



AEROSPACE RECOMMENDED PRACTICE

ARP1384™**REV. E**Issued 1976-08
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Superseding ARP1384D

(R) Passenger Safety Information System

RATIONALE

This SAE Aerospace Recommended Practice (ARP) is intended to provide comprehensive reference and background information pertaining to the Passenger Safety Information System (PSIS). This document provides the relevant and important safety information in a single document by incorporating and subsequently cancelling SAE documents ARP4771 Recommended Brace Positions, ARP5655 Safety Briefings for Passengers in Exit Rows, and ARP6239 Demonstration Emergency Equipment.

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1. SCOPE

These recommendations are to aid the international air transport industry by identifying a standard, minimum amount of safety instructions and procedures that should be provided in the PSIS. Aircraft operators are encouraged to customize the PSIS to their own operations. This document also provides recommendations for:

- a. Passenger safety information briefings and associated materials,
- b. Demonstration emergency equipment,
- c. Ensuring passenger suitability for those seated in exit seats,
- d. The standardization of safety briefings for passengers seated at exits who may be responsible for opening exits on transport aircraft during an emergency, and
- e. A standardized protective brace position to reduce the severity of injury during severe turbulence, rapid deceleration, or a sudden impact.

In addition, these recommendations pertain to briefings on aircraft on which the cabin crew would conduct the exit seat briefing, and to briefings on aircraft without cabin crew, on which pilots would conduct the briefing.

1.1 Purpose

The purpose of this ARP is to assist airlines, as well as corporate and private operators, in (1) producing passenger safety information briefing cards (SBCs) and passenger safety videos and oral briefings (the PSIS), (2) demonstration of emergency equipment, (3) ensuring exit seats are occupied by suitable passengers, and (4) enhancing protective brace position protocol. This information will reinforce and expand passenger knowledge of the safety equipment and procedures designed for passengers in emergencies.

2. REFERENCES

2.1 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.

2.1.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

ARP997	Installation and Stowage Provisions for Emergency Equipment in the Transport Aircraft Passenger Cabin
ARP1354	Individual Inflatable Life Preservers
ARP4740	Safety Considerations - Smoking in Lavatories of Transport Aircraft
ARP4771	Recommended Brace Positions
ARP5655	Safety Briefings for Passengers in Exit Rows
ARP6239	Demonstration Emergency Equipment
AS5276/1	Performance Standard for Child Restraint Systems in Transport Category Airplanes

2.1.2 ANSI Accredited Publications

Copies of these documents are available online at <https://webstore.ansi.org/>.

ANSI Z535.3-2022 Criteria for Safety Symbols. National Electrical Manufacturers Association.

2.1.3 Code of Federal Regulations (CFR) Publications

Available from the United States Government Printing Office, 732 North Capitol Street, NW, Washington, DC 20401, Tel: 202-512-1800, www.gpo.gov.

- 14 CFR 25.813 Emergency exit access
- 14 CFR 121.571 Briefing passengers before take-off
- 14 CFR 121.573 Briefing passengers: Extended overwater operations
- 14 CFR 121.585 and 135.129 Exit seating
- 14 CFR 125.327 and 135.117 Briefing of passengers before flight

2.1.4 EASA Publications

Available from European Aviation Safety Agency, Konrad-Adenauer-Ufer 3, D-50668 Cologne, Germany (for visitors and for mail over 1 kg) and Postfach 10 12 53, D-50452 Cologne, Germany (for mail 1 kg or less); Tel: +49 221 8999 000, www.easa.europa.eu.

- AMC1 CAT.OP.MPA.165 Passenger seating, Emergency exit seating
- AMC1 CAT.OP.MPA.170 Passenger briefing
- AMC2 CAT.OP.MPA.165 Passenger seating, Access to emergency exits
- GM1 CAT.OP.MPA.165 Passenger seating, Direct access
- GM2 CAT.OP.MPA.165 Passenger seating, Emergency exit seating

2.1.5 FAA Publications

Available from Federal Aviation Administration, 800 Independence Avenue, SW, Washington, DC 20591, Tel: 866-835-5322, www.faa.gov.

Advisory Circular (AC) 91-62 Use of Child Seats in Aircraft

Advisory Circular (AC) 121-24D Passenger Safety Information Briefing and Briefing Cards

Advisory Circular (AC) 121-29 Carry-On Baggage

DOT/FAA/AM-15/17 Effect of Passenger Position on Crash Injury Risk in Transport-Category Aircraft

Flight Standards Information Management System (FSIMS) Order 8900.1, Volume 3, Chapter 33, Section 6, Paragraph 3572 – Exit Seating Program

2.1.6 ICAO Publications

Available from International Civil Aviation Organization, 999 University Street, Montreal, Quebec H3C 5H7, Canada, Tel: +1 514-954-8219, <http://www.icao.int/>.

