

2026-2027 Offshore Special Regulations

Governing Offshore
Racing for Monohulls
& Multihulls



sport / nature / technology

THE OFFSHORE SPECIAL REGULATIONS

JANUARY 2027 – DECEMBER 2027

Governing Offshore Racing for
Monohulls & Multihulls

Structural Features · Boat Equipment
Personal Equipment · Training

World Sailing

As the leading authority for the sport, World Sailing promotes and supports the protection of the environment in all sailing competitions and related activities throughout the world.

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Cover Photo: Paul Wyeth/RORC

Published by: World Sailing Limited

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Version 2 – 5 June 2026 – **Effective 1 January 2027**

Revisions:

- See OSR Revision Proposals [CO-2025-008.pdf](#) and [OOC-2026-001.pdf](#) which were accepted by council in Q1 of 2026 and at the Oceanic and Offshore meeting held 26 May 2026 respectively.

OFFSHORE RACING ENVIRONMENTAL CODE

World Sailing is committed to the promotion of care for the environment. In offshore racing we will:

- use holding tanks where fitted and empty at a pump-out station or more than 3 miles offshore,
- in the bilges use oil collection pads and dispose properly ashore,
- use environmentally friendly cleaning products suitable for the marine environment,
- retain garbage on board for recycling or disposal ashore except on a long voyage when biodegradable waste may be discharged overboard,
- avoid the use of 2-stroke engines (except advanced models with pollution control)
- use shore toilets when in port,
- observe International Maritime Organization (IMO) guidelines on biofouling,
- use solar, waterpower or wind charging when appropriate and
- encourage new offshore racing boats (OSR Cat 0, 1 & 2) constructed after 2022, to produce at least 20% of their power requirements using renewable energy sources whilst racing.

The Sustainability Agenda 2030 can be accessed here:

<https://www.sailing.org/about/Sustainability>

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Appendix A, B, C, F, L are minimum standards; D, E, G, H, J, K, ~~AA~~ are advisory.

The contents of Appendix M have been moved to policy J5 which is published at:

<https://www.sailing.org/inside-world-sailing/rules-regulations/world-sailing-policies/>

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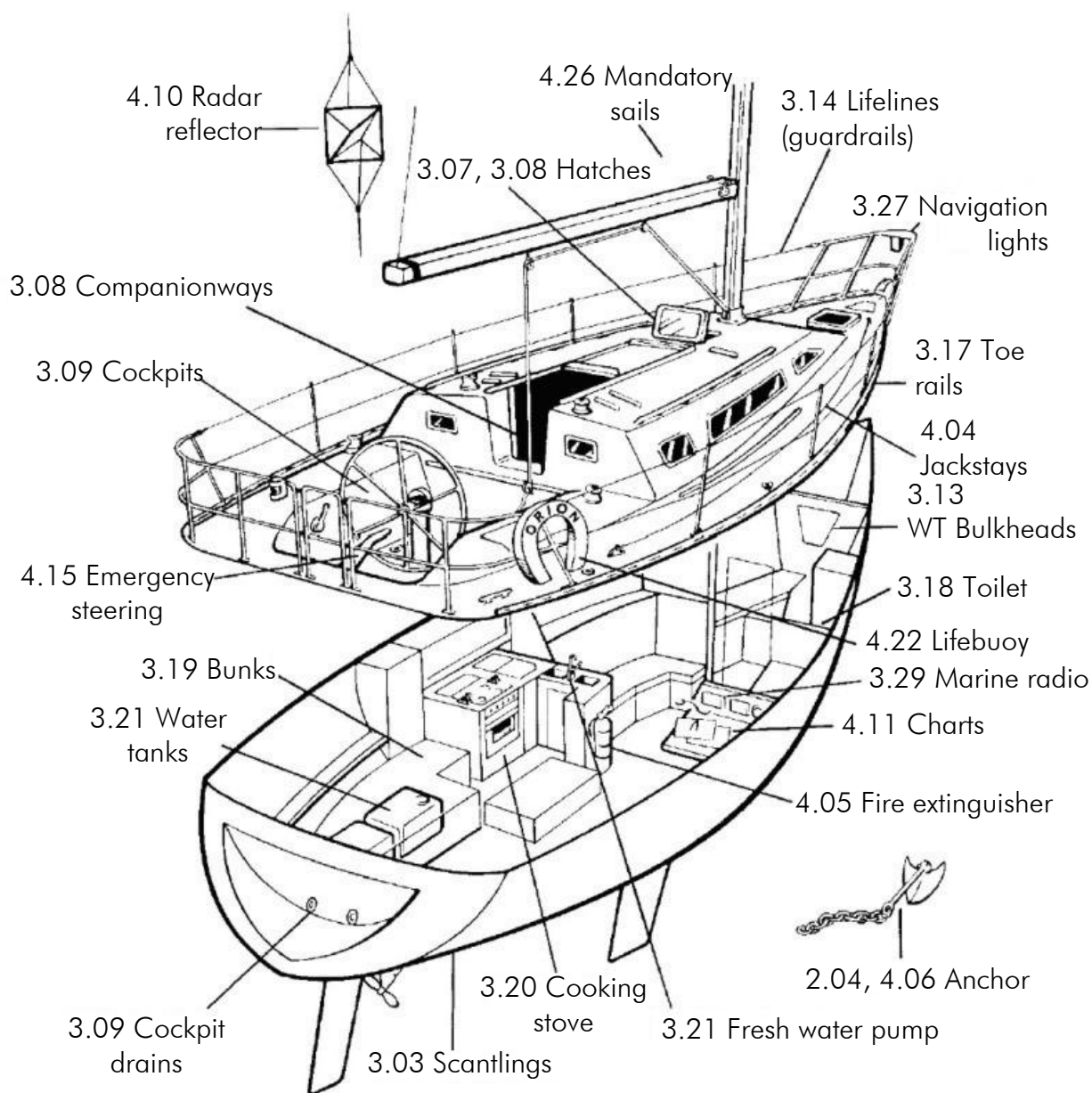
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INTRODUCTION

The Special Regulations Sub-Committee was created in 1967 by the newly formed Offshore Rule Co-ordinating Committee, later the Offshore Racing Council now the Offshore Racing Congress. As the horizons of offshore racing extended into round-the world and multihull activities, so too did the scope of Special Regulations, which now cover racing in seven categories. Interpretations, amendments, and also extract files for particular categories and boat types, are available on the World Sailing web site (<https://www.sailing.org/inside-world-sailing/rules-regulations/offshore-special-regulations/>).

Copyright

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- request copyright permission from World Sailing and ORC Ltd (normally given free of charge),
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- make any amendments by deleting contrary provisions,
- indicate that changes have been made, and
- supply a copy of the reprint to each of World Sailing and ORC Ltd.

Official interpretations shall take precedence over these Special Regulations and will be indexed, numbered, dated and displayed on the World Sailing website:

<https://www.sailing.org/inside-world-sailing/rules-regulations/offshore-special-regulations/>

Language & Abbreviations Used

Mo – Monohull

Mu – Multihull

** – means the item applies to all types of boat in all Categories except 5 for which see Appendix B or 6 for which see Appendix C

The use of the masculine gender shall be taken to mean either gender.

Style Conventions Used

RED TYPE indicates a significant change in 2026.

DOUBLE UNDERLINE TYPE indicates a term defined in the Offshore Special Regulation 1.03.1.

ITALIC TYPE indicates a term defined in the Racing Rules of Sailing.

Other than in headings or in offshore special regulation 1.02.1, **BOLD BLACK TYPE** indicates a term defined in the Equipment Rules of Sailing.

BOLD BLUE TYPE indicates a {state your member national authority here} prescription.

BOLD GREEN TYPE indicates a {state your race here} prescription.

Administration

The Offshore Special Regulation are administered by the World Sailing Special Regulation Sub-Committee whose terms of reference (available at <https://www.sailing.org/>) are as follows:

3.1 The remit of the Sub-committee is to advise and report to the Oceanic & Offshore Committee on:

- (a) the maintenance, revision and changes to the World Sailing Offshore Special Regulations governing offshore racing, under licence from ORC Limited, and any interpretations (changes to be biennial with revised editions published in January of each even year, except that matters of an urgent nature affecting safety may be dealt with by changes to the Regulations on a shorter time scale); and
- (b) developments in offshore racing relative to the standards of safety and seaworthiness.

Any queries please email: technical@sailing.org

SECTION 1 – FUNDAMENTAL AND DEFINITIONS

Categories

**

1.01 Purpose and Use

**

1.01.1 The purpose of the Offshore Special Regulations (OSR) is to establish uniform minimum equipment, accommodation and training standards for **monohull** and **multihull** (excluding proa [asymmetrical catamaran]) boats racing offshore.

**

1.01.2 The OSR do not replace, but supplement, the requirements of governmental authority, Classification Society certification, the Racing Rules of Sailing (RRS), Equipment Rules of Sailing (ERS), class rules and rating systems.

**

1.01.3 Use of the OSR does not guarantee total safety of the boat and her crew. Particular attention is drawn to the description of OSR for inshore racing which includes that adequate shelter and or effective rescue is available all along the course. This is not included in more onerous OSR categories.

1.02 Responsibility of Person in Charge

**

1.02.1 Under RRS 3 the responsibility for a boat’s decision to participate in a race or continue racing is hers alone. The safety of a boat and her crew is the sole and inescapable responsibility of the *person in charge* who shall do his best to ensure that the boat is fully found, thoroughly seaworthy and manned by an experienced and appropriately trained crew who are physically fit to face all weather. The *person in charge* shall also assign a person to take over his responsibilities in the event of his incapacitation.

**

1.02.2 Neither the establishment of the OSR, nor their use by *organising authorities*, nor the inspection of a boat under the OSR in any way limits or reduces the complete and unlimited responsibility of the *person in charge*.

**

1.02.3 By participating in a race conducted under the OSR, the *person in charge*, each competitor and boat owner agrees to reasonably cooperate with the *organising authority* and World Sailing in the development of an independent incident report as specified in OSR 2.02.

1.03 Definitions, Abbreviations, Word Usage

**

1.03.1 Table 1 – Definitions of Terms used in this document

Abbreviation	Description
#	Pound force (lbf)
ABS	American Bureau of Shipping
AIS	Automatic Identification Systems
Coaming	The part of the cockpit, including the transverse after limit, over which water would run when the boat is floating level and the cockpit is filled to overflowing
COLREGS	International Regulations for Preventing Collisions at Sea
Contained Cockpit	A cockpit where the combined area open aft to the sea is less than 50% maximum cockpit depth x maximum cockpit width
Crewmember	Every person on board
DSC	Digital Selective Calling
EN	European Norm
EPIRB	Emergency Position-Indicating Radio Beacon
ERS	World Sailing - Equipment Rules of Sailing

SECTION 1 – FUNDAMENTAL AND DEFINITIONS

Categories																																															
	<table> <tr> <td>First Launch</td><td>Month & year of the first launching when the individual boat, was completed and equipped for sailing</td></tr> <tr> <td>GMDSS</td><td>Global Maritime Distress & Safety System</td></tr> <tr> <td>GNSS</td><td>Global Navigation Satellite System</td></tr> <tr> <td>Hatch</td><td>The term hatch includes the entire hatch assembly including the lid or cover as part of that assembly</td></tr> <tr> <td>HMPE</td><td>High Modulus Polyethylene (Dyneema[®]/Spectra[®] or equivalent)</td></tr> <tr> <td>IBRD</td><td>International Beacon Registration Database</td></tr> <tr> <td>IMO</td><td>International Maritime Organization</td></tr> <tr> <td>ISAF</td><td>International Sailing Federation – (now World Sailing)</td></tr> <tr> <td>ISO</td><td>International Standard Organization or International Organization for Standardization</td></tr> <tr> <td>Jackstay</td><td>A <u>securely fastened</u> webbing or rope which permits a <u>crewmember</u> to move from one part of the boat to another without having to unclip a deck safety harness <u>tether</u></td></tr> <tr> <td>L_H</td><td>Hull Length as defined by the ERS</td></tr> <tr> <td>Lifeline</td><td>Rope or wire line rigged as guardrail/guardline around the deck</td></tr> <tr> <td>LSA</td><td><u>IMO</u> International Life-Saving Appliance Code</td></tr> <tr> <td>LWL</td><td>(Length of) loaded waterline</td></tr> <tr> <td>Moveable Ballast</td><td>Material carried for the sole purpose of increasing weight and/or influencing stability and/or trim and which may be moved transversely but not varied in weight while a boat is racing</td></tr> <tr> <td>ORC</td><td>Offshore Racing Congress (formerly Offshore Racing Council)</td></tr> <tr> <td>OSR</td><td>Offshore Special Regulation(s)</td></tr> <tr> <td>Permanently Installed</td><td>The item is effectively built-in by e.g. bolting, welding, glassing etc. and may not be removed for or during racing</td></tr> <tr> <td>PLB</td><td>Personal Locator Beacon</td></tr> <tr> <td>Rode</td><td>Rope, chain, or a combination of both, which is used to connect an anchor to the boat</td></tr> <tr> <td>RRS</td><td>World Sailing – Racing Rules of Sailing</td></tr> <tr> <td>Securely Fastened</td><td>Held strongly in place by a method (e.g. rope lashings, wing nuts) which will safely retain the fastened object in severe conditions including a 180° capsize and allows for the item to be removed and replaced during racing</td></tr> <tr> <td>SOLAS</td><td>Safety of Life at Sea Convention</td></tr> </table>	First Launch	Month & year of the first launching when the individual boat, was completed and equipped for sailing	GMDSS	Global Maritime Distress & Safety System	GNSS	Global Navigation Satellite System	Hatch	The term hatch includes the entire hatch assembly including the lid or cover as part of that assembly	HMPE	High Modulus Polyethylene (Dyneema [®] /Spectra [®] or equivalent)	IBRD	International Beacon Registration Database	IMO	International Maritime Organization	ISAF	International Sailing Federation – (now World Sailing)	ISO	International Standard Organization or International Organization for Standardization	Jackstay	A <u>securely fastened</u> webbing or rope which permits a <u>crewmember</u> to move from one part of the boat to another without having to unclip a deck safety harness <u>tether</u>	L _H	Hull Length as defined by the ERS	Lifeline	Rope or wire line rigged as guardrail/guardline around the deck	LSA	<u>IMO</u> International Life-Saving Appliance Code	LWL	(Length of) loaded waterline	Moveable Ballast	Material carried for the sole purpose of increasing weight and/or influencing stability and/or trim and which may be moved transversely but not varied in weight while a boat is racing	ORC	Offshore Racing Congress (formerly Offshore Racing Council)	OSR	Offshore Special Regulation(s)	Permanently Installed	The item is effectively built-in by e.g. bolting, welding, glassing etc. and may not be removed for or during racing	PLB	Personal Locator Beacon	Rode	Rope, chain, or a combination of both, which is used to connect an anchor to the boat	RRS	World Sailing – Racing Rules of Sailing	Securely Fastened	Held strongly in place by a method (e.g. rope lashings, wing nuts) which will safely retain the fastened object in severe conditions including a 180° capsize and allows for the item to be removed and replaced during racing	SOLAS	Safety of Life at Sea Convention
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SECTION 1 – FUNDAMENTAL AND DEFINITIONS

Categories

SSS	The Safety and Stability Screening numeral
STCW	Standards of Training, Certification and Watchkeeping for Seafarers
STIX	ISO 12217-2 Stability Index
Tether	A line or webbing used to connect a deck safety harness to a strong point or <u>jackstay</u>
Variable Ballast	Water carried for the sole purpose of influencing stability and/or trim and which may be varied in weight and/or moved while a boat is racing.
World Sailing	formerly the International Sailing Federation or <u>ISAF</u>

**

1.03.2 The words “shall” and “must” are mandatory, and “should” and “may” are permissive.

SECTION 2 – APPLICATION & GENERAL REQUIREMENTS

Categories **	2.01	Categories of Events <i>Organising authorities</i> shall select from one of the following categories and may modify the <u>OSR</u> to suit local conditions.
MoMu0	2.01.1	Category 0 Trans-oceanic races, including races which pass through areas in which air or sea temperatures are likely to be less than 5°C (41°F) other than temporarily, where boats must be completely self-sufficient for very extended periods of time, capable of withstanding heavy storms and prepared to meet serious emergencies without the expectation of outside assistance.
MoMu1	2.01.2	Category 1 Races of long distance and well offshore, where boats must be completely self-sufficient for extended periods of time, capable of withstanding heavy storms and prepared to meet serious emergencies without the expectation of outside assistance.
MoMu2	2.01.3	Category 2 Races of extended duration along or not far removed from shorelines or in large, unprotected bays or lakes, where a high degree of self-sufficiency is required of the boats.
MoMu3	2.01.4	Category 3 Races across open water, most of which is relatively protected or close to shorelines.
MoMu4	2.01.5	Category 4 Short races, close to shore in relatively warm or protected waters normally held in daylight.
	2.01.6	Special Regulations – for Inshore Racing Short races, close to shore in relatively warm and protected waters where adequate shelter and/or effective rescue is available all along the course, held in daylight only (refer to Appendix B).
	2.01.7	Special Regulations – for Inshore Dinghy Racing Short races in boats that may not be self-sufficient, with rescue boats available all along the course, held in daylight only (refer to Appendix C).
**	2.02	Incident Reporting The <i>organising authority</i> of a race will establish whether any incidents occurred, which if reported would likely be relevant to evolving the Offshore Special Regulations, the plan review process, or in increasing safety. The <i>organising authority</i> will follow any guidelines issued by World Sailing concerning incident reporting.
**	2.03	Inspection A boat may be inspected at any time. If she fails to comply with the <u>OSR</u> her entry may be rejected, or she will be subject to protest.
**	2.04	General Requirements
**	2.04.1	All equipment required by <u>OSR</u> shall:
**		a) function properly,
**		b) be regularly checked, cleaned and serviced,

SECTION 2 – APPLICATION & GENERAL REQUIREMENTS

Categories	
**	c) if it has an expiry date, it will not have exceeded its expiry date whilst racing,
**	d) when not in use to be stowed in conditions which minimise deterioration,
**	e) be readily accessible, and
**	f) be of a type, size and capacity suitable and adequate for the intended use and size of the boat.
**	2.04.2 Heavy items shall be <u>permanently installed</u> or <u>securely fastened</u> .

