

# 2018-2019 Offshore Special Regulations

Governing Offshore  
Racing for Monohulls  
& Multihulls



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**THE WORLD SAILING  
OFFSHORE  
SPECIAL  
REGULATIONS**

**for 2018 – 2019**

**Governing Offshore Racing for  
Monohulls & Multihulls**

Structural Features · Yacht Equipment  
Personal Equipment · Training

**World Sailing**

## 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 solar, water power or wind charging when appropriate
- use shore toilets when in port
- observe IMO guidelines on biofouling

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### Appendices

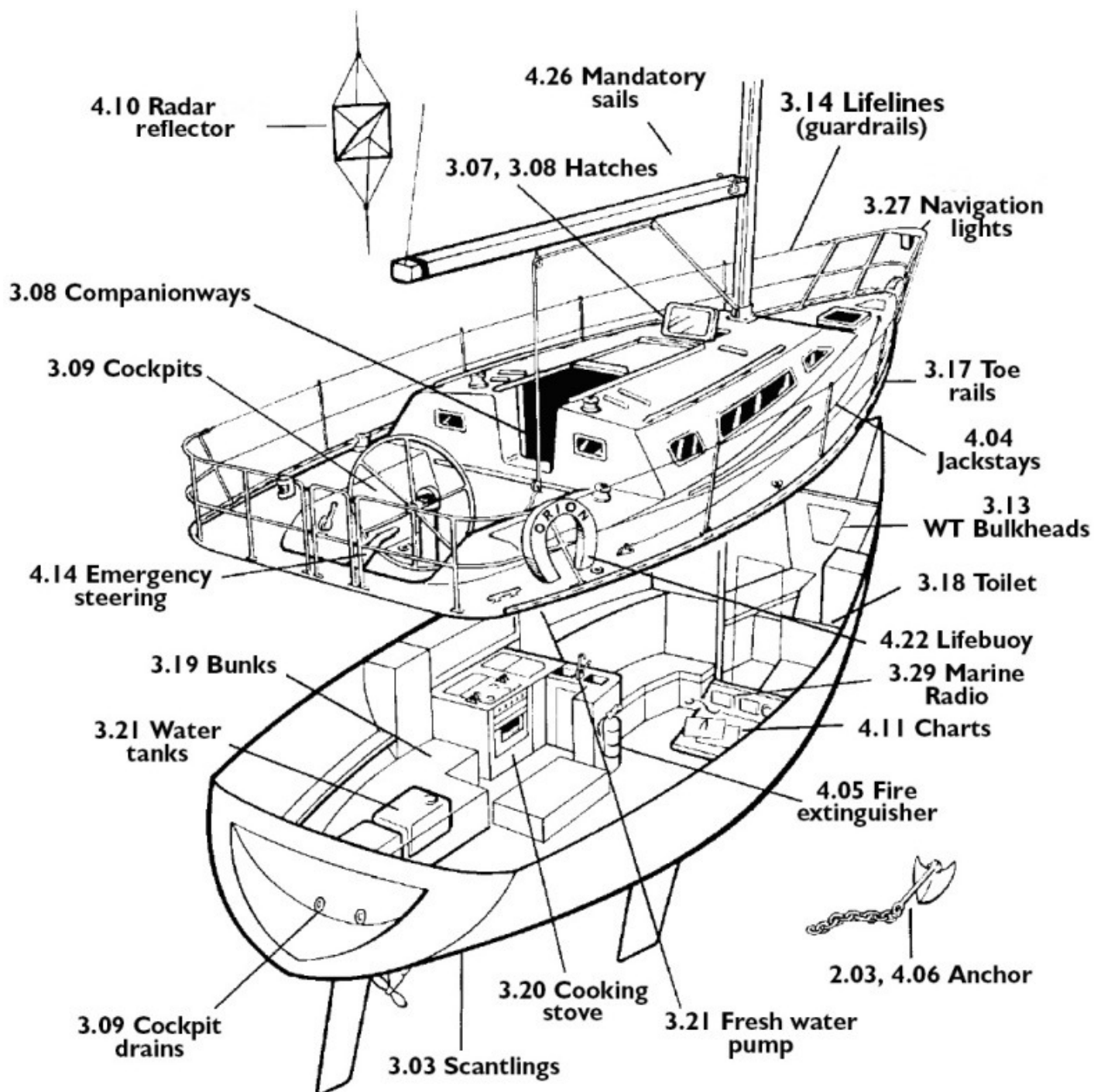
*Appendix A,B,C,F are minimum standards; D,E,G,H,J,K are advisory;*

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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 ([www.sailing.org/specialregs](http://www.sailing.org/specialregs)).