ICAO Doc 10086 Manual on Information and Instructions for Passenger Safety

2.1.7 National Transportation Safety Board (NTSB) Publications

Available from NTSB Headquarters, 490 L'Enfant Plaza, SW, Washington, DC 20594, Tel: 202-314-6000, www.nts.gov.

NTSB/SS-85/09 Safety Study – Airline Passenger Safety Education: A Review of Methods Used to Present Safety Information

NTSB/SS-00/01 Safety Study – Emergency Evacuation of Commercial Aircraft.

NTSB Recommendation A-10-81, Require operators to provide information about life lines, if the aircraft is equipped with them, to passengers to ensure that the life lines can be quickly and effectively retrieved and used.

NTSB Recommendation A-10-82, Require operators be equipped with flotation seat cushions and life vests for each occupant on all flights, regardless of the route.

NTSB Recommendation A-10-83, Require operators to brief passengers on all flotation equipment installed on an aircraft, including a full demonstration of correct life vest retrieval and donning procedures, before all flights, regardless of route.

NTSB Recommendation A-10-86, Require operators to implement creative, effective methods of overcoming passengers' inattention and providing them with safety information.

NTSB Safety Study. (1985). Airline passenger safety education: A review of methods used to present safety information.

2.1.8 Transport Canada Publications

Transport Canada documents are available from Transport Canada, Tower C, Place de Ville, 330 Sparks Street, Ottawa, Ontario K1A 0N5, Tel: 1-800-305-2059, www.tc.gc.ca.

Canadian Aviation Regulations § 705.43, 704.34 Briefing of Passengers

Flight Attendant Training Standard TP 12296, 7.2 Passenger Briefing Drills

Advisory Circular (AC) 700-014 Passenger Seating Requirements and Accessible Air Transportation

Advisory Circular (AC) 700-036 Brace for Impact Positions for all Aircraft Occupants

2.1.9 Transportation Safety Board of Canada (TSB) Publications

Available from TSB, 200 Promenade du Portage, Hull, Quebec K1A 1K8, Tel: 1-819-387-3557, www.tsb.gc.ca.

SA9501 A Safety Study of Evacuations of Large, Passenger-Carrying Aircraft

2.1.10 Other Publications

King, D.F. (1988). *Report on the accident to Boeing 737-236 series 1, G-BGJL at Manchester International Airport on 22 August 1985*. Aircraft accident report 8/88.

Chittum, C.B., and Lyne, P.J. (1991). *The effects of passenger briefing on recall and utilization of safety-related information by adult passengers* (Technical Paper AAM-630-91-3). FAA Civil Aerospace Medical Institute.

Cobbett, A.M., Liston P., and Muir, H. (2001). *An investigation into methods of briefing passengers at Type III exits* (Technical Paper 2001/6). Civil Aviation Authority.

FSF Editorial Staff (2004). Crew efforts help passengers comprehend safety information. *Flight Safety Foundation, Cabin Crew Safety*. (November-December 2004), 39(6).

Grandjean, E. (1987). Design of VDT workstations. In G. Salvendy (Ed.), *Handbook of human factors*. Wiley, 1359–1397, ISBN 0-471-88015-9.

Gerwick, W. (2003). Taking exit row seating seriously. *Journal of Air Law & Commerce*, 68, 449-473.

FSF Editorial Staff (2001). Many passengers in exit seats benefit from additional briefings. *Flight Safety Foundation, Cabin Crew Safety* (May-June 2001), 36(3).

McLean, G.A., Corbett C.L., Larcher, K.G., McDown, J.R. et al. (2002). *Access-to-egress I: Interactive effects of factors that control the emergency evacuation of naïve passengers through the transport airplane type-III overwing exit* (Technical Report DOT/FAA/AM-02/16). FAA Civil Aerospace Medical Institute.

Parkinson, S.E. and Muir, H. (1995). The effect of training, overtraining and transfer of training on passenger performance in a simulated aircraft emergency [Paper presentation]. Southern California Safety Institute 12th Annual International Cabin Safety Symposium, Torrance, CA.

Wogalter, M.S., Laughery, K.R., and Mayhorn, C.B. (2012). Warnings and hazards communications. In G. Salvendy (Ed.), *Handbook of human factors and ergonomics* (4th ed.). Wiley, 868-894.

2.2 Related Publications

The following publication is for information purposes only and is not a required part of this SAE Technical Report.

