

Consultation Paper
Equivalent Safety Finding

Doc. No. : ESF-D25.807-01

Issue : 1

Date : 22 JAN 2021

Proposed ☒Final ☐

Deadline for comments: 12 FEB 2021

SUBJECT : **Ditching Emergency Exit for Passengers – Water Dam**

REQUIREMENTS incl. Amdt. : **JAR 25.807(e) at Change 14**

ASSOCIATED IM/AMC¹ : Yes ☐ / No ☒

ADVISORY MATERIAL : **N/A**

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:

EASA received an application for a major change to type design on a large aeroplane. The design change consists in an increase of the maximum passenger capacity from current EASA certified capacity of 80 up to 90 passengers.

Among the additional features introduced in the aircraft changed configuration aimed to enable this increased passenger capacity, there is the installation of a ditching dam on the modified Type I emergency exit door located on the forward right-hand side of the cabin. This shall preserve the capability for emergency evacuation under ditching conditions. The existing forward left-hand side Type I passenger door/emergency exit remains unmodified, its approved configuration already implemented a ditching dam installation as part of the baseline aircraft design.

The JAR 25.807(e)(2) at Change 14 defines the requirements applicable to ditching emergency exits for passengers for this specific case:

"(e) Ditching emergency exits for passengers. Ditching emergency exits must be provided in accordance with the following requirements whether or not certification with ditching provisions is requested:

- (1) For aeroplanes that have a passenger seating configuration of nine seats or less, excluding pilots seats, one exit above the waterline in each side of the aeroplane, meeting at least the dimensions of a Type IV exit.*


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.

(2) For aeroplanes that have a passenger seating configuration of 10 seats or more, excluding pilots seats, one exit above the waterline in a side of the aeroplane, meeting at least the dimensions of a Type III exit for each unit (or part of a unit) of 35 passenger seats, but no less than two such exits in the passenger cabin, with one on each side of the aeroplane. The passenger seat/exit ratio may be increased through the use of larger exits, or other means, provided it is shown that the evacuation capability during ditching has been improved accordingly.

(3) If it is impractical to locate side exits above the waterline, the side exits must be replaced by an equal number of readily accessible overhead hatches of not less than the dimensions of a Type III exit, except that for aeroplanes with a passenger configuration of 35 seats or less, excluding pilots seats, the two required Type III side exits need be replaced by only one overhead hatch”.

Without the ditching water dam, the modified forward right hand side Type I emergency exit would not be able to fulfil the requirements of JAR 25.807(e)(2) as the floor level exit will not stay above the water line in this side of the fuselage in case of ditching. Consequently, an equivalent level of safety is needed.

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

 European Union Aviation Safety Agency	Consultation Paper Equivalent Safety Finding	Doc. No. : ESF-D25.807-01 Issue : 1 Date : 22 JAN 2021 Proposed <input checked="" type="checkbox"/> Final <input type="checkbox"/> Deadline for comments: 12 FEB 2021
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Equivalent Safety Finding to JAR 25.807(e)(2) at Change 14

Ditching Emergency Exit for Passengers – Water Dam

The following compensating factors must be demonstrated to provide an equivalent level of safety to JAR 25.807(e)(2) for the case when a water dam is installed to raise the sill of the modified Type I emergency exit.

Compensating Factors:

The following compensating factors provide an Equivalent Safety Level to CS 25.783(h)(2) by ensuring that the service doors are closed and latched at departure, so they cannot open and consequently detach during flight:

- 1) The installation of the water dam must not require specific training or experience.
- 2) Although the installation of water dam would normally be under the responsibility of cabin crew members, the installation procedure must be simple enough to allow any occupant to perform it.
- 3) The water dam must be designed to withstand the water pressure and the loads that would be applied by evacuees stepping on it.
- 4) When the water dam is installed, the emergency exit is open and the water dam is in a deployed position, the resulting unobstructed rectangular opening available to passengers will need to exceed the minimum dimensions required by JAR 25.807(a)(3) for a Type III exit.
- 5) There must be a placard on or adjacent to the emergency exit door specifying that, in case of ditching, the water dam must be installed before opening the door, and the location in which the water dam is stowed.
- 6) Each water dam must be stowed adjacent to the emergency exit where the device is going to be installed in case of ditching.
- 7) The AFM must include a ditching emergency procedure that foresees the installation of the water dam. A pre-flight check must confirm that the water dam is stowed in the designed location.
- 8) Installation instructions must be reported on passenger safety cards and on placards installed on the water dam or in close proximity of its stowed location.
- 9) The force necessary to open the emergency exits against the water pressure should be estimated and demonstrated to be within normal passenger capabilities.
- 10) The applicant must demonstrate that, in the case of an unplanned ditching, the water dam can be retrieved and installed before the sill of the forward exit goes below the waterline, and that all occupants can be evacuated within the calculated flotation time.
- 11) For the modified aircraft, it must be demonstrated that the forward pair of LH and RH Type I exits are able to accommodate an evacuation of 90 passengers in their ditching configuration.