SECTION 3 – STRUCTURAL FEATURES, STABILITY, FIXED EQUIPMENT

Categories	A boat shall be/have:	
	3.01	Strength of Build and Rig
**	3.01.1	Properly rigged, fully seaworthy and shall meet the <u>OSR</u> .
**	3.01.2	Equipped with shrouds and at least one forestay that shall remain connected to the mast and the boat while racing (not applicable to boats with free-standing masts).
**	3.01.3	The forestay referenced above shall be sized and connected in a way that ensures it is capable of withstanding the full sailing loads independent of any headsail luff load capacity.
	3.02	Watertight and Structural Integrity of a Boat
**	3.02.1	Essentially watertight and all openings shall be capable of being immediately secured. Centreboard or daggerboard trunks and the like shall not open into the interior of a hull except via a watertight maintenance <u>hatch</u> with the opening entirely above the waterline .
Mo0,1,2	3.02.2	a) Structural Inspection – An inspection shall be conducted by an independent qualified person with the boat out of the water. Consult the owner’s manual for any instructions for keel bolt checking and re-tightening. See also <u>ISO 12215-9</u> clause B.5. In addition, check that there are no visible stress cracks particularly around the keel, hull/keel attachment, hull appendages and other stress points, inside the hull, backing plates, bolting arrangements and keel floors. (See Appendix L – Model Keel and Rudder Inspection Procedure).
Mo0,1,2		b) Non-Destructive Testing - Welded metal keels shall be examined by an independent qualified person using non-destructive testing techniques (such as dye penetrant, ultra-sonic, X-ray and other methods) to reveal any cracks or other defects in welds.
Mo0,1,2	3.02.3	a) Evidence of a structural inspection in accordance with 3.02.2 a) within 24 months before the start of the race or after a grounding whichever is later.
Mo0,1,2		b) From 2030, evidence of non-destructive testing in accordance with 3.02.2 b) within 10 years before the start of the race or after a grounding whichever is later.
Mo3	3.02.4	At a haul-out within 2 years prior to the event, the owner or his/her representative shall inspect the integrity of the keel and rudder following the recommendations in Appendix L.
Mo0,1,2,3	3.02.5	Inspection after Grounding – an appropriately qualified person shall conduct an internal and external inspection after each unintentional grounding.
	3.03	Hull Construction Standards (Scantlings)
Mo0,1,2	3.03.1	A monohull with a series date after 2009
Mo0,1,2		a) of less than 24 m (78'-9") <u>L_H</u> shall meet the requirements of 3.03.1 b) or:
Mo0,1,2		i have been designed and built in accordance with the requirements of <u>ISO 12215</u> Category A,
Mo0,1,2		ii have been maintained so that it would still meet <u>ISO 12215</u> Category A, and

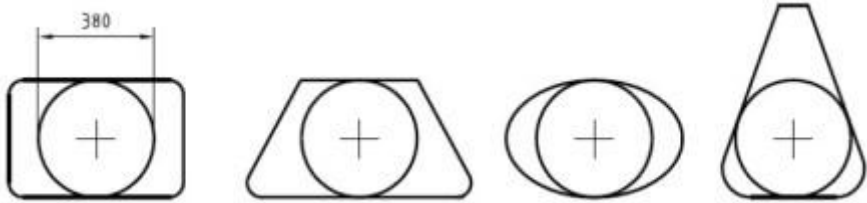
SECTION 3 – STRUCTURAL FEATURES, STABILITY, FIXED EQUIPMENT

Categories		A boat shall be/have:
Mo0,1,2		iii have a World Sailing/ <u>ISAF</u> building plan review certificate issued from an organisation recognised by World Sailing. Plan review certificates can be found at https://www.sailing.org .
Mo0,1,2		b) of 24 m (78'-9") <u>L_H</u> and greater shall have been designed, built and maintained in accordance with the requirements of a Classification Society recognised by World Sailing.
Mo0,1,2		c) shall have a builder's declaration signed and dated by the builder to confirm the boat is built in accordance with the reviewed plans. In cases when a builder no longer exists, an organising authority or class rules may accept a signed statement by a naval architect or other person familiar with the requirements of above in lieu of the builder's declaration, and
Mo0,1,2		d) shall have an additional World Sailing/ <u>ISAF</u> certificate of building plan review in accordance with a) or b), and c) above for all significant repairs or modifications to the hull, deck, coachroof or appendages .
MoMu0,1,2	3.03.2	A monohull with series date between 1987 and 2010, and all multihulls , shall have been designed, built, maintained, modified or repaired in accordance with the requirements of:
Mo0,1,2		a) <u>OSR</u> 3.03.1, or
Mo0,1,2		b) the <u>ABS</u> Guide for Building and Classing Offshore Yachts and have on board either an <u>ABS</u> certificate of plan approval, or written statements signed by the designer and builder confirming that they have respectively designed and built the boat in accordance with the <u>ABS</u> Guide, or
MoMu0,1,2		c) the EC Recreational Craft Directive for Category A having obtained the CE mark, or
MoMu0,1,2		d) <u>ISO</u> 12215 Category A, with written statements signed by the designer and builder confirming that they have respectively designed and built the boat in accordance with the <u>ISO</u> standard, and
MoMu0,1,2		e) have written statements or approvals in accordance with a), or b) or c) and d) above for all significant repairs or modifications to the hull, deck, coachroof, keel or appendages, on board, except
MoMu0,1,2		f) that an <i>organising authority</i> or class rules may accept, when that described in a), b), c), d) or e) above is not available, the signed statement by a naval architect or other person familiar with the standards listed above that the boat fulfils these requirements.
	3.04	Stability – Monohulls
Mo0,1	3.04.1	a) Compliant with <u>ISO</u> 12217-2 ^a design category A. Where this compliance cannot be demonstrated, the boat may meet the requirements of <u>OSR</u> 3.04.2 ^b or <u>OSR</u> 3.04.3 ^b .
Mo2		b) Compliant with <u>ISO</u> 12217-2 ^a design category A. Where this compliance cannot be demonstrated, the boat may meet the requirements of <u>OSR</u> 3.04.2, <u>OSR</u> 3.04.3 or <u>OSR</u> 3.04.4.
Mo3		c) Compliant with <u>ISO</u> 12217-2 ^a design category B, or higher or the requirements of <u>OSR</u> 3.04.2, <u>OSR</u> 3.04.3 or <u>OSR</u> 3.04.4.

SECTION 3 – STRUCTURAL FEATURES, STABILITY, FIXED EQUIPMENT

Categories	A boat shall be/have:																			
Mo0,1,2,3	^a This can be demonstrated either by EC Recreational Craft Directive certification having obtained the CE mark or by the designer's declaration. The latest effective version of <u>ISO</u> 12217-2 should be used unless the boat was already designed to a previous version.																			
Mo0,1	^b From 2027, this compliance shall be confirmed by having the actual displacement measured and by an inclining test.																			
Mo0,1,2,3	3.04.2	Table 2 – STIX, AVS and m*Agz																		
		<table><tr><td>Race Category</td><td>0,1,2</td><td>3</td></tr><tr><td>minimum <u>ISO</u> 12217-2 Stability Index (STIX)</td><td>32</td><td>23</td></tr><tr><td>minimum <u>ISO</u> 12217-2 Angle of Vanishing Stability (AVS)</td><td>130-0.002*m^c</td><td>130-0.005*m^c</td></tr><tr><td>but AVS always >=</td><td>100°</td><td>95°</td></tr><tr><td>a minimum righting energy m*Agz (where Agz is the positive area under the righting lever curve in the minimum operating condition, expressed in kg metre degrees from upright to AVS)</td><td>172 000</td><td>57 000</td></tr></table>				Race Category	0,1,2	3	minimum <u>ISO</u> 12217-2 Stability Index (STIX)	32	23	minimum <u>ISO</u> 12217-2 Angle of Vanishing Stability (AVS)	130-0.002*m ^c	130-0.005*m ^c	but AVS always >=	100°	95°	a minimum righting energy m*Agz (where Agz is the positive area under the righting lever curve in the minimum operating condition, expressed in kg metre degrees from upright to AVS)	172 000	57 000
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Mo0,1,2,3	^c where “m” is the mass of the boat in the minimum operating condition as defined in <u>ISO</u> 12217-2.																			
Mo0,1,2,3	3.04.3	Table 3 – ORC Stability Index																		
		<table><tr><td>Race Category</td><td>0</td><td>1</td><td>2</td><td>3</td></tr><tr><td>minimum Stability Index in <u>ORC</u> Rating System, or</td><td>120</td><td>115</td><td>110</td><td>103</td></tr></table>				Race Category	0	1	2	3	minimum Stability Index in <u>ORC</u> Rating System, or	120	115	110	103					
Race Category	0	1	2	3																
minimum Stability Index in <u>ORC</u> Rating System, or	120	115	110	103																
Mo0,1,2,3	3.04.4	Table 4 – IRC Safety and Stability Screening numeral (SSS)																		
		<table><tr><td>Race Category</td><td>0</td><td>1</td><td>2</td><td>3</td></tr><tr><td>SSS may only be used if the series date is before</td><td></td><td></td><td>1995</td><td>2000</td></tr><tr><td>minimum IRC Safety and Stability Screening numeral (SSS) Base value</td><td></td><td></td><td>28</td><td>15</td></tr></table>				Race Category	0	1	2	3	SSS may only be used if the series date is before			1995	2000	minimum IRC Safety and Stability Screening numeral (SSS) Base value			28	15
Race Category	0	1	2	3																
SSS may only be used if the series date is before			1995	2000																
minimum IRC Safety and Stability Screening numeral (SSS) Base value			28	15																
Mo0	3.04.5	A boat shall be capable of self-righting from an inverted position with or without reasonable intervention from the crew and independent of the condition of the rig.																		
	3.05	Stability and Flotation – Multihulls																		
Mu0,1,2,3,4	3.05.1	Watertight bulkheads and compartments (which may include <u>permanently installed</u> flotation material) in each hull, to ensure that the boat is effectively unsinkable and capable of floating in a stable position with at least half the length of one hull flooded (see <u>OSR</u> 3.13.2).																		
Mu0,1,2,3,4	3.05.2	If <u>first launched</u> after 1998, a boat shall have transverse watertight bulkheads at intervals of not more than 4 m (13'-3") in every hull without accommodations.																		
Mu0,1,2,3,4	3.05.3	Designed and built to resist capsize.																		

SECTION 3 – STRUCTURAL FEATURES, STABILITY, FIXED EQUIPMENT

Categories	A boat shall be/have:	
	3.06 Exits – Monohulls	
Mo0,1,2,3,4	3.06.1	If the series date is after 1994 and L_H is 8.5 m (28') and greater, a boat shall have at least two exits. One exit shall be located forward of the foremost mast except where structural features prevent its installation.
Mo0,1,2,3,4	3.06.2	If <u>first launched</u> after 2013, the minimum clear <u>hatch</u> openings shall be:
Mo0,1,2,3,4		a) a circular <u>hatch</u> with diameter 450 mm (18"), or
Mo0,1,2,3,4		b) any other shape with minimum dimension of 380 mm (15") and minimum area of 0.18 m ² (1.9 ft ²) (see figure 1).
Mo0,1,2,3,4		
		Figure 1 – Measurements of Minimum Clear Opening
	3.07 Exits, Escape Hatches, Underside Clipping Points and Handholds – Multihulls	
	3.07.1 Exits	
Mu0,1,2,3		a) At least two exits in each hull which contains accommodations.
Mu4		b) If 8 m (26'-3") L_H and greater, at least two exits in each hull which contains accommodations.
	3.07.2 Escape Hatches – General	
Mu0,1,2,3,4		a) If 12 m (39'-4") L_H and greater each hull which contains accommodation shall have:
Mu0,1,2,3,4		i an escape <u>hatch</u> for access to and from the hull in the event of an inversion,
Mu0,1,2,3,4		ii if <u>first launched</u> after 2002, a minimum clearance diameter through each escape <u>hatch</u> of 450 mm (18") or when an escape <u>hatch</u> is not circular, sufficient clearance to allow a <u>crewmember</u> to pass through fully clothed,
Mu0,1,2,3,4		iii each escape <u>hatch</u> to be above the waterline when the boat is inverted,
Mu0,1,2,3,4		iv if <u>first launched</u> after 2000, each escape <u>hatch</u> to be at or near the midships station.
Mu0,1,2,3,4		b) Each escape <u>hatch</u> shall have been opened both from inside and outside within 6 months prior to the race.
	3.07.3 Escape Hatches – Catamarans	
Mu0,1,2,3,4		If <u>first launched</u> after 2002, each escape <u>hatch</u> to be on the side nearest the vessel's central axis.
	3.07.4 Escape Hatches – Trimarans	
Mu0,1,2,3,4		a) If <u>first launched</u> after 2002 with L_H 12 m (39'-4") and greater, at least two escape <u>hatches</u> in compliance with the dimensions in <u>OSR</u> 3.07.2 a) ii,
Mu0,1		b) If <u>first launched</u> after 2002 with L_H less than 12 m (39'-4"), at least one escape <u>hatch</u> in compliance with the dimensions in <u>OSR</u> 3.07.2 a) ii,

SECTION 3 – STRUCTURAL FEATURES, STABILITY, FIXED EQUIPMENT

Categories	A boat shall be/have:	
	3.07.5 Underside Clipping Points and Handholds	
Mu0,1,2,3,4		On the underside, appropriate handholds and clipping points of sufficient capacity to enable all <u>crewmembers</u> to hold on and/or clip on securely.
Mu0,1,2,3,4	a)	On a trimaran these shall be around the central hull.
Mu0,1,2,3,4	b)	On a catamaran <u>first launched</u> after 2002, with a central nacelle, these shall be around the central nacelle.
	3.07.6 Escape Hatch Alternatives	
Mu2,3,4		If a boat has <u>L_H</u> less than 12 m (39'-4") it shall have escape <u>hatches</u> in compliance with <u>OSR</u> 3.07.2 a), 3.07.4 a) and 3.07.4 b) or:
Mu2,3,4	a)	in each hull which contains accommodation, a station where an emergency <u>hatch</u> may be cut. The cutting line shall be clearly marked both inside and outside with an outline and the words "ESCAPE CUT HERE", and
Mu2,3,4	b)	tools suitable for cutting the emergency <u>hatch</u> , ready for immediate use, adjacent to the cutting site. Each tool shall be secured to the vessel by a lanyard.
	3.08 Hatches & Companionways	
**	3.08.1	<u>Hatch</u> covers forward of the maximum beam station shall not open toward the interior of the boat, except <u>hatches</u> in the side of a coachroof or ports having an area of less than 0.071 m ² (110 in ²).
**	3.08.2	A <u>hatch</u> , including a <u>hatch</u> over a locker shall be:
**	a)	permanently attached and capable of being firmly shut immediately and remaining firmly shut in a 180° capsize,
Mo0,1,2,3,4	b)	above the water when the boat is heeled 90°.
Mo0,1,2,3,4		A boat may have a maximum of two <u>hatches</u> on each side of centreline that do not conform to the requirement in b), provided that the opening of each is less than 0.071 m ² (110 in ²).
**	3.08.3	<u>Hatches</u> not conforming with <u>OSR</u> 3.08.1 and <u>OSR</u> 3.08.2 shall be clearly labelled and used in accordance with the following instruction "NOT TO BE OPENED AT SEA".
**	3.08.4	Companionway <u>hatches</u> :
**	a)	fitted with a strong securing arrangement which shall be operable from the exterior and interior even when the boat is inverted,
**	b)	blocking devices:
**	i	capable of being retained in position with the <u>hatch</u> open or shut,
**	ii	secured to the boat (e.g. by lanyard) for the duration of the race, and
**	iii	permit exit in the event of inversion.
Mo0,1,2,3,4	3.08.5	If a monohull with cockpit(s) that is/are not <u>contained cockpit(s)</u> a boat shall have:
Mo0,1,2,3,4	a)	a companionway sill that does not extend below the local sheerline , or
Mo0,1,2,3,4	b)	a companionway in full compliance with <u>ISO</u> 11812 category A.
Mo0,1,2,3,4	3.08.6	If a monohull with <u>contained cockpit(s)</u> where the companionway extends below the local sheerline , a boat shall have panels capable of blocking the companionway up to the level of the local sheerline whilst giving access to the interior.

