

Proposed Temporary Deviation on Unnoticed Speed Brake Auto Retraction

Applicable to A400M

Introductory note:

The hereby presented Temporary Deviation 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.) of 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."

Statement of issue

During an A400M certification flight test and while performing a manoeuvre for V_{MU} configuration preparation, an unnoticed speed brake auto retraction occurred.

Following this speed brake auto retraction, no specific alerting feedback was provided to the crew (normal speedbrakes position display is not considered as an alerting feedback).

The identified issue consists in modification of the speedbrakes' position by the speedbrakes auto retraction function in the absence of pilot input and without providing an alerting feedback to the flight crew.

EASA CS 25.697(a) reads as follows:

"Each lift device control must be designed so that the pilots can place the device in any take-off, en-route, approach, or landing position established under CS 25.101(d). Lift and drag devices must maintain the selected positions, except for movement produced by an automatic positioning or load limiting device, without further attention by the pilots."

On other aircraft types fitted with speedbrakes autoretraction function, an alerting feedback is provided to the crew in case of discrepancy between speedbrakes lever position and actual speedbrakes deflection.

It is then considered by EASA that the A400M proposed design architecture is not compliant with CS 25.697(a) requirements.

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The applicant agrees to further improve the display systems so a more salient feedback to the pilot when spoilers automatically retract will be provided. The modification will consist in an alerting feedback to the crew that will be displayed on the HUD (Head Up Display): speed brakes symbol will flash when auto-retraction is performed. This design improvement will be implemented after initial EASA A400M certification.

The applicant has identified the following mitigations for the particular scenario described on the statement of issue and the identified non compliance with CS 25.697(a):

1. The current speed brake state indication on HUD FPV (Flight Path Vector) provides a good level of information since the current state of the spoilers is always displayed: extended or fully retracted, AND
2. From the safety point of view, with the current TC design, the absence of the “flashing symbol” does not worsen functional hazard analysis and associated failure condition classifications (in particular items related to speed brakes functions).

Supported by these considerations, Airbus SAS request EASA a Temporary Deviation with regards compliance with CS 25.697(a) requirement.

As EASA conclusion, a Temporary Deviation with regards compliance with CS 25.697(a) for the A400M can be granted by EASA associated to the following condition:

This EASA temporary deviation will be valid since initial A400M certification until 31st December 2012 or until first A400M aircraft entry into service, whichever will occur first.