## DIAGRAMMATIC GUIDE

(see also alphabetical index)



## Copyright

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- request copyright permission from World Sailing and ORC Ltd (normally given free of charge)
- display a copyright acknowledgement with the reprint (similar to © ORC Ltd. 2002, amendments 2003-2018 © World Sailing Limited)
- make any amendments by deleting contrary provisions and indicating that changes have been made
- 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 web site [www.sailing.org/specialregs](http://www.sailing.org/specialregs)

## 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.

**RED TYPE indicates significant changes in 2018**

*Guidance notes and recommendations have been removed from the Regulations and are available on [www.sailing.org/documents/offshorespecialregs/index.php](http://www.sailing.org/documents/offshorespecialregs/index.php)*

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

## Administration

*The Offshore Special Regulation are administered by the World Sailing Special Regulation Sub-Committee whose terms of reference are as follows: ([www.sailing.org/regulations](http://www.sailing.org/regulations))*

*World Sailing Regulation 6.9.8.3 - The Special Regulations Sub-Committee shall:*

*(a) be responsible for the maintenance, revision and changes to the World Sailing Offshore Special Regulations governing offshore racing, under licence from ORC Ltd. Such changes shall 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;*

*(b) monitor developments in offshore racing relative to the standards of safety and seaworthiness.*

*Any queries please E-Mail: [technical@sailing.org](mailto:technical@sailing.org)*

## SECTION 1 - FUNDAMENTAL AND DEFINITIONS

### Purpose and Use

- |    |        |  |
|----|--------|--|
| ** | 1.01   |  |
| ** | 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) boats racing offshore.                             |
| ** | 1.01.2 | The OSR do not replace, but rather 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 OSRs 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 4 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 bad 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 Organizing 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 organizing authority and World Sailing in the development of an independent incident report as specified in 2.02

**\*\* 1.03 Definitions, Abbreviations, Word Usage**

**\*\* 1.03.1** Definitions of Terms used in this document

Abbreviation #	Description
ABS	American Bureau of Shipping
Age Date	Month/year of first launch
AIS	Automatic Identification Systems
CEN	Comité Européen de Normalisation
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
CPR	Cardio-Pulmonary Resuscitation
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
FA Station	The transverse station at which the upper corner of the transom meets the sheerline.
First Launch	Month & year of first launch of the individual boat
Foul-Weather Suit	Clothing designed to keep the wearer dry and may consist of one piece or several
GMDSS	Global Maritime Distress & Safety System
GNSS	Global Navigation Satellite System
GPS	Global Positioning 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)
IMO	International Maritime Organisation
IMSO	The International Mobile Satellite Organisation, the independent, intergovernmental organisation that oversees Inmarsat's performance of its Public Service Obligations for the GMDSS and reports on these to IMO
INMARSAT	Inmarsat Global Limited is the private company that provides GMDSS satellite distress and safety communications, plus general communications via voice, fax and data

ISAF	International Sailing Federation- (now World Sailing)
ISO	International Standard Organization or International Organization for Standardization.
ITU	International Telecommunications Union
Jackstay	A securely fastened webbing or rope which permits a crewmember to move from one part of the boat to another without having to unclip a safety harness tether.
LH	Hull Length as defined by the ERS
Lifeline	Rope or wire line rigged as guardrail / guardline around the deck
LSA	IMO International Life-Saving Appliance Code
LWL	(Length of) loaded waterline
Monohull	A boat with one hull
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
Multihull	A boat with more than one hull
Open Cockpit	A cockpit that is not a Contained Cockpit.
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
Primary Launch	Month & Year of first launch of the first boat of the production series or first launch of a non-series boat
Proa	Asymmetric Catamaran
Rode	Rope, chain, or a combination of both, which is used to connect an anchor to the boat.
RRS	ISAF - Racing Rules of Sailing
Safety Line	A tether used to connect a safety harness to a strong point
SAR	Search and Rescue
SART	Search and Rescue Transponder
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
SSS	The Safety and Stability Screening numeral
Static Ballast	Material carried for the sole purpose of increasing weight and/or to influencing stability and/or trim and which is not moved or varied in weight while a boat is racing
Static Safety Line	A safety line (usually shorter than a safety line carried with a harness) kept clipped on at a work-station
STIX	ISO 12217-2 Stability Index
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.
Waterline	The water surface when the boat is floating in measurement trim
World Sailing	formerly the International Sailing Federation or ISAF

\*\* 1.03.2 The words "shall" and "must" are mandatory, and "should" and "may" are permissive.

\*\* 1.03.3 The word "yacht" shall be taken as fully interchangeable with the word "boat".



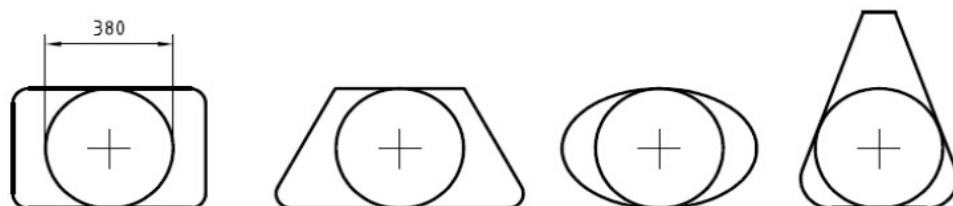
## SECTION 2 - APPLICATION & GENERAL REQUIREMENTS