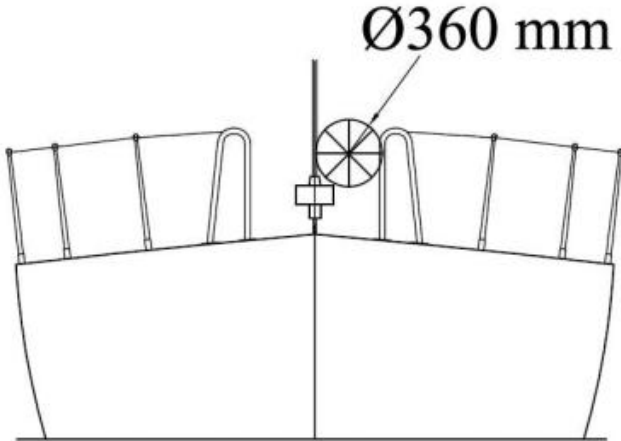
SECTION 3 – STRUCTURAL FEATURES, STABILITY, FIXED EQUIPMENT

Categories		A boat shall be/have:
Mu0,1,2,3,4	3.08.7	If a multihull with a companionway <u>hatch</u> extending below the local sheerline a boat shall either:
Mu0,1,2,3,4		a) have a minimum sill height of 300 mm (12") and be capable of being blocked off up to the level of the local sheerline whilst giving access to the interior with the blocking device(s) in place, or
Mu0,1,2,3		b) be in compliance with <u>ISO</u> 11812 to design category A.
Mu4		c) be in compliance with <u>ISO</u> 11812 to design category B.
	3.09	Cockpits
	3.09.1	General
**		a) cockpits shall self-drain quickly by gravity at all angles of heel and are permanently incorporated as an integral part of the boat,
**		b) a cockpit sole shall be at least 2% <u>LWL</u> above the waterline (or in IMS boats with <u>first launch</u> before 2003, at least 2% L above the waterline), and
**		c) a bow, lateral, central, or stern well is a cockpit for the purposes of <u>OSR</u> 3.09.
	3.09.2	Cockpit Volume
**		The maximum combined volume below lowest <u>coamings</u> of all <u>contained cockpits</u> shall be:
MoMu0,1		a) series date before April 1992: 6% (<u>LWL</u> x maximum beam x freeboard abreast the cockpit),
MoMu2,3,4		b) series date before April 1992: 9% (<u>LWL</u> x maximum beam x freeboard abreast the cockpit),
**		c) series date after March 1992 as above for the appropriate category except that "lowest <u>coamings</u> " shall not include any aft of the FA station (the transverse station at which the upper corner of the transom meets the sheerline) and no extension of a cockpit aft of the working deck shall be included in calculation of cockpit volume.
	3.09.3	Cockpit Drains
**		Cockpit drain cross section area of unobstructed openings (after allowance for screens if fitted) shall be at least that of:
**		a) if less than 8.5 m (28') <u>LH</u> : 2 x 25 mm (1") diameter or equivalent,
**		b) if 8.5 m (28') <u>LH</u> or greater: 4 x 20 mm (3/4") diameter or equivalent.
	3.10	Sea Cocks or Valves
**		<u>Permanently installed</u> sea cocks or valves on all through-hull openings below the waterline except for integral deck scuppers and instrument through-hulls.
	3.11	Sheet Winches
**		Sheet winches mounted in such a way that an operator is not required to be substantially below deck.
	3.12	Mast Step
**		The heel of a keel stepped mast <u>securely fastened</u> to the mast step or adjoining structure.

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Categories		A boat shall be/have:
	3.13 Watertight Bulkheads	
Mo0Mu0,1,2,3,4	3.13.1	Either a watertight “crash” bulkhead within 15% of $\underline{L_H}$ from the bow and abaft the forward end of $\underline{L_{WL}}$, or <u>permanently installed</u> closed-cell foam buoyancy effectively filling the forward 30% $\underline{L_H}$ of the hull.
Mo0Mu0,1,2,3,4	3.13.2	Any required watertight bulkhead to be strongly built to take a full head of water pressure without allowing any leakage into the adjacent compartment.
Mo0	3.13.3	At least two watertight transverse main bulkheads in addition to any bulkheads positioned within the forward and aft 15% of $\underline{L_H}$.
Mo0	3.13.4	Outside deck access for inspection and pumping shall be provided to every watertight compartment terminated by a hull section bulkhead, except that deck access to extreme end “crash” compartments is not required.
Mo0	3.13.5	An access <u>hatch</u> in every required watertight bulkhead (except a “crash” bulkhead). The access <u>hatch</u> shall have means of watertight closure permanently attached to the main panel, or lid, or cover of the <u>hatch</u> . The closure shall not require tools to operate.
	3.14 Pulpits, Stanchions, Lifelines	
	3.14.1 General	
**		The perimeter of the deck surrounded by system of <u>lifelines</u> and pulpits as follows:
**		a) continuous <u>lifelines</u> fixed only at (or near) the bow and stern. However, a gate on each side of a boat is permitted. Except at its end fittings and at gates, the movement of a <u>lifeline</u> in a fore-and-aft direction shall not be constrained. Temporary sleeving shall not modify tension in the <u>lifeline</u> ,
**		b) minimum heights of <u>lifelines</u> and pulpit rails above the perimeter of the deck and vertical openings:
**		i upper: 600 mm (24”),
**		ii intermediate: 230 mm (9”),
**		iii vertical opening: no greater than 380 mm (15”) except that on a boat with a series date before 1993 where it shall be no greater than 560 mm (22”),
MoMu3,4		iv a boat less than 8.5 m (28') $\underline{L_H}$ may use a single <u>lifeline</u> system with a height between 450 mm (18”) and 560 mm (22”).
**		c) <u>lifelines</u> permanently supported at intervals of not more than 2.2 m (7'-2 1/2”) and not passing outboard of supporting stanchions,
**		d) pulpit and stanchion bases <u>permanently installed</u> with pulpits and stanchions mechanically retained in their bases,
**		e) the outside of pulpit and stanchion base tubes no further inboard from the perimeter of the deck than 5% of boat beam or 150 mm (6”), whichever is greater, nor further outboard than the perimeter of the deck. If a boat's series date is after 2024 the perimeter of the deck is defined as the hull and deck intersection at an angle of not more than 15° to the horizontal in a transverse plane when the boat is upright,
**		f) stanchions straight and vertical except that:

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Categories	
**	A boat shall be/have:
**	- i within the first 50 mm (2") from the deck, stanchions shall not be displaced horizontally from the point at which they emerge from the deck or stanchion base by more than 10 mm (3/8"), - ii stanchions may be angled to not more than 10° from vertical at any point above 50 mm (2") from the deck.
**	g) a bow pulpit may be open provided the opening between the pulpit and any part of the boat does not exceed 360 mm (14"),
**	
	
	Figure 2 – Diagram Showing Pulpit Opening
**	h) <u>lifelines</u> may terminate at or pass through adequately braced stanchions set inside and overlapping the bow pulpit,
**	i) when a deflecting force of 4 kg (8.8 #) is applied to a <u>lifeline</u> at the mid-point of the longest span between supports that are aft of the mast, the deflection shall not exceed:
**	- i 50 mm (2") for an upper or single <u>lifeline</u>, - ii 120 mm (4 ¾") for an intermediate <u>lifeline</u>.
Mu0,1,2,3,4	3.14.2 Special Requirements for Pulpits, Stanchions, Lifelines on Multihulls When on a boat it is impractical to precisely follow <u>OSR</u> regarding pulpits, stanchions, <u>lifelines</u> , the regulations for monohulls shall be followed as closely as possible.
Mo0,1,2,3 Mo4Mu** Mo4Mu** Mo4Mu**	3.14.3 Lifeline Specifications a) <u>lifelines</u> of stranded stainless steel wire, b) <u>lifelines</u> of either: - i stranded stainless steel wire, or - ii <u>HMPE</u>, c) The minimum diameter is specified in table 5 below, d) Stainless steel <u>lifelines</u> shall be uncoated and used without close-fitting sleeving, however, temporary sleeving may be fitted provided it is regularly removed for inspection, e) A lanyard of synthetic rope may be used to secure <u>lifelines</u> provided the gap it closes does not exceed 100 mm (4"). This lanyard shall be replaced annually, f) All components of the <u>lifeline</u> enclosure system shall have a breaking strength no less than the <u>lifeline</u>,
**	
**	
**	
**	

SECTION 3 – STRUCTURAL FEATURES, STABILITY, FIXED EQUIPMENT

Categories

Mo4Mu**

**

A boat shall be/have:

- g) When HMPE is used, it shall be protected from chafe and spliced in accordance with the manufacturer's recommended procedures.

Table 5 – Lifeline Diameter Requirements

<u>L_H</u>	Wire Min. <u>lifeline</u> diameter	<u>HMPE</u> rope (Single braid) min. <u>lifeline</u> diameter	<u>HMPE</u> Core (Braid on braid) min. <u>lifeline</u> outside diameter
under 8.5 m (28')	3 mm (1/8")	4 mm (5/32")	6 mm (1/4")
8.5m – 13 m	4 mm (5/32")	5 mm (3/16")	7 mm (9/32")
over 13 m (42' 8")	5 mm (3/16")	5 mm (3/16")	7 mm (9/32")

3.15 Multihull Nets or Trampolines

3.15.1 General

The words "net" and "trampoline" are interchangeable. A net shall be:

- essentially horizontal,
- made from durable woven webbing, water permeable fabric, or mesh with openings not larger than 5 cm (2") in any dimension. Attachment points shall be planned to avoid chafe. The junction between a net and a boat shall present no risk of foot trapping,
- solidly fixed at regular intervals on transverse and longitudinal support lines and shall be fine stitched to a bolt rope, and
- able to carry the full weight of the crew either in normal working conditions at sea or in case of capsize when the boat is inverted.

3.15.2 Trimarans with Double Crossbeams

A trimaran with double crossbeams shall have nets on each side covering:

- the area formed by the crossbeams, central hull and outriggers,
- the triangles formed by the aft end of the central pulpit, the mid-point of each forward crossbeam, and the intersection of the crossbeam and the central hull,
- the triangles formed by the aftermost part of the cockpit or steering position (whichever is furthest aft), the mid-point of each after crossbeam, and the intersection of the crossbeam and the central hull, except that:
- OSR 3.15.2(c) is not a requirement when cockpit coamings and/or lifelines are present which comply with the minimum height requirements in OSR 3.14.

3.15.3 Trimarans with Single Crossbeams

A trimaran with a single crossbeam shall have nets between the central hull and each outrigger on each side between two straight lines from the intersection of the crossbeam and the outrigger, respectively to the aft end of the pulpit on the central hull, and to the aftermost point of the cockpit or steering position on the central hull (whichever is furthest aft).

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Categories	A boat shall be/have:	
Mu0,1,2,3,4	3.15.4 Catamarans	A catamaran shall have nets covering the area defined laterally by the hulls and longitudinally by transverse stations through the forestay base and the aftermost point of the boom lying fore and aft. However, a catamaran with a central nacelle (non-immersed) may satisfy the regulations for a trimaran.
	3.16	Spare number
Mo0,1,2,3	3.17 Toe Rail or Foot-Stop	
	3.17.1	<u>Permanently installed</u> toe rail of minimum height 25 mm (1"), located at or no more than 100 mm (4") inboard of the perimeter of the deck from at least forward of the mast.
Mo0,1,2,3	3.17.2	On a boat with series date before 1984, an additional <u>lifeline</u> of between 25–50 mm (1–2") high is permitted in lieu of a toe rail
MoMu0,1,2	3.18 Toilet	
	3.18.1	<u>Permanently installed</u> toilet.
MoMu3,4	3.18.2	<u>Permanently installed</u> toilet or fitted bucket.
MoMu1,2,3,4	3.19 Bunks	
	3.19.1	<u>Permanently installed</u> bunks.
MoMu0	3.19.2	<u>Permanently installed</u> bunk for each <u>crewmember</u> .
MoMu0,1,2,3	3.20 Cooking Facilities	
		<u>Permanently installed</u> cooking stove, capable of being operated safely at sea, with fuel shutoff control.
MoMu0	3.21 Drinking Water Tanks & Drinking Water	
	3.21.1 Drinking Water Tanks	
MoMu0	a)	<u>permanently installed</u> delivery pump and water tanks dividing the water supply into at least three compartments.
MoMu1	b)	<u>permanently installed</u> delivery pump and water tanks dividing the water supply into at least two compartments.
MoMu2,3	c)	<u>permanently installed</u> delivery pump and water tank(s), or reusable container(s) capable of providing drinking water for the likely duration of the passage.
MoMu0	3.21.2 Drinking Water	
		<u>Permanently installed</u> equipment (which may include watermakers and tanks containing water) to provide at least 3 L (0.8 US Gal) of drinking water per person per day for the likely duration of the passage.
MoMu1,2,3	3.21.3 Emergency Drinking Water	
	a)	at least 2 L (0.5 US Gal) per person of drinking water for emergency use in a dedicated and sealed container or container(s).
MoMu0	b)	in the absence of a power driven watermaker, at least 1 L (0.26 US Gal) per person per day in at least two separate containers shall be provided for the expected duration of the passage,
MoMu0	c)	when a power-driven watermaker is on board, at least 500 mL (0.13 US Gal) per person per day in at least two separate containers shall be provided for the expected duration of the passage,
MoMu0	d)	facilities shall be provided to collect rainwater for drinking purposes including when dismasted.

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Categories		A boat shall be/have:
**	3.22	Hand Holds
		Adequate hand holds fitted below deck.
**	3.23	Bilge Pumps and Buckets
	3.23.1	a) two strong buckets, each with a lanyard and of at least 9 L (2.4 US Gal) capacity,
Mo0,1,2		b) two <u>permanently installed</u> manual bilge pumps, one operable from above, the other from below deck,
Mo3Mu0,1,2		c) one <u>permanently installed</u> manual bilge pump,
Mo4		d) one manual bilge pump,
Mu0,1,2,3,4		e) provision to pump out all watertight compartments (except those filled with impermeable buoyancy).
**	3.23.2	All required <u>permanently installed</u> bilge pumps shall be operable with all cockpit seats, <u>hatches</u> and companionways shut and with <u>permanently installed</u> discharge pipe(s) of sufficient capacity.
**	3.23.3	Bilge pumps shall not be connected to cockpit drains and shall not discharge into a <u>contained cockpit</u> .
**	3.23.4	Bilge pumps shall be readily accessible for maintenance and for clearing out debris.
**	3.23.5	All removable bilge pump handles retained by a lanyard.
MoMu0,1,2,3	3.24	Compass
		Marine magnetic compass capable of being used as a steering compass:
**		a) <u>Permanently installed</u> marine magnetic steering compass, independent of any power supply, correctly adjusted with deviation card,
MoMu0,1,2,3		b) a second compass which may be hand-held and/or electronic.
**	3.25	Halyards
	3.25.1	A minimum of two halyards, each capable of hoisting a sail, on each mast.
MoMu0,1,2,3	3.25.2	No halyard shall be locked, lashed, or otherwise secured to the mast in a way that requires a person to go aloft to lower a sail in a controlled manner, except for a headsail in use with a furling device.
Mo0	3.26	Bow Fairlead
		Bow fairlead, closed or closable and a cleat or securing arrangement, suitable for towing, <u>permanently installed</u> .
**	3.27	Navigation Lights
	3.27.1	That conform to the International Regulations for Preventing Collisions at Sea (Part C and Technical Annex I) and shall be exhibited as required by those regulations.
**	3.27.2	Mounted above sheerline and so that they will not be masked by sails or the heeling of the boat.
MoMu0,1,2,3	3.27.3	Reserve lights having the same specifications as above, and that can be powered independently.
**	3.27.4	Spare bulbs (not required for LED).

SECTION 3 – STRUCTURAL FEATURES, STABILITY, FIXED EQUIPMENT

Categories	A boat shall be/have:	
	3.28 Engines, Generators, Fuel	
	3.28.1 Propulsion Engines	
**	a)	engines and associated systems installed in accordance with their manufacturers' guidelines and suitable for the size and intended use of the boat,
MoMu0,1,2,3	b)	an engine which provides a minimum speed in knots of $(1.8 \times \sqrt{L_{WL}})$ in metres) or $(\sqrt{L_{WL}})$ in feet),
Mo0,1,2Mu0 Mu1,2,3	c)	inboard engine,
	d)	inboard engine, however, if less than 12.0 m (39'-4") L_H either an inboard engine, or an outboard engine together with <u>permanently installed</u> power supply systems,
Mo3	e)	either an inboard or outboard engine, with associated power supply systems, all <u>securely fastened</u> ,
**	f)	an inboard combustion engine shall have a <u>permanently installed</u> exhaust, cooling system, fuel supply, fuel tank(s) and shall have adequate heavy weather protection,
**	g)	an inboard electrical engine, when fitted, shall be provided with a <u>permanently installed</u> power supply, adequate heavy weather protection and have an engine control system.
	3.28.2 Generator	
**		If an optional generator separate from the propulsion engine is carried, it shall be installed in accordance with the manufacturer's guidelines.
	3.28.3 Liquid Fuel Systems	
MoMu0,1,2,3	a)	all fuel tanks for storage of liquid fuels shall be rigid (but may have <u>permanently installed</u> flexible linings) and shall have a shutoff valve,
MoMu0,1,2,3	b)	at the start a boat with a combustion engine shall carry sufficient fuel to meet charging requirements for the duration of the race and to motor at the above minimum speed for at least 5 hours.
	3.28.4 Battery Systems	
**	a)	batteries installed after 2011 shall be of the sealed type from which liquid electrolyte cannot escape,
**	b)	at the start a boat with an electric engine shall carry sufficient capacity to meet electrical requirements for the duration of the race and to motor at the above minimum speed for at least 5 hours.
MoMu0,1,2,3	c)	a dedicated engine/generator starting battery when an electric starter is the only method for starting the engine and/or separate generator,
	3.29 Communications Equipment, GNSS, Radar, AIS	
Mo1,2,3 Mu1,2,3,4	3.29.1	A hand-held marine VHF transceiver, with minimum 5 W output power , for each grab bag, watertight or with a waterproof cover. When not in use to be stowed in the grab bag (see <u>OSR</u> 4.21).
Mo4	3.29.2	A hand-held marine VHF transceiver, watertight or with a waterproof cover.
MoMu0	3.29.3	At least two (one for each grab bag) hand-held marine VHF transceivers each with min 5 W output power, watertight or with waterproof covers. When not in use to be stowed in a grab bag (see <u>OSR</u> 4.21).

