

Proposed Equivalent Safety Finding on “Forward Ditching Door”

Applicable to A400M

Introductory note:

The hereby presented Equivalent Level of 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.) 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

The A400M Forward Ditching Door (FDD) is mounted in the upper part of the forward fuselage to be used in case of ditching by the two crew members that will be the only occupants allowed on board the aircraft as per A400M EASA civil type design.

This ESF on FDD has been raised as the A400M certification basis includes the Special Condition D-04 Issue 3, incorporating former JAA NPA 25D-301 “Fuselage Doors” requirements. It has to be noted that SC D-04 is equivalent to CS25.783 requirement (at CS 25 amendment 4).

In particular SC D-04 requires the following:

“SC D-04.25.783 (c) (2) Doors that meet the conditions described in § 25.783(h) are not required to have a dedicated pressurization prevention means if, from every possible position of the door, it will remain open to the extent that it prevents pressurization, or safely close and latch as pressurization takes place. This must also be shown with each single failure and malfunction except that:

*(i) with failures or malfunctions in the latching mechanism, it need not latch after closing, and
(ii) with jamming as a result of mechanical failure or blocking debris, the door need not close and latch if it can be shown that the pressurization loads on the jammed door or mechanism would not result in an unsafe condition.”*

The Forward Ditching Door (FDD) has been classified by Airbus as a non hazardous door, fulfilling the provisions of SC D-04 25.783 (h).

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Applicant Proposal:

Although the FDD is not self latching, this inward opening door remains in a safe closed condition if it has closed by pressurisation. When the pressure differential drops below a not specified level, the door will safely open again and go back into the initial partially closed position.

Applicant Justification:

The FDD has been equipped with a damper that allows the unlatched FDD to open to a stable partially closed position. From this position, FDD may close but not latch when pressurization takes place, which does not fully comply with SC D-04.25.783 (c) (2): “from every possible position of

the door, it will remain open to the extent that it prevents pressurization, or safely close and latch as pressurization takes place" (emphasis added).

Applicant Safety Equivalency Demonstration:

Compensating aircraft design factors:

The design and behaviour of the FDD ensure an equivalent level of safety because no crew member is endangered because of the unlatched condition of the FDD. A connection to the pressurisation prevention system is not needed.

The FDD will close and remain closed if acted upon by cabin pressurisation forces. If the pressure differential drops, the FDD will open to an equilibrium position supported by the damper.