

Proposed Equivalent Safety Finding on CS 25.783 : “ Fuselage doors ”

Applicable to Airbus A350-941

Introductory Note:

The hereby presented Equivalent Safety Finding has been classified as an important Equivalent Safety Finding 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 APU doors are located on the fuselage, therefore these doors need to be compliant with CS 25.783.

“(a) General. This paragraph applies to fuselage doors, which includes all doors, hatches, openable windows, access panels, covers, etc., on the exterior of the fuselage that do not require the use of tools to open or close.”

While the opening sequence of the APU door first requires opening of the overpressure relief panel through a single action with a screwdriver, no tools are required to open the APU doors (none of the 8 latches/pins require tools to be engaged or disengaged). No tool is required to close the APU doors and the overpressure relief panel.

Airbus A350-941 – Equivalent Safety Finding to CS 25.783

– Fuselage Doors –

Design Proposal:

The access to the A350 APU compartment is made by means of an overpressure panel and 2 doors.

The overpressure panel opening is made through the release of 2 latches by means use of a tool (screwdriver).

The overpressure panel is having 3 functions:

- APU compartment pressure relief,
- Access to the RH door safety lever,
- Access to APU compartment for servicing.

To initiate the opening sequence a tool (screwdriver) is needed to open the two latches of the overpressure panel. Once the panel is open, a safety lever can be pulled and rotated at

180° counterclockwise. This action release the safety pin that prevent the opening of the APU doors. To open the APU doors the 4 hook and keeper latches must be unlatched, then the 2 RH door pin latches must be retracted and a strut is used to block the RH door open. Finally the LH pin latches can be released and the LH door can be secured in open position with the LH strut.

The closing procedure has the following steps:

- Unblock LH door strut
- Close LH door
- Engage LH pin latches (x2)
- Unblock RH door strut
- Close RH door
- Engage RH pin latches (x2)
- Operate and lock the hook and keeper latches (x4)
- Unlock and release the safety lever
- Rotate 180° clockwise
 - o Make sure that the safety lever goes into its housing
 - o Close Overpressure relief panel
- Engage Overpressure Door latches
- Check correct closure of APU access doors and overpressure door (flush with each other)

Justification:

As per 25.783(a), the APU doors shall normally be compliant with 25.783 since:

- A single action with a basic tool (screwdriver) allows opening of the overpressure relief panel,
- No further tool is subsequently required to open the APU doors,
- No tools are needed to close either the APU doors or the overpressure relief panel.

However, it is considered that APU door opening remains a Maintenance action (non-routine) because:

- APU servicing is performed through the overpressure relief panel access,
- Opening of the APU doors is limited to maintenance tasks performed by qualified maintenance personnel,
- The relative height of the doors from the ground that require the use of access platform.

Therefore the proposed APU doors design could meet the intent of the rule and be considered as a door requiring maintenance action by qualified personnel.

To allow granting of the ESF, the following items shall be addressed as additional compensating factors:

- Robustness of the sequencing including the potential for incorrect sequencing,
- Assessment of the maintenance procedure which should include a practical demonstration and the evaluation of whether, or not, placards are needed.

Safety Equivalency Demonstration:

The APU overpressure panel and APU access doors design is such that improper closing following a maintenance procedure is minimised through the following means:

- The RH APU door cannot be closed unless the LH APU door is first closed, thanks to the angle device.
- The RH APU door cannot be closed with the safety pin in the locked position.

- The overpressure relief panel can only be closed at platform level once the RH APU door has been closed and the safety lever is in the locked position.

In addition, it has to be noted that:

- Access to the APU compartment requires the use of a platform, and so are only opened/closed by qualified personnel for maintenance purposes,
- Regular APU servicing is made through the overpressure relief panel only
- All pin latches and hook and keeper latches are painted in bright orange such that any improper latching conditions can be detected from ground.