SECTION 3 – STRUCTURAL FEATURES, STABILITY, FIXED EQUIPMENT

Categories		A boat shall be/have:
**	3.29.4	A second radio receiver, which may be the handheld VHF in <u>OSR</u> 3.29.1 above, capable of receiving weather bulletins.
MoMu0,1,2,3	3.29.5	A marine radio transceiver with an emergency antenna when the regular antenna depends upon the mast.
MoMu0,1,2,3	3.29.6	If the marine radio transceiver is a VHF:
MoMu0,1,2,3		a) a minimum rated output power of 25 W,
MoMu1,2,3		b) if installed after 2015 be <u>DSC</u> capable,
MoMu0		c) a marine VHF <u>DSC</u> radio covering all international and US marine channels and meeting International Telecommunications Union (ITU) class D.
MoMu0,1,2		d) a masthead antenna not less than 38 cm (15") in length and co-axial feeder cable with not more than 40% power loss,
MoMu3		e) a masthead antenna and co-axial feeder cable with not more than 40% power loss,
MoMu1,2,3		f) <u>DSC</u> capable VHF transceivers shall be programmed with an assigned MMSI (unique to the boat), be connected to a <u>GNSS</u> receiver and be capable of making distress alert calls as well as sending and receiving a <u>DSC</u> position report with another <u>DSC</u> equipped station,
MoMu1,2		g) have an external speaker in the cockpit.
MoMu3		h) if the number of <u>crewmembers</u> is fewer than 3, have an external speaker in the cockpit.
MoMu0,1,2,3	3.29.7	An <u>AIS</u> Transponder which either:
MoMu0,1,2,3		a) shares the masthead VHF antenna via a low loss <u>AIS</u> antenna splitter, or
MoMu0,1,2,3		b) has a dedicated <u>AIS</u> antenna not less than 38 cm (15") in length mounted with its base not less than 3 m (10') above the waterline and co-axial feeder cable with not more than 40% power loss.
Mu0		The AIS transponder shall be class A.
MoMu3	3.29.8	A <u>GNSS</u> .
MoMu1	3.29.9	A hand-held satellite telephone for each grab bag, watertight or with waterproof cover and internal battery. Stow in the grab bag (see <u>OSR</u> 4.21) when not in use.
MoMu0	3.29.10	At least two hand-held satellite telephones (one for each grab bag), watertight or with waterproof covers and internal batteries. When not in use each to be stowed in the grab bag (see <u>OSR</u> 4.21),
MoMu0	3.29.11	A direction-finding radio receiver operating on 121.5 MHz to take a bearing on a <u>PLB</u> or <u>EPIRB</u> , or an alternative device for crew overboard location when each <u>crewmember</u> has an appropriate personal unit (see <u>OSR</u> 4.22.1).
MoMu0	3.29.12	A satellite device able to send and receive data and a tracking device shall be <u>permanently installed</u> and permanently powered up for the duration of the race and for which the race committee shall have polling authority.
MoMu0	3.29.13	An MF/HF marine SSB transceiver (<u>GMDSS/DSC</u>) with at least 125 W transmitter power and frequency range from at least 1.6 to 29.9 MHz with <u>permanently installed</u> antenna and earth.
MoMu0	3.29.14	An active radar set <u>permanently installed</u> either:

SECTION 3 – STRUCTURAL FEATURES, STABILITY, FIXED EQUIPMENT

Categories	A boat shall be/have:
MoMu0	a) a pulse (magnetron) unit with not less than 4 kW PEP and an antenna unit with a maximum dimension not less than 533 mm, or
MoMu0	b) a frequency modulated continuous wave (FMCW) Broadband Radar™ unit. The radar antenna unit shall remain essentially horizontal when the boat is heeled and at least 7 m (23') above the water. Installations in place before January 2006 shall comply as closely as possible with <u>OSR</u> 3.29.13 a).

SECTION 4 – PORTABLE EQUIPMENT

Categories		A boat shall have:
	4.01	Sail Letters & Numbers
**	4.01.1	Identification on sails which complies with <u>RRS</u> 77 and <u>RRS</u> Appendix G.
MoMu0,1,2,3	4.01.2	An alternative means of displaying identification as required under <u>RRS</u> Appendix G for a mainsail, to be displayed when none of the numbered sails are set.
	4.02	Search and Rescue Visibility
MoMu0	4.02.1	A 4 m ² (43 ft ²) area of highly visible pink, orange or yellow on the coachroof and/or deck.
Mo1Mu1,2	4.02.2	A 1 m ² (11 ft ²) solid area of highly visible pink, orange or yellow capable of being displayed on the coachroof and/or deck.
Mo0,1Mu0,1,2,3,4	4.02.3	From 2027 (for Mo0,1) a 1 m ² (11 ft ²) area of highly visible pink, orange or yellow showing when the boat is inverted.
	4.03	Soft Wood Plugs
**		A tapered soft wood plug stowed adjacent to every through-hull opening.
	4.04	Jackstays and Clipping Points
MoMu0,1,2,3	4.04.1	<u>Permanently Installed</u> fittings for <u>jackstay</u> ends and clipping points.
MoMu0,1,2,3	4.04.2	<u>Jackstays</u> which shall:
MoMu0,1,2,3		a) be independent on each side of the deck,
MoMu0,1,2,3		b) enable a <u>crewmember</u> to move readily between the working areas on deck and the cockpit(s) with the minimum of clipping and unclipping operations,
MoMu0,1,2,3		c) have a breaking strength of 2040 kg (4500#) and be uncoated and non-sleeved stainless steel 1 x 19 wire of minimum diameter 5 mm (3/16"), webbing or <u>HMPE</u> rope.
MoMu0,1,2,3	4.04.3	Clipping points which shall:
MoMu0,1,2,3		a) be adjacent to stations such as the helm, sheet winches and masts, where <u>crewmembers</u> work,
MoMu0,1,2,3		b) enable a <u>crewmember</u> to clip on before coming on deck and unclip after going below,
MoMu0,1,2,3		c) enable two-thirds of the crew to be simultaneously clipped on without depending on <u>jackstays</u> ,
Mu0,1,2,3		d) on a trimaran with a rudder on the outrigger, permit a <u>crewmember</u> to repair the steering mechanism whilst attached to a clipping point.
	4.05	Fire Fighting Equipment
**	4.05.1	A fire blanket adjacent to every cooking device.
MoMu1,2,3	4.05.2	2 fire extinguishers, each with 2 kg of dry powder or equivalent, in different parts of the boat.
MoMu4	4.05.3	2 fire extinguishers in different parts of the boat.
MoMu0	4.05.4	3 fire extinguishers, each with 2 kg of dry powder or equivalent, in different parts of the boat, one system of which is to deal with fire in a machinery space.
	4.06	Anchors
MoMu1,2,3	4.06.1	2 un-modified anchors that meet the anchor manufacturer's recommendation based on the boat's dimensions with suitable combination of chain and rope, ready for immediate assembly, and ready for deployment within 5 minutes

SECTION 4 – PORTABLE EQUIPMENT

Categories		A boat shall have:
		except that for a boat less than 8.5 m (28') <u>L_H</u> there shall be 1 anchor meeting the same criteria.
MoMu4	4.06.2	1 un-modified anchor that meets the anchor manufacturer's recommendation based on the boat's dimensions with suitable combination of chain and rope, ready for immediate assembly, and ready for deployment within 5 minutes.
MoMu0	4.06.3	Anchors, chain and rope which comply with relevant class rules or the rules of a recognised Classification Society.
	4.07	Flashlights and Searchlights
Mo0,1,2,3 Mu0,1,2,3,4		Flashlights and searchlights need to be watertight (min IP67 rated), need to have spare batteries or be rechargeable, have spare bulbs or be an LED type, and need to provide at least 400 Lumens. The following need to be provided:
MoMu0,1,2,3		a) a searchlight, suitable for searching for a person overboard at night and for collision avoidance,
Mo0,1,2,3 Mu0,1,2,3,4		b) stowed in each grab bag (see <u>OSR 4.21</u>), a flashlight.
Mo0,1,2,3 Mu0,1,2,3,4 MoMu0		c) for boats with only two <u>crewmembers</u> , the searchlight detailed in 4.07 a) shall be accessible from the cockpit without having to go below deck.
		d) a high-intensity heavy duty searchlight powered by the boat's batteries, immediately available for use on deck and in the cockpit.
	4.08	First Aid Manual and First Aid Kit
**		A First Aid Manual and First Aid Kit. The contents and storage of the First Aid Kit shall reflect the likely conditions and duration of the passage, and the number of <u>crewmembers</u> .
	4.09	Foghorn
**		A foghorn.
	4.10	Radar Reflector
**	4.10.1	A passive radar reflector with:
**		a) octahedral circular plates of minimum diameter 30 cm (12"),
**		b) octahedral rectangular plates of minimum diagonal dimension 40 cm (16"), or
**		c) a non-octahedral reflector with a documented root mean square minimum Radar Cross Section (RCS) area of 2 m ² (22 ft ²) from 0–360° of azimuth and ±20° of heel.
MoMu0	4.10.2	A Radar Target Enhancer (RTE) which complies with <u>ISO</u> 8729-2:2009 or equivalent.
	4.11	Navigation Equipment
MoMu0,1,2,3	4.11.1	Navigational charts (not solely electronic) and chart plotting equipment.
MoMu4	4.11.2	Navigational charts and chart plotting equipment. If electronic-only, an independent alternative shall be on board.
	4.12	Safety Equipment Location Chart
**		A safety equipment location diagram in durable waterproof material, clearly displayed in the main accommodation, marked with the location of principal items of safety equipment.
	4.13	Depth, Speed and Distance Instruments
MoMu0,1,2,3	4.13.1	A knotmeter or distance measuring instrument (log).

SECTION 4 – PORTABLE EQUIPMENT

Categories		A boat shall have:
MoMu1,2,3,4	4.13.2	A depth sounder.
MoMu0	4.13.3	Two independent depth sounders.
	4.14	Spare Number
	4.15	Emergency Steering
MoMu0,1,2,3	4.15.1	An emergency tiller capable of being fitted to the rudder stock except when:
MoMu0,1,2,3		a) the principal method of steering is by means of an unbreakable metal tiller,
MoMu0,1,2,3		b) there are two methods (e.g. tillers, wheels) of controlling a rudder, neither of which shares components with the other except for the rudder stock.
MoMu0,1,2,3	4.15.2	A proven method of emergency steering with the rudder disabled.
	4.16	Tools and Spare Parts
**	4.16.1	Tools and spare parts, suitable for the duration and nature of the passage.
**	4.16.2	An effective means to quickly disconnect or sever the standing rigging from the boat.
	4.17	Boat's Name
**		The boat's name on miscellaneous buoyant equipment, such as lifejackets, cushions, lifebuoys, recovery slings, grab bags, etc.
	4.18	Retro-Reflective Material
**		Marine grade retro-reflective material on lifebuoys, recovery slings, liferafts and lifejackets.
	4.19	EPIRBs
MoMu0	4.19.1	Two water and manually activated 406 MHz <u>EPIRBs</u> .
MoMu1,2	4.19.2	A water and manually activated 406 MHz <u>EPIRB</u> .
MoMu0,1,2	4.19.3	A 406 MHz <u>EPIRB</u> shall include an internal <u>GNSS</u> . If registered after 2026 it shall have the ability to transmit <u>AIS</u>.
MoMu0,1,2	4.19.4	All <u>EPIRBs</u> registered with the appropriate authority associated with the country code in the hexadecimal identification (15 Hex ID) of the beacon. A beacon can be registered online with the Cospas-Sarsat <u>IBRD</u> if the country does not provide a registration facility and the country has allowed direct registration in the <u>IBRD</u> .
	4.20	Liferafts
	4.20.1	Liferaft Construction
MoMu1,2	a)	one or more inflatable liferafts with a total capacity to accommodate at least the total number of people on board which complies with:
MoMu1,2	i	<u>LSA</u> Code 1997 Chapter IV or later version,
MoMu1,2	ii	<u>ISO</u> 9650-1:2005, Type 1, Group A – Small Craft – Inflatable,
MoMu1,2	iii	<u>ISAF</u> liferafts manufactured before 2016 until replacement is due at end of service life, or
MoMu1,2	iv	<u>ORC</u> liferafts manufactured before 2003 until replacement is due at end of service life.
MoMu0	b)	a sufficient number of liferafts so that in the event of any one liferaft being lost or rendered unserviceable, sufficient aggregate capacity remains for all <u>crewmembers</u> ,
MoMu0	c)	liferafts shall comply with <u>LSA</u> code 1997 Chapter IV or later version.

SECTION 4 – PORTABLE EQUIPMENT

Categories	A boat shall have:
MoMu0,1,2 MoMu1	4.20.2 Minimum Liferaft Equipment
MoMu2.	a) a <u>SOLAS</u> liferaft shall contain as a minimum a <u>SOLAS</u> A pack,
MoMu1,2	b) an <u>ISO</u> 9650 liferaft shall contain as a minimum Pack 1 (greater than 24 hours pack),
MoMu1,2	c) an <u>ISO</u> 9650 liferaft shall contain as a minimum Pack 2 (less than 24 hours pack),
MoMu1,2	d) the minimum contents of the <u>ISO</u> liferaft equipment packs are listed below. Some items, as indicated below, may be carried within accompanying waterproof grab bag(s) which shall be in a readily accessible location:

Table 6 – Minimum Required Equipment

Equipment	Pack 1 > 24 h	Pack 2 < 24 h	In liferaft	In liferaft or grab bag(s)
Portable buoyant bailer easily operable by hand	1	1	X	
Sponge	2	2	X	
Pair of buoyant paddles with handles (not mitts) tied into raft adjacent to an entrance	1	1	X	
First-Aid Kit including at least 2 tubes of sunscreen. All dressings must be capable of being effectively used in wet conditions. The first aid kit shall be clearly marked and shall be re-sealable.	1	0		X
Whistle	1	1	X	
Waterproof torch with 6 h duration and separate battery and bulb or complementary torch	2	1	X	
Signalling mirror	1	1	X	
Anti-seasickness pills, per person	6	6		X
Seasickness bag with simple effective closure system, per person	1	1		X
Red hand flares in accordance with <u>LSA</u> Code Chapter III, 3.2	6	3	3 min	X
Red parachute flares in accordance with <u>LSA</u> Code Chapter III, 3.1	2	2	1 min	X
Thermal protective aids in accordance with <u>LSA</u> Code Chapter III, 2.5	2	0		X
Repair outfit to enable survivors to repair leaks in any or all of the inflatable compartments. Repair systems must work when wet and be capable of being applied during violent motion.	1	1	X	
Air pump or bellows which shall be simple, robust and complete, with all necessary connections	1	1	X	

SECTION 4 – PORTABLE EQUIPMENT

Categories	A boat shall have:			
	(loose parts shall be captive to the main apparatus) ready for instant use to enable air to be pumped into any or all of the inflatable compartments. The air pump or bellows shall be designed and built specifically for easy operation by hand			
	Drinking water per person, in containers of each not more than 500 mL	1.5 L	0	0.5 L
	Food per person	10 000 kJ	0	X
	^a Drinking water in the grab bag (if any) may be replaced with a desalinator device			

4.20.3 Liferaft Packing and Stowage

- MoMu0,1,2
MoMu0,1,2
MoMu0,1,2
MoMu0,1,2
MoMu0,1,2
MoMu0,1,2
MoMu1,2
- Each liferaft shall be packed either in:
 - a rigid container securely stowed on the working deck, in the cockpit or in an open space, or
 - a rigid container or valise securely stowed in a dedicated weather tight locker containing liferaft and abandon ship equipment only which is readily accessible and opens onto the cockpit or working deck, or transom.
 - On a **monohull** with moveable ballast or a **multihull**, the liferaft shall be readily deployable whether or not the boat is inverted.
 - The end of each liferaft painter should be securely fastened to the boat.
 - Each raft shall be capable of being moved to the lifelines or launched within 15 seconds.
 - In a boat with **series date** before June 2001, a liferaft may be packed in a valise not exceeding 40 kg securely stowed below deck adjacent to a companionway.

4.20.4 Liferaft Servicing

- MoMu0,1,2
MoMu0,1,2
MoMu0,1,2
MoMu0,1,2
MoMu0,1,2
MoMu0,1,2
MoMu0,1,2
- A liferaft shall be serviced at a manufacturer authorized service station at the following maximum intervals:
 - SOLAS liferafts annually,
 - ISO 9650 canister packed liferafts every 3 years,
 - ISO 9650 valise packed liferafts every 3 years except that hired liferafts shall be serviced annually,
 - ISAF liferafts annually,
 - ORC liferafts annually.
 - Servicing certificates (original or a copy) on board.