- 2.01 Categories of Events**  
\*\* Organizing Authorities shall select from one of the following categories and may modify the OSR to suit local conditions
- 2.01.1 Category 0**  
MoMu0 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
- 2.01.2 Category 1**  
MoMu1 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
- 2.01.3 Category 2**  
MoMu2 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
- 2.01.4 Category 3**  
MoMu3 Races across open water, most of which is relatively protected or close to shorelines.
- 2.01.5 Category 4**  
MoMu4 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 Organizing Authority of a race will establish whether any incidents occurred, which if reported would be likely to be relevant to evolving the Offshore Special Regulations, the plan review process, or in increasing safety. The Organizing Authority 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 OSR her entry may be rejected or she will be subject to protest
- 2.04 General Requirements**
- 2.04.1**  
\*\* All equipment required by OSR shall:  
\*\* a) function properly  
\*\* b) be regularly checked, cleaned and serviced  
\*\* c) when not in use be stowed in conditions in which deterioration is minimised  
\*\* d) be readily accessible  
\*\* e) 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 permanently installed or securely fastened

### SECTION 3 - STRUCTURAL FEATURES, STABILITY, FIXED EQUIPMENT

**		A boat shall be/have:
	<b>3.01</b>	<b>Strength of Build and Rig</b>
**	3.01.1	Properly rigged, fully seaworthy and shall meet the OSR
**	3.01.2	Equipped with shrouds and at least one forestay that shall remain connected to the mast and the boat while racing
	<b>3.02</b>	<b>Watertight Integrity of a Boat</b>
**	3.02.1	Essentially watertight and all openings shall be capable of being immediately secured. Centreboard, daggerboard trunks and the like shall not open into the interior of a hull except via a watertight maintenance hatch with the opening entirely above the Waterline
	<b>3.03</b>	<b>Hull Construction Standards (Scantlings)</b>
Mo0,1,2	3.03.1	If a monohull with a Primary Launch after 2009
Mo0,1,2	a)	less than 24 m (78'-9") LH shall: i) be designed, built and maintained in accordance with the requirements of ISO 12215 Category A
	3.03.1a)ii)	ii) have a World Sailing / ISAF building plan review certificate issued from a notified body recognized by World Sailing, unless higher classification has been obtained from a Classification Society recognised by World Sailing. World Sailing will publish a list of waived plan review certificates.
Mo0,1,2	b)	24 m (78'-9") LH and greater shall: be designed, built and maintained in accordance with the requirements of a Classification Society recognized by World Sailing
Mo0,1,2	c)	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, a race organizer 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)	have an additional World Sailing/ISAF certificate of building plan review in accordance with a) or b) and c) above for any significant repair of modification to the hull, deck, coachroof, keel or appendages.
MoMu0,1,2	3.03.2	A monohull with Primary Launch 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)	OSR 3.03.1, or
Mo0,1,2	b)	the ABS Guide for Building and Classing Offshore Yachts and have on board either an ABS 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 ABS Guide, or
MoMu0,1,2	c)	the EC Recreational Craft Directive for Category A having obtained the CE mark, or
MoMu0,1,2	d)	ISO 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 ISO 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, coach roof, keel or appendages, on board, except
MoMu0,1,2	f)	that a race organizer 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
	<b>3.04</b>	<b>Stability - Monohulls</b>
Mo0,1,2	3.04.1	Able to demonstrate compliance with ISO 12217-2* design category A or higher, either by EC Recreational Craft Directive certification having obtained the CE mark or the designer's declaration

Mo3	3.04.1	Able to demonstrate compliance with ISO 12217-2* design category B or higher, either by EC Recreational Craft Directive certification having obtained the CE mark or the designer's declaration * The latest effective version of ISO 12217-2 should be used unless the boat was already designed to a previous version
Mo0,1,2,3	3.04.2	Where compliance in accordance with 3.04.1 cannot be demonstrated, able to demonstrate either:
Mo0,1,2 Mo0,1,2	a)	i a STIX value not less than 32; and ii AVS not less than $130 - 0.002 \cdot m$ , but always $\geq 100^\circ$ , (where "m" is the mass of the boat in the minimum operating condition as defined by ISO 12217-2); and
Mo0,1,2		iii a minimum righting energy $m \cdot AGZ > 172000$ (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); or
Mo3 Mo3	a)	i a STIX value not less than 23; and ii AVS not less than $130 - 0.005 \cdot m$ , but always $\geq 95^\circ$ , (where "m" is the mass of the boat in the minimum operating condition as defined by ISO 12217-2); and
Mo3		iii a minimum righting energy not less than $m \cdot AGZ > 57000$ (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); or
Extract Mo0	b)	Stability Index in ORC Rating System of not less than 120; or
Extract Mo1	b)	Stability Index in ORC Rating System of not less than 115; or
Extract Mo2	b)	Stability Index in ORC Rating System of not less than 110; or
Extract Mo3	b)	Stability Index in ORC Rating System of not less than 103; or
Extract Mo0,1	c)	IRC SSS Base value of not less than 35
Extract Mo2	c)	IRC SSS Base value of not less than 28
Extract Mo3	c)	IRC SSS Base value of not less than 15
Mo0	3.04.3	Capable of self-righting from an inverted position with or without reasonable intervention from the crew and independent of the condition of the rig
	<b>3.05</b>	<b>Stability and Flotation - Multihulls</b>
Mu0,1,2,3,4	3.05.1	Watertight bulkheads and compartments (which may include permanently installed 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 OSR 3.13.2)
Mu0,1,2,3,4	3.05.2	Transverse watertight bulkheads at intervals of not more than 4 m (13'-3") in every hull without accommodation if with a First Launch after 1998
Mu0,1,2,3,4	3.05.3	Designed and built to resist capsize
	<b>3.06</b>	<b>Exits - Monohulls</b>
Mo0,1,2,3,4	3.06.1	At least two exits if 8.5 m (28') LH and greater and with a Primary Launch after 1994. One exit shall be located forward of the foremost mast except where structural features prevent its installation
Mo0,1,2,3,4 Mo0,1,2,3,4 Mo0,1,2,3,4	3.06.2	The following minimum clear hatch openings if First Launch after 2013: a) a circular hatch with diameter 450 mm (18"); or b) any other shape with minimum dimension of 380 mm (15") and minimum area of 0.18 m <sup>2</sup> (1.9 ft <sup>2</sup> ) (see figure 1)
Mo0,1,2,3,4		

