REPUBLIC OF KENYA

KENYA CIVIL AVIATION AUTHORITY

INFORMATION AND INSTRUCTIONS FOR PASSENGER SAFETY MANUAL

CAA-M-OPS011

June 2018

FORWARD

This manual provides guidance to KCAA Inspectors as well as the Industry on the safety-related information and instructions that an operator should provide to passengers. The manual provides guidance material that may be used to design, develop and update passenger safety information. This includes information provided during normal operations and in the event of an abnormal or emergency situation. It also highlights items that should be covered in oral and written mediums used by the operator in relaying that information to passengers.

DIRECTOR AVIATION SAFETY, SECURITY AND REGULATION

RECORD OF REVISIONS

Change Summary

Issue No.	Brief Description of Change	Prepared by	Effective Date

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LIST OF EFFECTIVE PAGES

Page No	Revision Number	Date of Revision
1	Version 1 Rev 000	June 2018
2	Version 1 Rev 000	June 2018
2	Version 1 Rev 000	June 2018
3	Version 1 Rev 000	June 2018
4	Version 1 Rev 000	June 2018
5	Version 1 Rev 000	June 2018
6	Version 1 Rev 000	June 2018
7	Version 1 Rev 000	June 2018
8	Version 1 Rev 000	June 2018
9	Version 1 Rev 000	June 2018
10	Version 1 Rev 000	June 2018
11	Version 1 Rev 000	June 2018
12	Version 1 Rev 000	June 2018
13	Version 1 Rev 000	June 2018
14	Version 1 Rev 000	June 2018
15	Version 1 Rev 000	June 2018
16	Version 1 Rev 000	June 2018
17	Version 1 Rev 000	June 2018
18	Version 1 Rev 000	June 2018
19	Version 1 Rev 000	June 2018
20	Version 1 Rev 000	June 2018
21	Version 1 Rev 000	June 2018
22	Version 1 Rev 000	June 2018
23	Version 1 Rev 000	June 2018
24	Version 1 Rev 000	June 2018
25	Version 1 Rev 000	June 2018
26	Version 1 Rev 000	June 2018
27	Version 1 Rev 000	June 2018
28	Version 1 Rev 000	June 2018
29	Version 1 Rev 000	June 2018
30	Version 1 Rev 000	June 2018
31	Version 1 Rev 000	June 2018
32	Version 1 Rev 000	June 2018
33	Version 1 Rev 000	June 2018
34	Version 1 Rev 000	June 2018

Page No	Revision Number	Date of Revision
35	Version 1 Rev 000	June 2018
36	Version 1 Rev 000	June 2018
37	Version 1 Rev 000	June 2018
38	Version 1 Rev 000	June 2018
39	Version 1 Rev 000	June 2018
40	Version 1 Rev 000	June 2018
41	Version 1 Rev 000	June 2018
42	Version 1 Rev 000	June 2018
43	Version 1 Rev 000	June 2018
44	Version 1 Rev 000	June 2018
45	Version 1 Rev 000	June 2018
46	Version 1 Rev 000	June 2018
47	Version 1 Rev 000	June 2018
48	Version 1 Rev 000	June 2018
49	Version 1 Rev 000	June 2018
50	Version 1 Rev 000	June 2018
51	Version 1 Rev 000	June 2018
52	Version 1 Rev 000	June 2018
53	Version 1 Rev 000	June 2018
54	Version 1 Rev 000	June 2018
55	Version 1 Rev 000	June 2018
56	Version 1 Rev 000	June 2018
57	Version 1 Rev 000	June 2018
58	Version 1 Rev 000	June 2018
59	Version 1 Rev 000	June 2018
60	Version 1 Rev 000	June 2018
61	Version 1 Rev 000	June 2018
62	Version 1 Rev 000	June 2018
63	Version 1 Rev 000	June 2018
64	Version 1 Rev 000	June 2018
65	Version 1 Rev 000	June 2018
66	Version 1 Rev 000	June 2018
67	Version 1 Rev 000	June 2018
68	Version 1 Rev 000	June 2018

TABLE OF CONTENTS

DEFINITIONS

Able-bodied passengers. Passengers who are clearly physically able and are willing to help cabin crew maintain good order and discipline on board the aircraft.
Authority. The Kenya Civil Aviation Authority.
Cabin crew member. A crew member who performs, in the interest of safety of passengers, duties assigned by the operator or the pilot-in-command of the aircraft, but who shall not act as a flight crew member.
Child. A passenger who has reached their second birthday but not their twelfth birthday.
Child restraint system. Any device, other than a seat belt, that is designed specifically to protect and restrain an infant or child during all phases of flight. It typically has an internal harness and belt combination. The device needs to interface with the aircraft seat. This includes devices that are secured using the aircraft seat belt as well as systems that secure the device to the aircraft seat. The device needs to meet minimum performance standards, as specified by the Authority.
Crew member. A person assigned by an operator to duty on an aircraft during a flight duty period.
Critical phases of flight. The period of high workload on the flight deck, normally being the periods between the beginning of taxiing until the aircraft is on the route climb phase and between the final part of descent to aircraft parking.
Deportee. A person who had legally been admitted to a State by its authorities or who had entered a State illegally, and who at some later time is formally ordered by the competent authorities to leave that State.
Direct access. A direct route or passage from a seat to an exit from which a passenger can proceed without entering an aisle or passing around an obstruction.
Disinfection. The procedure whereby health measures are taken to control or kill insects present in aircraft, baggage, cargo, containers, goods and mail.
Emergency exit. Door, window exit, or any other type of exit (e.g. hatch in the flight deck, tail cone exit) used as an egress point to allow maximum opportunity for cabin evacuation within an appropriate time period.
Emergency exit row seating. Each seat in a row of seats located at an emergency exit, having direct access to the exit.
Escort. An individual authorized by a Contracting State or an aircraft operator to accompany inadmissible persons or deportees being removed from that Contracting State.
Flight crew member. A licensed crew member charged with duties essential to the operation of an aircraft during a flight duty period.
Inadmissible person. A person who is or will be refused admission to a State by its authorities.
Infant. A passenger who has not reached their second birthday.
Oblique-facing seats. Seats installed in the aircraft where the occupant angle relative to the aircraft longitudinal axis is other than those described for forward-facing, rearward-facing or side-facing seats.
Operator. The person, organization or enterprise engaged in or offering to engage in an aircraft operation.

Passenger. A person who is not an operating crew member.

Person with disabilities. Any person whose mobility is reduced due to a physical incapacity (sensory or locomotor), an intellectual deficiency, age, illness or any other cause of disability when using transport and whose situation needs special attention and the adaptation to the person's needs of the services made available to all passengers.

Restraint. A device designed to safely restrain an occupant in his/her seat to prevent injuries resulting from inertia forces or other in-flight forces such as turbulence. A restraint may be a seat belt, safety harness or approved child restraint system.

Safety harness. A webbing-based restraint consisting of at least three anchor points restraining both the pelvis and upper torso.

Seat belt. A webbing-based restraint consisting of two anchor points restraining the pelvis. It is also referred to as a lap belt.

Special categories of passengers. Persons who need special conditions, assistance, or equipment when travelling by air. These may include but are not limited to:

Infants;

a) Unaccompanied children;
b) Persons with disabilities;
c) Persons with mobility impairments;
d) Persons on stretchers; and
e) Inadmissible passengers, deportees or persons in custody.

Unstaffed exit. Emergency exit for which no cabin crew member has been positioned for the flight.

ABBREVIATIONS AND ACRONYMS

ADREP	Accident/Incident Data Report System
ANSI	American National Standards Institute
ARP	Aerospace Recommended Practice
CAA	Civil Aviation Authority
CRS	Child restraint system
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulations
IBRACE	International Board for Research into Aircraft Crash Evaluation
ICAO	International Civil Aviation Organization
ICSG	ICAO Cabin Safety Group
IFE	In-flight entertainment system
ISO	International Organization for Standardization
PA	Public address (system)
PED	Portable electronic device
SAE	Society of Automotive Engineers
SARPs	Standards and Recommended Practices
SME	Subject matter expert
TC	Type certificate
TCCA	Transport Canada Civil Aviation

CHAPTER 1

1.0 INTRODUCTION

1.1 BACKGROUND

1.1.1 Survivability in an aircraft accident is dependent on multiple factors. Certification standards for crashworthiness and ditching are designed to enhance passenger survivability by maintaining the integrity of the structure and access to exits. Cabin crew evacuation procedures further improve passenger survivability. Passengers' survival rates are improved when they are informed about the correct use of equipment—such as seatbelts, and the actions they should take in the event of an emergency—such as how to adopt the brace-for-impact position. This lifesaving information is relayed to passengers via passenger safety briefing cards, videos, signs, placards, emergency lighting systems and verbal briefings provided by crew members.

1.1.2 Cabin crew members are trained to respond to a variety of safety-related situations including conducting an evacuation, which in part entails managing passengers in such a way as to optimize egress from the aircraft.

1.1.3 Accident investigations have shown that deficiencies and inaccuracies in safety information briefings, signs, placards and markings can negatively impact passenger survival rates. Well-informed, knowledgeable passengers have a better chance of surviving life-threatening situations that may occur on board an aircraft. Therefore, operators shall be required to communicate specific information and instructions to passengers in a variety of methods to facilitate understanding. These methods include briefings and visual safety information (e.g., passenger safety briefing cards and placards).

1.1.4 Civil Aviation regulations require operators to brief all passengers adequately on safety information applicable to their operation. Accident investigations and studies recognize that passengers tend to be inattentive to safety briefings. Therefore, operators may need to employ novel approaches to present safety information—to encourage passenger attention and to improve comprehension and retention of the information and instructions.

1.2 PURPOSE

1.2.1 This manual provides guidance to KCAA Inspectors as well as the Industry on the safety-related information and instructions that an operator should provide to passengers. The manual provides guidance material that may be used to design, develop and update passenger safety information. This includes information provided during normal operations and in the event of an abnormal or emergency situation. It also highlights items that should be covered in oral and written mediums used by the operator in relaying that information to passengers.

1.2.2 Civil Aviation (Airworthiness) Regulations, as amended contains provisions on markings and placards for all aircraft.

This manual presents guidance for airworthiness standards, related to passenger information signs, markings and placards that should be located in the cabin. It also addresses other aspects related to the safety of passengers on board aircraft, including considerations for persons seated at emergency exit rows, recommended brace-for-impact positions and sample commands used by cabin crew members to instruct passengers in the event of an emergency.

CHAPTER 2

2.0 PASSENGER SAFETY BRIEFINGS

2.1 OVERVIEW

2.1.1 Civil Aviation (Air Operator Certification and Administration) Regulations, Civil Aviation (Operation of Aircraft-Commercial Air Transport) Regulations and Civil Aviation (Operation of Aircraft-Helicopters) Regulations, as amended contains requirements for the information that the operator must provide to passengers on board commercial flights. The operator must ensure that passengers are made familiar with the location and use of the following:

a) seat belts;
b) emergency exits;
c) life jackets, if the carriage of life jackets is prescribed;
d) oxygen dispensing equipment, if the provision of oxygen for the use of passengers is prescribed; and
e) other emergency equipment provided for individual use, including passenger emergency briefing cards[1].

2.1.2 The operator to inform passengers of the location and general manner of use of the principal emergency equipment carried for collective use.

2.1.3 The operator must provide instructions to passengers in the event of an emergency situation, such as the preparation of the cabin for an anticipated emergency landing or ditching.