4.21 Grab Bags

- Mo0,1,2,3
Mu0,1,2,3,4
- 4.21.1 A grab bag shall have inherent flotation, at least 0.1 m² (1 ft²) area of highly visible colour (e.g. dayglo yellow or orange) on the outside, shall be marked with the name of the boat, and shall have a lanyard and clip. If a grab bag has

SECTION 4 – PORTABLE EQUIPMENT

Categories		A boat shall have:
		to accompany a specific life raft, it shall be clearly marked with the identity of its corresponding raft.
MoMu1,2	4.21.2	A grab bag for each liferaft, readily accessible whether or not the boat is inverted.
MoMu0	4.21.3	A grab bag for each liferaft (not required for a spare liferaft under <u>OSR</u> 4.20.1 b)), readily accessible whether or not the boat is inverted.
Mu3,4	4.21.4	The following shall be either stowed with a liferaft, or in a watertight compartment or a grab bag. The container shall be readily accessible whether or not the boat is inverted:
Mo3		The following shall either be stowed with a liferaft or a in grab bag. The grab bag shall be readily accessible whether or not the boat is inverted:
Mo3Mu3,4		a) 3 hand flares,
Mo3Mu3,4		b) watertight strobe light with spare batteries (may be part of the flashlight),
Mo3Mu3,4		c) knife, and
Mo3Mu3,4		d) whistle.
	4.22	Crew Overboard Identification and Recovery
	4.22.1	Locator Beacons
MoMu0,1,2		a) an <u>AIS</u> personal crew overboard beacon for each <u>crewmember</u> ,
MoMu0		b) a <u>PLB</u> equipped with 406Mhz and 121.5Mhz for each <u>crewmember</u> ,
MoMu0		c) a personal unit in addition to the <u>PLB</u> in <u>OSR</u> 4.22.1 b) if the location device carried by the boat in accordance with <u>OSR</u> 3.29.11 requires it,
MoMu0,1,2		Where possible every <u>PLB</u> shall be registered with the appropriate authority associated with the country code in the hexadecimal identification (15 Hex ID) of the beacon. A beacon can be registered online with the Cospas-Sarsat <u>IBRD</u> if the country does not provide a registration facility and the country has allowed direct registration in the <u>IBRD</u> .
	4.22.2	GNSS Crew Overboard Position
MoMu1,2,3		a) For boats with only two <u>crewmembers</u> , a GNSS capable of recording a crew overboard position, within 10 seconds, and monitoring that position without having to go below deck.
MoMu1,2		b) a <u>GNSS</u> capable of recording a crew overboard position within 10 seconds and monitoring that position.
MoMu0		c) a <u>GNSS</u> capable of recording a crew overboard position within 10 seconds and monitoring that position, and
MoMu0		d) connected to an emergency button immediately accessible to a helmsman which will sound an audible alarm in the accommodation and simultaneously send an appropriate signal to the <u>GNSS</u> .
	4.22.3	Lifebuoys
MoMu3,4		a) a lifebuoy with a self-igniting light, a whistle, and a drogue within reach of the helmsman and ready for immediate use,
MoMu0,1,2		b) a lifebuoy with a self-igniting light, a whistle, and a drogue,
MoMu0,1,2		c) in addition to <u>OSR</u> 4.22.3 b) above, within reach of the helmsman and ready for immediate use, a second lifebuoy equipped with:
MoMu0,1,2		i a whistle, a drogue, a self-igniting light, and

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Categories		A boat shall have:
MoMu0,1,2		ii a pole and flag. The pole shall be either permanently extended or be capable of being fully automatically extended,
MoMu0		iii each lifebuoy shall be equipped with a sachet of fluorescein dye.
MoMu0,1,2		d) at least one lifebuoy shall depend entirely on permanent buoyancy (e.g. foam),
**		e) each inflatable lifebuoy and any automatic device shall be tested and serviced at intervals in accordance with its manufacturer's instructions.
**	4.22.4	Heaving Line A heaving line, no less than 6 mm (1/4") diameter, 15–25 m (50–75') long, readily accessible to cockpit.
MoMu0,1,2,3	4.22.5	Recovery Sling A recovery sling which includes a:
MoMu0,1,2,3		a) buoyant line of length no less than the shorter of 4 times <u>L_H</u> or 36m (120'),
MoMu0,1,2,3		b) buoyancy section (horseshoe) with no less than 90 N (20#) buoyancy,
MoMu0,1,2,3		c) minimum strength capable to hoist a <u>crewmember</u> aboard.
**	4.23	Pyrotechnic and Light Signals Pyrotechnic signals shall be provided conforming to <u>LSA</u> Code Chapter III Visual Signals and not older than the stamped expiry date (if any) or if no expiry date stamped, not older than 4 years:
**		a) 2 orange smoke <u>LSA</u> III 3.3,
MoMu0,1,2,3		b) 4 red hand flares <u>LSA</u> III 3.2.
	4.24	Spare Number
**	4.25	Cockpit Knife A strong, sharp knife, in a securely restrained sheath shall be readily accessible from the deck or a cockpit.
**	4.26	Storm & Heavy Weather Sail Inventory the following storm & heavy weather sails as specified in <u>OSR</u> 4.27:
MoMu0	4.26.1	a storm trysail (or rotating wing mast if suitable),
MoMu1,2	4.26.2	either a storm trysail or mainsail reefing to reduce the luff by at least 50% (or rotating wing mast if suitable),
MoMu3	4.26.3	either a storm trysail or mainsail reefing to reduce the luff by at least 40% (or rotating wing mast if suitable),
MoMu4	4.26.4	either mainsail reefing to reduce the luff by 12.5% or a heavy weather jib (or rotating wing mast if suitable or heavy-weather sail in a boat with no forestay).
MoMu0,1,2,3	4.26.5	heavy weather jib,
MoMu0,1,2	4.26.6	storm jib.
	4.27	Storm & Heavy Weather Sail Specifications Where required by <u>OSR</u> 4.26, the specifications of heavy weather sails shall follow:

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Categories

A boat shall have:

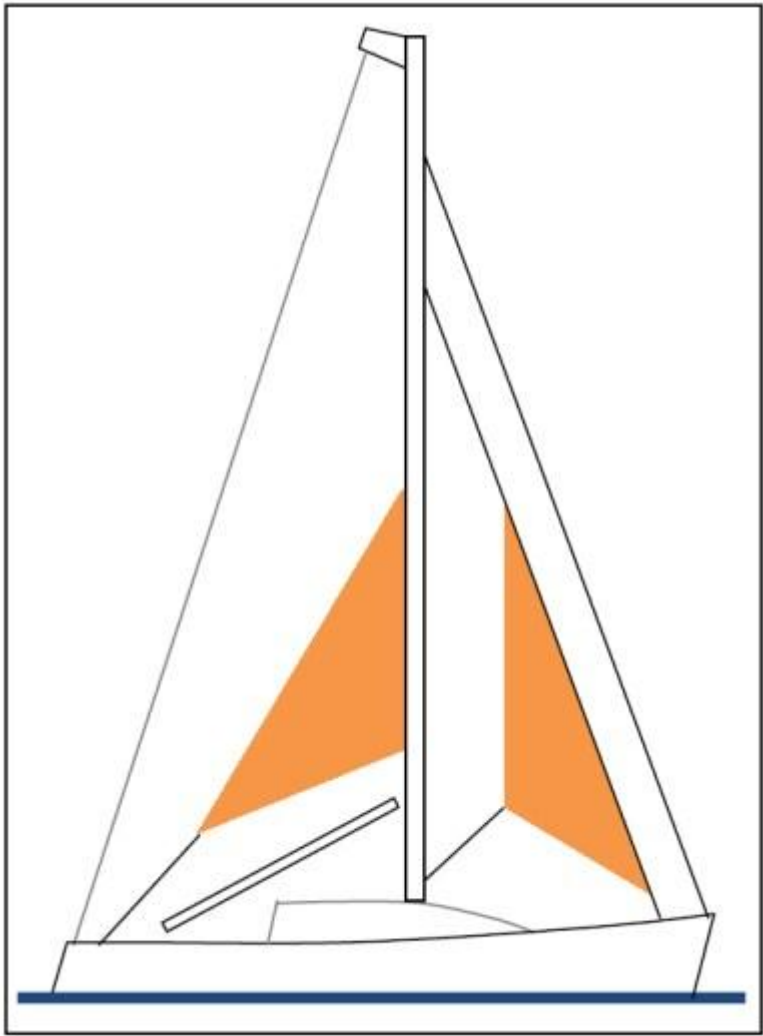


Figure 3 – Storm Sails

4.27.1 Design

- a) the material of the body of a storm sail purchased after 2013 shall have a highly visible colour (e.g. dayglo pink, orange or yellow),
- b) aromatic polyamides, carbon and similar fibres shall not be used in a trysail or storm jib, but HMPE and similar materials are permitted,
- c) sheeting positions on deck for each storm and heavy-weather sail,
- d) sheeting positions for the trysail independent of the boom, and
- e) A storm jib may not be set in conjunction with any other sail set forwards of the forward mast spar.

4.27.2 A Storm Trysail with:

- a) area not greater than 17.5% mainsail hoist (P) x mainsail foot length (E),
- b) the storm trysail area shall be calculated as (0.5 x leech length x shortest distance between tack point and leech),
- c) no headboard,
- d) no battens,
- e) sail number and letters on both sides, as large as practicable,
- f) in the case of a boat with an in-mast furling mainsail, the storm trysail shall be capable of being set while the mainsail is furled, and

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Categories		A boat shall have:
MoMu0,1,2,3		g) designed to provide propulsion and steerage in Beaufort scale 8 and on all points of sail.
**	4.27.3	A Heavy Weather Jib (or Heavy Weather Sail in a Boat with no Forestay) with:
**		a) area, in unreefed condition, not greater than 13.5% height of the foretriangle squared,
**		b) heavy weather jib area shall be calculated as: $(0.255 \times \text{luff length} \times (\text{luff perpendicular} + 2 \times \text{half width}))$,
**		c) readily available method, independent of a luff groove, to attach to the stay, and
**		d) designed to provide propulsion and steerage in Beaufort scale 6 and on all points of sail.
MoMu0,1,2	4.27.4	A Storm Jib with:
MoMu0,1,2		a) area not greater than 5% (height of the foretriangle) squared,
MoMu0,1,2		b) luff length not greater than 65% of height of the foretriangle ,
MoMu0,1,2		c) storm jib area shall be calculated as: $(0.255 \times \text{luff length} \times (\text{luff perpendicular} + 2 \times \text{half width}))$.
MoMu0,1,2		d) permanently attached method, independent of a luff groove, to attach to the stay,
MoMu0,1,2		e) no battens, and
MoMu0,1,2		f) designed to provide propulsion and steerage in Beaufort scale 8 and on all points of sail.
MoMu0	4.28	Drogue, Sea Anchor A drogue for deployment over the stern, or a sea anchor or parachute anchor for deployment at the bow, complete with all necessary gear (see Appendix K).
Mo0	4.29	Deck Bags
Mo0	4.29	If permitted by the Notice of Race, Sailing Instructions or Class Rules, bags for storing sails on deck shall be:
Mo0		a) so constructed to ensure rapid draining of water, and
Mo0		b) <u>securely fastened</u> in such a way that the integrity of deck fittings e.g. stanchions and <u>lifelines</u> , is not compromised.
Mo0,1,2	4.30	Emergency Pumps either fixed or portable pump to remove ingress water from any compartment. This pump shall:
Mo0,1,2		a) have a minimum rated capacity of 200 l/min (3200 US gph),
Mo0,1,2		b) be operated by battery, main engine powered or a separate engine,
Mo0,1,2		c) if portable electric-powered, power cables shall be terminated with alligator clips or other secure connection method, and
Mo0,1,2		d) have sufficient hose to discharge directly overboard or into the cockpit.
Mo0,1,2		A combination of <u>permanently installed</u> and portable pumps may be combined to meet the above requirement.

SECTION 5 – PERSONAL EQUIPMENT

Categories		Each <u>crewmember</u> shall have:
	5.01	Lifejacket
**	5.01.1	A gas inflatable lifejacket which shall comply with <u>ISO</u> 12402-3 (Level 150) and have been manufactured after 2011. It shall be fitted with the following, each complying with <u>ISO</u> 12402-3 or <u>ISO</u> 12402-8:
**		a) a manual or automatic gas inflation system,
**		b) a ride up prevention system (crotch strap or thigh straps),
MoMu0,1,2,3		c) an emergency position indicating light,
MoMu0,1,2,3		d) a sprayhood,
MoMu0,1,2		e) a deck safety harness (attachment),
MoMu0		f) a personal location device,
**		It shall also:
**		g) be of the appropriate size range for the <u>crewmember</u> as marked on the PFD, and
**		h) have been indelibly marked with the name of the owner or boat.
MoMu0,1,2,3	5.01.2	A boat shall carry at least one gas inflatable lifejacket spare cylinder and, if appropriate, spare activation head for each type of lifejacket on board.
MoMu0,1,2	5.01.3	A boat shall carry at least one spare lifejacket as required but a spare personal location device is not required.
**	5.01.4	The <i>person in charge</i> shall personally check that each lifejacket has been serviced in accordance with the manufacturer's recommendation by an approved service station and that the next service date as marked on the lifejacket has not been exceeded.
	5.02	Deck Safety Harness and Tethers
MoMu0,1,2,3	5.02.1	A harness that complies with <u>ISO</u> 12401 or equivalent.
MoMu0,1,2,3	5.02.2	A <u>tether</u> that shall:
MoMu0,1,2,3		a) comply with <u>ISO</u> 12401 or equivalent,
MoMu0,1,2,3		b) not exceed 2 m (6'-6") including the length of the hook(s),
MoMu0,1,2,3		c) have self-closing hook(s),
MoMu0,1,2,3		d) have overload indicator flag embedded in the stitching, and
MoMu0,1,2,3		e) be manufactured after 2000.
MoMu0,1,2,3	5.02.3	either:
MoMu0,1,2,3		a) a <u>tether</u> not exceeding 1 m (3'-3") including the length of the hook(s), or
MoMu0,1,2,3		b) an intermediate self-closing hook on a 2 m (6'-6") <u>tether</u> .
MoMu0	5.02.4	a boat shall carry spare harnesses and <u>tethers</u> as required in <u>OSR</u> 5.02 above sufficient for at least 10% of the <u>crewmembers</u> (minimum one unit).
MoMu0,1,2,3	5.02.5	A <u>tether</u> which has been overloaded shall be replaced.
	5.03	Personal Location Lights
MoMu0		Two packs of mini flares or two personal location lights (either <u>SOLAS</u> or strobe): one to be attached to, or carried on, the person when on deck at night.
	5.04	Foul Weather Suits
MoMu0		A foul weather suit with hood.
	5.05	Knife
MoMu0		A knife, to be worn on the person at all times.

SECTION 5 – PERSONAL EQUIPMENT

Categories		Each <u>crewmember</u> shall have:
MoMu0	5.06	Flashlight A buoyant watertight flashlight.
MoMu0	5.07	Survival Equipment an immersion suit (attention is drawn to <u>EN ISO</u> 15027-1 constant wear suits, and <u>EN ISO</u> 15027-2 abandonment suits and the <u>LSA</u> Code Chapter II, 2,3).
MoMu0	5.08	Diving Equipment The boat shall have at least two diving suits each, to cover the entire body, and including gloves, fins, and portable air supplies.

SECTION 6 – TRAINING

Categories	6.01	Training
MoMu0	6.01.1	Every <u>crewmember</u> including the <i>person in charge</i> shall have undertaken training within the five years before the start of the race in <u>OSR</u> 6.02 Training Topics.
MoMu1,2	6.01.2	At least 30% but not fewer than two <u>crewmembers</u> , including the <i>person in charge</i> shall have undertaken training within the five years before the start of the race in <u>OSR</u> 6.02 Training Topics.
MoMu3	6.01.3	When there are only two <u>crewmembers</u> , at least one shall have undertaken training within the five years before the start of the race in <u>OSR</u> 6.02 Training Topics.
MoMu0,1,2	6.01.4	Except as otherwise provided in the Notice of Race, an in-date certificate gained at a World Sailing approved Offshore Personal Survival Training course shall be accepted by an event Organising Authority as evidence of compliance with <u>OSR</u> 6.01. See Appendix G – Model Training Course, for further details.
MoMu0,1,2,3	6.01.5	A refresher course may be taken to renew a certificate if the refresher course is completed within 2 years of the expiration of the individual's most recent Offshore Personal Survival Course certificate.
	6.02	Training Topics
MoMu0,1,2,3	6.02.1	Giving Assistance to Other Craft
MoMu0,1,2,3	6.02.2	Personal Safety Gear, theory and practice
MoMu0,1,2,3	6.02.3	Care and Maintenance of Safety Gear
MoMu0,1,2,3	6.02.4	Fire Precautions and Firefighting, theory and practical
MoMu0,1,2,3	6.02.5	Crew Overboard Prevention and Recovery
MoMu0,1,2,3	6.02.6	Hypothermia, Cold Shock and Drowning
MoMu0,1,2,3	6.02.7	Crew Health
MoMu0,1,2,3	6.02.8	Marine Weather
MoMu0,1,2,3	6.02.9	Heavy Weather
MoMu0,1,2,3	6.02.10	Storm Sails
MoMu0,1,2,3	6.02.11	Damage Control
MoMu0,1,2,3	6.02.12	Search and Rescue Organisation
MoMu0,1,2,3	6.02.13	Pyrotechnics and Signalling Gear, theory and practical
MoMu0,1,2,3	6.02.14	Emergency Communications, theory and practical
MoMu0,1,2,3	6.02.15	Liferafts and Abandon Ship, theory and practical
	6.03	Spare Number
	6.04	Routine Training Onboard
**		At least annually the crews shall practice the drills for:
**		a) crew-overboard recovery, and
**		b) abandonment of vessel.
	6.05	Medical Training
MoMu0	6.05.1	At least one <u>crewmember</u> shall have a valid <u>STCW</u> A-VI/4-2 (Proficiency in Medical Care) certificate or equivalent.
MoMu0	6.05.2	In addition to <u>OSR</u> 6.05.1 another <u>crewmember</u> shall have a valid first aid certificate completed within the last five years meeting:
MoMu1		At least two <u>crewmembers</u> shall have a valid first aid certificate completed within the last five years meeting:

SECTION 6 – TRAINING

Categories	
MoMu2	At least one <u>crewmember</u> shall be familiar with first aid procedures, hypothermia, drowning, cardio-pulmonary resuscitation and relevant communications systems, and in addition, one other crewmember shall have a valid first aid certificate completed within the last five years meeting:
MoMu0,1,2	a) A certificate listed on the World Sailing website (https://www.sailing.org) of MNA recognised courses, or
MoMu0,1,2	b) <u>STCW</u> First Aid Training complying with A-VI/1-3 - Elementary First Aid or higher <u>STCW</u> level.
MoMu3,4	6.05.3 At least two <u>crewmembers</u> shall be familiar with First Aid procedures, hypothermia, drowning, cardio-pulmonary resuscitation, and relevant communications systems.
MoMu0	6.06 Diving Training
MoMu0	At least 30% of the crew shall have received diving training to enable them to carry out basic repairs underwater and to assist recovering a crew overboard.