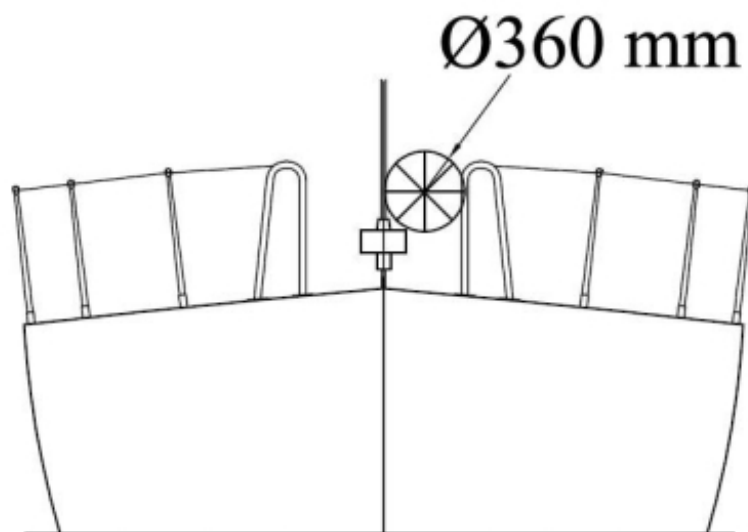


**Figure 1 - Measurements of Minimum Clear Opening**

	<b>3.07</b>	<b>Exits and Escape Hatches - Multihulls</b>
	<b>3.07.1</b>	<b>Exits</b>
Mu0,1,2,3	3.07.1	At least two exits in each hull which contains accommodations
Mu4	3.07.1	At least two exits in each hull which contains accommodations if 8 m (26'-3") LH and greater
	<b>3.07.2</b>	<b>Escape Hatches, Underside Clipping Points &amp; Handholds</b>
Mu0,1,2,3,4	a)	If 12 m (39'-4") LH and greater each hull which contains accommodation:
Mu0,1,2,3,4	i	an escape hatch for access to and from the hull in the event of an inversion;
Mu0,1,2,3,4	ii	a minimum clearance diameter through each escape hatch of 450 mm (18") or when an escape hatch is not circular, sufficient clearance to allow a crewmember to pass through fully clothed on boats if First Launch after 2002
Mu0,1,2,3,4	iii	each escape hatch above the waterline when the boat is inverted;
Mu0,1,2,3,4	iv	each escape hatch at or near the midships station if First Launch after 2000
Mu0,1,2,3,4	v	each escape hatch on the side nearest the vessel's central axis for a catamaran if First Launch after 2002
Mu0,1,2,3,4	3.07.2 b)	if a trimaran at least two escape hatches in compliance with the dimensions in OSR 3.07.2 a) ii if 12 m (39'-4") LH and greater if First Launch after 2002
Mu0,1	3.07.2 c)	if a trimaran at least one escape hatch in compliance with the dimensions in OSR 3.07.2 a) ii if less than 12 m (39'-4") LH if First Launch after 2002
Mu0,1,2,3,4	c)	each escape hatch shall have been opened both from inside and outside within 6 months prior to the race
Mu0,1,2,3,4	3.07.2 d)	appropriate handholds/clipping points on the underside sufficient for all crew (on a trimaran these shall be around the central hull)
Mu0,1,2,3,4	e)	a catamaran with a central nacelle first launched after 2002 shall have on the underside around the central nacelle, handholds of sufficient capacity to enable all persons on board to hold on and/or clip on securely
Mu2,3,4	3.07.3	if less than 12 m (39'-4") LH either escape hatches in compliance with OSR 3.07.2 a), b) and c) or:
Mu2,3,4	a)	in each hull which contains accommodation, a station where an emergency hatch 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 hatch, ready for instant use, adjacent to the cutting site. Each tool shall be secured to the vessel by a lanyard.
	<b>3.08</b>	<b>Hatches &amp; Companionways</b>
**	3.08.1	Hatch covers forward of the maximum beam station shall not open toward the interior of the boat, except hatches in the side of a coachroof or ports having an area of less than 0.071 m <sup>2</sup> (110 in <sup>2</sup> )
**	3.08.2	Hatches not conforming with 3.08.1 shall be clearly labelled and used in accordance with the following instruction "NOT TO BE OPENED AT SEA"
**	3.08.3	A hatch, including a hatch 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 hatches on each side of centerline that do not conform to the requirement in b), provided that the opening of each is less than 0.071 <sup>2</sup> m (110 in <sup>2</sup> )
**	3.08.4	Companionway hatches:
**	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 hatch open or shut
**	ii	secured to the boat (e.g. by lanyard) for the duration of the race
**	iii	permit exit in the event of inversion