2.1.4 The operator must ensure that all baggage carried onto its aircraft and taken into the cabin is adequately and securely stowed.

2.2 REGULATORY CONSIDERATIONS

2.2.1 To improve passengers' safety and enhance their reaction and survival in the event of an emergency, operators are required to provide the necessary safety information to passengers. This includes information to be provided both during normal operations and also in the event of an abnormal or emergency situation commonly referred to as passenger safety briefing card.

2.2.2 Cabin crew members should conduct verbal and visual safety briefings to provide the necessary information to passengers. Passenger safety briefings include the following:

a) pre-departure briefing;
b) unstaffed exit row briefing;
c) briefings for special categories of passengers;
d) briefing conducted before take-off, commonly referred to as a safety demonstration;
e) after take-off briefing;
f) briefing in the event of turbulence;
g) pre-landing briefing;
h) after landing briefing;
i) transit stop briefing;
j) refuelling briefing; and
k) information and instructions to passengers during abnormal and emergency situations.

2.2.3 The operator should list the content of each briefing described in section 2.2.2 and include it in its operations manual. Additionally, the operator's cabin crew training programme should address the content and conduct of passenger safety briefings. The FOI/CSI should review the content of the briefings as part of the approval process of the operator's operations manual and training programme. Any subsequent changes to the operations manual and training programme related to passenger safety briefings shall be reviewed and approved by the assigned inspector.

2.2.4 Sections 2.3 to 2.13 present detailed guidance on the content of the different safety briefings.

2.3 PRE-DEPARTURE BRIEFING

The operator's procedures should require cabin crew members to conduct a pre-departure briefing prior to every flight (including stop-overs). Prior to departure from the gate or parking stand, cabin crew should brief passengers on the following items:

a) carry-on baggage, including information on the operator's baggage allowance, designated stowage locations and special instructions (e.g. place heavier items under the seat instead of in the overhead bin; any restrictions on the stowage of carry-on baggage in emergency exit rows);
b) operation of unstaffed exits (refer to section 2.4); and
c) other required announcements (e.g., cabin disinfection and the policy on the use and stowage of portable electronic devices)

Note.—Cabin crew commonly brief passengers on items a) and c) by conducting an announcement made over the public address system.

2.4 UNSTAFFED EXIT ROW BRIEFING

2.4.1 An unstaffed exit is an emergency exit for which no cabin crew member has been assigned. Therefore, passengers should operate these exits in the event of an evacuation. The Authority requires the operator to develop and implement procedures regarding the criteria that passengers must meet in order to occupy seats located at emergency exit rows (refer to chapter 5). The operator's procedures should include briefings to passengers seated at unstaffed-exit rows on the operation of the exit and the responsibilities of seating in an unstaffed exit row.

2.4.2 Prior to each flight, cabin crew should brief passengers seated at unstaffed exit rows on the following items:

a) the importance of the role of the passenger in the event of an emergency, so that passengers seated at unstaffed exit rows are aware of their responsibility to operate the exit;
b) request the passengers to verbally accept the responsibility;
c) the signal/command that would instruct the passengers to open exits. In order to prevent uncommanded opening, the cabin crew should also emphasize the need to follow all instructions and to listen closely to the crew's commands; and
d) how to open the exit, including specific aspects of the operation such as:

1. check for hazards before opening the exit (i.e. fire, water, debris);
2. what to do with the exit hatch, if removable; and
3. the location of placards and the passenger safety briefing card.

Note.—In the event of an anticipated emergency landing or ditching, cabin crew may provide additional information to passengers regarding the responsibilities of unstaffed exit row occupants.

2.5 BRIEFINGS FOR SPECIAL CATEGORIES OF PASSENGERS

2.5.1 In addition to the standard information provided to all passengers on board, certain passengers may require additional, personalized individual briefings, adapted to suit their specific needs.

2.5.2 The Authority requires operators to provide individual safety briefings to special categories of passengers and their companion, where applicable. These passengers include, but are not limited to the following:

a) persons travelling with infants;
b) unaccompanied children;
c) persons with disabilities;
d) persons with mobility impairments; and
e) persons on stretchers

2.5.3 In general terms, an individual safety briefing for special categories of passengers should include the following:

a) information contained in the safety demonstration (refer to section 2.6) and the passenger safety briefing card (refer to chapter 3) that the passenger may not be able to receive otherwise (e.g., if the passenger is visually impaired) and is necessary for the safety of the person on board the aircraft; and
b) additional information specific to the needs of the passenger, as described in section 2.5.5

2.5.4 Individual briefings should be given to special categories of passengers prior to take-off, on the first leg of a journey, and prior to landing but may not need to be repeated during subsequent legs if the flight involves short transit stops on the same aircraft.

2.5.5 Cabin crew should brief special categories of passengers to verify their understanding of the following, as applicable:

a) Seat belt and other restraint systems:
   1) the use of seat belts and additional features (refer to section 2.6.2 a));
   2) use of child restraint systems (CRS), if applicable (refer to section 2.5.6 c) 1)); and
   3) means to restrain, “secure” or control animals, if permitted in the cabin;
b) Emergency exits:
   1) location of the nearest exit;
   2) location of the nearest alternate exits; and
   3) emergency lighting (emergency escape path lighting, exit signs);
c) Oxygen:
d) Life jacket or individual flotation devices:
e) Brace position:
   1) most suitable brace position for the passenger based on physical condition; and
   2) commands if bracing is necessary;
f) Additional assistance during the flight;
g) Assistance in the event of an emergency situation; and
h) Additional information: location of seat controls, call button, passenger service unit, and lavatory.

2.5.6 In addition to the items covered in section 2.5.5, cabin crew members should address the following points, as applicable:

a) In the case of a passenger with mobility impairments who would require assistance to move to an exit in the event of an emergency, a cabin crew member should ascertain the passenger's specific needs and inform him/her of the following:

1) the most appropriate exit for the passenger;
2) the assistance that the passenger might require reaching that exit;
3) the most appropriate means of providing that assistance;
4) the most appropriate route to that exit; and
5) the most appropriate time to begin moving to that exit

b) In the case of a visually impaired passenger:
1) a tactile familiarization with:
(i) the equipment that the passenger may be required to use in the event of an emergency; and
(ii) if requested, the exits; and;

2) inform the passenger of:
(i) where the passenger's mobility device, if any, is to be stored;
(ii) the number of rows of seats separating the passenger's seat from the closest exit and from the alternate exit; and
(iii) the features of those exits; and

3) if the operator carries Braille or large-print versions of its passenger safety briefing cards on board, a copy should be provided to the visually impaired passenger; and

c) In the case of a passenger who is responsible for another person on board the aircraft:
1) if the passenger is responsible for an infant, or a child occupying a CRS, information on
(i) the use of CRS, including when the parent/guardian is required to secure the CRS occupant, by phases of flight and when the seat belt sign is illuminated;
(ii) instruction that an infant/child cannot share a seat belt with the accompanying parent/guardian;
(iii) information on the use of bassinets, including when they are permitted;
(iv) how to place and secure the oxygen mask on the infant/child's face;
(v) use of infant life jackets, if available on board, including the location of the infant's life jacket, how to remove it from its location and packaging, how to assist the infant with donning it and when to inflate it;
(vi) in case of turbulence, the infant/child needs to be secured in the CRS. If

the infant/child is not in the CRS when turbulence is encountered, the parent/guardian is responsible for securing him/her in it;

(vii) in the event of an anticipated emergency landing or ditching, the most appropriate brace position for the passenger and the need for the infant/child to be secured in the CRS; and

(viii) in the event of an evacuation, the parent/guardian should remove the infant/infant from the CRS and leave the device behind; and

d) If the passenger is responsible for a person, other than an infant or child:
   (i) how to assist that person with donning and securing his or her oxygen mask; and
   (ii) how to use that person's personal restraint system, if any, on board the aircraft.

2.6 SAFETY DEMONSTRATION

2.6.1 The operator's procedures should require cabin crew members to conduct a safety demonstration before every flight (including stop-overs). The safety demonstration may be conducted by cabin crew on board the aircraft or via a video developed by the operator and presented to the passengers prior to take-off. It should be specific to the aircraft make, model and series operated for the flight.

2.6.2 The safety demonstration should include information about the following items:

a) use of seat belts and additional features (including when and how to fasten, adjust and release seat
b) belts and or shoulder harnesses; and the need to keep the seat belt fastened while seated throughout the flight to prevent injury in the event of unanticipated turbulence encounters);
c) location and presentation of the passenger safety briefing card and the importance for passengers to review it prior to take-off for safety reasons;
d) location of emergency exits (including a mention that the nearest may be behind the passenger, that exits may be blocked, and the need to identify alternative exits);
e) emergency lighting (emergency escape-path lighting, exit signs);
f) location and use of oxygen masks, if applicable, including:
   1. The actions to be performed by a passenger to:

   (i) obtain a mask;
   (ii) activate the flow of oxygen; and
   (iii) don and secure the mask; and

   2. The requirement for a passenger to don and secure his/her mask before assisting another passenger with his/her mask;

g) the location and use of life jackets or individual flotation devices, if applicable, including:
   1. a demonstration of their location (including different stowage locations);
   2. how to remove life jackets from stowage and packaging;
   3. the method of donning and inflation, when to inflate life jackets, and the signalling equipment it contains; and
   4. removal and use of flotation devices such as seat cushions;

h) restrictions on the use of smoking devices (e.g. cigarettes, pipes, cigars, electronic smoking devices, etc.);
i) the use and stowage of portable electronic devices (PEDs);
j) compliance with crew members' instructions, illuminated ordinance signs and posted placards;
k) cabin secured aspects (e.g. correct stowage of carry-on baggage, caution when opening overhead bins, refrain from obstructing aisles and cross-aisles; required position of tray tables, seat backs, footrests, in-flight entertainment system (IFE), window blinds and wearing of footwear, for movement on the surface, take-off and landing);
l) what to do with carry-on baggage and belongings in case of an evacuation (to be left behind)
m) the brace position(s); and
n) importance of passengers informing cabin crew members of any safety concerns throughout the flight.

2.6.3 In addition to the items listed in section 2.6.2, the operator may include the following items, as part of the safety demonstration:

a) Specific information to passengers in the event of an evacuation:
   1) emphasis on listening to crew commands;
   2) the importance of speed to evacuate;
   3) count seat rows to know how far to the nearest exit in case of reduced visibility;
   4) stay low if smoke is present in the cabin;
   5) evacuation methods with infants and children;
   6) evacuation through exits without assisting evacuation means (i.e. no slide or slide-raft); and
   7) removal of high-heeled shoes in an evacuation;

b) Security-related information:
   1) Not to congregate in galleys or near the flight deck;
   2) unruly passengers will not be tolerated;
   3) passengers may be called upon to assist if there is a security event; and
   4) the importance of passengers informing cabin crew members of any security concerns throughout the flight;

c) Passenger management:
   1) policy on alcohol consumption; and
   2) coexistence and wellness in high-density seating;

d) use of Wi-Fi, if installed on board; and
e) dangerous goods, hazardous materials, including battery-related hazards (crushing, fire).