APPENDIX A – Moveable and Variable Ballast

Notwithstanding the maximum length limit of 24m in the standard, this Appendix invokes International Standard ISO 12217-2, Small craft – Stability and buoyancy assessment and categorization – Part 2: Sailing boats of hull length greater than or equal to 6m. The functions FKR (Knockdown Recovery Factor) and FIR (Inversion Recovery Factor) are defined in ISO 12217-2, except as modified by this Appendix.

This Appendix applies to Monohull boats only. Unless specifically stated, a requirement applies to Special Regulations Categories 0, 1, 2, 3 and 4.

A Stability

A.1 Boat Condition

In the calculation of stability data:

- (a) Deck and other enclosed volume above the sheerline and cockpit volume shall be taken into account.
- (b) Mass shall be taken as Minimum Operating Mass as defined by ISO 12217-2, paragraph 3.5.3.

A.2 General Standards

In the assessment of ISO category for boats fitted with moveable and/or variable ballast, ISO 12217-2, paragraph 6.1.4 b) shall not apply. Boats shall comply with paragraphs 6.2.3, 6.3.1 and 6.4. Calculations shall be for the ballast condition that results in the most adverse result when considering each individual stability requirement. ISO 12217-2 Annex C, paragraph C.3.3, first sentence, the word 'may' is replaced with 'shall'. ISO 12217-2 Annex C, paragraph C.3.4 shall not be used in the calculation of righting lever.

A.3 Knockdown Recovery

Boats with moveable/variable ballast shall comply with the following minimum values of Knockdown Recovery Factor (FKR) calculated in accordance with ISO 12217-2 paragraph 6.4.4 with the modification that the reference to ISO 8666 paragraph 5.5.2 changed to incorporate actual mainsail area and centre of effort. The lesser of FKR₉₀ and FKR₉₀ shall be used:

Race Category	0	1,2	3	4
FKR	1.0	0.9	0.8	0.7

Boats with **series date** prior to November 2004 may seek dispensation from this section 1.3 by application to World Sailing.

A.4 Capsize Recovery

For boats racing under Offshore Special Regulations Category 0, regulation 3.04.3 is modified to read:

- 3.04.3 Either with, or without, reasonable intervention from the crew, a boat shall be capable of self-righting from an inverted position. Self-righting shall be achievable whether or not the rig is intact. Boats with moveable/variable ballast shall comply with this requirement in flat water using manual power only and shall demonstrate that any equipment to be used in re-righting the boat is ready for use at all times and will function and is useable by the crew with the boat inverted. Re-righting the boat shall not require flooding any part of the boat.

Boats with moveable/variable ballast shall comply with the following minimum values of Inversion Recovery Factor (FIR) calculated in accordance with ISO 12217-2:

Offshore Category	0
FIR	0.9

Boats with **series date** prior to November 2004 may seek dispensation from this section 1.4 by application to World Sailing.

APPENDIX B – Special Regulations for Inshore Racing

Special Regulations for inshore racing are intended for use in short races, close to shore in relatively warm and protected waters where adequate shelter and/or effective rescue is available all along the course, held in daylight only.

Part A Basic

Regulation	Item
1.02	Responsibility of Person in Charge
1.02.1	Under <u>RRS</u> 3 the responsibility for a boat's decision to participate in a race or continue racing is hers alone. The safety of a boat and her crew is the sole and inescapable responsibility of the <i>person in charge</i> who shall do his best to ensure that the boat is fully found, thoroughly seaworthy and manned by an experienced and appropriately trained crew who are physically fit to face all weather. The <i>person in charge</i> shall also assign a person to take over his responsibilities in the event of his incapacitation.
2.04.1	All equipment required by OSR shall: a) function properly, b) be regularly checked, cleaned and serviced, c) if it has an expiry date, it will not have exceeded its expiry date whilst racing, d) when not in use be stowed in conditions in which deterioration is minimised, e) be readily accessible, and f) be of a type, size and capacity suitable and adequate for the intended use and size of the boat.
3.02	Watertight and Structural Integrity of a Boat
3.02.1	A boat shall be essentially watertight and all openings shall be capable of being immediately secured. Centreboard or daggerboard trunks and the like shall not open into the interior of a hull except via a watertight maintenance <u>hatch</u> with the opening entirely above the <u>waterline</u> .

Part B Portable Equipment

A boat shall have:

Regulation	Item
3.23	A strong bucket with a lanyard and of at least 9 L (2.4 US Gal) capacity.
3.24	A compass (a hand-held is acceptable).
4.05	A fire extinguisher required if electrical system, engine or stove on board.

APPENDIX B – Special Regulations for Inshore Racing

- 4.06 An anchor.
- 4.22.3 A lifebuoy with a drogue.
- 4.22.4 A heaving line, no less than 6 mm (1/4") diameter, 15–25 m (50–75') long, readily accessible to cockpit.
- 4.25 A strong, sharp knife, in a securely restrained sheath shall be readily accessible from the deck or a cockpit.

Each Crewmember shall have:

- | Regulation | Item |
|------------|---|
| 5.01.1 | <p>A gas inflatable lifejacket which shall comply with <u>ISO 12402-3</u> (Level 150) and have been manufactured after 2011. It shall be fitted with the following, each complying with <u>ISO 12402-3</u> or <u>ISO 12402-8</u>:</p> <ul style="list-style-type: none">a) a manual or automatic gas inflation system,b) a ride up prevention system (crotch strap or thigh straps), <p>It shall also:</p> <ul style="list-style-type: none">g) be of the appropriate size range for the <u>crewmember</u> as marked on the PFD, andh) have been indelibly marked with the name of the owner or boat. |
| 5.01.4 | <p>The person in charge shall personally check that each lifejacket has been serviced in accordance with the manufacturer's recommendation by an approved service station and that the next service date as marked on the lifejacket has not been exceeded.</p> |

APPENDIX C – Special Regulations for Inshore Dinghy Racing

Special Regulations for inshore dinghy racing are intended for use in races where:

- boats may not be self-sufficient,
- the races are short in duration and close to a shore base, in relatively warm and protected waters, in daylight and good visibility,
- boats can be observed by the Organising Authority at all times,
- safety/rescue vessels are available all along the course sufficient to enable any competitor to be returned to the shore base in a timely manner, and
- safety/rescue vessels are of a suitable design and properly equipped and are manned by adequately trained and competent personnel including, for each race, at least one skilled in first aid.

Part A Basic

The Notice of Race, Sailing Instructions and class rules will take precedence over these regulations.

All required equipment shall:

- function properly,
- be regularly checked, cleaned and serviced,
- when not in use be stowed in conditions in which deterioration is minimised,
- be readily accessible, and
- be of a type, size and capacity suitable and adequate for the intended use and size of the boat.

Part B Equipment

A boat shall be fitted with:

- a strong point for the attachment of a tow and/or anchor line.

A boat shall carry:

- each crewmember shall have buoyancy aid which shall comply with ISO 12402-5 (Level 50) and has been manufactured after 2006. It shall be of the appropriate size range for the crewmember as marked on the PFD,
- a knife,
- if the hull is not self-draining or is able to carry more than 150 litres of free water, a bucket or bailer of not less than 1 litre capacity,
- if a trapeze harness is carried it shall be to ISO 10862, and
- a paddle or means of propelling the boat when not under sail.

APPENDIX D – Guide to ISO and Other Standards

Application and Development Policy

The Special Regulations Sub-Committee reviews changes to international standards and will, when practicable, defer to those standards. Significant changes will, when possible, affect new boats and/or new equipment only. A summary of organisations, using their commonly accepted acronyms, follows.

ISO

ISO, the International Organization for Standardization is a world-wide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO Technical Committees. Each member body interested in a subject for which a Technical Committee has been established has the right to be represented on that committee. International organisations governmental and non-governmental, including e.g. World Sailing, take part in the work. Copies of International Standards may be obtained from a national standards body.

The following International Standards (or Draft Standards), are mentioned in the Offshore Special Regulations:

<u>ISO</u> Standard	Subject	Special Regulation
8729-2	Marine radar reflectors	4.10
9650	Liferafts	4.20
11812	Watertight & quick draining cockpits	3.08
12401	Deck safety harness	5.02
12402	Personal Flotation Devices	5.01, Appendix C
12215	Hull construction standards	3.03
12217-2	Assessment of stability and buoyancy	3.04.4, Appendix A
15027-1	Constant wear suit	5.07
15027-2	Abandonment suit	5.07
17339	Sea anchors	Appendix K

APPENDIX D – Guide to ISO and Other Standards

CEN

CEN standards (Norms) are developed in Europe by CEN (European Committee for Standardization – Comité Européen de Normalisation) which publishes ENs (European Norms) and which works closely with ISO. The following Norms are mentioned in the Offshore Special Regulations:

EN standard	Subject	Special Regulation
396	Lifejackets	5.01

ABS

ABS Guide for Building and Classing Offshore Yachts. This Guide to scantlings (construction standards) was originally published by ABS (American Bureau of Shipping) in co-operation with the Offshore Racing Council.

RCD

The RCD (Recreational Craft Directive) is published with the authority of the European Union under which “notified bodies” may approve construction standards of boats which may then be entitled to display a CE mark permitting sale in the European Union (see OSR 3.03).

SOLAS

The SOLAS (Safety of Life at Sea) Convention is published by IMO (International Maritime Organization) at which World Sailing has Consultative Status. SOLAS Chapter III, Regulation 3, 10 refers to the LSA (Life Saving Appliances) Code (published as a separate booklet) to which OSR makes the following references:

LSA Code	Subject	Special Regulation
Chapter III, 3.1	Flares (pyrotechnics)	4.20.2
Chapter III, 3.2	Flares (pyrotechnics)	4.20.2, 4.23
Chapter III, 3.3	Flares (pyrotechnics)	4.23
Chapter II, 2.2.3	Lifejacket lights	5.01
Chapter IV, 4	Liferafts	4.20.2
Chapter II, 2.3	Immersion suits	5.07
Chapter III, 2.5	Thermal protective aids	4.20.2

APPENDIX D – Guide to ISO and Other Standards

Addresses

CEN Central Secretariat, Rue de la Science 23,
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Belgium
tel +32 2 550 08 11 fax +32 2 550 08 19
<https://www.cenelec.eu/>

International Organization for Standardization
ISO Central Secretariat,
Chemin de Blandonnet 8,
CH-1211 Genève 20, Switzerland
email: central@iso.org
tel +41 22 749 01 11 fax + 41 22 733 34 30
www.iso.org

IMO International Maritime Organization,
4 Albert Embankment, London EC1 7SR,
United Kingdom
email: info@imo.org
tel +44 207 735 7611 fax +44 207 587 3210
www.imo.org

APPENDIX E – World Sailing Code for the Organisation of Oceanic Races

An Oceanic Race is defined as any Offshore race over 800 miles.

- E.1 Organisers of Oceanic Races should consult with the **SAR (Search and Rescue) authorities** through whose areas a race is proposed to pass. Topics to be considered should among others be:
- mutual responsibilities,
 - resources,
 - satellite communications coverage,
 - position reporting systems,
 - safety equipment on board,
 - lessons learned from recent events,
 - exchange of communication addresses, phone numbers etc.
- E.2 A **Risk Analysis** should be made, covering topics like:
- meteorological conditions (icebergs, major currents, fogbanks, eddies etc.),
 - commercial traffic, separation schemes etc.,
 - stability requirements,
 - SAR assets and coverage,
 - piracy and other security matters etc.
- E.3 **Environmental aspects** as wildlife protective zones should be considered.
- E.4 A **Notice to Mariners** about the race should be produced, usually in cooperation with the organiser's national authorities.
- E.5 An **Organisation Chart** shall be established with key appointments like the Race Director (when applicable), Chairman of the Race Committee, Principal Race Officer, Safety Officers, Medical Officer, media personnel etc.
- E.6 The Organising Authority should from the participating boats require:
- crew lists with names, nationalities, contact details, PLB data and telephone numbers to next of kin,
 - for all boats all data that is registered for radio and data communications like call signs, Maritime Mobile Service Identity (MMSI), EPIRBs etc.,
 - boat details and descriptions (including electronic pictures),
 - owners/Helmsman declaration regarding liability.
- E.7 A **Race Control Centre** should be organised with Duty Officer 24/7. The watch roster should include relevant means to reinforce the working capacity. It may be appropriate to arrange a training course for the duty officers before the race, including potential incident scenarios. A visit for skippers and navigators to the Race Control

APPENDIX E – World Sailing Code for the Organisation of Oceanic Races

Centre may be arranged before the start of major long races, if possible, also to appropriate Maritime Rescue Co-Ordination Centres (MRCC).

At the Race Control Centre, a logbook should be maintained. A format for daily situation reports should be developed. A voice recorder should be available to record radio communications and crisis management.

- E.8** A **Safety Information Package** about the race, boat descriptions and details (including electronic pictures), safety equipment, radio communication and medical resources, key personnel at the Race Control etc. should be distributed to participating boats as well as the appropriate MRCCs.
- E.9** A **Crisis Management Group** should be organised with the the race committee chair, the safety officer, medical officer and others as relevant. The team should include media and legal representatives from the organising body.
- E.10** A **Crisis Support Group** with psychologists, medical and clerical personnel should be available for major incidents, both for immediate support to crews and dependants as well as for crew debriefings at later stages. This may be arranged by the Race Committee or the authorities controlling the area.
- E.11** There may occur incidents that are significant yet not requiring the assistance of rescue authorities. For those the Organising Authority should consider maintaining a network of contacts and resources across the racing area to be able to support with towing, minor medical support, transport of equipment etc.
- E.12** The organiser shall produce a **Safety Contingency Plan**, including typical series of actions at accidents as derived from the Risk Analysis. One topic to be covered is when and how to contact dependants, sponsors etc. at various stages of lost contact, requests for assistance or emergency calls.
- E.13** All boats shall be equipped to standards which at least comply with the relevant level of Special Regulations as adopted by World Sailing. Additional requirements may be prescribed, like additional radio and medical equipment.
- E.14** In accordance with Special Regulations, an adequate number of crewmembers on each boat shall have **Survival Training**. Apart from the basic requirements for World Sailing Personal Survival Course as recommended in Offshore Special Regulations Appendix G, the Organising Authority can also prescribe:
- what level of sailing together in the actual boat may be required,
 - which practical training shall be performed by the crew, like MOB drills, helicopter evacuations etc.
- E.15** A **Safety Check** should be performed before the start, it should include:
- safety equipment,
 - appropriate certificates for radio and satellite communication equipment
 - Check of individual and collective training,

- endurance capacity and redundancy of capabilities characteristic for oceanic races like water provision, medical training etc.

The full responsibility for safety however always remains with the *person in charge*.

- E.16** A **Positioning Reporting system** should be available, linked to the official race webpage.
- E.17** **Meteorological services** may be allowed to be downloaded from public meteorological centres or may be centrally provided from the Organising Authority to reduce satcom costs.
- E.18** Races shall be conducted in compliance with the World Sailing Racing Rules of Sailing and the COLREGS, whenever it is appropriate for these rules and regulations to be applied. Special attention should be given to traffic separation schemes and when to give way to commercial traffic.
- E.19** An Organising Authority when appropriate should, in addition to supplying the relevant SAR authorities of the event, also supply:
- a **Telemedical Service Assistance Service (TMAS)** or inform a TMAS that the organisers have available on demand the following:
 - for each boat:
 - ◆ a list of medicines and medical equipment,
 - ◆ details of any TMAS or private medical service arranged by the boat.
 - for each crewmember:
 - ◆ name and contact details of physician who certified the crewmembers fit for entry (when applicable),
 - ◆ name and contact details of the crewmember home physician,
 - ◆ methods for gaining quick access to medical records, if necessary,
 - ◆ details of first aid and medical training received.
- E.20** The **Notice of Race** should include:
- insurance requirements,
 - which individual and collective training that is required,
 - what meteorological data and forecasts that will be allowed,
 - other matters as appropriate.
- E.21** The **Sailing Instructions** may include instructions:
- to continuously monitor VHF Channel 16,
 - to have the AIS active at all times or to activate the AIS in reduced visibility and passages with extensive commercial traffic,
 - for any other safety matters as appropriate.
- E.22** A **Lessons Learned meeting** about safety issues should be arranged after the race.

