



AEROSPACE STANDARD

AS1356™

Issued 2012-07
Reaffirmed 2017-05

Supersedes ARP1356

Life Rafts

RATIONALE

AS1356 has been reaffirmed to comply with the SAE Five-Year Review policy.

TABLE OF CONTENTS

1.	SCOPE.....	4
1.1	Purpose.....	4
2.	REFERENCES.....	4
2.1	Applicable Documents	4
2.1.1	SAE Publications.....	4
2.1.2	AATCC Publications	4
2.1.3	ANSI Publications	4
2.1.4	ASTM Publications.....	5
2.1.5	Code of Federal Regulations (CFR)	5
2.1.6	FAA Publications.....	5
2.1.7	IMO and SOLAS Publications.....	5
2.1.8	ISO Publications.....	5
2.1.9	NTIS Publications.....	6
2.1.10	RTCA Publications.....	6
2.1.11	U.S. Army Publications	6
2.1.12	U.S. Department of Health and Human Services Publications.....	6
2.1.13	U.S. Government Publications.....	6
2.2	Related Publications	7
2.2.1	SAE Publications.....	7
2.2.2	Canadian Government Publications	7
2.2.3	Code of Federal Regulations	7
2.2.4	EASA Publications	7
2.2.5	FAA Publications.....	8
2.2.6	IMO and SOLAS Publications.....	8
2.2.7	ISO Publications.....	8
2.2.8	U.K. Government Publications.....	8
2.2.9	Other	8
2.3	Definitions	9
2.4	Mandating and Recommending Words	11

SAE Technical Standards Board Rules provide that: "This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

SAE reviews each technical report at least every five years at which time it may be revised, reaffirmed, stabilized, or cancelled. SAE invites your written comments and suggestions.

Copyright © 2017 SAE International

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of SAE.

TO PLACE A DOCUMENT ORDER: Tel: 877-606-7323 (inside USA and Canada)
Tel: +1 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
http://www.sae.org

SAE WEB ADDRESS:

Full document details: SAE AS1356

SAE values your input. To provide feedback on this Technical Report, please visit <http://standards.sae.org/AS1356>

Documents
Document Sharing Hub

3.	GENERAL	11
3.1	Type	11
3.1.1	Type I Life Raft	11
3.1.2	Type II Life Raft	11
3.1.3	Type Marking	12
3.2	Material and Workmanship	12
3.2.1	Nonmetallic Material	12
3.2.2	Fabric Material - General	12
3.2.3	Protection	14
3.2.4	Resistance to Environmental Conditions	14
3.2.5	Flammability	15
3.3	General Requirements	15
3.4	Conspicuity	15
3.4.1	Color	15
3.4.2	Retro-Reflective Material	15
4.	BUOYANCY	17
4.1	General	17
4.2	Buoyancy Chamber	17
4.3	Freeboard	18
4.4	Occupancy Rating	18
5.	INFLATION SYSTEM	18
5.1	Life Raft Inflation Provision	18
5.2	Pressure Retention - Overpressure	19
5.3	Overpressure Protection	19
5.4	Manual Inflation	19
5.5	Inflation Equipment	20
6.	PERFORMANCE REQUIREMENTS	20
6.1	Inflation and Deployment Tests	20
6.2	Stability/Capsize Resistance	21
6.2.1	Capsize Resistance Tests - Boarding	21
6.2.2	Capsize Resistance Tests - Adverse Loading	21
6.2.3	Stability	22
6.3	Entry/Boarding Station	23
6.4	Righting Means on Non-Reversible Life Rafts	23
6.5	Canopy	23
6.6	Markings	25
7.	CONTAINER/VALISE	25
7.1	Life Raft Protection	25
7.2	Material	25
7.3	Handles	25
7.4	Closures	25
7.5	Inflation Means Location	26
7.6	Operating Instructions	26
7.7	Identification in Stowage	26
7.8	Marking Characteristics	26
7.9	Nomenclature	26
8.	ATTACHED EQUIPMENT	26
8.1	Accessory Case	27
8.2	Mooring-Inflation Line	27
8.3	Sea Anchor (Drogue)	27
8.4	Heaving-Trailing Line and Rescue Quoit	28
8.5	Lifeline - Grab Line	29
8.6	Life Raft Knife	29