2.6.4 If the safety demonstration is conducted live by cabin crew members, they should carry it out in accordance with the standard content and sequence contained in the operator's procedures. The operator should equip each aircraft in its fleet with the necessary number of safety demonstration kits, each containing all the equipment and documentation needed to conduct the safety demonstration. During the demonstration, cabin crew members should

a) point out ordinance signs (e.g., no smoking, fasten seat belts, turn off PEDs);
b) hold up the seat belt and demonstrate how to fasten and unfasten it;
c) point out emergency escape-path lighting;
d) point out emergency exits;
e) hold up the passenger safety briefing card, demonstrate where it is found and unfold it in clear view of all passengers (including to show both sides if the card is double-sided);
f) if applicable, demonstrate the use of oxygen, how the drop-down oxygen masks will appear (The cabin crew member should don the mask over mouth and nose and show elastic band behind the head; and
g) if applicable, demonstrate the use of the life jacket, including location, how and when to don and inflate it and the signalling equipment it contains.

2.6.5 If the cabin crew complement does not allow for cabin crew members to be present in each cabin compartment when conducting a live safety demonstration, the demonstration should be repeated until passengers seated in all the cabin compartments have been briefed.

2.6.6 During the conduct of a safety demonstration, the operator should prohibit cabin crew from performing any non-safety-related activities. All curtains/dividers should be opened to provide passengers with an unobstructed view of the demonstration. If the demonstration is done via a video, cabin crew should verify that the IFE system is functional for all passengers before starting the video. The operator should have a procedure to apply if the IFE fails (i.e., conduct a live demonstration). There may be a situation where the passengers' visibility of the live demonstration may be limited by monuments (i.e., interior features such as class dividers or closets) or seat type (e.g., suites in first- or business-class cabins). In such a situation, passengers should be briefed in small groups or individually. To expedite the process, cabin crew should make use of the passenger safety briefing card to illustrate the requirements as stated in

section 2.6.4 b), f) and g).

2.6.7 During the video demonstration, cabin crew members should be stationed throughout the cabin. After the completion of the demonstration, cabin crew should conduct a walkthrough and answer any passenger questions or concerns.

2.6.8 Cabin crew members should not replace the safety demonstration by asking passengers if they are familiar with the operator's equipment, exits and safety and emergency procedures. The safety demonstration should be completed before take-off.

2.7 AFTER TAKE-OFF BRIEFING

The operator's procedures should require cabin crew members to conduct a briefing once the aircraft is airborne. This briefing is commonly conducted by an announcement made over the public address (PA) system. Cabin crew should brief passengers on the following items:

a) use of seat belts, including recommending that passengers keep their seat belts fastened when seated, and compliance with fasten seat belt signs;
b) smoking restrictions; and
c) policy on the use and stowage of PEDs.

2.8 BRIEFING IN THE EVENT OF TURBULENCE

The operator's procedures should require cabin crew members to conduct a briefing when the aircraft encounters turbulence (when the "fasten seat belt" sign is illuminated). This briefing is commonly conducted by an announcement made over the PA system. Cabin crew should brief passengers on the following items:

a) the need to return to their seat and fasten seat belts;
b) the restriction on the use of lavatories; and
c) the stowage of carry-on baggage.

2.9 PRE-LANDING BRIEFING

The operator's procedures should require cabin crew members to conduct a briefing prior to each landing. This briefing is commonly conducted by an announcement made over the PA system. Cabin crew should brief passengers on the following items:

a) the use of seat belts or restraint systems;
b) cabin secured aspects (e.g. correct stowage of carry-on baggage, refrain from obstructing aisles and cross-aisles, required position of: tray tables, seat backs, footrests, IFE, and window blinds for landing, etc.);
c) smoking restrictions;
d) policy on the use and stowage of PEDs; and

e) on flights that are longer than four hours, the location of the emergency exits.

2.10 AFTER-LANDING BRIEFING

The operator's procedures should require cabin crew members to conduct a briefing after landing. This briefing is commonly conducted by an announcement made over the PA system. Cabin crew should brief passengers on the following items, if applicable:

a) the need to remain seated with the seat belt fastened until the "fasten seat belt" sign is extinguished;
b) the need to keep carry-on baggage stowed until the "fasten seat belt" sign is extinguished;
c) smoking restrictions;
d) policy on the use and stowage of PEDs; and
e) instructions regarding safe passenger movement on airport aprons.

2.11 TRANSIT STOP BRIEFING

The operator's procedures should require cabin crew members to conduct a briefing when the aircraft is on the ground with passengers on board during a transit stop. This briefing is commonly conducted by an announcement made over the PA system. Cabin crew should brief passengers on the following items:

a) smoking restrictions; and
b) policy on the use and stowage of PEDs.

2.12 REFUELLING BRIEFING

The operator's procedures shall require cabin crew members to conduct a briefing when the aircraft is being refuelled with passengers on board or embarking/disembarking. This briefing is commonly conducted by an announcement made over the PA system. Cabin crew should brief passengers on the following items:

a) refuelling is taking place;
b) The need to refrain from:
    1) fastening seat belts;
    2) using lavatories;
    3) walking around the cabin; and
    4) obstructing the aisles and cross-aisles;
c) Smoking restrictions; and
d) policy on the use and stowage of PEDs.

2.13 ABNORMAL AND EMERGENCY SITUATIONS

2.13.1 The operator's procedures shall require cabin crew members to provide information and instructions to passengers during abnormal and emergency situations. The goal is to enhance their reaction and survival in the event of an accident. Abnormal and emergency situations include the following:

a) fire, smoke and/or fumes;
b) cabin pressurization problems and decompression;
c) anticipated and unanticipated emergency landing/ditching;
d) evacuation (on land and water);
e) crew member incapacitation; and
f) rapid disembarkation.

2.13.2 Standard information and instructions specific to each of these situations shall be included in the operations manual (e.g., cabin crew checklists for preparing the cabin for an emergency landing).

2.14 LANGUAGE REQUIREMENTS

2.14.1 Information provided to passengers via safety briefings, announcements and the safety demonstration should be transmitted in the language of the operator and in English to promote appropriate communication with passengers.

2.14.2 The operator should consider the following when selecting language requirements related to safety briefings on international flights, in order to cover the largest percentage of passengers on board:

a) the use of English;
b) official language(s) of the State of departure; and
c) official language(s) of the State of destination.

2.14.3 The operator should consider the language(s) of the passengers on board and assign language-qualified cabin crew members or interpreters on board the aircraft, on specific routes. In addition, the operator should verify that emergency exit-row occupants comprehend the language spoken by the crew (refer to chapter 5, section 5.5).

2.15 CONSIDERATIONS FOR OPERATIONS WITHOUT CABIN CREW

On flights where cabin crew are not required, flight crew members should be responsible for providing passengers with the standard briefing material presented in this chapter specific to the aircraft make, model and series operated for the flight. The operator should consider alternative means of transmitting the information (e.g., electronic means, videos, pre-recorded announcements), particularly in single pilot operations. This may reduce the workload for flight crew members, particularly during critical phases of flight.

CHAPTER 3

3.0 PASSENGER SAFETY BRIEFING CARD

3.1 GENERAL

3.1.1 Civil Aviation regulations requires that passengers be made familiar with the location and use of different types of emergency equipment. One delivery method for this information is the passenger safety briefing card.

3.1.2 The passenger safety briefing card provides information on exit locations and the use and location of emergency equipment. Additionally, it includes relevant safety and emergency procedures that, when followed correctly, can significantly improve a passenger's survival following an accident. Information is presented in a visual and pictorial format that assists passengers to respond to an emergency situation as quickly and effectively as possible. The passenger safety briefing card is also an important tool that cabin crew members can use to individually brief passengers during an anticipated emergency.

3.1.3 The information relayed in the passenger safety briefing card is meant to supplement that provided to the passengers during the passenger safety briefing(s), as described in chapter 2. It is not, however, intended to replace it.

3.2 REGULATORY CONSIDERATIONS

The operator shall provide passenger safety briefing cards for each passenger on board its aircraft.

3.3 DESIGN, LAYOUT AND LOCATION

3.3.1 Consideration should be given to the design, layout and location of the passenger safety briefing card to promote quick comprehension of its content, in a self-explanatory manner, and to allow passengers to easily see and retrieve it.

3.3.2 Systems, equipment and the actions required to operate them should be depicted pictorially or diagrammatically. Procedures requiring several steps shall be presented in correct sequence, and the sequence should be clearly identified (e.g., numbered steps). The use of international symbols is encouraged. Examples of international symbols can be found in the following documents:

a) the International Organization for Standardization (ISO) standard ISO 3864 — Graphical symbols — Safety colours and safety signs — Part 1: Design Principles for Safety Signs and Safety Markings; and
b) the American National Standards Institute ANSI Z535.3-2011 — *Criteria for Safety Symbols;*

3.3.3 All depictions should be simple and easy to understand. Steps should be taken to verify that any symbols used in a passenger safety briefing card are easily recognized and understood by naïve test subjects. Passenger safety briefing cards should be tested for comprehension in accordance with recognized standards. Examples of testing methods can be found in the following documents:

a) ISO 9186 — Graphical symbols — Test methods
b) ANSI Z535.3-2011 — Criteria for Safety Symbols — Annex B — General Procedures for Evaluating Candidate Safety Symbols.

3.3.4 The passenger safety briefing card should have a conspicuous title or symbol identifying itself as safety or emergency instructions. The card should include colours to draw the attention of the passengers, versus only black and white.

3.3.5 The design of the passenger safety briefing card shall make it easy to identify the aircraft type. On the cover page, the top quarter of the panel shall contain text in a large font that identifies the aircraft make, model and series—ideally, colour coded. The emphasis shall be placed on aircraft make, model and series versus the operator's name or logo. If the operator has multiple aircraft makes, models and series in its fleet, it should colour code the different aircraft makes, models and series to ensure that employees restocking the cards on aircraft use the corresponding card as exit locations or emergency equipment could vary between the different aircraft makes, models and series in the operator's fleet.

3.3.6 The card should be made of a durable material. The operator should have a process to verify that correct cards are on board and to remove and replace damaged cards from the aircraft. This process also applies to self-adhesive safety information placards located on seat back tray tables (refer to section 3.3.8).

3.3.7 The passenger safety briefing card shall be large enough so that when placed in its normal location on board the aircraft, the seated passenger can see it easily and retrieve it. If the safety briefing card is too large and sits behind a tray table, it may be difficult to access it. The passenger may need to open the tray table to remove the card from stowage. If the card is too small, it may slip out of the sight of the passenger, when it is in its usual location. for example, if stowed in a seat back pocket, the card may fall behind other items in the pocket.

3.3.8 The operator may use a self-adhesive safety information placard located on the seat back tray table or another part of the seat in front of the passenger. This type of placard may be necessary as some operators may not have seat back pockets or other locations for stowage of the traditional passenger safety briefing card. If this type of placard is used instead of a removable hardcopy passenger safety briefing card, it should be placed at eye level when the passenger is seated. This type of placard uses pictograms only because of limited space. Although space is limited, the placard should contain at a minimum the items listed in section 3.4 and meet criteria and design principles

referenced in section 3.3.2. As content could be limited in this format, the operator may need to add extra information to the content of the verbal passenger safety briefing to cover all required items.