Chandler, R.F. (1998). *Brace for impact. Positions*. In Proceedings of the Fifth Annual International Aircraft Cabin Safety Symposium, Cosponsored by the University of Southern California, the FAA (Western Pacific Region), and the Southern California Safety Institute.

2.3 Definitions

BRIEFING MATERIALS: This term refers to the Passenger Safety Information Briefing Card and any presented or demonstrated version (i.e., oral, video, audio) of the Passenger Safety Information System (PSIS).

CABIN CREW MEMBER: A crew member, other than a flight crew member, who has been assigned duties to be performed in the interest of the passengers in a passenger-carrying aircraft.

CHILD: A person who has had their second birthday but is younger than 12 years old.

CREW MEMBER: A person assigned to perform duty in an aircraft during flight time.

DEMONSTRATION ONLY EQUIPMENT: Equipment used solely for demonstration purposes, used as part of preflight safety briefings.

EXIT SEAT: Each seat facing the passageway from the center aisle to the exit that passengers would have to pass to gain access to an exit.

FLIGHT CREW MEMBER: A crew member who has been assigned to act as pilot or flight engineer of an aircraft during flight time.

INFANT: A person who has not reached their second birthday.

PASSENGER SAFETY INFORMATION BRIEFING CARD (SBC): A printed card depicting safety information about the aircraft, emergency procedures, and emergency equipment. This card should supplement the oral/video briefing presented by the crew.

PASSENGER SAFETY INFORMATION SYSTEM (PSIS): A set of components used to convey safety information to passengers. These components could include SBCs as well as oral or video briefing presentations, generally referred to herein as “briefing materials.”

2.4 Mandating and Recommending Words

SHALL: Indicates a criterion for which deviation is not permissible (i.e., a rule, not a suggestion).

SHOULD: Indicates a criterion for which a documented and justified alternative, including noncompliance, is permissible (i.e., a suggestion, not a rule).

3. GENERAL CONSIDERATIONS AND REQUIREMENTS

3.1 Operator Considerations and Requirements

Safety briefings should be delivered by pre-recorded audio, video, or other electronic media. These delivery methods are recommended because it ensures a complete and articulate briefing is delivered. Pre-recorded video safety briefings also provide a means to present closed-captioning for those living with reduced to no hearing.

In instances where it is necessary to view the safety briefing on video monitors or video screens that protrude into areas of egress, the operator shall have procedures describing the proper stowage of such equipment prior to movement on the surface for taxi, take-off, and landing (TTL). Operators shall also have procedures for the relevant crew members to accomplish an alternative safety briefing presentation should the pre-recorded presentation become inoperative.

Operators shall have procedures in its manuals to address cabin crew member placement throughout the cabin during the safety briefing presentations. Cabin crew members shall be distributed throughout the cabin evenly between exits and close to their assigned emergency duty station. The operator shall also have procedures in its manuals addressing cabin crew member activities to be restricted to only those that are safety-related in nature during the safety briefing presentation.

Operators shall document the explanation of and procedures for delivering requisite safety briefings, crew member tasks, and passenger compliance.

3.2 Cabin Crew Member Procedures

Pre-takeoff safety briefings should be presented to passengers using pre-recorded video, pre-recorded audio accompanied by live demonstration, or orally accompanied by live demonstration. Cabin crew members shall neither be assigned nor perform non-safety-related activities during the passenger safety briefing. Further, cabin crew members shall be evenly distributed among exits, throughout the cabin, and close to their assigned emergency station. Cabin crew members shall not create an obstruction or distraction that would preclude a passenger listening to or viewing the safety briefing. Related, cabin crew members should, to the extent possible, be aware of and resolve obstacles that might block a passenger's view of the safety briefing video or demonstration. This includes lowering cabin divider panels or performing a coordinated live demonstration for such affected passengers. Cabin crew members should be aware, readily available, and engage with passengers to answer any questions they may have following the safety briefing.

All passengers should be able to easily hear and view the safety briefing and any accompanied demonstrations. Cabin crew members responsible for delivering an oral briefing should speak in a manner that is articulate and understandable. For operations where there is only one cabin crew member, ensure that all passengers are able to view the demonstration of the relevant safety and emergency equipment. Cabin crew members should coordinate their demonstrations with the related information being described in the briefing.

3.3 PSIS Content

Briefing materials shall provide the information described in Section 4, at a minimum.

Briefing materials shall provide safety and survival equipment information that passengers could find necessary in an emergency. Operators are encouraged to provide additional safety information that would be helpful to passengers beyond these minimum recommendations. The presence of trained cabin crew members onboard an aircraft mitigates the need for passengers to receive instructions on locating and using fire extinguishers, first aid kits, and survival kits.