8.7	Water Removal	29
8.7.1	Bailer	29
8.7.2	Sponge	29
8.8	Light - Internal and External	30
8.9	Repair Means	30
9.	IMMEDIATE ACTION INSTRUCTIONS	30
9.1	Format and Location	30
9.2	Readability	30
9.3	Content	31
10.	NOTES	32
APPENDIX A	TEST SUBJECT REQUIREMENTS	33
APPENDIX B	FTMS 191, METHOD 5136	34
FIGURE 1	RETRO-REFLECTIVE MATERIAL EXAMPLE	16
FIGURE 2	RETRO-REFLECTIVE MATERIAL EXAMPLE	17

1. SCOPE

This SAE Aerospace Standard (AS) establishes Minimum Performance Standards (MPS) for life rafts carried on board aircraft. This document is not intended to specify particular design methods, mechanisms, or equipment to be used to accomplish the objectives established herein.

1.1 Purpose

The purpose of this AS is to improve the performance of life rafts carried on transport aircraft, by ensuring that their design and function support rapid and effective use as group flotation aids after an emergency landing in water (ditching).

2. REFERENCES

2.1 Applicable Documents

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

2.1.1 SAE Publications

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

ARP577 Emergency Placarding - Internal and External

AS1241 Fire Resistant Phosphate Ester Hydraulic Fluid for Aircraft

2.1.2 AATCC Publications

Available from American Association of Textile Chemists and Colorists, 1 Davis Drive, Research Triangle Park, NC 27709-2215.

AATCC Test Method 183-2000 Transmittance or Blocking of Erythemally Weighted Ultraviolet Radiation Through Fabrics

2.1.3 ANSI Publications

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

ANSI Z535.3-2002 Criteria for safety symbols (Annex A: Principles and guidelines for graphical design of hazard symbols). (Published by National Electrical Manufacturers Association, 1300 N. 17th Street, Rosslyn, VA 22209)

ANSI/NCSL Z540-1-1994 Calibration Laboratories and Measuring and Test Equipment - General Requirements

2.1.4 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM D1434-82 Standard Test Method for Determining Gas Permeability Characteristics of Plastic Film and Sheeting, Procedure V

ASTM D4060 Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser

2.1.5 Code of Federal Regulations (CFR)

Available from the United States Government Printing Office, 732 North Capitol Street, NW, Washington, DC 20401, Tel: 202-512-0000, www.gpoaccess.gov.

14 CFR 1 Definitions and Abbreviations

14 CFR 25 Airworthiness Standards: Transport Category Airplanes

2.1.6 FAA Publications

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

FAA TSO-C85b Survivor Locator Lights

FAA TSO-C142a Non-rechargeable Lithium Cells and Batteries

FAA TSO-C168 Aviation Visual Distress Signals

2.1.7 IMO and SOLAS Publications

Available from Publishing Service, International Maritime Organization (IMO), 4 Albert Embankment, London SE1 7SR, United Kingdom

International Convention for the Safety of Life at Sea (SOLAS), Chapter III, Part C, Section 1, Regulation 30 and Section IV, Regulation 38 and 39

IMO Resolution A. 658 (16) Annex 2, Maritime Safety Committee MSC 70/23/Add.1 ANNEX 6, Revised Recommendation on Testing of Life-Saving Appliances

2.1.8 ISO Publications

Available from ANSI or International Organization for Standardization, 1, rue de Varembe, Case postale 56, CH-1211 Geneva 20, Switzerland, Tel: +41-22-749-01-11, www.iso.org.

ISO 9186:2001 Procedures for the development and testing of graphical symbols

ISO/IEC 17025:2000 General Requirements for the Competence of Testing and Calibration Laboratories

2.1.9 NTIS Publications

Available from National Technical Information Service, U.S. Department of Commerce, Alexandria, VA 22312, Tel: 703-605-6000, www.ntis.gov.

NTIS ADA406674 CAESAR: Summary Statistics for the Adult Population (Ages 18-65) of the United States of America

2.1.10 RTCA Publications

Available from Radio Technical Commission for Aeronautics Inc., 1828 L Street, NW, Suite 805, Washington, DC 20036, Tel: 202-833-9339, www.rtca.org.