3.4 CONTENT

3.4.1 The information on the passenger safety briefing card should be specific to the make, model and series of aircraft on which it is used, reflect the specific systems and equipment installed as well as procedures relevant to the systems and equipment on that particular aircraft make, model and series. The passenger safety briefing card should contain the minimum information as outlined by regulations. It should include the following, as applicable:

a) cabin secured aspects:
   1) correct stowage of carry-on baggage;
   2) caution when opening overhead bins;
   3) refrain from obstructing aisles and cross-aisles;
   4) required position of tray tables, seat backs, footrests, IFE and window blinds for movement on the surface, take-off and landing;
b) the use of seat belts and additional features:
   1) when and how to fasten, adjust and release seat belts and or shoulder harnesses; and
   2) information on the use of CRS;
c) the Location and use of oxygen masks, if applicable, including:
   1) The actions to be performed by a passenger in order to:
      i) obtain a mask;
      ii) activate the flow of oxygen; and
      iii) don and secure the mask; and
   2) The requirement for a passenger to don and secure his/her own mask before assisting another passenger with his/her mask;
d) the Location and use of life jackets or individual flotation devices, including:
   1) a demonstration of their location (including different stowage locations);
   2) how to remove life jackets from stowage and packaging;
   3) method of donning and inflation, when to inflate life jackets, and the signalling equipment it contains; and
   4) removal and use of flotation devices such as seat cushions;
e) Emergency exits (including over-wing exits):
   1) location;
   2) method of operation, including what to do with the exit hatch, if removable;

3) checking for hazards before opening the exit (i.e. fire, water, debris);
4) unusable exit;
5) alternative egress routes in case of unusable exit(s);
6) leaving carry-on baggage behind;
7) method of egress through exits without assisting evacuation means;
8) awareness of exit height; and
9) awareness of propellers;

f) Escape paths and evacuation routes:
1) depiction of routes to the exits inside the aircraft;
2) emergency lighting system (the form, function, colour and location of the floor proximity emergency escape path markings);
3) movement on a double-deck aircraft;
4) movement via the wing to the ground or water; and
5) movement on the ground or water away from the aircraft;

g) assisting evacuation means:
1) location of available equipment (e.g. life-raft, slide-raft);
2) the location, removal and use of available life-raft(s);
3) method of activation of the slide-raft(s);
4) method of boarding the life-raft or slide-raft including with infants and children;
5) method of egress through exit including with infants and children; and
6) removal of high-heeled shoes in an evacuation;

h) Brace position:
1) appropriate method based on the seat type; and
2) alternative brace positions (e.g. for expectant mothers, infants, children, tall or large individuals);

i) the use and stowage of PEDs; and
j) Restrictions on the use of smoking devices (e.g. cigarettes, pipes, cigars, electronic smoking devices, etc.).

3.4.2 Where regulations require a piece of emergency equipment to be on board that may be used by passengers, information on the operation of that equipment shall be included on the passenger safety briefing card. If an aircraft does not carry a specific piece of equipment (e.g., life jackets), the piece of equipment shall not be included on the passenger safety briefing card on that aircraft. For example, the operator may have some make, model and series of aircraft in its fleet that carry overwater equipment (e.g., life jackets), but that same equipment is not carried on the other aircraft of the same make, model and series. An operator should not utilize an "or" on a passenger safety briefing card to differentiate between equipment carried or not carried on board. This may confuse passengers, especially during an emergency situation when they may not recognize the "or" reference.

3.4.3 No advertisements or promotional items should be included on the passenger safety briefing card. It should only contain safety-related information. Anytime a specific crew member is reflected on the card or sequence, the figure in the pictogram should clearly reflect a uniformed crew member.

3.4.4 If an operator modifies or changes the information included on its passenger safety briefing card, it should evaluate the content and take steps to verify passenger comprehension (refer to section 3.3.3).

3.4.5 On flights where cabin crew are not required, additional information shall be included, such as the following:

a) location of first-aid kits;
b) location of fire extinguishers that are accessible to passengers;
c) location of emergency locator transmitter(s), if removable from the aircraft; and
d) location of survival equipment, and if the stowage compartment is locked, the means of access or location of the key

3.5 LANGUAGE REQUIREMENTS

3.5.1 Information on the passenger safety briefing card shall be clear and presented in an understandable manner. If text is necessary on the passenger safety briefing card, it shall be in the Kiswahili, in English and in any other language(s) which the operator deems necessary. The operator should consider providing specific safety briefing cards for special categories of passengers, such as persons with disabilities. Examples include braille or large character cards.

3.5.2 Pictograms (also referred to as pictographs) are the recommended media type for passenger safety briefing cards, in lieu of text (refer to chapter 4, section 4.3).

3.5.3 To ensure consistency and to minimize confusion for passengers, the information provided on the passenger safety briefing card should be comparable to the instructions on the passenger safety information signs, markings and placards installed in the cabin. Pictograms should be identical across all of these. Differences in style and technical content between the forms of information may be confusing and may even provide conflicting information. The operator should review the content of the passenger safety briefing cards, passenger information signs, markings and placards to ensure that it is essentially the same and is presented in the same manner.

CHAPTER 4

4.0 PASSENGER INFORMATION SIGNS, MARKINGS AND PLACARDS

4.1 OVERVIEW

4.1.1 Civil Aviation regulations contains requirements on the information and instructions that must be transmitted to passengers on board aircraft. An aircraft must be equipped with the means of ensuring that the following information and instructions are conveyed to passengers:

a) when seat belts are to be fastened,
b) when and how oxygen equipment is to be used if the carriage of oxygen is required;
c) restrictions on smoking;
d) location and use of life jackets or equivalent individual flotation devices where their carriage is required; and
e) location and method of opening emergency exits.

4.1.2 In addition to the above, the following information should be conveyed to passengers, where applicable:

a) the recommendation that seat belts be fastened whenever seated;
b) the position of the seat back, head rest, foot rest and tray table for movement on the surface, take-off and landing;
c) the stowage of IFE screens and/or entertainment controls;
d) the restrictions on carry-on baggage stowage; and
e) the use and stowage of PEDs, including stowage restrictions for laptop computers (e.g., not in a seat pocket)

4.2 CERTIFICATION REQUIREMENTS

4.2.1 Airworthiness regulations encompass requirements for passenger information signs, marking and placards found inside the cabin. They stipulate that the aircraft must contain specified signs, markings and placards, as well as any additional information, instrument markings and placards required for the safe operation of systems and equipment for which there are unusual design, operating or handling characteristics. Signs, markings and placards are subject to applicable standards set out by the State of Design as part of the type certification process and approved, accepted or validated by the State of Registry to demonstrate evidence that the aircraft meets its airworthiness requirements. Operators shall also comply with civil aviation regulations related to the signs, markings and placards on board their aircraft, which may be additional to the standards of the State of Design and State of Registry (e.g., specific language requirements for placards). The operator may wish to add additional placards not required by national regulations.

4.2.2 Signs, markings and placards should possess the following characteristics, in order to be deemed suitable:

a) be legible
b) be easy to understand (refer to section 4.3.4)
c) be located in an obvious place and clearly visible
d) not be easily erased, removed, disfigured, or obscured
e) include both a locator (at eye level to attract attention) and a marker (at the exact location, if that location is at floor-level for example)
f) have adequate letter to background contrast (e.g., black on white);
   1) for emergency equipment placards, red on white or vice-versa should be used;

g) use symbols (pictograms) versus words, as much as possible;

   1) if words are used, English language (and/or languages required as part of the airworthiness standards) should be used;
   2) if words are used, imperative sentences should be used (i.e. expressing a command, such as “pull tab to open”); and
   3) if pictograms are used, international symbols are encouraged, to promote harmonization (refer to section 4.3).

Note.—Other colours may be used to depict other safety equipment (e.g., green for medical equipment/first aid kits).

4.2.3 Section 4.4 provides detailed guidance on the content of signs, marking and placards, which should be found in the cabin. Figures in this chapter are provided courtesy of Airbus, Bombardier, Boeing and Embraer.

4.3 USE OF PICTOGRAMS

4.3.1 A pictogram is a symbol representing a concept, object, activity, place or event by illustration. Pictography is a form of writing in which ideas are transmitted through drawing. Pictograms are characterized by their simplified style, which omits all details that are unnecessary to the desired communication.

4.3.2 Pictograms are the recommended media type for signs, markings and placards (versus text). Pictograms are used to overcome the issue of passengers not being able to read or understand the language of a textual sign, marking or placard which would result in them missing out on information that may be critical for the safety of flight or to prevent personal injury. The use of pictograms for signs, markings and placards promotes global comprehension of their meaning and helps surpass language barriers.

4.3.3 In order to be considered acceptable, a pictogram should meet all the criteria listed in section and have a minimum size that will allow a person to understand the information that the pictogram is relaying under all relevant combinations of lighting conditions and

viewing distance. Since colour perception decreases with darker lighting conditions, pictograms should be designed to be readable and comprehensible even in a monochrome style. Colours should only give additional information and should be used to categorize signs, markings and placards according to their meaning. SAE Document No. ARP577E contains general and detailed guidance on written instructions, pictorial instructions, minimum picture and word size, placard and background colour combinations and placard placement. SAE Document No. ARP503F – *Emergency Evacuation Illumination* provides guidance on the provision of adequate illumination to permit aircraft occupants to locate, proceed to, operate and use emergency exits, slides, life jackets, liferafts, slide-rafts and survival equipment.

4.3.4 A pictogram is useless if passengers cannot understand what information the picture is relaying. Each pictogram needs to be clearly understood by a broad population of different educational and cultural backgrounds. Therefore, comprehension tests should be conducted to ensure that pictograms are well understood. Since the understanding of a pictogram may depend on the individual background and experience of a person, the tests should involve persons from the concerned target groups of the pictograms. The tests should be designed and conducted in such a way that the results give a clear indication of the probability that the intended meaning of a pictogram is understood. The International Organization for Standardization (ISO) standard ISO 9186 – *Graphical symbols – Test methods* defines a valid test procedure. Guidance can also be found in ANSI Z535.3-2011 – *Criteria for Safety Symbols* – Annex B – *General Procedures for Evaluating Candidate Safety Symbols* (refer to chapter 3, section 3.3.3). These standards should be used to develop test plans to prove comprehensibility of pictogram-based cabin placards. The comprehension of a pictogram may depend on the environmental context. This is particularly true for pictograms that refer to specifics of aircraft or cabins, with which people from the travelling public may not be very familiar. Those pictograms should be tested in a realistic environment (e.g., in a mock-up of an aircraft cabin).

4.3.5 Standardization of the layout of pictograms is essential to ensure their comprehension by the travelling public. Some original equipment manufacturers have standardized pictograms that may be used to communicate information in passenger information signs, markings and placards. Standardized pictograms promote the harmonization of signs, markings and placards with the goal of achieving global comprehension by the travelling public of the safety critical information they provide. Inconsistencies in pictograms installed across different aircraft should be avoided in order to avoid misunderstandings by passengers and confusion for crew members.

4.3.6 As part of the layout standardization, a common colour scheme should be applied throughout all signs, markings and placards. Based upon the ISO 3864 – *Graphical – Safety Colours and Safety Signs* standard, describing safety colours and safety signs for graphical symbols, and aiming at commonality with recent aviation standards, examples of a validated colour scheme are as follows:

a) firefighting equipment should be shown in red colour;
b) medical equipment and means of escape should be shown in green colour;
c) warnings should be accentuated by a yellow triangle;
d) prohibitions should be marked in red; and
e) mandatory actions should be marked in blue.

4.3.7 This colour scheme is continued for contour lines that have been introduced to cluster the graphic elements on a placard and to separate them from elements of adjacent markings or placards:

a) placards related to firefighting equipment should have a red contour;
b) placards related to medical equipment and means of escape should have a green contour;
c) placards showing prohibitions should have a red contour;
d) placards showing mandatory actions should have a blue contour; and
e) placards related to other indications or instructions should have a grey contour.

