODUCTORY NOTE:

The following Equivalent Safety Finding 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:

CS VLA 161 (b) (2)(ii) 'Longitudinal trim' requires that the aircraft maintains longitudinal trim during a descent with idle power at a speed of $1.3 V_{S1}$ with landing gear extended, and wing flaps in the landing position.

The intent of the requirement is to ensure trimmed conditions and consequently controllability and stability in the approach configuration, at the reference landing approach speed, so that the stick forces are balanced and any escape from that is perceived by the pilot as an increase of the stick force.

This intent is similar to CS 23.161(c)(4) (as provided in CS-23 from Initial issue until Amendment 4). The provision contained in CS 23.161 (c)(4) however requires to maintain such trimmed condition in a "powered approach", which is more representative of a real approach than the "idle" approach in CS VLA.161. The reference landing approach speed (V_{REF}) defined in CS 23 accounts for the stall speed, V_S , and the minimum control speed, V_{MC} (for twin engine aeroplanes).

The CS VLA provides certification specifications derived from CS 23 for aeroplanes with simpler design (e.g. single engine aeroplane, only VFR day etc.) and has some built in simplifications and additional conservatism. The intent of CS VLA 161 (b) (2)(ii) is the same as the corresponding CS 23 161 (c)(4) requirement as explained above, however it is applied in a more simplified and conservative way and requires that the aircraft maintains longitudinal trim during a descent with idle power at a speed of $1.3 V_{S1}$ (no V_{REF} is defined).

The aeroplane type for which the ESF is requested has a minimum trimmed speed above $1.3 V_{S1}$ in the prescribed configuration, therefore does not comply with the requirement.