RTCA DO-160G Environmental Conditions and Test Procedures for Airborne Equipment

2.1.11 U.S. Army Publications

Available from U.S. Army Natick Soldier Research, Development and Engineering Center, ATTN RDNS-WSH-E (S. Paquette), Kansas Street, Natick, MA 01760-5020.

NATICK/TR-09/014 Anthropometric Survey (ANSUR) II Pilot Study: Methods and Summary Statistics

2.1.12 U.S. Department of Health and Human Services Publications

Available from Centers for Disease Control and Prevention, National Center for Health Statistics, 3311 Toledo Road Hyattsville, MD 20782 <http://www.cdc.gov/nchs>

Anthropometric Reference Data for Children and Adults: United States, 2003-2006, DHHS Publication No. (PHS) 2009-1250, CS121840, T32709 (10/2008) <http://www.cdc.gov/nchs/data/nhsr/nhsr010.pdf>

2.1.13 U.S. Government Publications

Available from the Document Automation and Production Service (DAPS), Building 4/D, 700 Robbins Avenue, Philadelphia, PA 19111-5094, Tel: 215-697-6257, <http://assist.daps.dla.mil/quicksearch/>.

Department of Transportation Specifications 3AA (49 CFR §178.37), 3HT (49 CFR §178.44), 3AL (49 CFR §178.46), FRP 1 (49 CFR §178.AA), and CFFC

Federal Test Method Standard (FTMS) 191, dated December 31, 1968

Federal Test Method Standard (FTMS) 191A, dated July 20, 1978

MIL-C-19002D Cloth, Coated, and Strip, Coated Cloth - Polychloroprene on Nylon

MIL-DTL-5624 Detail Specification, Turbine Fuel, Aviation Grades JP-4, JP-5, and JP-5/JP-8 ST

MIL-PRF-23699 Performance Specification, Lubricating Oil, Aircraft Turbine Engine, Synthetic Base, NATO Code Number O-156

MIL-STD-810G Environmental Test Methods and Engineering Guidelines (31 Oct 2008)

MS27826A Plug Assembly (Sealing Clamp) Life Raft Repair (29 Aug 1975)

2.2 Related Publications

The following publications are provided for information purposes only and are not a required part of this SAE Aerospace Standard.

2.2.1 SAE Publications

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

ARP1146 Combination Evacuation Slide/Raft - Civil Air Transport

ARP1282B Survival Kit - Life Rafts and Slide/Rafts

AS4492 Survivor Locator Lights

2.2.2 Canadian Government Publications

Available from Canada Communication Group - Publishing, Ottawa, Canada K1A 0S9, www.tc.gc.ca

Canadian Aviation Regulations, Part VI, General Operating and Flight Rules, Subpart 2 - Operating and Flight Rules, 602.63 Life Rafts and Survival Equipment - Flights Over Water

2.2.3 Code of Federal Regulations

Available from the United States Government Printing Office, 732 North Capitol Street, NW, Washington, DC 20401, Tel: 202-512-0000, www.gpoaccess.gov.

14 CFR 21 (Subpart O) Technical Standard Order Authorizations

14 CFR 91 General Operating and Flight Rules

14 CFR 121 Certification and Operations: Domestic, Flag and Supplemental Operations

14 CFR 125 Certification and Operations: Airplanes Having a Seating Capacity of 20 or More Passengers or a Maximum Payload Capacity of 6000 Pounds or More and Rules Governing Persons on Board Such Aircraft

14 CFR 135 Operating Requirements: Commuter and on Demand Operations and Rules Governing Persons on Board Such Aircraft

2.2.4 EASA Publications

Available from European Aviation Safety Agency, Postfach 10 12 53, D-50452 Koeln, Germany, Tel: +49-221-8999-000, www.easa.europa.eu

CS-25 Certification Specification for Large Aeroplanes

EASA ETSO-C69c Emergency Evacuation Slides, Ramps, Ramp/Slides, and Slide/Rafts

EASA ETSO-2C70a Life Rafts (Reversible and Nonreversible)

EASA ETSO-2C505 Helicopter Life Rafts for Operations to or from Helidecks located in a Hostile Sea Area

2.2.5 FAA Publications

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

FAA TSO-C12c Life Rafts (Twin Tube) (Active Historical - Not Available for New Approvals)

FAA TSO-C69c Emergency Evacuation Slides, Ramps, Ramp/Slides, and Slide/Rafts

FAA TSO-C70a Life Rafts (Reversible and Nonreversible)

2.2.6 IMO and SOLAS Publications

Available from Publishing Service, International Maritime Organization (IMO), 4 Albert Embankment, London SE1 7SR, United Kingdom.