APPENDIX F – Standard Inspection Cards

Since the standard inspection cards vary by race category, Appendix F is appended to each extract. Extracts for each offshore race category are available at:

<https://www.sailing.org/inside-world-sailing/rules-regulations/offshore-special-regulations/>

APPENDIX G – Model Training Course Offshore Personal Safety

With acknowledgements to IMO (International Maritime Organization), Australian Sailing, RYA (Royal Yachting Association) and US Sailing whose publications have been consulted in the preparation of Appendix G. A possible model course follows.

INTRODUCTION

- 1 **Purpose of the model course:** to provide an example of training under World Sailing Offshore Special Regulation Section 6. The model course is not the only means of providing such training. Other courses satisfying the needs of Section 6 may apply to the appropriate MNA for World Sailing Approval (see Introduction paragraph 6). The MNA is vested with the authority to decide which courses meet the requirements and which do not.
- 2 **Use of the model course.** The course should be adjusted to address the experience and knowledge of the trainees. In addition to offshore sailing experience, trainees should be familiar with the topics in OSR Special Regulations 6.02. A trainee with particular, suitably documented skills may be excused from that part of the course, e.g. professional medical knowledge.
- 3 **Presentation.** Particular presentations may need repeating until the instructor is satisfied that the trainees understand each topic.
- 4 **Evaluation.** The final activities on each day are exercises/exams to test the attendees' knowledge. A score of 70% in each of the marked units, plus the instructors' continuous assessments, will provide an overall evaluation.
- 5 **Structure of the model course:**
 - Part A** describes the course framework, including suggestions for teaching facilities and equipment.
 - Part B** describes a possible syllabus, including learning objectives. For more detail on a suggested model course, see the website link shown above.
 - Part C** provides a sample outline of lectures and hands-on sessions with suggested timetable, which should be adjusted to ensure trainees achieve proficiency in the required skills.
 - Part D** describes guidelines for an offshore personal survival refresher course.
- 6 **World Sailing Approved Training Courses and Trainee Certification.**
 - 6.1.1 The status of "World Sailing Approved" together with authority to use the World Sailing logo may only be awarded to a training course by a World Sailing MNA (Member

APPENDIX G – Model Training Course Offshore Personal Safety

- National Authority), which must be satisfied that the course delivers training as required by OSR Special Regulation Section 6.01 and 6.02.
- 6.1.2 A grant of approved status requires the MNA to ensure the course provider delivers appropriate training and the MNA must remove such approved status if it judges this necessary.
- 6.2.1 It is not necessary for a training course to follow the Appendix G Model Training Course to be approved as in 6.1 above, but the course must deliver the training required by Special Regulation 6.02.
- 6.2.2 An MNA which lacks experience in offshore training or which, for other reasons, needs or desires advice should contact the World Sailing Secretariat – Offshore and Technical Department.
- 6.3 A sailor holding an in-date “pass” certificate (each has a validity of 5 years) from a World Sailing Approved Offshore Personal Survival Course shall be accepted by an Organising Authority as having complied with the requirements of World Sailing Offshore Special Regulation 6.01 and 6.02.
- 6.4 “Pass” certificates issued at a World Sailing Approved course shall carry the statement “World Sailing Approved Offshore Personal Survival Course” and may carry the World Sailing logo.
- 6.5 Unless otherwise stated in the Notice of Race, it is not mandatory that a training course for compliance with SR 6.01 and 6.02 is “World Sailing Approved,” however this status is encouraged wherever possible.

Part A Framework

- A1 **Class Size:** While the class size for the lecture sections of the curriculum may be larger, the maximum recommended group size for hands-on training is twenty (20) with smaller sub-groups as needed for effective communication of specific lessons.
- A2 **Instructors** should have:
- wide experience with offshore sailing including in severe weather,
 - thorough knowledge of the course material and the requirements of the World Sailing Offshore Special Regulations,
 - a sound understanding of teaching methods,
 - a current World Sailing approved Offshore Personal Survival Course pass certificate,
 - experience with liferaft and lifejacket use for in-water training.
- A3 **Facilities and equipment**
- A 3.1 A classroom with desks or tables and chairs should allow movement of the furniture to create a variety of room arrangements. Ideally, extra rooms will allow the class to split into smaller work groups.

APPENDIX G – Model Training Course Offshore Personal Safety

- A 3.2 The main room should have equipment suitable for all audio-visual presentations positioned appropriately and wired safely.
- A 3.3 Group rooms should include table, chairs, display board and writing materials for instructors and trainees.
- A 3.4 A warm-water swimming pool, deep enough to float everyone, is most suitable for demonstration/training with lifejackets and liferafts and must include all appropriate safety equipment, personnel and facilities.
- A 3.5 An outdoor location with proper safety equipment, personnel and facilities is required for demonstration and training with pyrotechnics and fire extinguishers.

A4 Reference and Display Material

To be modified appropriately by course providers for their own geographic areas.

A 4.1 For the Instructors to understand and have available to trainees in the classroom:

- World Sailing Offshore Special Regulations,
- World Sailing RRS (The Racing Rules of Sailing),
- COLREGS (International Regulations for Preventing Collisions at Sea),
- appropriate Notices to Mariners,
- appropriate World Sailing MNA Training Book, or, if not available, World Sailing's Guide to Offshore Personal Safety or US Sailing's Safety at Sea, Guide to Safety Under Sail and Personal Survival.

A 4.2 Recommended further study, books on material such as:

- The Offshore Special Regulations Handbook by Alan Green (Adlard Coles),
- The Grab Bag Book (F & M Howorth, Adlard Coles),
- Instant Weather Forecasting (A Watts, Adlard Coles),
- Heavy Weather Sailing (A Coles & P Bruce, Adlard Coles),
- Essentials of Sea Survival (F Golden and M Tipton, Human Kinetics).

Part B Suggested Course Outline

Introduction: Explanation of assessment required for ISAF/World Sailing certificate; OSR overview (structural design requirements, vessel portable safety equipment, personal safety equipment, training both in formal sessions and on-board practice); Responsibility of the *person in charge* (leadership); Responsibility of each crewmember for his/her own safety as well as the safety of the vessel and other crew (situational awareness); Importance of crew briefings and displayed stowage chart; Safety ethos

Session 1 – Giving Assistance to Other Craft

Learning Objectives: Laws that cover providing assistance; Moral imperative; Responding to a distress call; Assessing whether you can help; Stages of a typical rescue; Types of assistance

you can provide; Manoeuvring close to a sinking vessel; Tactics if the other vessel is on fire; Towing and being towed.

Session 2 – Personal Safety Gear, Theory and Practice

Learning Objectives: Life jacket performance factors; Life jacket classification systems; Pros and cons of different inflation systems; Maintaining inflatable life jackets; Using harnesses, tethers, and jack lines/stays; Personal signalling devices.

Session 3 – Care and Maintenance of Safety Gear

Learning Objectives: Pre-departure and under-way inspections; Vessel systems; Safety gear preparation and maintenance; Crew overboard equipment maintenance.

Session 4 – Fire Precautions and Firefighting, theory and practical

Learning Objectives: Common causes of on-board fire; Classes of fires; Fire prevention; LPG (Propane) and alcohol stoves; Extinguisher types and regulations; Firefighting techniques.

Session 5 – Crew Overboard Prevention and Recovery

Learning Objectives: Crew overboard (COB) prevention; Challenges of COB rescue; What a Person in the Water (PIW) can do; Manoeuvres to return to the PIW; Dangers of the vessel's proximity to the PIW; Getting the PIW back on board; Using COB beacons to signal for help; Techniques for high-performance, fully crewed boats.

Session 6 – Hypothermia, Cold Shock and Drowning

Learning Objectives: Human thermoregulation; Causes of hypothermia; Phases of cold-water immersion; Survival in cold water; Classifications of cold exposure; Assessment, care, and treatment; Drowning.

Session 7 – Crew Health

Learning Objectives: Crew responsibility; Contagious diseases; Dehydration; Caloric depletion, low blood sugar; Seasickness; Sprains and strains; Wound management, infection; Burns; Sun injury; Head trauma; Heart attack; Shock; Anaphylactic shock.

Session 8 – Marine Weather

Learning Objectives: Global weather systems; Weather maps; Lows; Squalls and thunderstorms; Thermals; Storm avoidance; Weather forecast models and sources; Wave Dynamics – Wave development, Significant Wave Height (SWH) definition, unusual waves, currents, and seamounts, effects of shoaling and lee shores.

Session 9 – Heavy Weather

Learning Objectives: Preparation & evaluation of boat and crew; On-deck safety; Securing the vessel; Preparing the galley; Being a responsible shipmate; Adjusting the plan; Sea state; Heavy weather techniques; Storm tactics; Seeking shelter; After the storm.

Session 10 – Storm Sails

Learning Objectives: Depowering the rig; Reducing sail; Mast support; Reefing the main; Rigging and setting storm headsails and storm trysails.

Session 11 – Damage Control

Learning Objectives: Priorities of damage control; Question of abandoning the boat; Types of damage and breakdowns; Tools and spares; Short-term fixes; Damage control examples; Grounding hazards and consequences.

Session 12 – Search and Rescue Organisation

Learning Objectives: When and how to ask for help; Local Rescue Coordination Center (RCC) organisation and assets; Commercial ships (AMVER); Transferring to a ship; Helicopter evacuation; Meeting the RCC halfway.

Session 13 – Pyrotechnics and Signalling Gear, theory & practical

Learning Objectives: Sound signals; Lights; Visual signals; Pyrotechnic pointers; Deploying flares safely.

Session 14 – Emergency Communications, theory & practical

Learning Objectives: Emergency procedure words; Marine communication options; Making a Mayday call; VHF and antennas; Know local VHF channels; Digital Selective Calling (DSC) and AIS; GMDSS and why it is important; Crew overboard alarms; Cellular telephone vs VHF; EPIRBs; Single sideband; Satellite data and voice systems.

Session 15 – Liferafts and Abandon Ship, theory & practical

Learning Objectives: Life raft categories; International standards; Valise or canister; Servicing your raft; Emergency packs; Raft storage; Grab or “Ditch” bags; When to launch; Life raft stability; Boarding the raft; Righting after a capsized; Maximizing your chance of survival on-board the raft.

End of each day Evaluations/Exams:

Instructor to facilitate small group discussions of challenging scenarios, which require crucial decision-making, with solutions shared among the entire class and/or administer written exam(s) comprising about 15 minutes of multiple-choice questions, plus 2 short essays/listings with 5 minutes for marking after swapping the papers amongst the class. Overall assessment for the course will be a combination of the discussions/exams plus the instructor’s overall assessment during both theory and practical sessions.

Part C Outline Timetable

World Sailing Offshore Special Regulations Appendix G Model Training Course Part B Day 1

Session	OSR	Topic	Theory	Start	Stop
		Introduction: OSRs, Safety Ethos, Responsibility of PIV, Leadership	00:30	09:00	09:30
1	6.02.1	Giving Assistance to Other Craft	00:30	09:30	10:00
2	6.02.3	Care and Maintenance of Safety Gear, theory	00:45	10:00	10:45
3	6.02.5	Crew overboard prevention and recovery	00:30	10:45	11:15
4	6.02.6	Hypothermia, Cold Shock & Drowning	00:30	11:15	11:45
5	6.02.7	Crew Health	00:30	11:45	12:15
		Break, with demonstration	01:00	12:15	13:15
6	6.02.8	Marine Weather	00:30	13:15	13:45
7	6.02.9	Heavy Weather Techniques	00:30	13:45	14:15
8	6.02.10	Storm sails	00:30	14:15	14:45
		Break	00:30	14:45	15:15
9	6.02.11	Damage Control	00:30	15:15	15:45
10	6.02.12	Search and Rescue Organisation	00:30	15:45	16:15
		Test Scenarios from Lessons Learned and/or exam	00:45	16:15	17:00
Day 1 total hours including breaks			08:00		

World Sailing Offshore Special Regulations Appendix G Model Training Course Part B Day 2

Session	OSR	Topic	Theory	Practical	Start	Stop
		Introduction to Hands-On Training	00:15		08:30	08:45
11	6.02.3	Care and Maintenance of Safety Gear, practical		00:30	08:45	09:15
12	6.02.2	Personal Safety Gear, theory & practice	00:30	00:45	09:15	10:30
13	6.02.15	Life Rafts and Abandon Ship, theory & practice	00:30	00:45	10:30	11:45
		Lunch Break, with demonstrations	00:45		11:45	12:30
14	6.02.4	Fire Precautions/Fire Fighting, theory & practice	00:20	00:40	12:30	13:30
15	6.02.14	Emergency Communications, theory & practice	00:20	00:40	13:30	14:30
16	6.02.13	Pyrotechnics & Signalling Gear, theory & practice	00:20	00:40	14:30	15:30
		Lessons Learned, Situational Awareness	00:30		15:30	16:00
		Exam & Wrap-up	00:30		16:00	16:30
Day 2, total hours including break = 08:00			04:00	04:00		

Part D - Guidelines for an Offshore Personal Survival Refresher Course

For sailors whose certificates have expired, a refresher training course of about 8 hours training may be arranged. It should contain these sessions:

Session 1 (1 hr)	Update on recent changes in Offshore Special Regulations, national relevant documents or any other changes of importance
Session 2 (1 hr)	Update on new safety equipment
Session 3 (1 hr)	Update on recent lessons learned from fatal accidents and incidents in offshore races
Session 4 (1 hr)	Update on national/regional changes in Maritime Search and Rescue organisations, resources, locations etc. as well as in relevant meteorological services
Session 5 (2 hrs)	In water training with life vests, liferafts, recovery slings etc.
Session 6 (1 ½ hrs)	Medical and/or fire-fighting training as appropriate regarding national regulations.
Session 7 (½ hr)	Written exam

Detailed contents are to be developed by the appropriate Member National Authority. After the course has been passed with accepted written exam, a new certificate for another five-year period may be issued.

APPENDIX H – Medical Training

Model Training Course for an “OSR Compliant First Aid Course”

Part 1 – Introduction

1 General

Below is the framework for a Member National Authority to establish a minimum First Aid training course suitable for offshore racing.

2 Target

The target of this course is to provide the *person in charge* of an offshore racing boat with crewmember(s) that is/are capable of managing injuries and illnesses on board, as well as managing major incidents on board. Furthermore, to advise the *person in charge* when a request for outside assistance is required, as well as to advise when to retire from the race and proceed to nearest harbour.

3 Use of the model course.

Instructors should have a knowledge of the unique situation of offshore sailing in terms of delivering medical care. It is suggested that instructors be suitably trained and ideally a medical doctor, paramedics or nurse.

For an MNA wanting to establish a course without the specialist knowledge to correctly train and administer instructors it is suggested that they approach a suitable training partner. Training partners should be accredited under the International Convention on Standards of Training, Certification and Watchkeeping (STCW) or land based first aid training providers having personnel with suitable sailing experience and crucially an understanding of the liability issues. Should a Member National Authority require advice please contact the World Sailing Secretariat – Technical and Offshore Department.

4 Evaluation. The final activity of the day should be an examination, which should be used together with instructors’ continuous assessments to provide an overall evaluation.

5 Implementation Detailed requirements are given below. Thorough preparation is the key to successful implementation of the course.

Part 2 – Syllabus

The course is planned for at least a full day and includes the following sessions.

Session 1 Introduction

1.0 Marine medical environment and characteristics

1.1 Literature

Session 2 First aid kits for the Special Regulations races categories

- 2.0 Cat 4 contents (recommendations)
- 2.1 Cat 2-3 contents (recommendations)
- 2.2 Cat 1-0 (if relevant)

Session 3 Tele medical communications

- 3.0 Support options (Medical advice services through official bodies)
- 3.1 Radio/Mobile phone options for support
- 3.2 Licences/certificates for VHF/HF radio communications

Session 4 First Aid – The basics

- 4.0 Basic anatomy/physiology
- 4.1 L-ABCDE (Scene safety, Airway and cervical spine control, Breathing, Circulation and bleeding, Disability, Expose and protect from the environment)
- 4.2 Stopping of serious external bleeding

Session 5 Offshore accidents and actions onboard

- 5.0 Typical accidents onboard (wounds, cuts, sprained wrist, dislocations, burns, head injury, etc.)
- 5.1 General illnesses, fatigue, etc
- 5.2 Actions and treatment (pain management, immobilising a joint, avoidance of infection, suturing, etc.)
- 5.3 Helicopter evacuation
- 5.4 Transfer of casualty to rescue vessel

Session 6 Special offshore medical conditions

- 6.0 Seasickness
- 6.1 Hypothermia (Person recovered from sea)
- 6.2 Dehydration

Session 7 Cardiac and respiratory arrest

- 7.0 Cardiopulmonary resuscitation (CPR)

Session 8 Systematic Accident management

- 8.0 Damage and causality evaluation
- 8.1 Decisions and actions – when to call for outside assistance, when to retire and proceed to nearest harbour
- 8.2 Observation and treatment of patients

Session 9 Psychology Treatment

- 9.0 Human reactions in distress
- 9.1 Treatment of psychological breakdowns
- 9.2 Crisis group management
- 9.3 Debriefing procedures

Session 10 Practical training

- 10.0 CPR
- 10.1 Patient observations and treatment
- 10.2 Radio medical training
- 10.3 Decision making – When to call for assistance, when to retire?

