

Emergency Portability of Slide/Rafts

RATIONALE

Slide/rafts are a means of providing group flotation for cabin occupants in the event of an airplane ditching. They must meet the same rules for use at an alternate ditching exit as liferafts. One of these requirements, portability, applies in the event that the ditching exit at which the slide/raft is installed is unusable for any reason. Portability is the ability to transport and deploy the slide/raft at an alternate, usable exit.

Transport of slide/rafts from one door to another within an airplane cabin is difficult and potentially dangerous. The slide/raft is typically larger, heavier, more easily actuated, and inflates much more violently than the typical liferaft. Characteristics that make the slide/raft an effective device for evacuations on land and water under a variety of physical and environmental conditions make the removal and redeployment of the device under emergency ditching conditions a risky task. Therefore, utmost attention must be paid to providing safeguards as a part of designs for portability.

1. SCOPE

This SAE Aerospace Recommended Practice (ARP) recommends design features for facilitating relocation of portable slide/rafts for deployment at an alternate exit under ditching conditions.

1.1 Mandating and Recommending Words

1.1.1 "Shall" - The word "shall" indicates a mandatory criterion.

1.1.2 "Should" - The word "should" indicates a criterion for which an alternative, including noncompliance, may be applied if it is documented and justified.

2. APPLICABLE DOCUMENTS

The following publications form a part of this document to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order. In the event of conflict between the text of this document and references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

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2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or 724-776-4970 (outside USA), www.sae.org.

- ARP496 Stowage of Cabin Emergency Flotation Equipment
- ARP503 Emergency Evacuation Illumination
- ARP577 Emergency Placarding - Internal and External
- ARP1146 Combination Evacuation Slide/Raft - Civil Air Transport

2.2 U.S. Government Publications

Available from U.S. Government Printing Office, Washington, DC 20402, www.faa.gov.

Federal Aviation Administration Technical Standard Order TSO-C69, Emergency Evacuation Slides, Ramps, Ramp/Slides and Slide/Rafts

Code of Federal Regulations Title 14, Part 25, Airworthiness Standards: Transport Category Airplanes, European Aviation Safety Agency (EASA) Certification Standard CS-25, and Joint Airworthiness Requirements JAR-25 Large Aeroplanes, Change 15) Sections:

- § 25.812 Emergency Lighting
- § 25.813 Emergency Exit Access
- § 25.815 Width of Aisle
- § 25.1411(d) Liferafts
- § 25.1415 Ditching Equipment

2.3 ANSI Publications

Available from ANSI, 25 West 43rd Street, New York, NY 10036-8002, Tel: 212-642-4900, www.ansi.org.

- ANSI Z535 Safety Color Code - Environmental Facility Safety Signs - Criteria for Safety Symbols - Product Safety Sign and Labels and Accident Prevention Tags

2.4 ISO Publications

Available from ANSI, 25 West 43rd Street, New York, NY 10036-8002, Tel: 212-642-4900, www.ansi.org.

- ISO 3864 Safety Colours and Safety Signs

3. TECHNICAL RECOMMENDATIONS

3.1 General

Limitations to exit and/or equipment access that can occur in a ditching situation may result in the need for slide/rafts to be relocated to another exit. Equipment design and relocation procedures should minimize hazards to personnel and equipment during relocation, with particular emphasis on avoidance of inadvertent inflation within the aircraft cabin. There shall be a positive means of protecting the slide/raft against inadvertent inflation during relocation and deployment.

3.2 Instructions

- 3.2.1 Instructions shall be given via lettering and/or pictograms in accordance with ANSI Z535.5 (and/or ISO 3864). These instructions shall be readable under the referenced emergency lighting conditions.
- 3.2.2 Text and/or pictograms that provide cautions, instructions, or restrictions concerning the removal, relocation, reattachment, deployment, and inflation of the slide/raft shall be located on the outside of the slide/raft pack in a readily visible location and shall be readable under the referenced emergency lighting conditions. These instructions shall include directions for installation and removal of any safety device(s) and directions for safely relocating and deploying the slide/raft.
- 3.2.3 Safety instructions should be emphasized by use of a larger size or different contrasting color of lettering and/or pictogram (in comparison to other markings in the area).

3.3 Removal

- 3.3.1 The interface between the slide/raft and its stowage location shall be designed such that removal may be accomplished without use of special tools, unless the tools are stowed and readily accessible in the area of the slide/raft and are clearly marked as to their identity and intended use.
- 3.3.2 The slide/raft pack release mechanism should be hidden from view until the pack is fully prepared for removal.
- 3.3.3 The covering over the release mechanism shall be readily removable or operable.
- 3.3.4 The number of steps required to accomplish removal should be minimized.
- 3.3.5 Removal should not require more than two trained persons, or two untrained persons working under the direction of a trained person.

3.4 Relocation

- 3.4.1 The relocation instructions shall clearly indicate at which exits the slide/raft may be deployed, what attachments are required (e.g., girt bar), operation of the attachments, and how the slide/raft should be transported.
- 3.4.2 Relocation of the slide/raft shall be practicable without the need for special tools or equipment, unless the tools are readily accessible to the slide/raft location and have readily visible marking identifying their intended use. Weight and bulk of the slide/raft pack should be considered when determining the need for such tooling. Common aircraft equipment such as galley carts or other items with wheels may be considered as alternate tools or transporting equipment. Slings or bands might be considered to maintain the slide/raft in a tightly packed state and/or to facilitate handling.
- 3.4.3 The slide/raft shall be of such size/shape as to permit its movement through minimum approved size aisles and passageways.
- 3.4.4 Transport of the slide/raft should not require more than two able-bodied persons using any tools provided for that purpose.