Briefing materials shall accurately depict the important details of aircraft safety equipment and its function. The information shall be specific to the type and model of aircraft on which the materials (e.g., SBCs) are placed. The briefing materials shall depict the safety equipment onboard the aircraft.

Briefing materials shall be tested for comprehension. Every method employed, whether verbal, symbolic, pictorial, picture, and/or video, should be evaluated with regard to comprehension of any topic to which it has been applied. A comprehension score of 85% is required for transfer of the safety information to be considered successful. Please refer to NTSB/SS-85/09, ANSI Z535.3-2022 Criteria for Safety Symbols, and AC 121-24 for more details.

3.4 Presentation Style

3.4.1 Simplicity and Familiarity

Briefing materials should be rendered as simply as is possible to convey the safety information. Cluttered and/or complex pictures, videos, pictorials, and pictograms often mask individual elements that are crucial to understanding.

Briefing materials that incorporate familiar elements (i.e., things or situations that passengers encounter on a daily basis, or that take advantage of equipment functions that are analogous to activities performed regularly) provide passengers with an implicit understanding based on habits they have acquired in those situations.

3.4.2 Directing and Holding Passengers' Attention

The relevant components of the PSIS should use various approaches to gain and hold passengers' attention. For example, SBCs would benefit from the appropriate use of color and layout, with regard to pictorials and pictograms; videos benefit from the use of interesting actors, attractive music, and sound effects, and unusual visual effects, including graphics. Highlighting the importance of the information is also helpful, as passenger attention has been shown to correlate positively with perceived importance. Other factors, such as making the safety information systems as engaging and entertaining as possible, have also been shown to facilitate passenger attention to safety briefings.

3.4.3 Primarily Pictorial

Briefing materials shall rely primarily on pictorial presentation of information, in consideration of potential language barriers. However, addition of words or other clues may be necessary to achieve successful comprehension by passengers.

3.4.4 Languages

Components of the PSIS, where words are incorporated, shall be rendered in the primary language(s) understood by those passengers expected to be travelling on the aircraft.

3.4.5 Passengers with Limitations

Briefing materials insufficient for any passenger identified as being limited, either physically or mentally, shall be augmented by an individual pre-flight crew member briefing appropriate to the passenger's needs. Likewise, an individual pre-flight safety briefing shall be presented to any passenger who is responsible for a passenger with limitations.

3.4.6 Competing Presentations

Components of the PSIS shall be presented in such a way and at such time that the safety message receives maximum attention by passengers. The cabin crew members shall direct passengers to attend fully to the presentation, which shall not be diluted by the inclusion of service information or advertising. Extraneous information not essential to safety shall be excluded from the briefing materials.

4. MINIMUM REQUIREMENTS

At a minimum, the various components comprising the PSIS shall address the points outlined herein.

- a. Remind passengers to comply with all posted and lighted information signs and crew member instructions.
- b. Provide information on smoking restrictions, including the use of e-cigarettes, onboard the aircraft, and shall include the information in ARP4740.
- c. Indicate restrictions on the type and use of portable electronic devices during taxi, takeoff and landing (TTL), and in other appropriate circumstances.
- d. Instruct passengers to refrain from moving or articulating any seat should any portable electronic device fall or become stuck in or around the seat and to bring this issue to the attention of a cabin crew member.
- e. Instruct passengers on how and where to stow carry-on baggage for TTL.
- f. Caution passengers about the danger of articles falling when opening and retrieving items from overhead compartments.
- g. Instruct passengers not to stow items in compartments where emergency equipment is installed.
- h. Instruct passengers to leave carry-on baggage behind in an emergency. The operator should consider making this announcement in the pre-flight safety briefing, emergency briefing, and before landing on each flight. Passengers attempting to retrieve and/or evacuate the aircraft with carry-on luggage can significantly slow egress and risk injury to themselves and/or others.
- i. Instruct passengers about the appropriate placement and stowage of tray tables, personal video screens/monitors (where applicable), corded electrical devices (e.g., handsets), seat backs, and footrests (where applicable) for TTL.

4.1 Equipment Used for Demonstration Purposes

Equipment used solely for demonstration purposes, as part of pre-flight safety briefings, shall be clearly identified and labeled as to its function as demonstration equipment.

4.1.1 Demonstration Life Preservers

Demonstration life preservers shall be used as part of the pre-flight briefing when required per the aircraft operation. The life preservers should be fully representative of the equipment and its operation as installed onboard the aircraft. Demonstration life preservers can be manufactured by modifying fully serviceable units and are not required to meet any of the performance criteria specified in Technical Standard Orders (TSO) and Aerospace Standards. Demonstration life preservers shall utilize the same donning procedure as the units installed on the aircraft. These units shall be clearly labeled with the words "DEMONSTRATION" or "DEMO" to indicate that they cannot be used as functional units in an evacuation.