Mo0,1,2,3,4	3.08.5	if a monohull with Open Cockpit(s):
Mo0,1,2,3,4	3.08.5 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 ISO 11812 category A
Mo0,1,2,3,4	3.08.6	if a monohull with Contained Cockpit(s) where the companionway extends below the local sheerline, panels capable of blocking the companionway up to the level of the local sheerline whilst giving access to the interior.
Mu0,1,2,3,4	3.08.7	if a multihull with a companionway hatch extending below the local sheerline 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
Mu0,1,2,3,4	b)	be in compliance with ISO 11812 to design category A
Mu4		be in compliance with ISO 11812 to design category B
	<b>3.09</b>	<b>Cockpits</b>
**	3.09.1	Cockpits that self-drain quickly by gravity at all angles of heel and are permanently incorporated as an integral part of the boat
**	3.09.2	A cockpit sole at least 2% LWL above the waterline (or in IMS boats with First Launch before 2003, at least 2% L above the waterline)
**	3.09.3	A bow, lateral, central or stern well is a cockpit for the purposes of OSR 3.09
**	<b>3.09.4</b>	<b>Cockpit Volume</b>
**		The maximum combined volume below lowest coamings of all contained cockpits shall be:
Extract	a)	primary launch before April 1992: 6% (LWL x maximum beam x freeboard abreast the cockpit)
MoMu0,1		primary launch before April 1992: 9% (LWL x maximum beam x freeboard abreast the cockpit)
Extract	b)	primary launch after March 1992 as above for the appropriate category except that "lowest coamings" shall not include any aft of the FA station and no extension of a cockpit aft of the working deck shall be included in calculation of cockpit volume
MoMu2,3,4		
**	<b>3.09.5</b>	<b>Cockpit Drains</b>
**		Cockpit drain cross section area of unobstructed openings (after allowance for screens if fitted) shall be at least that of:
**	a)	2 x 25 mm (1") diameter or equivalent for a boat less than 8.5 m (28') LH
**	b)	4 x 20 mm (3/4") diameter or equivalent for a boat 8.5 m (28') LH or greater
	<b>3.10</b>	<b>Sea Cocks or Valves</b>
**	3.10.1	Permanently installed sea cocks or valves on all through-hull openings below the waterline except for integral deck scuppers and instrument through-hulls
	<b>3.11</b>	<b>Sheet Winches</b>
**		Sheet winches mounted in such a way that an operator is not required to be substantially below deck
	<b>3.12</b>	<b>Mast Step</b>
**	3.12.1	The heel of a keel stepped mast securely fastened to the mast step or adjoining structure
	<b>3.13</b>	<b>Watertight Bulkheads</b>
Mo0Mu0,1,2,3,4	3.13.1	Either a watertight "crash" bulkhead within 15% of LH from the bow and abaft the forward end of LWL, or permanently installed closed-cell foam buoyancy effectively filling the forward 30% LH 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 LH