Literature

The following books for further study are not endorsed by World Sailing but merely are books suitable for background reading:

- Medical Emergency Afloat
- First Aid at Sea (Douglas Justin and Colin Berry, Adlard Coles Nautical, London) ISBN 9781408105993
- First Aid Afloat (Dr Robert Haworth) ISBN 9780906754887
- Skipper's Medical Emergency Handbook (Author Dr Spike Briggs, Dr Campbell Mackenzie) ISBN 9780713689372
- Doctor on Board: A Guide to Dealing with Medical Emergencies (Author Jurgen Hauert) ISBN 9781408112724
- Ship Captain's Medical Guide ISBN 978-0115534614
- International Medical Guide for Ships, World Health Organization, Geneva

General First Aid

- First Aid Manual 9th Edition (Author St John's Ambulance Brigade) ISBN 9781405335379

Non-English Publications

- Pan Pan Medico A Bordo (<http://www.panpan.it/>)
- Le Guide de la medecine a distance, by Docteur J Y Chauve, published by Distance Assistance BP33 F-La Baule, cedex, France. An English translation is being planned.

APPENDIX J – Hypothermia

WHAT IS IT?

A condition in which exposure to cold air and/or water lowers body core temperature. Death may result from the brain and heart being exposed to an extremely low temperature.

SYMPTOMS OF HYPOTHERMIA

- The following are warning signs of hypothermia:
- Shivering
- Exhaustion or feeling very tired
- Confusion
- Fumbling hands
- Memory loss
- Slurred speech
- Drowsiness

WHY BE CONCERNED?

Hypothermia, even mild cases, decreases crew efficiency and increases risk of costly accidents.

PREVENTION

- Wear warm clothing and a lifejacket/harness. Have proper foul-weather kit for all crew. Dry suits are excellent. Insulate all areas of the body, especially the high heat-loss areas: head, neck, armpits, sides of chest and groin. Keep warm and dry, but avoid sweating; wear layered clothes.
- Rotate watch frequently.
- Get plenty of rest, prevent fatigue.
- Eat and drink normally, no alcohol.
- Take into account special medical problems of crew members.
- Regularly train crew in Crew Overboard recovery.
- Have two or more crew trained in CPR (Cardio-pulmonary Resuscitation).
- Practice donning survival suit (if carried) prior to departure. Know where they are stowed.

SURVIVAL IN COLD WATER (under 75°F, 25°C)

- **If boat is in trouble**, put on dry or survival suits if carried. Radio for help; give position, number of crew, injuries, boat description. Make visual distress signals. Stay below if possible. Remain aboard until sinking is inevitable.
- **If going overboard**, launch life raft and EPIRB (Emergency Position Indicating Radio Beacon). Take grab bag, visual distress signals and waterproof hand-held VHF. Get into

raft, stay out of water as water conducts heat out of the body 20 times faster than air. Remain near boat if practicable.

- **If in the water**, crew should stay together near the boat. This makes everyone easier to find, helps morale. Enter life raft, keep dry suit or survival suit on if worn.
- **If not wearing dry suit or survival suit**, make sure you wear a lifejacket, keep clothes and shoes on for some insulation and flotation. Keep hat on to protect head. Get all or as much of body out of water as soon as possible – into raft or swamped boat or onto flotsam. Avoid swimming or treading water, which increases heat loss by hugging knees against chest. If in a group form a circle by putting arms over shoulders of adjacent crew. Minimise exposed body surface. A splashguard accessory on the lifejacket greatly improves resistance to swallowing seawater and also accommodates involuntary “gasping” when plunged into cold water.

WARNING

- First aid for severe and critical hypothermia is to add heat to stabilise temperature only. Rapid re-warming, such as a hot shower or bath, may be fatal; it will, at least, cause complications. Allow body to re-warm itself slowly.
- Body core temperature lags behind skin temperature during re-warming. Keep victim protected for extended period after apparent full recovery or medical help arrives. Many hours are required for full return to normal temperature even though victim says he has recovered.
- Always assume hypothermia is present in all crew overboard situations during which victim has been exposed for more than 10–15 minutes.
- Victims may also be suffering from near drowning, thus needing oxygen. Observe for vomiting.
- In a helicopter rescue, protect victim – including the head – from rotor blast wind chill.

HYPOTHERMIA FIRST AID

ALL CASES

- Keep victim horizontal
- Move victim to dry, warm, and protected area
- Allow to urinate from horizontal position
- Handle gently
- Remove very wet clothes – cut off if necessary
- Apply mild heat (comfortable to your skin) to head, neck, chest and groin – use hot water bottles, warm moist towels
- Cover with blankets or sleeping bag; insulate from cold – including head and neck
- Report to Doctor by radio

HYPOTHERMIA FIRST AID

MILD CASES

- Primary task is to prevent further heat loss and allow body to re-warm itself
- Give warm, sugary drinks – no alcohol – no caffeine
- Apply mild heat source to stabilise temperature and/or
- Re-heat to point of perspiring
- Keep victim warm and horizontal for several hours

MODERATE CASES

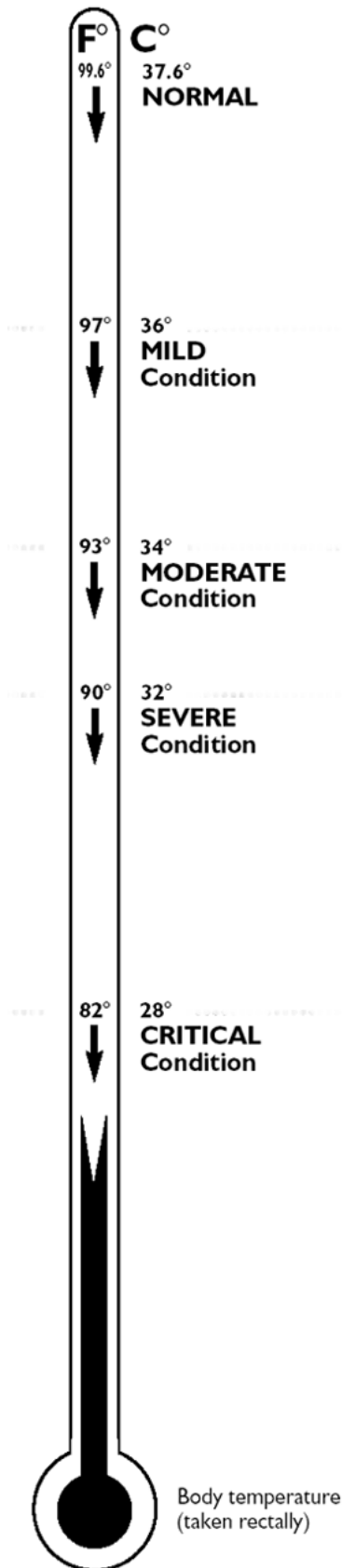
- Same as above
- Offer sips of warm sugary liquid only if victim is fully conscious and able to swallow without difficulty – no alcohol – no caffeine
- Have victim checked by doctor

SEVERE CASES

- Obtain medical advice as soon as possible using your radio
- Assist victim, but avoid jarring him – rough handling may cause cardiac arrest or ventricular fibrillation of heart
- No food or drink
- Observe for vomiting and be prepared to clear airway
- Ignore pleas of “Leave me alone, I’m OK” victim is in serious trouble – keep continuous watch over victim
- Lay victim down in bunk, wedge in place, elevate feet, keep immobile; no exercise
- Apply external mild heat to head, neck, chest and groin – keep temperature from dropping, but avoid too rapid a temperature rise

CRITICAL PATIENTS

- *Always assume the patient is revivable – hypothermic victims may look dead. Do not give up – pulse very difficult to feel, breathing may have stopped.*
- Handle with extreme care.
- Tilt the head back to open the airway – look, listen and feel for breathing and pulse for one to two full minutes.
- If there is any breathing or pulse, no matter how faint or slow, do not give CPR, but keep a close watch on vital sign changes.
- Stabilise temperature with available heat sources, such as naked chest to back warming by other crewmember (leave legs alone)
- If no breathing or pulse for one or two minutes, begin CPR immediately. Do not give up until victim is thoroughly warm – alive or dead, unless these efforts put the crew in danger or advised by trained medical personnel.
- Medical help imperative – hospitalisation needed.



RANGES OF HYPOTHERMIA SYMPTOMS

MILD CONDITIONS (97-93°F, 36-34°C)

- Shivering, cold hands and feet
- Still alert and able to help self
- Numbness in limbs, loss of dexterity, clumsiness
- Pain from cold

MODERATE CONDITIONS (93-90°F, 34-32°C)

- Same as above
- Confusion, loss of time estimation and reasoning power

SEVERE CONDITIONS (90-82°F, 32-28°C)

- Shivering decreases or stops
- Further loss of reasoning and recall, confusion, abnormal behaviour.
- Victim appears drunk; very clumsy, slurs speech, denies problem and may resist help
- Unable to help themselves
- Victim semiconscious to unconscious
- Muscular rigidity increasing

CRITICAL CONDITIONS (82°F, 28°C and below)

- Unconscious, may look dead
- Little or no apparent breathing
- Pulse slow and weak, or no pulse found
- Skin cold, may be bluish-grey colour
- Very rigid

Note: Most physical symptoms vary with each individual and may be unreliable indicators of core body temperature. Only a low temperature rectal thermometer gives reliable core temperature (the mouth cools too rapidly). In general, as body temperature falls, symptoms will increase.

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APPENDIX K – Drogues and Sea Anchors

TERMINOLOGY

The term “drogue” generally means a device dragged from the stern of a vessel which continues to make steerage way through the water but at reduced speed. The term “sea anchor” generally means a device streamed from the bows of a vessel practically halted in the water by the action of the sea anchor.

LIFERAFTS

Every liferaft has a sea anchor supplied as part of its equipment. A sea anchor is critical to the safe use of a liferaft and dramatically reduces the chance of liferaft capsize. Its secondary function is to limit drift. A spare sea anchor may be carried in a grab bag. Sea anchors in liferafts should comply with ISO 17339 and the opportunity should be taken at service intervals to ensure this.

DROGUES ON SAILING BOATS

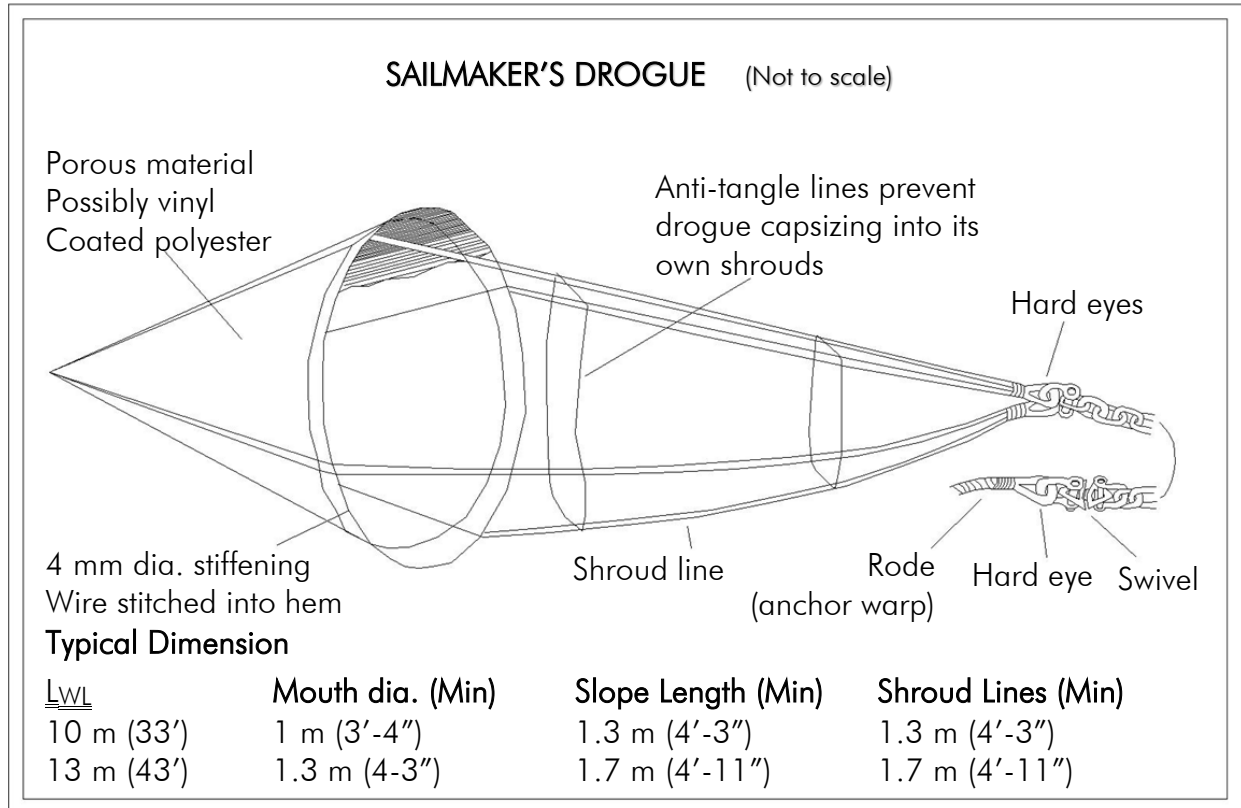
A number of research programmes have been conducted including one for the RORC by the Southampton University Wolfson Unit. In tests drogue deployment repeatedly prevented typical sailing boat forms from being slewed sideways and rolled in heavy breaking seas.

Deployment of a drogue over the stern means that heavy water will break over that part of the sailing boat, so all openings must be properly secured shut.

A “series-drogue” invented by Donald Jordan has the ability to continue to provide drag even if part of the device is “surfing” under a wave crest.

SEA ANCHORS ON SAILING BOATS

The most common form of sea anchor for sailing boats is the “parachute” anchor developed from aviation parachutes. Specialist manufacturers have accumulated much data to demonstrate the effectiveness of the device which can enable a vessel to take seas bows-on, reduce drift to the order of one knot, and resist capsizing.



APPENDIX L – Model Keel and Rudder Inspection Procedure

The model form is not the only means of meeting the needs of OSR 3.02.3 a). As evidence of Periodic Structural Inspection, Organising Authorities may develop on-line forms.

Evidence of non-destructive testing and its findings meeting the needs of OSR 3.02.3(b) shall be provided in a document signed by the person representing the organisation that performed the tests.

Category 0,1,2 Structural Inspection of a boat shall be completed by a qualified person both internally (may be in the water) and externally (out of the water). The purpose of this regular inspection is to identify and report to the Owner the condition of the rudder, keel and keel structure observed during this inspection. For category 3 inspection, the Owner/representative shall inspect the integrity of the keel and rudder. It is the responsibility of the Owner to undertake any repairs.

Category 0,1,2 from 1 January 2030, welded metal keels shall undergo non-destructive testing to examine welds for cracks or other defects. Techniques such as dye penetrant, ultrasonics, X-rays and other methods may be used. These tests shall be conducted by an independent, qualified person.

Consult the Owners' Manual for the specific boat, steering system and type of keel. Inspect in detail any high-load areas: keel attachment, keel floor, steering systems, rudder(s). Pay special attention to prior repairs, especially following groundings.

Internal Inspection: Inspect backing plates, bolting arrangements, sump area and keel floors for any signs of weakening, such as cracking or de-laminated tabbing etc. Keels may require tightening of bolts in accordance with the torque specified in the Owner's Manual. In the absence of an Owner's Manual, refer to ISO 12215-9 clause B.5. Inspect keel fasteners for corrosion. Inspect bolt holes for deformation. Conduct a visual inspection to identify potential de-bonding of the supporting structure.

External Inspection: Inspect for any signs of stress cracks (not paint or gelcoat cracks) around the keel attachments to hull, or movement or opening around the keel/hull interface which allows water ingress and consequent keel bolt crevice corrosion. If in doubt, remove bottom paint/gelcoat to identify depth of crack. Undertake a keel tip deflection test to identify any excessive movement. Visually inspect high stress regions, particularly around the forward and aft hull attachment areas of the keel, for signs of paint or gelcoat cracking or large, deep blisters, which can indicate separation and structural weakness.

Rudder/Steering system: Check bearing area for any damage/stress cracks; check rudder shaft and blade integrity, especially at any shaft joins and at upper connections to hull/deck. Undertake a tip deflection test to identify any excessive movement. If applicable, check rudder straps and gudgeons for corrosion or cracking.

Lifting, swing and canting keels: In addition to above, check there are no significant stress cracks in structure around pins supporting the keel. Check for extensive corrosion on pins, cylinders and supporting metal structure.

APPENDIX L – Model Keel and Rudder Inspection Procedure

Model Keel and Rudder Inspection Form

Boat Name:		Sail Number:	
Owner Name:		Designer:	
Address:			
Owner email:		Builder:	
Series Date:		Hull Identification Number:	
World Sailing Plan Review Certificate Number:			
The following checks may be completed with boat in the water:			
Item:	Action:	Inspector's Notes:	
Keel Bolts	Inspect for excessive corrosion. Torque to manufacturer's specs (In the absence of manufacturer's specs, refer to <u>ISO 12215-9</u> clause B.5).		
Internal Hull Structure	Inspect for signs of structural failure and/or laminate separation especially in area around keel structure, keel floor and other stress points.		
The following checks to be conducted externally with boat out of the water:			
External Hull Condition	Inspect for hull stress cracks around forward and aft edge attachment point to structure, hull appendages and keel sumps. Inspect keel/hull interface for signs of damage by tip deflection test.		
Rudder	Inspect for cracking of the rudder bearing/hull assembly. Inspect rudder for integrity by tip deflection test.		
Declaration of Completed Inspection:			
Location:		Date:	
This visual inspection has been conducted to observe and report on visually noticeable indications that may compromise the structural integrity of the vessel's keel and rudder. It does not ensure that the vessel is seaworthy or that the owner has repaired the identified problems.			
Print name:		Signature:	
Address:			



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