4.1.2 Demonstration Oxygen Masks

Demonstration oxygen masks shall be used as part of the pre-flight briefing when required per the aircraft operation. These masks should be representative of the equipment and its operation as installed onboard the aircraft, and should be clearly labeled with the words "DEMONSTRATION" or "DEMO" to indicate that they cannot be used with any aircraft system. Additionally, no connectors should be installed on these masks, such that they could be mistaken for portable oxygen cylinder masks.

4.1.3 Aircraft Equipment Used for Demonstration Purposes

Aircraft (serviceable) equipment may be used as part of pre-flight demonstration of emergency evacuation procedures. If this equipment has not been modified to be demonstration only, it should not be marked as "DEMONSTRATION" or "DEMO."

4.1.4 Seat Belt Extenders

To demonstrate the fastening of aircraft seat belts, seat belt extenders may be used. These are examples of aircraft equipment that may be utilized in the demonstration, and as such, should not be marked as "DEMONSTRATION" or "DEMO." They shall be maintained per required maintenance programs/limits.

4.1.5 Passenger Safety Information Briefing Card (SBC)

SBCs may be used as part of the safety briefing prior to flight, in addition to any requirements for their availability as supplemental information. When used in the briefing, these should be restowed in the passenger seat back, or location at which they are visible to each passenger. Generic or sample cards may be used, but these shall be kept separate from those provided for passenger information, and should be clearly marked "DEMONSTRATION" or "DEMO."

4.1.6 Stowage of Demonstration Equipment

Equipment used for demonstration purposes should be stowed in an accessible location, and should be kept separate from aircraft equipment, so that it may not be mistaken for non-demonstration items. When aircraft equipment is used for demonstration purposes, it shall be stowed and returned to its required location for use in flight after completion of the demonstration.

4.2 Exit Seating

- a. Passengers should be assessed at or before arrival at the passenger-loading gate for conformance with approved selection criteria for exit seating. Operators with unassigned seating, advance seat selection, self-check-in kiosks, or other types of computer/internet technologies which allow self-selection of seating should verify passenger eligibility for occupying exit seating at the loading gate.
- b. Alternate means of passenger eligibility verification, which expedite the screening and briefing process, should be implemented. For example, operators could develop a promotional safety program (similar to frequent flier, bonus miles, or other registered-passenger programs) by which passengers would be "pre-qualified" as exit seat passengers by virtue of their flight history and ability to comply with the exit seating regulations (e.g., 14 CFR 121.585) and requirements. Recommended elements for such a program include:
 1. Completing a survey on the operator's website that asks questions about visual and aural capacity, dexterity, strength, mobility, primary, and secondary languages, and
 2. Completing a short, interactive electronic training module on the operator's website that describes and illustrates tasks to be performed in an emergency, etc., and

3. Physically demonstrating the ability to meet the selection criteria to a designated operator representative (e.g., provide a doctor's statement that the passenger can lift 50 pounds), and
 4. Receiving an identification card (with space for their signature) that includes a commitment to attend to the exit briefing, and
 5. Being periodically "re-qualified."
- c. Instruct passengers sitting in designated exit seats that they may be required to operate the exit in an emergency and that they shall inform a crew member if they are unable or unwilling to do so. The minimum criteria for exit seat occupants, and the responsibilities those occupants incur, are generally provided in national aviation regulations.
- d. Passengers seated in exit seats shall be able to speak and read the language in which the crew gives the oral briefings and commands and in which the SBCs are written.
- e. Passengers in exit seats should be among the first passengers to board the aircraft to allow time for an individual pre-flight oral briefing.
- f. A cabin crew member shall verify that exit seat passengers continue to meet the selection criteria during the pre-landing cabin safety check (e.g., they have not changed seats or become ill, intoxicated, or otherwise incapacitated).
- g. Exit seat passengers shall receive a separate oral briefing in addition to the general pre-flight safety briefing given to all passengers.
- h. The crew member conducting the oral briefing shall motivate exit seat passengers to focus on the content of the exit seat briefing by making eye contact with each passenger in the designated exit seat(s) and insisting on each passenger's attention. The crew member shall require passengers to remove headphones. Passengers should be advised that failure to attend to the briefing would result in reseating.
- i. The crew member conducting the briefing should use a visual tool(s) to promote understanding of the oral briefing. Visual tools should primarily include the SBC, which illustrates operation of the exit, the placard on or near the exit hatch/door, and the features of the exit itself (e.g., hatch handle). Note that the SBCs are intended to supplement the oral briefing and should not supplant an oral exit seat briefing (refer to AC 121-24D).
- j. The crew member conducting the briefing should describe and/or illustrate to passengers seated in exit seats the steps required to operate the exit in an emergency. These steps include, but are not limited to:
1. The passengers should listen for commands from the crew, which they should follow.
 2. The passengers should visually check the environmental conditions outside the aircraft before opening the exit. The crew member should explain the conditions, such as fire, that would preclude opening the exit. In cases where an exit is without an integral window, the passengers should be shown how to assess the external conditions (e.g., looking through a window immediately forward or aft of the exit hatch/door).
 3. Instruction on the operation of the exit should include an explanation of how to access the handle or other operating mechanism, and exactly how to move it. The crew member should explain what the passenger should expect when the exit opens (e.g., the exit hatch will become unhinged from its frame, the exit hatch must be brought inside or placed outside the aircraft, and the weight of the exit hatch).
 4. The operation of any evacuation assist means associated with the exit (e.g., an inflatable slide, lifelines) should be explained.
 5. What is expected of them after they operate the exit (e.g., where they should stand, how they should help other passengers to exit, which direction to go after they exit, and how to get off the wing).
- k. Passengers seated in exit seats, especially in the outboard seat closest to the exit, should be made aware of the importance of performing their duties in an expeditious manner.