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 hatch in every required watertight bulkhead (except a "crash" bulkhead). The access hatch shall have means of watertight closure permanently attached to the main panel, or lid, or cover of the hatch. The closure shall not require tools to operate
	<b>3.14</b>	<b>Pulpits, Stanchions, Lifelines</b>
**	3.14.1	The perimeter of the deck surrounded by system of lifelines and pulpits as follows:
**	a)	Continuous lifelines 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 lifeline in a fore-and-aft direction shall not be constrained. Temporary sleeving shall not modify tension in the lifeline.
**	b)	Minimum heights of lifelines and pulpit rails above the working 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 Primary Launch before 1993 where it shall be no greater than 560 mm (22")
MoMu3,4	iv	a boat less than 8.5 m (28') LH may use a single lifeline system with a height between 450 mm (18") and 560 mm (22")
**	c)	Lifelines permanently supported at intervals of not more than 2.2 m (7'-2 1/2") and shall not pass outboard of supporting stanchions
**	d)	Pulpit and stanchion bases permanently installed with pulpits and stanchions mechanically retained in their bases
**	e)	The outside of pulpit and stanchion base tubes no further inboard from the edge of the working deck than 5% of maximum beam or 150 mm (6"), whichever is greater, nor further outboard than the edge of the working deck
**	f)	Stanchions straight and vertical except that:
**	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)	Lifelines 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 lifeline 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 lifeline
**	ii	120 mm (4 ¾") for an intermediate lifeline
<b>Mu0,1,2,3,4</b>	<b>3.14.2</b>	<b>Special Requirements for Pulpits, Stanchions, Lifelines on Multihulls</b>
Mu0,1,2,3,4		When on a boat it is impractical to precisely follow OSR regarding pulpits, stanchions, lifelines, the regulations for monohulls shall be followed as closely as possible
	3.14.3	Spare number
	3.14.4	Spare number
	3,14.5	Spare number
	<b>3.14.6</b>	<b>Lifeline Specifications</b>
Mo0,1,2,3	3.14.6 a)	Lifelines of stranded stainless steel wire
Mo4,Mu**	3.14.6 a)	Lifelines of either:
Mo4,Mu**	3.14.6 a) i	stranded stainless steel wire
Mo4,Mu**	3.14.6 a) ii	HMPE
**	3.14.6 b)	The minimum diameter is specified in table 8 below
**	3.14.6 c)	Stainless steel lifelines shall be uncoated and used without close-fitting sleeving, however, temporary sleeving may be fitted provided it is regularly removed for inspection.
**	3.14.6 d)	A lanyard of synthetic rope may be used to secure lifelines provided the gap it closes does not exceed 100 mm (4"). This lanyard shall be replaced annually
**	3.14.6 e)	All components of the lifeline enclosure system shall have a breaking strength no less than the lifeline
Mo4,Mu**	3.14.6 f)	When HMPE is used, it shall be protected from chafe and spliced in accordance with the manufacturer's recommended procedures
	LH	Wire                      HMPE rope (Single braid)                      HMPE Core (Braid on braid)
	under 8.5m (28')	3mm (1/8")                      4mm (5/32")                      4mm (5/32")
	8.5m - 13m	4mm (5/32")                      5mm (3/16")                      5mm (3/16")
	over 13m (42' 8")	5mm (3/16")                      5mm (3/16")                      5mm (3/16")
	<b>3.15</b>	<b>Multihull Nets or Trampolines</b>
Mu0,1,2,3,4	3.15.1	The words "net" and "trampoline" are interchangeable. A net shall be:
Mu0,1,2,3,4	3.15.1 a)	essentially horizontal
Mu0,1,2,3,4	3.15.1 b)	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
Mu0,1,2,3,4	3.15.1 c)	solidly fixed at regular intervals on transverse and longitudinal support lines and shall be fine-stitched to a bolt rope
Mu0,1,2,3,4	3.15.1 d)	able to carry the full weight of the crew either in normal working conditions at sea or in case of capsized when the boat is inverted.
	<b>3.15.2</b>	<b>Trimarans with Double Crossbeams</b>
	3.15.2	A trimaran with double crossbeams shall have nets on each side covering:-
Mu0,1,2,3,4	3.15.2 a)	the area formed by the crossbeams, central hull and outriggers
Mu0,1,2,3,4	3.15.2 b)	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
Mu0,1,2,3,4	3.15.2 c)	the triangles formed by the aftermost part of the cockpit or steering position (whichever is furthest aft), the mid-point of each after crossbeam,

Mu0,1,2,3,4	3.15.2 d)	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
	<b>3.15.3</b>	<b>Trimarans with Single Crossbeams</b>
Mu0,1,2,3,4		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)
	<b>3.16</b>	<b>Catamarans</b>
Mu0,1,2,3,4	<b>3.16</b>	<b>A catamaran shall have nets covering the area defined:</b>
Mu0,1,2,3,4	3.16 a)	laterally by the hulls; and
Mu0,1,2,3,4	3.16 b)	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
	<b>3.17</b>	<b>Toe Rail or Foot - Stop</b>
Mo0,1,2,3	3.17.1	Permanently installed toe rail of minimum height 25 mm (1"), located as close as practicable to the stanchion bases, around the foredeck from abreast the mast
Mo0,1,2,3	3.17.2	An additional lifeline of between 25-50 mm (1-2") high is permitted in lieu of a toe rail on a boat with Primary Launch before 1984.
	<b>3.18</b>	<b>Toilet</b>
MoMu0,1,2	3.18.1	Permanently installed toilet
MoMu3,4	3.18.2	Permanently installed toilet or fitted bucket
	<b>3.19</b>	<b>Bunks</b>
MoMu0	3.19.1	Permanently installed bunk for each crewmember
MoMu1,2,3,4	3.19.2	Permanently installed bunks
	<b>3.20</b>	<b>Cooking Facilities</b>
MoMu0,1,2,3	3.20.1	Permanently installed cooking stove, capable of being operated safely at sea, with fuel shutoff control
	<b>3.21</b>	<b>Drinking Water Tanks &amp; Drinking Water</b>
	<b>3.21.1</b>	<b>Drinking Water Tanks</b>
MoMu0	3.21.1	Permanently installed delivery pump and water tanks dividing the water supply into at least three compartments
MoMu1	3.21.1	Permanently installed delivery pump and water tanks dividing the water supply into at least two compartments
MoMu2,3	3.21.1	Permanently installed delivery pump and water tank(s)
	<b>3.21.2</b>	<b>Drinking Water</b>
MoMu0	3.21.2	Equipment (which may include watermakers and tanks containing water) permanently installed to provide at least 3 l (0.8 US Gal) of drinking water per person per day for the likely duration of the voyage
	<b>3.21.3</b>	<b>Emergency Drinking Water</b>
MoMu1,2,3	3.21.3	At least 9 l (2.4 US Gal) of drinking water for emergency use in a dedicated and sealed container or container(s)
MoMu0	3.21.3 a)	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 voyage
MoMu0	3.21.3 b)	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 voyage
MoMu0	3.21.3 c)	facilities shall be provided to collect rainwater for drinking purposes including when dismasted
	<b>3.22</b>	<b>Hand Holds</b>
**	3.22.1	Adequate hand holds fitted below deck