Maritime Safety Committee MSC 70/23/Add.1 ANNEX 6, Revised Recommendations on Testing of Life-Saving Appliances

2.2.7 ISO Publications

Available from ANSI or International Organization for Standardization, 1, rue de Varembe, Case postale 56, CH-1211 Geneva 20, Switzerland, Tel: +41-22-749-01-11, www.iso.org.

ISO 3461 General principles for the creation of graphical symbols.

ISO 7239:1984 Development and principles for application of public information symbols

ISO 9650-1:2005 Small Craft - Inflatable Liferrafts - Part 1: Type I

2.2.8 U.K. Government Publications

Available from Stationery Office, P.O. Box 29, Norwich, NR3 1GN, England

Civil Aviation Authority, Specification No. 2 Issue 2

2.2.9 Other

Brajkovic, D. & Ducharme, M. (2003). Finger dexterity, skin temperature, and blood flow during auxiliary heating in the cold. *Journal of Applied Physiology*, 95, 758-770.

Cheung, S., Montie, D., White, M. & Behm, D. (2003). Changes in manual dexterity following short-term hand and forearm immersion in 10° C Water. *Aviation, Space, and Environmental Medicine*, 74, 990-993.

Christensen, Eric P., Captain, Commandant United States Coast Guard (CG-543), CG-543 Policy Letter 11-03 dated April 8, 2011. Implementation of Revised Passenger Weight Standards for Existing Passenger Vessels

Havenith, G., Heus, R. & Daanen, H.A.M. (1995). The hand in the cold, performance and risk. *Arctic Medical Research*, 54 (Suppl. 2), 37-47.

Huler, Scott (2004). *Defining the Wind: The Beaufort Scale, and How a 19th-Century Admiral Turned Science into Poetry*. ISBN 1-4000-4884-2. http://en.wikipedia.org/wiki/Beaufort_scale

USCG Policy Letter CG-543 11-03 dated April 8, 2011 Assumed Average Weight Per Person (AAWPP) = 185 lbs. (82.5 kg) effective 12/1/2011

2.3 Definitions

ACCESSIBLE: Easy to obtain.

APPROVED: The status of equipment that meets standards for such equipment established by regulatory or industry bodies, such as the FAA, FAA-recognized authorities, the U.S. Coast Guard, SOLAS (Safety of Life at Sea), SAE International, or internationally-recognized Search and Rescue organizations.

BACK SUPPORT HEIGHT: The vertical distance from the floor of the life raft to the innermost points of the buoyancy tube(s), or other inflatable support structure(s), when inflated and floating in still, fresh water.

BOARDING AID: A handle, line, ladder, stirrup, step and/or platform attached to the life raft designed to assist survivors to enter the life raft from the water.

CALIBRATED: Meets (traceable to) National Institute of Standards Technology (NIST) or ISO measurement technology/reference standards (ANSI Z540-1-1994; ISO 17025:2000).

CALM WATER: A body of water in which waves or swells, without foam crests, do not exceed 0.25 ft (7.62 cm).

CHILLED HANDS TEST: A method to simulate the reduced dexterity of chilled hands that may occur during an emergency in a cold environment. A Test Subject simultaneously submerges left and right forearms and hands in 50 °F (10 °C) water for 2 min, quickly dries and immediately attempts (within 5 s after withdrawal from the water) to open/operate designated packaging/equipment. The Test Subject should be healthy and wear a loose-fitting, sleeveless upper garment that will not inhibit blood-flow to the arms and hands. (Alternate: GLOVED HANDS TEST)

COMPREHENSIBLE: Readily understood - as evidenced by correct interpretation of information and/or description of a procedure or function, by five out of six Test Subjects tested independently, unless otherwise indicated, using open-ended-answer format (see ANSI Z535; ISO 9186:2001) and/or successful empirical demonstration of equipment or a feature.