- l. Passengers seated in exit seats, but not in the outboard seat closest to the exit, should be advised that it might be necessary for them to hold the crowd off the passenger who is opening the exit to provide adequate time and space to do so.
- m. Each passenger seated in exit seats should be alerted that by agreeing to sit in an exit seat, the passenger is performing a service necessary to the safety of themselves and fellow passengers.
- n. Passengers seated in exit seats should be required to acknowledge to the crew member conducting the briefing that they understand what has been told and demonstrated to them, that they are willing and able to assist, and that they are comfortable with the responsibility. The crew member should ask questions to assess passengers' understanding. Where any doubt exists about the ability of passengers to carry out emergency procedures, passengers should be reeducated.

4.3 Passenger Restraints

4.3.1 Adult Restraint Systems

- a. Provide instructions for fastening and tightening safety belts low and tight across the hips for TTL and for unfastening safety belts. Passengers shall be instructed to keep their safety belts fastened while seated due to the danger of turbulence.
- b. Indicate the correct use of shoulder straps (e.g., over the forward shoulder on side-facing seats) if such equipment is provided.

4.3.2 Child/Infant Restraint Systems

- a. Indicate the proper use of a child/infant restraint system if such equipment is provided. Passengers shall be instructed to use the restraint system during TTL and whenever else the child/infant is in the seat.
- b. Advise adults with child in child restraint, in the event of an evacuation, take the child and leave the restraint device.

4.4 Oxygen Masks

Indicate the oxygen mask stowage locations (e.g., passenger service unit, lavatories, etc.). Instructions on how to don, adjust, and perform any actions necessary for initiating oxygen flow shall be provided. If a reservoir bag is depicted, it shall not be shown inflated. Instructions to help others don their masks only after the passenger has donned a mask shall be provided. The need for urgency in donning oxygen masks shall be emphasized.

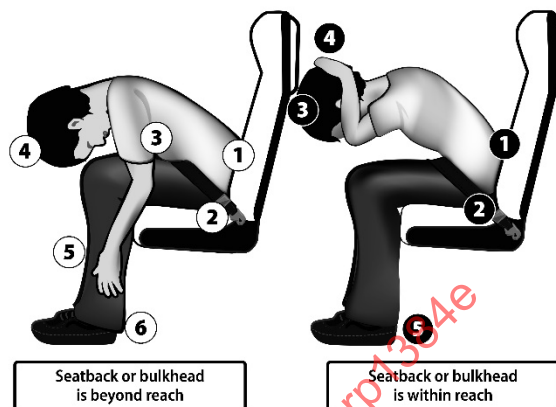
4.5 Brace for Impact Positions

- a. Most passenger seats are situated behind another passenger seat, a vertical bulkhead, or a passageway. Depending upon interior configuration of the aircraft and the size of the passenger, the passenger may or may not be able to reach the surface in front. This requires that information be conveyed on at least two brace positions for passengers in forward-facing seats, one for conditions where there is a seat or other cabin furnishing within reach in front of the passenger, and one where there is no seat or other cabin furnishing within reach in front of the passenger.
- b. Occasionally there are aft-facing seats on both transport-category aircraft as well as on corporate and private aircraft. Further, some aircraft are equipped with side-facing seats that may be occupied on TTL.