4.4 CONTENT OF SIGNS, MARKINGS AND PLACARDS

4.4.1 Seat belt use

Signs that notify occupants when seat belts must be fastened should be installed in the cabin. The flight crew should be able to operate them from the flight deck. When illuminated, the "fasten seat belt" sign should be legible to each person seated in the cabin, under all probable conditions of cabin illumination and for any seat position such as upright, reclined, swivelled or tracked. The sign should be readable by a person with 20/20 vision. To read the sign, the head may be moved about to normal positions, but not rotated backward (tilted). This evaluation should be conducted with 5th percentile female to 95th percentile male occupants. Figure 4-1 presents an example of a "fasten seat belt" sign.

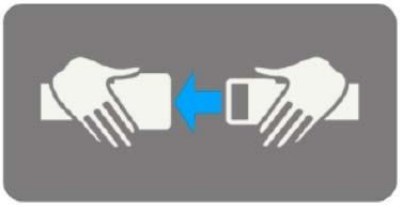

Figure 4-1. Example of a "fasten seat belt" sign (courtesy of Airbus)

4.4.2 Safety and emergency equipment

Marking and placards for safety and emergency equipment are addressed as part of the certification process. However, the operator should also seek compliance with regulations, as applicable. Each safety or emergency equipment control to be operated by the crew in the event of an emergency situation (e.g., controls for automatic life-raft releases) should be clearly marked showing how it is to be used. In addition, each location (e.g., overhead bin or compartment) that carries any fire extinguishing, signalling or other life-saving equipment (e.g., portable oxygen bottles) should be marked accordingly. Stowage provisions for required safety and emergency equipment should be clearly marked to identify the contents and facilitate the easy removal of such equipment. Figure 4-2 illustrates an example of a placard for safety and emergency equipment. Survival equipment (e.g., life jackets) should be marked for identification and method of operation. When carried on board, each life-raft should have clearly marked operating instructions. Figure 4-3 presents an example of life-raft marked operating instructions.

Figure 4-2. Example of a placard for safety and emergency equipment (courtesy of Airbus)

WARNING
HANDLE LIFE RAFT WITH CARE
NEVER INFLATE INSIDE THE AIRCRAFT
INFLATION PROCEDURES
LIFT FLAP TO EXPOSE THE SNAP HOOK
ATTACH SNAP HOOK TO THE INDICATE ASSIT HANDEL LOCATED NEXT TO FORWARD EXIT DOOR
THROW LIFE RAFT OVERDOARD
LIFE RAFT WILL INFLATE AUTOMATICALLY AFTER LINE IS OUT
IF CALM SEA, YANK LINE TO INFLATE
KEEP LIFE RAFT ALONGSIDE AIRCRAFT AND BOARD
KEEP LIFE RAFT AWAY FROM SHARP PROTRUSIONS

Figure 4-3. Example of life-raft marked operating instructions (courtesy of Embraer)

4.4.3 Restrictions on smoking

4.4.3.1 If smoking is prohibited on board the aircraft, at least one placard or sign should be installed, stating the smoking prohibition. The placard or sign should be legible to each occupant seated in the cabin, under all probable conditions of cabin illumination and for any seat position such as upright, reclined, swivelled or tracked. The sign should be readable by a person with 20/20 vision. To read the sign, the head may be moved about to normal positions, but not rotated backward (tilted). This evaluation should be conducted with 5th percentile female to 95th percentile male occupants.

4.4.3.2 If smoking is permitted, at least one sign should be installed to notify occupants when smoking is prohibited. The flight crew should be able to operate the sign(s) from the flight deck. When illuminated, the "no smoking" sign should be legible to each occupant seated in the cabin, under all probable conditions of cabin illumination and for any seat position such as upright, reclined, swivelled or tracked. The sign should be readable by a person with 20/20 vision. To read the sign, the head may be moved about to normal positions, but not rotated backward (tilted). This evaluation should be conducted with 5th percentile female to 95th percentile male occupants. Figure 4-4 illustrates an example of a "no smoking" sign.

Figure 4-4. Example of a "no smoking" sign (courtesy of Airbus)

4.4.3.3 Lavatories shall have “no smoking” or “no smoking in lavatory” placards located on each side (inside and outside) of the lavatory door and should be at eye level and clearly visible to the occupants. A placard should be located on, or adjacent to, the door of each receptacle used for the disposal of flammable waste materials that indicates disposal of cigarettes is prohibited in the receptacle. Examples are presented in Figures 4-5 and 4-6 respectively.

Figure 4-5. Example of a “no smoking” placard (courtesy of Airbus)

Figure 4-6. Example of a placard on a disposal receptacle (courtesy of Airbus)

4.4.4 Emergency exits

4.4.4.1 Each emergency exit designated for use by occupants in the event of an evacuation, its means of access and its means of opening should be clearly marked. The markings used should enable occupants to identify and locate each exit from a distance equal to the width of the cabin. In addition, means should be provided to assist the occupants in locating the exits in conditions of dense smoke. Figure 4-7 presents an example of emergency exit markings.

Figure 4-7. Example of emergency exit markings (courtesy of Airbus)

4.4.4.2 The location of each emergency exit shall be indicated by a sign visible to occupants, as they approach along the main aisle (or aisles). Requirements should include the following:

a) an emergency exit locator sign above the aisle (or aisles) near each exit, or at another overhead location if it is more practical because of low headroom (a single sign may be used to indicate more than one exit if each exit can be seen readily from the sign);
b) an emergency exit marking sign next to each exit (a single sign may be used to indicate two exits if they can both be seen readily from the sign);
c) a sign on each bulkhead or divider that prevents fore-and-aft vision along the cabin to indicate emergency exits beyond (and obscured by) the bulkhead or divider. If this is not possible, the sign should be placed at another appropriate location; and
d) each sign may use the word ‘exit’ in its legend in place of the term ‘emergency exit’ or a universal symbolic exit sign. The design of exit signs must be chosen to provide a consistent set throughout the cabin.

4.4.4.3 The location of the operating handle and instructions for opening each exit from inside the aircraft should be shown in the following manner (refer to Figures 4-8 and 4-9 for examples):

a) a marking, on or near the exit, that is readable from a set distance (typically about 76 cm or 30 inches)
b) the operating handle for Type A, Type B, Type C or Type I[1] exits should be self-illuminated with a set initial brightness (typically of at least 160 microlamberts) or be conspicuously located and well illuminated by the emergency lighting even in conditions of occupant crowding at the exit;
c) for Type A, Type B, Type C, Type I or Type II exits with a locking mechanism released by rotary motion of the handle, clear markings indicating:

1) A red arrow, with a shaft at least three-fourths of an inch wide and a head twice the width of the shaft, extending along at least 70 degrees of arc at a radius approximately equal to three-fourths of the handle length;
2) that the centre line of the exit handle is within ± 2.5 cm or 1 inch of the projected point of the arrow when the handle has reached full travel and has released the locking mechanism;
3) The word "open" in red letters (typically 2.5 cm or 1 inch high), placed horizontally near the head of the arrow; and

d) for each Type III exit, placards that:

1) are readable by all persons seated adjacent to and facing a passageway to the exit;
2) accurately state or illustrate the proper method of opening the exit, including the use of handholds. The method of opening the exit should take into account the ergonomics of the exit design (e.g. if the exit is to be operated from the seated position, then this should be clearly depicted); and
3) if the exit is a removable hatch, state the weight of the hatch and indicate an appropriate location to place the hatch after removal.

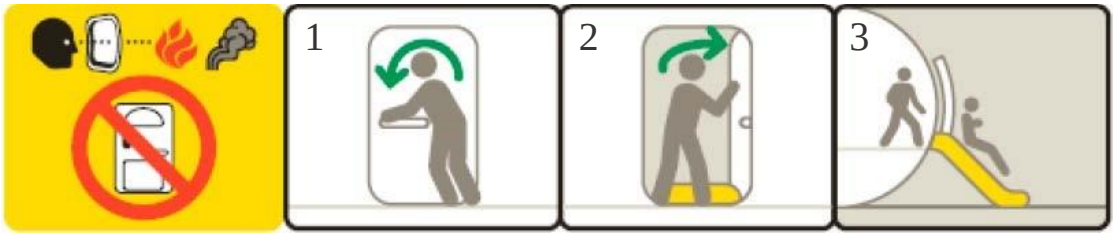

Figure 4-8. Example of emergency exit operating handle and instructions – inside aircraft (courtesy of Boeing)

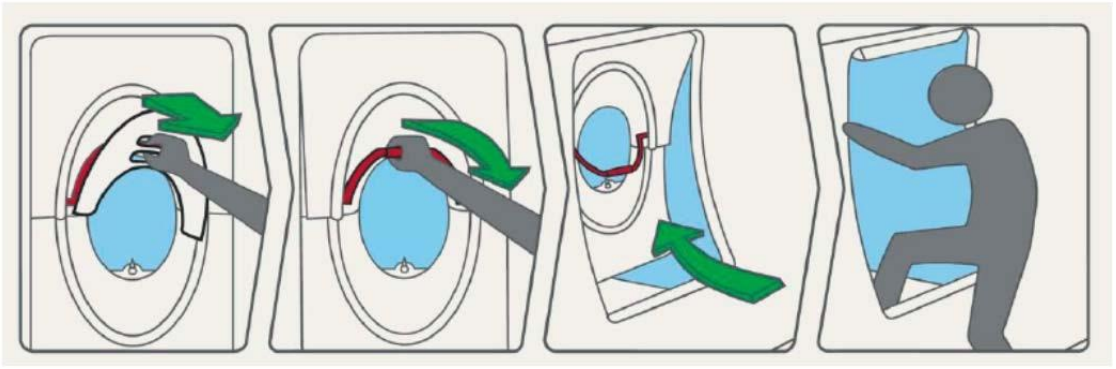

Figure 4-9. Example of a Type III exit placard (courtesy of Bombardier)

4.4.4.4 Each emergency exit that is required to be opened from the outside, and its means of opening, should be marked on the outside of the aircraft (refer to Figure 4-10 for an example). In addition, the following should apply:

a) the outside marking for each emergency exit on the side of the fuselage should include a coloured band outlining the exit (typically a two-inch band);

b) each outside marking including the band, should have colour contrast to be readily distinguishable from the surrounding fuselage surface; and

c) for exits other than those in the side of the fuselage (e.g., ventral or tail-cone exits), the external means of opening, including instructions if applicable, should be conspicuously marked in red, or bright chrome yellow if the background colour is such that red is inconspicuous. When the opening means is located on only one side of the fuselage, a conspicuous marking to that effect should be provided on the other side.