DARK OF NIGHT CONDITIONS: Ambient lighting conditions in which total illumination, measured so as to capture any incident light, does not exceed 0.005 ft-c (0.054 lux).

EXTENDED OVERWATER OPERATIONS: As defined in Code of Federal Regulations, Title 14, Part 1:

- a. With respect to aircraft other than helicopters, an operation over water at a horizontal distance of more than 50 n-miles (92.6 km) from the nearest shoreline; and
- b. With respect to helicopters, an operation over water at a horizontal distance of more than 50 n-miles (92.6 km) from the nearest shoreline and more than 50 n-miles (92.6 km) from an off-shore heliport structure.

FLAKED: Coiled or laid in such a manner as to preclude tangling or knotting.

FLOOR (DECK): The material within the perimeter structure (i.e., buoyancy tubes) that separates life raft occupants from the water below.

FREEBOARD: The vertical distance between the surface of still fresh water and the lowest point along the top of the buoyancy tube and, in the case of multiple, stacked buoyancy tubes, the lowest point along the top of the uppermost buoyancy tube.

FRESH WATER BUOYANCY: The quantity (i.e., 62.4 lb/ft³ (1.0 g/cm³)) to be used in analyses that require buoyancy calculations.

FULLY CLOTHED: A Test Subject attired in pants, long-sleeved shirt, and shoes, at a minimum.

GLOVED HANDS TEST: A method to simulate the reduced dexterity of chilled hands that may occur during an emergency in a cold environment. A Test Subject wears appropriately-sized, smooth-surfaced, 0.2 in (5 mm) or thicker neoprene gloves and attempts to open/operate designated packaging/equipment. (Alternate: CHILLED HANDS TEST)

HEADROOM: Minimum 1 in (2.54 cm) clearance above and behind the head.

IMMEDIATE: Providing results without delay or requirement for additional actions (e.g., immediate inflation - when a lanyard is pulled a short distance, instead of requiring additional pulling/action(s), as might be required with a long lanyard).

LIFE RAFT ASSEMBLY: The life raft (inflatable) with its Inflation System, all components required to be bonded or mechanically attached, and the Container/Valise.

MAXIMUM OPERATING PRESSURE: The maximum pressure in each/every chamber that may be reached, after full inflation to a usable condition, at Maximum Temperature Conditions.

MAXIMUM TEMPERATURE CONDITIONS: The high point of the temperature range to which life raft assemblies shall be tested, i.e., $+158\text{ }^{\circ}\text{F} \pm 3.6\text{ }^{\circ}\text{F}$ ($+70\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$).

MINIMUM OPERATING PRESSURE: The pressure required to meet the minimum buoyancy requirements herein.

MINIMUM TEMPERATURE CONDITIONS: The low point of the temperature range to which life raft assemblies shall be tested, i.e., $-22\text{ }^{\circ}\text{F} \pm 3.6\text{ }^{\circ}\text{F}$ ($-30\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$).

MOORING-INFLATION LINE: The line which serves both to attach the life raft to the aircraft and to actuate the gas release mechanism(s) via the immediate inflation handle. It may also be useful for tying life rafts together at sea.

NOMINAL OPERATING PRESSURE: The mid-point of the Normal Conditions Pressure Range.

NORMAL CONDITIONS PRESSURE RANGE: The range of pressures attained during typical inflations conducted at Normal Temperature Conditions.

NORMAL TEMPERATURE CONDITIONS: $69.8\text{ }^{\circ}\text{F} \pm 5.4\text{ }^{\circ}\text{F}$ ($21\text{ }^{\circ}\text{C} \pm 3\text{ }^{\circ}\text{C}$) under controlled conditions; $75.2\text{ }^{\circ}\text{F} \pm 14.4\text{ }^{\circ}\text{F}$ ($24\text{ }^{\circ}\text{F} \pm 8\text{ }^{\circ}\text{C}$) under non-controlled conditions (e.g., outdoors).

PACK CONFIGURATION: Any geometric shape, including materials and their arrangement, defined by a set of folding instructions and vetted by deployment testing required by this standard.

POTABLE WATER: Water suitable for drinking that does not contain minerals, chemical substances, or micro-organisms in amounts that would be hazardous to health.