	<b>3.23</b>	<b>Bilge Pumps and Buckets</b>
**	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	3.23.1 b)	two permanently installed manual bilge pumps, one operable from above, the other from below deck
Mo3Mu0,1,2	3.23.1 b)	one permanently installed manual bilge pump
Mo4	3.23.1 b)	one manual bilge pump
Mu0,1,2,3,4	3.23.1 c)	provision to pump out all watertight compartments (except those filled with impermeable buoyancy).
**	3.23.2	All required permanently installed bilge pumps shall be operable with all cockpit seats, hatches and companionways shut and with permanently installed discharge pipe(s) of sufficient capacity
**	3.23.3	Bilge pumps shall not be connected to cockpit drains and shall not discharge into a Closed Cockpit
**	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
	<b>3.24</b>	<b>Compass</b>
MoMu0,1,2,3	3.24	Marine magnetic compass capable of being used as a steering compass:
MoMu0,1,2,3,4	3.24 a)	Permanently installed marine magnetic steering compass, independent of any power supply, correctly adjusted with deviation card
MoMu0,1,2,3	3.24 b)	a second compass which may be hand-held and/or electronic
	<b>3.25</b>	<b>Halyards.</b>
**	3.25	A minimum of two halyards, each capable of hoisting a sail, on each mast
	<b>3.26</b>	<b>Bow Fairlead</b>
Mo0	3.26	Bow fairlead, closed or closable and a cleat or securing arrangement, suitable for towing, permanently installed
	<b>3.27</b>	<b>Navigation Lights</b>
**	3.27.1	mounted above sheerline and so that they will not be masked by sails or the heeling of the boat
**	3.27.2	having light intensity meeting COLREGS. When incandescent bulbs are used the minimum power rating shall be:
**	3.27.2 a)	For LH less than 12 m (39'-4"), 10 W
**	3.27.2 b)	For LH 12 m (39'-4") and greater, 25 W
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)
	<b>3.28</b>	<b>Engines, Generators, Fuel</b>
	<b>3.28.1</b>	<b>Propulsion Engines</b>
**	3.28.1 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	3.28.1 b)	an engine which provides a minimum speed in knots of $(1.8 \times \sqrt{LWL}$ in metres) or $(\sqrt{LWL}$ in feet)
Mo0,1,2Mu0	3.28.1 c)	inboard engine
Mu1,2,3	3.28.1 c)	inboard engine, however if less than 12.0 m (39'-4") LH either an inboard engine, or an outboard engine together with permanently installed fuel supply systems and fuel tank(s)
Mo3	3.28.1 c)	either an inboard or outboard engine, with associated tanks and fuel supply systems, all securely fastened
**	3.28.1 d)	an inboard engine shall have a permanently installed exhaust, cooling system, fuel supply, fuel tank(s) and shall have adequate heavy weather protection
	<b>3.28.2</b>	<b>Generator</b>
**	3.28.2	If an optional generator separate from the propulsion engine is carried, it shall be installed in accordance with the manufacturer's guidelines

	<b>3.28.3</b>	<b>Fuel Systems</b>
MoMu0,1,2,3	3.28.3 a)	All fuel tanks shall be rigid (but may have permanently installed flexible linings) and shall have a shutoff valve
MoMu0,1,2,3	3.28.3 b)	At the start a boat 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 8 hours
	<b>3.28.4</b>	<b>Battery Systems</b>
MoMu0,1,2,3	3.28.4 a)	a dedicated engine starting battery when an electric starter is the only method for starting the engine
MoMu0,1,2,3	3.28.4 b)	batteries installed after 2011 shall be of the sealed type from which liquid electrolyte cannot escape
	<b>3.29</b>	<b>Communications Equipment, GPS, Radar, AIS</b>
MoMu0,1,2,3	3.29.01	a marine radio transceiver with an emergency antenna when the regular antenna depends upon the mast
MoMu0,1,2,3	3.29.02	if the marine radio transceiver is a VHF:
MoMu0,1,2,3	3.29.02 a)	a minimum rated output power of 25 W
MoMu0,1,2	3.29.02 b)	a masthead antenna not less than 38 cm (15") in length and co-axial feeder cable with not more than 40% power loss
MoMu3	3.29.02 b)	a masthead antenna and co-axial feeder cable with not more than 40% power loss
MoMu1,2,3	3.29.02 c)	be DSC capable if installed after 2015
MoMu1,2,3	3.29.02 d)	DSC capable VHF transceivers shall be programmed with an assigned MMSI (unique to the boat), be connected to a GPS receiver and be capable of making distress alert calls as well as sending and receiving a DSC position report with another DSC equipped station
MoMu0	3.29.02 e)	a marine VHF DSC radio covering all international and US marine channels and meeting ITU class D
MoMu0	3.29.03 a)	at least two hand-held satellite telephones, watertight or with waterproof covers and internal batteries. When not in use each to be stowed in a grab bag (see OSR 4.21)
MoMu1	3.29.03 b)	<b>One hand-held satellite telephone, watertight or with waterproof cover and internal battery.</b>
MoMu0	3.29.04	at least two 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 OSR 4.21)
MoMu1,2,3,4	3.29.05	a hand-held marine VHF transceiver, watertight or with a waterproof cover. When not in use to be stowed in a grab bag or emergency container (see OSR 4.21)
**	3.29.06	a second radio receiver, which may be the handheld VHF in 3.29.5 above, capable of receiving weather bulletins
MoMu0	3.29.07	a direction-finding radio receiver operating on 121.5 MHz to take a bearing on a PLB or EPIRB, or an alternative device for crew overboard location when each crew member has an appropriate personal unit (see OSR 5.07);
MoMu3	3.29.08	a GPS
MoMu0	3.29.09	a Standard-C satellite terminal (GMDSS) shall be permanently installed and permanently powered up for the duration of the race and for which the race committee shall have polling authority.
MoMu0	3.29.10	an MF/HF marine SSB transceiver (GMDSS/DSC) with at least 125 W transmitter power and frequency range from at least 1.6 to 29.9 MHz with permanently installed antenna and earth.
MoMu0	3.29.11	an active radar set permanently installed either:
MoMu0	3.29.11 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	3.29.11 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 OSR 3.29.11 a).