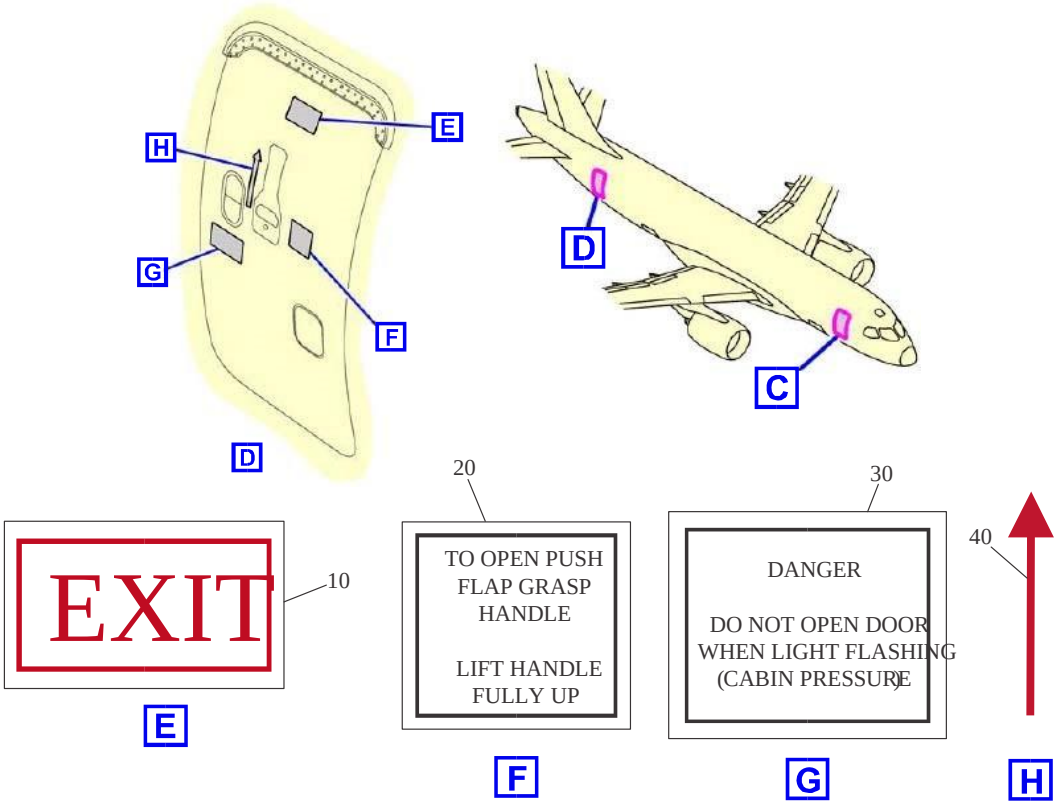

Figure 4-10. Example of emergency exit operating handle and instructions – outside aircraft (courtesy of Bombardier)

4.4.4.5 If the aircraft has internal doors, each door that must be used in order to reach any required emergency exit should have a suitable placard stating that the door is to be latched in the open position during take-off and landing (except for the flight-deck door).

4.4.4.6 Emergency lighting, including illumination of emergency exit marking and locating signs, interior lighting in emergency exit areas, and floor proximity escape path marking, should be installed in accordance with the applicable airworthiness standards.

4.4.5 Over-wing markings

An escape route should be clearly established from each over-wing emergency exit and covered with a slip resistant surface except for flap surfaces suitable as slides. Unless a means for channelling the flow of evacuees is provided, the escape route surface should have an adequate reflectance (typically of at least 80 per cent), and be defined by markings with an appropriate surface-to-marking contrast ratio (typically of at least 5:1). Exterior emergency lighting should be provided at each over-wing emergency exit, in accordance with the illumination values defined in the applicable airworthiness standards. Figure 4-11 presents an example of over-wing markings.

Figure 4-11. Example of over-wing markings (courtesy of Embraer)

4.4.6 Baggage and cargo compartments

Each baggage and cargo compartment should have a placard stating any limitations on contents, including weight, that are necessary under the loading requirements (refer to Figure 4-12 for an example). Typically, under-seat, baggage restraint systems designed for the storage of carry-on articles weighing not more than 9 kgs (20 pounds) are excluded from the requirement for a loading-limitation placard. Compartments displaying "no stowage" placards need not have a weight-limit placard.

Figure 4-12. Example of baggage compartment placard (courtesy of Airbus)

CHAPTER 5

5.0 OCCUPANCY OF EMERGENCY EXIT ROWS

5.1 GENERAL

5.1.1 An emergency exit is a door, window exit or any other type of exit (e.g., hatch in the flight deck, tail cone exit) used as an egress point to allow maximum opportunity for cabin evacuation within an appropriate time frame. Emergency exit row seating encompasses each seat in a row of seats located at an emergency exit, having direct access to the exit. In some instances, cabin crew members may not be positioned at these exits for a flight. When emergency exits are not assigned to cabin crew members, they are referred to as unstaffed exits (or self-help exits). Unstaffed exits may be floor-level exits or window exits, such as those located at the overwing. Passengers are expected to operate unstaffed exits in the event of an evacuation.

5.1.2 In the event of an evacuation, a situation may exist where no one is present to operate these exits. Leaving unstaffed-exit rows unoccupied may also limit the number of usable exits in an evacuation.

5.1.3 Civil Aviation regulations address the criteria for selecting passengers who may be seated in an emergency-exit row (staffed or unstaffed).

5.1.4 Regulations require that operators must ensure that passengers are made familiar with the location and use of emergency exits. The Authority mandates unstaffed exit-row briefings. Although an unstaffed exit may contain placards with operating instructions, passengers who have not been briefed may be unable to operate it as expected, in the event of an evacuation, or fulfil the responsibilities expected of persons seated in an emergency-exit row. The absence of a briefing may lead to a degradation of safety.

5.1.5 This chapter provides guidance for occupancy of emergency exit rows, responsibilities of passengers seated in emergency exit rows, selection criteria of passengers who may occupy an emergency exit row, and recommendations related to language requirements and unstaffed exit row briefings.

5.2 EMERGENCY EXIT ROW OCCUPANCY

The operator shall establish procedures on emergency exit row occupancy, including for unstaffed exit rows during critical phases of flight. The operator shall also establish procedures to ensure that seats located at emergency exit rows are not occupied by passengers whose presence in those seats could adversely affect the safety of passengers or crew members during an evacuation (refer to section 5.4.2).

5.3 RESPONSIBILITIES OF UNSTAFFED EXIT ROW OCCUPANTS

5.3.1 The operator's procedures shall include a means to communicate the responsibility of unstaffed exit row occupants to passengers including the importance of the role of such passengers in the event of an emergency situation. Passengers seated at unstaffed exit rows shall be briefed on their responsibility including

a) verbally accepting the responsibility to operate the exit;
b) locating the emergency exit;
c) comprehending the instructions for operating the exit;
d) knowing when and how to open the exit;
e) following all instructions given by a crew member, including the signal or command to evacuate;
f) checking for hazards before opening the exit; and
g) stowing (or otherwise disposing of) the exit hatch, if removable, so that it will not impede the use of the emergency exit.

5.3.2 In addition, the operator may elect to brief passengers seated at staffed exit rows (e.g., passenger seats at an emergency exit row located opposite to a cabin crew seat) and cover the items listed in section 5.3.1.

Note.—In the event of an anticipated emergency landing or ditching, cabin crew may assign additional responsibilities to passengers seated at emergency exit rows.

5.4 SELECTION CRITERIA TO OCCUPY AN EMERGENCY EXIT ROW

5.4.1 The operator's procedures shall include criteria that passengers must meet in order to be eligible to occupy seats located in an emergency exit row. Such criteria are necessary so that a passenger's presence at an emergency exit row does not adversely affect the safety of other occupants during an evacuation. Passengers seated in emergency exit rows must meet the following criteria:

a) be physically capable of operating the emergency exit;
b) be capable of understanding the printed and spoken instructions;
c) be able to determine if the exit is safe to open visually;
d) have sufficient mobility, strength and dexterity to reach, operate and stow (or otherwise dispose of) the exit hatch, if removable;
e) be able to receive aural information from the crew and to communicate that information to other passengers orally;

f) be of a minimum age (15 years) to ensure that he/she has the physical, cognitive and sensory capacity to operate the exit;
g) not be responsible for another person, as this can hinder the opening of the exit;
h) not be travelling with any animal in the cabin (service, emotional, and/or pet);
i) not have a condition that might cause him/her harm by opening the exit; and
j) not have any other condition that might slow the opening of the exit, the flow of passengers or impede the pathway

5.4.2 The operator's procedures shall clearly indicate persons who may not, under any circumstance, occupy an emergency exit row seat. These include the following:

a) passengers who do not/will not accept responsibility for the emergency exit;
b) passengers who do not meet the criteria as listed in section 5.4.1; and
c) passengers under escort, such as inadmissible persons, deportees or prisoners.

5.4.3 It may be difficult for the operator or its cabin crew members to assess a passenger's abilities and language comprehension. The operator should have procedures in place for ground crew and cabin crew to further validate the selection criteria and occupancy restrictions of an emergency exit row (e.g., passengers with physical disabilities, language comprehension, communication abilities).

5.5 LANGUAGE REQUIREMENTS

5.5.1 Time is critical during an emergency situation. In addition to operating the emergency exit, passengers seated in an emergency exit row must understand the verbal commands of the crew during the evacuation process. These commands vary depending on the nature and location of the accident, potential fire, or other danger outside or inside the aircraft. Therefore, it is critical that passengers seated in emergency exit rows understand all commands of the crew (e.g., when to, and when not to, open exits).

5.5.2 Passengers are expected to open unstaffed exits during an evacuation. As noted in section 5.1.4, regulations require operators to brief all passengers seated in emergency exit rows by informing them of the location and use of the emergency exits in the event of an evacuation. This requirement may not specify a designated language for the briefing. Therefore, the unstaffed exit row briefing may be conducted in any language that is mutually understood by both the cabin crew member and the passenger. The assigned inspector shall ensure that the operator has procedures in place to ensure that the unstaffed exit row briefing is conducted in a language that is understood by all passengers seated in the exit row.

5.6 UNSTAFFED EXIT ROW BRIEFING

5.6.1 Briefings are an integral part of passenger safety and, as such, an educational opportunity. Specific unstaffed exit row briefings should be included, as part of the operator's procedures, to provide the necessary information to passengers on the operation of exits and the responsibilities of seating in emergency exit rows where cabin crew are not present. These briefings lead to increased passenger awareness, improved performance in an evacuation, and a higher level of safety (refer to section 2.4 of chapter 2 for detailed guidance).

5.6.2 Means of communicating the information required in the unstaffed exit row briefing might include, but are not limited to, the following:

a) electronic communication of emergency exit row occupant responsibilities (e.g., use of technology— PEDs, kiosks, online check-in) ; and
b) Electronic verification and validation of acceptance of responsibilities—if not successful, a passenger should not be permitted to occupy a seat in that row.

CHAPTER 6

6.0 INSTRUCTIONS FOR BRACE POSITIONS

6.1 BRACE-FOR-IMPACT POSITION

6.1.1 Occupant survivability is linked to three phases of an accident: surviving the crash sequence (i.e., the impact forces, consequent deceleration and secondary impacts); evacuating the aircraft; and surviving the post evacuation environment (e.g., sea, jungle, mountainous region). Occupants who are seriously injured during the crash sequence may be unable to evacuate and may suffer fatal injuries as a result (e.g., if occupants are unconscious or have a broken leg and the aircraft is on fire). Historical data in the ICAO Accident/Incident Data Reporting System (ADREP) show that the majority of accidents are survivable. To enable the physical evacuation of the aircraft, it is important that occupants take actions to minimize the potential for injuries during the crash sequence. One action that occupants can take to contribute to their survival is to assume an appropriate brace-for-impact position. This is an action where a person pre-positions his/her body against whatever he/she is most likely to be thrown against, and which may significantly reduce injuries sustained.

6.1.2 The goal of a brace-for-impact position, commonly referred to as the brace position, is to reduce an aircraft occupant's injuries during a crash sequence. Injuries may result from the initial impact(s) of the aircraft against terrain, or obstacles when an occupant's body and limbs flail around the fixed point of the seat belt. Injuries may also result from secondary impact—the impact(s) between a body segment, such as the head or a flailing limb, and whatever it might hit during the crash sequence. Head injuries are often associated with secondary impact during an accident and can be the cause of, or a factor contributing to, fatalities. The brace position serves two purposes:

a) it reduces flailing by having the forward-facing occupant flex, bend, or lean forward over his/her legs in some manner; and
b) it reduces secondary-impact injuries by pre-positioning the body, predominantly the head, against the surface that it would otherwise strike during that secondary impact, thus reducing the momentum of the head and other parts of the body.

