

Date: 5.8.2016

European Aviation Safety Agency

European Technical Standard Order

Subject: LIFE RAFTS

1 — Applicability

This ETSO provides the requirements which life rafts that are designed and manufactured on or after the date of this ETSO must meet in order to be identified with the applicable ETSO marking.

2 — Procedures

2.1 — General

Applicable procedures are detailed in CS-ETSO, Subpart A.

2.2 — Specific

None.

3 — Technical Conditions

3.1 — Basic

3.1.1 — Minimum Performance Standard

Standards set forth in SAE International Aerospace Standard AS1356, Life Rafts, dated July 2012, as modified by Appendix 1 to this ETSO.

3.1.2 — Environmental Standard

As specified in AS1356, Life Rafts, dated July 2012, as modified by Appendix 1 to this ETSO.

3.1.3 — Computer Software

None

3.1.4 — Electronic Hardware Qualification

None

3.2 — Specific

None

3.2.1 — Failure Condition Classification

See CS-ETSO, Subpart A, paragraph 2.4.

4 — Marking

4.1 — General

Marking is detailed in CS-ETSO, Subpart A, paragraph 1.2.

4.2 — Specific

As specified in SAE AS1356, subsection 7.9.

ETSO-C70b

5 — Availability of Referenced Document
See CS-ETSO, Subpart A, paragraph 3.

APPENDIX 1

MPS FOR LIFE RAFTS

The applicable standard is SAE AS1356, Life Rafts, dated July 2012.
It shall be modified as follows:

AS1356 section:	Action:
Section 1	To be disregarded.
Section 2	All subsections shall be applied unless disregarded or modified as below:
Section 2.1	To be replaced: 2.1 Applicable Documents The following publications form a part of this document to the extent specified herein. The applicable issue of cited 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.
Section 2.2	To be disregarded.
Section 2.3	Shall be applied as written, the definitions of the following terms shall be replaced with the following text: APPROVED: The status of equipment that meets EASA standards. NOMINAL OPERATING PRESSURE: The median of the Normal Conditions Pressure Range. NORMAL CONDITIONS PRESSURE RANGE: The range of pressures attained during all types of inflations conducted at Normal Temperature Conditions. READILY ACCESSIBLE: Capable of being quickly obtained for operation without requiring removal of obstacles. On page 10, Section 2.3, the following definition shall be added: PRIMARY BUOYANCY CHAMBER: Any buoyancy chamber which independently provides sufficient buoyancy (at Minimum Operating Pressure) to achieve the minimum required freeboard around the entire periphery of the life raft with the life raft loaded at both rated and overload capacity. A minimum of two primary buoyancy chambers are required.

APPENDIX 1

MPS FOR LIFE RAFTS (*continued*)

AS1356 section:	Action:
Section 2.4	<p>The definition of 'should' shall be replaced as follows:</p> <p>SHOULD: Indicates a criterion for which an alternative, including non-compliance, may be applied if an equivalent level of safety is documented, justified, and approved.</p>
Section 3.1.3(a)	<p>To be replaced by:</p> <p>Type I Marking: INTENDED FOR USE IN OPERATIONS REQUIRING A LIFE RAFT</p> <p>Type II Marking: NOT INTENDED FOR USE FOR EXTENDED OVER-WATER OPERATIONS NOR IN TRANSPORT CATEGORY AIRCRAFT.</p>
Section 3.2.4.2	<p>To be replaced by:</p> <p>3.2.4.2 Extended Marine Exposure</p> <p>The life raft shall be demonstrated by a test and/or analysis based on the test to meet the pressure retention requirements of 5.2.1 and the canopy protection of 6.5.5.1 and 6.5.7 after exposure of the fully-inflated life raft to a saltwater marine environment for at least 15 days. Installed/attached features such as the overpressure protection mechanism (e.g., pressure relief valve), manual inflation means, boarding means, sea anchor, and lifeline attachments shall retain their full functionality.</p>
Section 3.2.5	<p>To be replaced by:</p> <p>The life raft assembly shall be constructed of material meeting the requirements of CS-25 Appendix F, Part I. Survival kit contents need not meet this requirement, provided that they are fully enclosed within a container that passes the 12 s vertical burn test in Appendix F. A listing of all the survival kit equipment that does not meet the requirements of CS-25 Appendix F, Part I, must be documented.</p>
Section 4.3.2 and 4.3.3	<p>The following note shall be added:</p> <p>Note: The deflation of each of the primary buoyancy chambers must be evaluated with the remaining primary buoyancy chamber(s) inflated to minimum operating pressure. Secondary compartments and inflatable floor, if present, are not considered 'buoyancy chambers' and, therefore, must also be deflated.</p>

APPENDIX 1

MPS FOR LIFE RAFTS (continued)

AS1356 section:	Action:
Section 5.1.4	<p>The following note shall be added:</p> <p>Note: This standard was developed for mechanically activated life raft inflation systems. Electric, electro/mechanical, or software based actuation systems are not adequately addressed by this standard.</p>
Section 7.6	<p>To be replaced by:</p> <p>The text, OPERATING INSTRUCTIONS, shall be marked, adjacent to the inflation instructions, in letters of 2 inches (5.1 cm) tall, followed by the below three instructions, or their equivalent, rendered in letters at least 0.5 inches (12.7 mm) tall:</p> <ul style="list-style-type: none"> a. ATTACH TO AIRCRAFT b. THROW/PUSH AWAY FROM AIRCRAFT c. PULL UNTIL INFLATION OCCURS <p>Comprehensibility of any variation(s) to these instructions shall be demonstrated in accordance with 2.3: Comprehensible.</p> <p>Life rafts stowed remotely and deployed automatically from remote location are eligible for partial approval under this ETSO.</p> <p>Any specific design features related to these kind of life rafts will not be covered by this ETSO approval and must be approved at installation level.</p>
Section 7.7	<p>To be replaced by:</p> <p>7.7 Identification in Stowage</p> <p>The text, LIFE RAFT, shall be marked in block letters of at least 2 inches (5.1 cm) tall, and FOR EMERGENCY USE ONLY shall be marked in block letters at least 1 inch (2.54 cm) tall, on all surfaces of the Container/Valise.</p> <p>Life raft assemblies intended to be stored in a dedicated compartment or location may be marked only on the surfaces that will be visible when accessed if the installation instructions and limitations provided with the life raft provide that level of detail.</p>

APPENDIX 1

MPS FOR LIFE RAFTS (*continued*)

AS1356 section:	Action:
Section 8.8.4	To be replaced by: 8.8.4 Lithium-containing batteries used in any emergency device shall meet the requirements of ETSO-C142a or equivalent. Note: An ETSO authorisation does not constitute an installation approval on an aircraft. However, special conditions may be required to gain installation approval if the design includes non-rechargeable (i.e. primary) lithium batteries.
Section 9.3	The first sentence shall be replaced by: 9.3 Content Survival information should be prioritised and shall contain the following, at a minimum:
Section 10	To be disregarded.