

Consultation paper
Equivalent Safety Finding

Doc. No.: ESF-F25.1563-01
Issue : 2
Date : 10 November 2021
Proposed ☐ Final ☒
Deadline for comments: 10 August 2021

SUBJECT : **Alternative to CS 25.1563 Airspeed Placard**
REQUIREMENTS incl. Amdt. : **CS 25.1563 Amdt. 26**
ASSOCIATED IM/MoC¹ : Yes ☐ / No ☒
ADVISORY MATERIAL : --

INTRODUCTORY NOTE:

The following Equivalent Safety Finding (ESF) 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:

A request for an Equivalent Safety Finding (ESF) to CS 25.1563 at Amdt. 8 was submitted to EASA for a large aeroplane with a so called Enhanced Take-Off Configuration function (ETOC) installed.

An ETOC is an aircraft function related to the flap system, which main objective is to improve the aircraft take-off performance. The optimization of the aircraft performance at take-off is mainly driven by:

- Maximizing climb capabilities,
- Minimizing take-off distance and
- Maximizing take-off mass

In order to optimize the trade-off between these three performance parameters, the function principle established by the ETOC is to introduce new high-lift configurations for take-off in addition to the existing ones by varying the flap angle.

These additional / intermediate high lift configurations can be selected before take-off by the pilot via the flight management system interface and executed via the high lift system interface by the flaps lever selection.

CS 25.1563 - Airspeed placard specifies that *"A placard showing the maximum airspeeds for wing-flap extension for the take-off, approach, and landing positions must be installed in clear view of each pilot."*

In the design prior ETOC introduction, on the V_{FE} placard there is one V_{FE} per configuration.

With ETOC function introducing these intermediate configurations, CS 25.1563 specifies to display all the configurations for V_{FE} placards.

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.

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It is proposed by the applicant to not display the intermediate configurations on the V_{FE} placards as per CS 25.1563, because adding these additional V_{FEs} to the current placards would clutter the placard and negatively impact the readability with a risk of false readings.

Considering all the above, the following Equivalent Safety Finding is proposed:

Equivalent Safety Finding to CS 25.1563 at Amdt. 26

Alternative to Airspeed Placard

1. Applicability

This ESF may be applied to large aeroplanes, if:

- a) additional high lift configurations are provided for the take-off phase only (Enhanced Take-Off Configuration {ETOC} function), i.e. these additional configurations cannot be set in approach and landing flight phases.
- b) All non-ETOC related V_{FE} are provided on the airspeed placard.

1.1 Affected CS

CS 25.1563 at Amendment 26

2. Equivalent Safety Finding

In lieu of direct compliance to CS 25.1563, and provided that the below compensating factors are complied with, the airspeed placard installed is not required to show the maximum airspeeds of wing-flap extension positions (V_{FE}) for intermediate high lift configurations that can be selected before take-off by the pilot.

3. Compensating Factors

- a) The maximum flap extended speed (V_{FE}) for a selected flap/slat configuration is displayed on the primary flight display (PFD) on the speed scale when the " V_{FE} " is within the speed range visible on the speed scale.
- b) As soon as the flap lever is moved out of the selected take-off position during an ETOC take-off, the maximum flap extended speed (V_{FE}) of the configuration attained is provided on the airspeed placard.
- c) In the case of loss of V_{FE} indications on all PFDs during an ETOC take-off, if the flight crew is directed to refer to the V_{FE} of an ETOC configuration, the placard shall be complemented with the information that the airspeed placard does not indicate the V_{FE} for ETOC configurations. If the placard is not complemented in this way, an appropriate AFM instruction shall be established how to derive adequate maximum speeds to respect while completing the take-off.
- d) The maximum flap extended speeds (V_{FE}) for all flap/slat configurations including ETOC configurations selectable in normal operations are provided via the aircraft flight manual (AFM).
- e) All ETOC flap/slots configurations are protected either by a flaps load relief system or an auto-retraction system.
- f) For all ETOC flap/slots configurations, an overspeed warning is provided.