6.2 RESEARCH ON BRACE POSITIONS

6.2.1 Since the 1960s, extensive research has been conducted on brace positions using anthropomorphic dummies in a series of sled-impact tests. The aim of such research is to determine the most beneficial passenger brace position in forward-facing, economy-type aircraft seats. Research shows that a reduction of secondary impact by prepositioning the body, predominantly the head, against the surface it would otherwise strike during impact can minimize the potential for injuries during the crash sequence.

6.2.2 Results from internationally recognized research studies on the brace positions were used to determine the recommended brace positions presented in this chapter. Studies to note on this subject are referenced in the appendix to this chapter. Some of the following recommendations for positions are based solely on the positions tested. Other recommendations are based on interpretation and opinion of the subject matter experts (SMEs) involved in the testing, either from an engineering or medical perspective.

6.2.3 All the images in this chapter are provided by the International Board for Research into Aircraft Crash Evaluation (IBRACE).

6.3 BRACE POSITION FOR CABIN CREW MEMBERS

6.3.1 Cabin crew members occupying a single or double cabin crew seat (commonly referred to as a jump seat) should adopt one of the following brace positions where possible, based on the orientation of the seat. In the event of an emergency, they should not hold PEDs or any other item(s) while seated on cabin crew seats. cabin crew members should not be holding anything in their hands, so they can respond to the situation either by verbal communication using the Public Address (PA) system or interphone or by releasing themselves from their safety harnesses, as appropriate. They should not conduct any other duties while in the brace position, to avoid distractions. Cabin crew members should be alert and immediately available to respond to a situation that may arise. They should remain in the brace position until the aircraft comes to a complete stop.

6.3.2 Forward-facing cabin crew seat

In a forward-facing cabin crew seat, cabin crew members should brace according to the following instructions, as shown in Figure 6-1:

a) slide back in the seat as far as possible towards the backrest; ensuring that upper and lower back is against the backrest;
b) securely fasten seat belt and shoulder harness:
   1) tighten firmly;
   2) seat belt and harness straps must not be twisted;
   3) when tightening the shoulder harness, make sure that the seat belt (lap strap) remains low across the hips and that the buckle is positioned correctly, as per manufacturer instructions;

c) place chin on chest;
d)
e) rest hands on thighs;
f) place feet and legs slightly apart;
g) if there is no bulkhead within forward reach, keep feet flat on floor and stretch out legs as far as possible; or
h) if there is a bulkhead within forward reach, keep feet flat on floor and slide them forward until the tips of the toes touch the bulkhead (do no push feet against the bulkhead)

Figure 6-1. Brace position in forward-facing cabin crew seats, without and with a bulkhead

6.3.3 Rearward-facing cabin crew seats

6.3.3.1 In a strictly horizontal crash, the aircraft occupant's feet move in the direction of the deceleration. In the case of cabin crew sitting in rearward-facing (aft-facing) cabin crew seats, the feet will, therefore, move towards the back of the cabin crew seat. This could cause injuries to the heels if they were to strike the seat frame. However, in the event of a more vertical crash, the possibility of injury to the legs increases if the legs and feet are under the seat and the floor is displaced upward, or the seat flexes downward. In addition, in a vertical crash, there is the concern that if the feet are not flat on the floor, then the extra weight of the unsupported legs will be transmitted into the pelvis and spine, increasing the possibility of damage to those areas. Since the crash direction (vector) is not known before a crash, the recommended position is the one that should reduce more of the risk of injury, which is to place the feet flat on the floor with knees bent at 90 degrees.

6.3.3.2 Cabin crew members should brace according to the following instructions, as shown in Figure 6-2:

a) Slide back in the seat as far as possible towards the backrest; ensuring that upper and lower back is against the backrest;
b) Securely fasten seat belt and shoulder harness:
    1) tighten firmly;
    2) seat belt and harness straps must not be twisted; and
    3) when tightening the shoulder harness, make sure that the seat belt (lap strap) remains low across the hips and that the buckle is positioned correctly, as per manufacturer instructions;
c) Lean back and keep head against the backrest/headrest;
d) Cross arms in front of the chest (do not hold the shoulder harness straps);
e) Place feet and legs slightly apart;
f) Place feet flat on the floor; and
g) Keep knees bent at 90 degrees.

Figure 6-2. Brace position in rearward-facing cabin crew seats, without and with a bulkhead

Note.—There are currently no studies that have used double cabin crew seats. Therefore, no recommendations have been made in this manual.

6.4 BRACE POSITION FOR PASSENGERS

6.4.1 Although extensive research has been conducted on passenger brace-for-impact positions, no single position has been determined. There is great variation in passenger characteristics and abilities, in-seat class characteristics, seat pitch and direction of travel. Other variables include restraint design and airbags, and experimental testing protocols. In cases where the recommended brace position cannot be achieved, it is possible to identify a few general principles that will allow an appropriate brace position to be selected on the basis of factors which can be predetermined (refer to section 6.1.2 a) and b)).

6.4.2 Forward-facing passenger seats equipped with a lap strap seat belt only

6.4.2.1 This section describes how to adopt the brace position for a person occupying a forward-facing passenger seat fitted with a lap strap seat belt only. The instructions presented may be used by cabin crew to brief passengers during cabin preparation for an anticipated emergency landing or ditching. Passengers should remain in the brace position until the aircraft comes to a complete stop or until directed by the cabin crew to evacuate the aircraft.

6.4.2.2 In a forward-facing passenger seat fitted with a lap strap seat belt only, passengers should brace according to the following instructions, as shown in Figure 6-3:

a) sit as far back as possible;
b) fasten seat belt and tighten firmly (low across the hips to prevent submarining - when a passenger slides forward under a loosely fitted seat belt. The seat belt should not be twisted);
c) tuck chin onto chest;
d) bend forward ("roll up into a ball");
e) place head against the seat in front, and
f) place hands on top of head, or
g) place arms at sides of lower legs or hold lower legs (holding onto the lower legs may provide a more stable position); and
h) place feet flat on the floor, as far back as possible; or
i) if passengers are seated at a bulkhead row or cannot reach the seat in front:
   1) bend forward and place hands on top of head; or
   2) bend forward and place arms at sides of lower legs or hold lower legs.

Figure 6-3. Brace positions in forward-facing passenger seats equipped with a lap strap seat belt only

6.4.2.3 When adopting the brace position, passengers should avoid certain positions, as shown in Figure 6-4. The passenger should avoid having the head tilted backward, that is, the neck should not be extended, but should be bent forward to reduce the risk of injury to the neck and/or larynx. The passenger should not rest their head on the crossed forearms, which risks fracturing both forearms. The passenger should not rest their head on their hands, which risks fracturing both hands/fingers. These recommendations are based on medical SMEs interpretation and opinion.

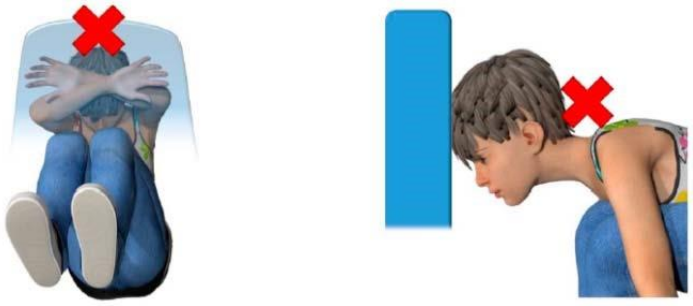

Figure 6-4. Positions to avoid when adopting the brace position

6.4.2.4 Some brace positions are unacceptable as they increase the risk of injury to persons occupying a forward-facing passenger seat fitted with a lap strap seat belt only, as shown in Figure 6-5. Passengers should avoid upright positions, as their head may hit the surface in front during the secondary impact. Passengers should avoid stretching out their arms or legs and pressing them against a surface in front of them. Passengers should also refrain from trying to physically restrain a child or another passenger in an adjacent seat or assisting another person in maintaining a brace position, as this may increase the risk of injury (refer to section 6.5 for guidance on brace positions for infants and children.). These statements are based on the results of some sled-impact tests, examinations of survivors and victims of crashes, and medical and engineering SMEs' interpretations and opinions.

Figure 6-5. Examples of unacceptable brace positions

6.4.3 Special considerations for other seating configurations

The brace position recommended in this chapter is designed for forward-facing passenger seats fitted with a lap strap seat belt only. It is not currently possible to offer specific recommendations for passengers seated in the following types of seats, because of a lack of evidence:

a) forward-facing, economy-type seats with a seat pitch less than 71 cm (28 inches) equipped with a lap strap only;
b) forward-facing seats equipped with a lap strap and shoulder harness with diagonal strap;
c) oblique-facing seats equipped with a lap strap only in which is embedded an airbag;
d) oblique-facing seats equipped with a lap strap and shoulder harness with diagonal strap;
e) side-facing seats equipped with a lap strap and shoulder harness with diagonal strap;
f) rearward-facing seats equipped with a lap strap only;
g) rearward-facing seats equipped with a lap strap and shoulder harness with diagonal strap; and
h) side-facing seats equipped with a lap strap only.

Note.—The brace position recommended in this chapter is designed for aeroplanes. It is not suitable for helicopter operations as crash dynamics differ significantly between fixed-wing aircraft and helicopters.

6.5 INFANTS AND CHILDREN

The brace positions presented in this chapter apply to occupants of a height of more than 125 cm (49 in). Infants and children whose weight is less than 26 kg (60 lbs) and whose height is less than 125 cm (49 in) should occupy an approved child restraint system (CRS) on board aircraft, in a seat of their own. The use of a CRS provides an equivalent level of safety to infants and children as that afforded to adult passengers wearing seat belts. It is not possible for a parent, or guardian, to physically restrain an infant or child, especially during a sudden acceleration or deceleration, unanticipated or severe turbulence or impact. In the event of an anticipated emergency landing or ditching, the infant or child needs to be secured in the CRS until the evacuation commences.

6.6 PREGNANT WOMEN OR PASSENGERS WHO HAVE PHYSICAL OR SPACE LIMITATIONS

This section presents a proposed brace position for pregnant women or passengers who have physical or special limitations and are occupying a forward-facing passenger seat fitted with a lap strap seat belt only. Recommendations are not based on any testing but on a combination of medical subject matter experts' (SMEs) interpretation and opinion.

a) slide back in the seat as far as possible towards the backrest; try to ensure lower back is against the backrest;
b) fasten seat belt low and tight; belt must not be twisted; ensure that the seat belt is below the belly;
c) place legs as wide apart as possible to assist with forward bending. Bend forward, leaning against the seat in front, if possible;
d) place hands on the back of the head one on top of the other; do not interlock fingers; tuck elbows in. Alternatively, place arms at the side of the lower legs;
e) if there is no seat in front, bend over and either place hands on the back of the head or place arms at the side of the lower legs; hold lower legs; and
f) keep feet flat on the floor with lower legs positioned slightly rearward of the knees, if possible.

6.7 SPECIAL CONSIDERATIONS FOR PERSONS WITH DISABILITIES AND ATTENDANTS

Persons with disabilities may use a passenger seat belt or a restraint system for a person with disabilities, such as an orthopedic positioning device, depending on their individual needs. Able-bodied persons or attendants accompanying persons with disabilities should adopt an appropriate brace position and refrain from assisting the person with disabilities until the evacuation starts. At that time, the attendant should follow the instructions given by the cabin crew as part of the individual safety briefing for special categories of passengers given prior to the flight (refer to chapter 2, section 2.5).