REARWARD FACING BRACE POSITION

If in Rearward Facing Seats

- 1 Push back into seat which is upright
- 2 Tighten seat belt
- 3 Head against headrest
- 4 Arms on lap
- 5 Feet firmly on floor

FORWARD FACING BRACE POSITIONS

If Seatback or Bulkhead is Beyond Reach

- 1 Push back into seat which is upright
- 2 Tighten seat belt
- 3 Lean forward, chest against legs
- 4 Head down
- 5 Arms around or behind legs
- 6 Feet firmly on floor behind knees

If Seatback or Bulkhead is Within Reach

- 1 Push back into seat which is upright
- 2 Tighten seat belt
- 3 Head against seatback
- 4 Arms behind head
- 5 Feet firmly on floor behind knees

Figure 1 – Passenger brace for impact positions

- c. Rearward Facing - The brace position that can provide protection in high-g decelerations would be to have the feet on the floor with the back and the head pressed against the seat back and headrest, as depicted in Figure 1. These features should be provided in all components of the PSIS.
- d. Forward Facing - Figure 1 provides the important features of the brace positions for use by adult passengers in forward-facing seats. Figure 1 may be used as a guide in preparing safety information media. It need not be copied exactly, but the intent of the illustration (as indicated by the numbered features) should be maintained. These features should be provided in all components of the PSIS.
- e. Side Facing/Oblique - No consensus has been reached as to the best brace position occupants should assume in side-facing seats. It is not clear whether a lap-belt/upper-torso restraint provides more or less protection than simply a lap-belt restraint. Therefore, no recommendation as to whether the passenger should be bent over or seated upright in the brace position can be made at this time.
- f. Inflatable Restraints - Inflatable restraints may require special actions. If so, they shall be described in all PSIS.

- g. Infant and Child Restraints - No consensus has been reached as to the best brace position for occupants holding infants. However, children should be restrained in an approved restraint system. Please refer to AS5276/1 for more information.
- h. PSIS components (including pre-recorded safety videos) shall depict all applicable brace positions and emphasize the word or phrase the crew is trained to give in an emergency during takeoff or landing in which there is a need for passengers to assume a protective brace position. PSIS components shall emphasize to use such position(s) until the aircraft has come to a complete stop. The PSIS components shall differentiate brace position(s) at different locations in the cabin, as well as protective position(s) for a seated child, and a lap-held child.

4.6 Flotation Means

Indicate stowage locations and instructions for use of flotation devices. PSIS components shall depict the actual devices carried onboard the aircraft. Describe any additional equipment or specific use requirements in the briefing materials. These include:

4.6.1.1 Flotation Seat Cushions

Provide instructions for retrieval and use of seat cushions for flotation, including proper manner of holding and use of the straps.

4.6.1.2 Life Preservers

Provide instructions for retrieval and use of life preservers, including the following information:

- a. Removing the life preserver from its identified stowed location.
- b. Opening the package, donning, and adjusting the life preserver.
- c. Using the manual and oral inflation systems.
- d. Availability and use of signaling device, such as a whistle, if equipped.
- e. Operating the survivor locator light if manual operation of such lights is required.
- f. Donning procedures for both adults and children, if different.

4.6.1.3 Infant Flotation Devices

Provide instructions on the use of crew-member-provided infant flotation devices to be made available to adults travelling with infants, and when those devices would be distributed to the adult accompanying the infant by cabin crew members. The information may be presented verbally, provided on separate briefing materials at the time the flotation devices are distributed, or printed on the flotation devices themselves.

4.6.1.4 Group Flotation

Indicate use of the escape slide as flotation means, where applicable.

4.6.1.4.1 Life Raft

Indicate stowage locations of life raft(s), if equipped.

4.7 Passenger Exits

Indicate the locations of all emergency exits. Exits to be used following a water landing, if different from those used during a land evacuation, shall be indicated.

4.8 Exit Path Marking System

Indicate the location, appearance, and function of the exit path marking system. The relationships among the light patterns or colors, the exit signs, and the exit locations shall be shown.

4.9 Emergency Exit Operation

Present instructions on how to open, in the emergency mode, each type of exit located in the passenger cabin. All operations needed to ensure a successful emergency evacuation (e.g., placement of removable hatches, manual operation of escape devices, positioning of passenger helpers) shall be included.

4.10 Emergency Evacuation

Instruct passengers not to bring any carry-on baggage to the exit during an emergency evacuation. The fact that baggage can cause injuries and slow evacuations should be explained. On aircraft equipped with inflatable escape devices (slides, slide/rafts, rafts), passengers shall be instructed to remove spike-heeled shoes and other sharp objects before reaching the exit and using the device. Since shoes may provide protection when moving away from the aircraft, passengers shall be instructed to carry them and put them back on once on the ground.