READILY ACCESSIBLE: Capable of being quickly obtained for operation without requiring undue removal of obstacles.

REAL SEA CONDITIONS: Wind and wave conditions based on Winds of 17 to 27 knots (31.5 to 50.0 km/h), Average Wave Height of 6 to 10 ft (1.8 to 3.1 m), with a nominal 5-s Wave Period.

RESCUE QUOIT: An inherently buoyant device designed to be thrown by a life raft occupant to assist a person in the water in reaching the life raft.

REVERSIBLE LIFE RAFT: A life raft in which all equipment and features necessary for the maintenance/operation of the life raft and the safety/survival of its occupants are available on both sides of the life raft (i.e., there is no top and bottom).

SIMULATED SEA CONDITIONS: Wave/swell conditions, generated by mechanical means (e.g., a wave pool or model basin), that are consistently and repeatably equivalent to Real Sea Conditions.

STEADY STATE WIND CONDITIONS: Wind of speeds varying not more than ± 5 knots (9.3 km/h).

STILL WATER: A body of water without flow or motion; i.e., water having movement that is insufficient to affect test measurements or functions.

TEST SUBJECTS: Individuals employed in the testing of the life raft and equipment. All such personnel shall be naïve; i.e., they shall have had no experience within the prior two years in boarding or otherwise using a life raft or specific equipment to be tested, and they shall not have viewed or talked with other persons performing the same or similar activities. They shall not be instructed in any manner on how to perform the tasks they are charged with accomplishing, except that in tests of life rafts occupied at a rated capacity of 20 or more, a single simulated crew member may verbally assist the Test Subject(s). The simulated crew member shall provide no more verbal assistance than would normally be expected in an emergency and shall provide no physical assistance. For tests in which a Test Subject(s) would not be an active participant in the test, weight (ballast) may be used to simulate the Test Subject(s), unless otherwise specified.

TEST SUBJECT CHARACTERISTICS: Refers to weight and height, except as otherwise indicated. The values for each characteristic are a composite of those reported in the latest anthropometric studies (referenced in 2.1.9, 2.1.11, and 2.1.12). Values are rounded to the nearest single decimal point and represent the upper or lower bound for each characteristic, as indicated below. Test Subjects are nominally defined as follows:

A 5th percentile female is no more than 60 in (1.5 m) tall and weighs no more than 113.2 lb (51.4 kg).
A 5th percentile male is no more than 65 in (1.7 m) tall and weighs no more than 140.9 lb (63.9 kg).

A 50th percentile female is 63 to 64 in (1.6 m) tall and weighs 142 to 155.8 lb (64.4 to 70.7 kg).
A 50th percentile male is 69 to 70 in (1.8 m) tall and weighs 175 to 188.8 lb (79.4 to 85.6 kg).

A 95th percentile female is at least 69.9 in (1.8 m) tall and weighs at least 205 lb (93.0 kg).
A 95th percentile male is at least 73.7 in (1.9 m) tall and weighs at least 243.9 lb (110.7 kg).

USABLE SITTING AREA: The interior area of the life raft; i.e., the floor, circumscribed by the innermost points of the uppermost buoyancy tube, or other inflatable support structure(s), with the life raft inflated to Nominal Operating Pressure and occupied at its rated capacity in fresh water.

WATERPROOF: Tested in accordance with FTMS 191A, Method 5516 for 5 min at 1.5 psi (1054.6 kg/m²), resulting in no water penetration.

WEAR-RESISTANT MARKINGS: Printed information that remains legible after being subjected to a 300-cycle Taber Abrasion test, per ASTM D4060, using a CS-17 wheel and a 1.1 lb (500 g) weight.

WIND GUST: A sudden, brief increase in wind speed above steady-state conditions having a duration of 10 to 15 s.

2.4 Mandating and Recommending Words

SHALL: Indicates a mandatory criterion.

SHOULD: Indicates a criterion for which an alternative, including noncompliance, may be applied if it is documented and justified.

3. GENERAL

3.1 Type

3.1.1 Type I Life Raft

Buoyancy shall be provided by at least two independent buoyancy tubes.

3.1.2 Type II Life Raft

Buoyancy shall be provided by a single buoyancy tube with internal bulkheads dividing it into at least two independent buoyancy chambers.