Appendix to Chapter 6 Research Studies On Brace Positions

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CHAPTER 7

7.0 BRACE AND EVACUATION COMMANDS

7.1 GENERAL

When an emergency situation arises, passengers may not be able to see exits from their seated position because of the cabin configuration, environmental factors such as smoke in the cabin, or communication and lighting system failures. They may not be aware of the need to evacuate or may panic. Cabin crew should reinforce the need for passengers to take action to increase the chances of survival, by shouting brace commands or directing passengers toward exits.

7.2 BRACE COMMANDS

7.2.1 The brace position is determined to be the most effective protective position for passengers to adopt in order to mitigate the potential for injury during impact (refer to chapter 6). The most appropriate brace position may vary according to seat orientation, seat belt installation (e.g., shoulder harness, airbag) or cabin configuration. Brace commands need to reflect the appropriate brace position.

7.2.2 When the need to brace is determined, a command is normally given by the flight crew. This command serves a dual purpose: advising the cabin crew that impact is imminent and advising passengers of the need to brace. Cabin crew may need to supplement this command with shouted commands to keep passengers in the brace position during impact and until the aircraft has come to a stop. Commands should be delivered loudly, assertively, repeatedly and consistently. They should also be well paced so as not to cause confusion, taking into consideration the tone of voice, languages used and the number of cabin crew shouting commands at the same time.

7.2.3 Some operators use the command “brace for impact”. Research[1] shows that the word "brace" is poorly associated with passengers' understanding of the correct brace position to adopt in the event of an impact. Directional instructions such as "bend over" and "heads down" are more likely to yield the desired behaviours. For a person occupying a forward-facing passenger seat fitted with a lap strap seat belt only, a typical brace command is “heads down, stay down”. More generic commands may be used in mixed cabin configurations where seats or brace positions may differ. In such instances, attention should be drawn to the appropriate brace position through a verbal briefing and supplemented by the passenger safety briefing card. Refer to the appendix of this chapter for sample brace commands.

7.3 EVACUATION COMMANDS

7.3.1 After landing, if the flight crew determine that an evacuation is not required, they should give a command instructing passengers to remain seated. If an evacuation is deemed necessary, cabin crew commands to initiate the evacuation should instruct passengers to take the following actions:

a) release seat belts and stand up;
b) retrieve and don life jacket or other flotation device (in case of unanticipated ditching);
c) leave all personal belongings on board; and
d) move into the aisle and prepare to go to the nearest available exit.

7.3.2 Once cabin crew members open the exits and verify that assisting evacuation means (e.g., slide, slide-raft) are ready for use; they should instruct passengers to move towards the usable exits. At exits equipped with dual-lane slides, cabin crew members should instruct passengers to divide into two lines at the doorway to evacuate as many passengers as possible simultaneously in pairs. Where an exit is unusable for any reason, cabin crew members should block the exit and give positive commands directing passengers to an alternative usable exit.

7.3.3 Evidence from evacuations has shown that significant numbers of passengers attempt to take carry-on baggage with them when evacuating an aircraft—contrary to cabin crew instructions[2]. Such passenger behaviour can present a significant hindrance to egress, injury to other passengers and damage to slides. Cabin crew commands should include instructions to leave all personal belongings on board; these should be repeated during the evacuation. Refer to chapter 8 for guidance on additional procedures regarding carry-on baggage in evacuations.

7.3.4 In an evacuation on land, commands for passengers to leave the aircraft will vary according to the method of escape (e.g., using slides versus the aircraft's wing flaps). Cabin crew should instruct passengers to move away from the aircraft. The operator may need to adapt the evacuation commands according to the aircraft type and situation.

7.3.5 In an evacuation on water, commands for passengers to leave the aircraft will vary according to the type of flotation devices and the method of escape (e.g., slide-raft versus life-raft). In the event of an unanticipated ditching, cabin crew members need to provide additional commands to passengers (e.g., to find and retrieve flotation devices, remove high-heeled shoes), as appropriate. Refer to the appendix of this chapter for sample evacuation commands.

7.4 LANGUAGE REQUIREMENTS

Commands should be transmitted in the language of the operator and English, and as determined by the operator. Not all passengers will speak English or the chosen language. Therefore, visual cues may be necessary to support souted commands.

Appendix to Chapter 7 Sample Brace and Evacuation Commands

Action	Specific element	Sample command
Brace for impact	Forward-facing passenger seat fitted with a lap strap seat belt only	"Heads down, stay down" or "Bend over, heads down"
Evacuation initiation	Not applicable	"Release seat belts and get up" "Leave everything"
Unplanned ditching initiation	Locating and donning life jacket or floatable seat cushion	"Grab life jacket, don life jacket" "Grab seat cushion, bring it with you"
While exit is being prepared	Preventing premature use	"Stand back" "Hold the people back"
Exit opened	Single-lane slide	"Come this way"
	Dual-lane slide	"Come this way" "Form two lines"
	Unusable exit	"Exit blocked" "Go that way" "Turn around" (if passengers need to go in the opposite direction in the cabin)
Evacuation on land	Using slide	"Jump and slide" "Move away" or "Sit and slide" (for slides on the upper deck or with a ramp) "Move away"
	Onto wing with a staffed exit	"Step out" "Follow the arrows"
	Using stairs	"Hold the handrail" "Go down quickly"
	From exit directly to ground (no slide)	"Sit down" "Jump down"

Action	*Specific element*	*Sample command*
Unanticipated emergency situation using able-bodied passengers (ABPs) command	Enlist help of ABPs	"You and you help..."
flotation devices	Using life jacket	"Inflate life jacket" (as passengers exit aircraft, not before)
	Using seat cushion	"Grab seat cushion" "Arms through the straps" "Hold to chest"
ation on water	Into water	"Jump, swim away"
	Onto wing at staffed exit	"Step out" "Follow the arrows"
	Onto slide-raft	"Crawl onto raft" "Sit to the sides"
	Into slide-raft	"Climb into raft"

CHAPTER 8

8.0 CARRY-ON BAGGAGE IN EVACUATIONS AND OTHER CONSIDERATIONS

8.1 CARRY-ON BAGGAGE ISSUE

Air travel today encourages more carry-on baggage in the cabin. This is a result of marketing initiatives, commercial pressures and passenger perception. Additionally, manufacturers are producing aircraft with larger overhead bins, capable of storing more baggage. Passengers are unaware of the risks associated with excess carry-on baggage or the risks associated with taking their baggage during an evacuation. The consequences could include impeding an orderly and timely evacuation, damaging a slide, and increasing the risk of injury. Many evacuations have shown that passengers have a tendency to attempt to retrieve their belongings in an evacuation—despite cabin crew members repeatedly instructing them to abandon carry-on baggage. Such situations may lead to passenger management and crowd control issues in an evacuation, as passengers insist on taking their belongings with them. This chapter contains recommendations to manage carry-on baggage issues in the event of an evacuation. It also addresses considerations related to passenger education and filming of emergency situations on board.

8.2 OPERATOR POLICY AND PROCEDURES

The operator's carry-on baggage policy and procedures should address the following:

a) the stowage of carry-on baggage:
1) in such a manner to help prevent falling from overhead bins and causing injury;
2) so as not to cause obstruction to emergency exits and safety and emergency equipment;
3) so as not to exceed the maximum placarded weight limitations of the stowage compartments or overhead bin;
a) the management of carry-on baggage during an evacuation;
b) passenger awareness of the operator's carry-on baggage policy; and
c) the management of excess carry-on baggage.

8.3 CARRY-ON BAGGAGE DURING EVACUATIONS

8.3.1 Passengers will endeavour to collect their personal belongings before evacuating the aircraft, particularly when the danger to life is not immediately evident to them. The operator should be prepared for this eventuality and have a strategy in place to mitigate the risks involved with passengers removing carry-on baggage during an evacuation. Such strategies include the following:

a) Reinforcing and emphasizing the requirement to leave personal items behind by including it in the passenger announcements made in the following situations:

1) pre-flight safety briefing;
2) emergency briefing; and
3) before landing on every flight;

b) clear illustrations in the passenger safety briefing card Emphasizing that carry-on baggage must not be taken in an emergency situation;

c) simple, clear cabin crew commands to leave carry-on baggage behind during an evacuation; and

d) training of cabin crew in human response during emergency situations and how to influence passengers to leave their carry-on baggage.

8.3.2 The operator should identify the accepted action for the cabin crew members to take in the event that passengers ignore their instructions. The following should be considered:

a) forcibly removing carry-on baggage at the exit, including:

1) build-up of items subsequently blocking exit routes;
2) slowed rate of egress due to confrontation;
3) injury to cabin crew members from hoisting baggage over seatbacks away from the exit; and
4) physical confrontation with passengers preventing the continuation of evacuation procedures;

b) throwing carry-on baggage outside the aircraft:

1) injury to persons outside the aircraft;
2) injury to cabin crew members performing the task; and
3) damage to ground equipment or slide; and

c) allowing passengers to take items that they insist on taking:

1) slowed rate of egress;
2) injury to passenger or others using the slide;
3) injury to persons assisting at the bottom of the slide;
4) damage to the slide; and
5) build-up of debris at the bottom of the slide.

8.4 CABIN CREW TRAINING

8.4.1 Cabin crew training (both initial and ongoing) should include scenario-based training as this will assist in addressing expected or possible passenger behaviour during an evacuation. Training programmes should emphasize the management of scenarios where passengers bring carry-on baggage to the exit during an evacuation.

8.4.2 The training environment should promote critical thinking and independent decision-making among cabin crew members, when the situation dictates.

8.4.3 The operator should include the following points in the training programme:

a) passenger behaviour in emergency situations;
b) cabin crew decision-making;
c) situational awareness;
d) risk assessments during emergency situations;
e) cabin crew assertiveness;
f) anticipation of likely evacuation issues;
g) cultural awareness and how that affects passenger behaviour;
h) service and emotional support animals and how they affect passenger behaviour;
i) cabin conditions that influence behaviour during an evacuation (e.g., smoke-filled cabin creates urgency whereas no smoke or visible fire may lead to lack of urgency);
j) passengers with reduced mobility; and
k) family travel (e.g., parents and children may be split up in the cabin).

8.5 GROUND CREW TRAINING

Ground crew should receive training on carry-on baggage allowances. This training should enable ground crew to identify excess carry-on baggage and intercept it before it reaches the aircraft.

8.6 PASSENGER EDUCATION

Passenger education can help decrease the risks associated with excess carry-on baggage and persons taking their belongings in an evacuation. Education can be undertaken through a variety of different means, such as:

a) publication of the carry-on baggage policy on the operator's website;
b) articles on this topic included within on-board media such as magazines, entertainment programmes;
c) content included in safety demonstrations and on-board announcements; and
d) IFE seat messaging systems.

8.7 FILMING OF EMERGENCY SITUATIONS

Technological and social advances have allowed an increase in passenger recording of events during an evacuation or other emergency situations on board aircraft. Although recordings may benefit subsequent investigations, they may also lead to delays during the evacuation process, increasing the risk(s) of injury or death. In order to prevent instantaneous social media postings of an emergency situation in flight, any access to Wi-Fi and telephone systems on board can be switched off. The operator should establish policies and procedures to deal with these events in a manner that does not obstruct or hinder the required actions of cabin crew members during an emergency.

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