4.10.1 Emergency Descent Assisting Devices

4.10.2 Inflatable Escape Slides

Provide location(s) and instructions on the proper procedures for deploying and using inflatable escape slides, including the need to jump outward in the seated position and not to sit at the doorsill when entering the escape slide, unless jumping is not recommended because of unusual height of the doorsill, narrowness of the slide, or attitude of the aircraft. Instructions to help other evacuees at the bottom of the slide and then to move rapidly away from the slide shall be provided.

4.10.3 Alternate Descent Assisting Means

Provide location(s) and instructions for deploying and using descent devices other than escape slides (e.g., stairs). If no descent-assisting device is provided, the method of reaching the ground from the exit shall be depicted.

4.11 Escape Routes

4.11.1 Deplaning Away from an Airport

Indicate the directions and escape routes to be used after leaving each aircraft exit in an emergency evacuation at a location other than an airport. Passengers shall also be cautioned about smoking restrictions and the hazards of rotor wash, jet blast, propellers, pitot tubes, and vehicle traffic.

4.11.2 Deplaning onto the Airport Tarmac

Indicate that passengers deplaning onto the tarmac shall follow crew member and ground crew instructions and proceed directly to the terminal building. Passengers shall also be cautioned about smoking restrictions and the hazards of rotor wash, jet blast, propellers, pitot tubes, and vehicle traffic.

4.12 Extended Overwater Flights

PSIS components provided on aircraft operated on extended overwater flights (i.e., operations over water at a horizontal distance of more than 50 nautical miles from the nearest shoreline or, with respect to helicopters, an operation over water at a horizontal distance of more than 50 nautical miles from the nearest shoreline and more than 50 nautical miles from an off-shore heliport structure), shall indicate stowage locations of life preservers, life rafts and slide/rafts, instructions on life preserver and life-raft retrieval, preparation for use, inflation, securing life rafts to and detaching them from the aircraft, and locations for launching life rafts from the aircraft. Instructions for inflating, boarding, and detaching slide/rafts shall be provided.

4.13 Aircraft without Cabin Crew Members

Briefing materials on aircraft operated without cabin crew members shall additionally indicate the stowage locations and procedures for retrieval and use of portable emergency safety and survival equipment, such as fire extinguishers, first aid kits, and emergency locator transmitters.

5. PRESENTATION REQUIREMENTS SPECIFIC TO THE PASSENGER SAFETY INFORMATION BRIEFING CARD

5.1 SBC Content and Design

The content and design of SBCs are important attributes to convey safety information to passengers. The following points are recommended for consideration and implementation.

- a. Using clear and unambiguous instructions, depictions, and information is correlated to passenger comprehension and response during an emergency.
- b. NTSB Safety Recommendations support the importance and relevance of the PSIS as well as the necessity for clear information communication in these modalities.
- c. Cabin crew members should remind passengers there are an array of differences among aircraft. This point should be used as an emphasis to encourage passengers to consult the SBC.
- d. Consideration should be given to the design, dimensions, formatting, style, and location of the passenger SBC. These elements should be made in such a way to contribute to increased passenger safety education.
- e. Special consideration should be given to minimize written information, instead relying on clear and easy-to-understand diagrammatic or pictorial representations to convey safety information.
- f. The use of international, standardized, and/or widely recognized symbols is encouraged. Using pictures of people, diagrams, drawings, words, or a combination of these are acceptable methodologies for depicting relevant safety information, equipment, or action.
- g. Information regarding exit seating criteria should also be included in the SBCs. It is helpful when these criteria are presented in the languages used by those the operator serves.
- h. SBCs should be made to represent the specific aircraft make, series, and configuration. SBCs should depict the specific emergency equipment that is available on the specific aircraft on which it is provisioned.
- i. Conflicting information shall not be comingled on the same SBC such as non-extended and extended overwater equipment or any other safety-related equipment that varies within an aircraft type, series, or configuration. The SBC shall only contain information that is essential for safety, or information required by the applicable national aviation regulations.

5.2 SBCs should include:

- a. Instruction for passengers to comply with lighted signs, placards, and crew member instructions.
- b. Policies for smoking and using e-cigarettes while onboard.
- c. Emergency escape path lighting. Emergency egress lighting on or near the floor.
- d. Emergency exit seat information.
- e. Emergency exit location, operation, and information when not to open an exit for each cabin exit type.
- f. Evacuation-assist means (slide or alternative) and operation available at each exit type.
- g. Lifeline stowage and instructions for use.