Mu0	3.29.12	a class A AIS Transponder which either:
Mo0,1,2	3.29.13	an AIS Transponder which either:
Mu1,2		
MoMu0,1,2	3.29.13 a)	shares the masthead VHF antenna via a low loss AIS antenna splitter; or
MoMu0,1,2	3.29.13 b)	has a dedicated AIS 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 (Loss Estimator)

## SECTION 4 - PORTABLE EQUIPMENT

A boat shall have:

	<b>4.01</b>	<b>Sail Letters &amp; Numbers</b>
**	4.01.1	Identification on sails which complies with RRS 77 and RRS Appendix G
MoMu0,1,2,3	4.01.2	An alternative means of displaying identification as required under RRS Appendix G for a mainsail, to be displayed when none of the numbered sails are set
	<b>4.02</b>	<b>Search and Rescue Visibility</b>
MoMu0	4.02.1	A 4 m <sup>2</sup> (43 ft <sup>2</sup> ) area of highly-visible pink, orange or yellow on the coachroof and/or deck
Mo1,Mu1,2	4.02.1	A 1 m <sup>2</sup> (11 ft <sup>2</sup> ) solid area of highly-visible pink, orange or yellow capable of being displayed on the coachroof and/or deck.
Mu0,1,2,3,4	4.02.2	A 1 m <sup>2</sup> (11 ft <sup>2</sup> ) area of highly-visible pink, orange or yellow showing when the boat is inverted
	<b>4.03</b>	<b>Soft Wood Plugs</b>
**	4.03.1	A tapered soft wood plug stowed adjacent to every through-hull opening
	<b>4.04</b>	<b>Jackstays and Clipping Points</b>
MoMu0,1,2,3	4.04	Permanently Installed fittings for jackstay ends and clipping points
MoMu0,1,2,3	4.04.1	Jackstays which shall:
MoMu0,1,2,3	4.04.1 a)	be independent on each side of the deck
MoMu0,1,2,3	4.04.1 b)	enable a crewmember 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	4.04.1 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 HMPE rope
MoMu0,1,2,3	4.04.2	Clipping points which shall:
MoMu0,1,2,3	4.04.2 a)	be adjacent to stations such as the helm, sheet winches and masts, where crewmembers work
MoMu0,1,2,3	4.04.2 b)	enable a crewmember to clip on before coming on deck and unclip after going below
MoMu0,1,2,3	4.04.2 c)	enable two-thirds of the crew to be simultaneously clipped on without depending on jackstays
Mu0,1,2,3	4.04.2 d)	on a trimaran with a rudder on the outrigger, permit a crewmember to repair the steering mechanism whilst attached to a clipping point
	<b>4.05</b>	<b>Fire Fighting Equipment</b>
**	4.05.1	A fire blanket adjacent to every cooking device with an open flame
MoMu0	4.05.2	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
MoMu1,2,3	4.05.2	2 fire extinguishers, each with 2 kg each of dry powder or equivalent, in different parts of the boat
MoMu4	4.05.2	2 fire extinguishers in different parts of the boat
	<b>4.06</b>	<b>Anchors</b>
MoMu0	4.06	Anchors, chain and rope which comply with relevant class rules or the rules of a recognised Classification Society (e.g. Lloyd's, DNV, etc.)
MoMu1,2,3	4.06	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 except that for a boat less than 8.5 m (28') LH there shall be 1 anchor meeting the same criteria.

MoMu4	4.06	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.
	<b>4.07</b>	<b>Flashlights and Searchlights</b>
**	4.07	Watertight lights with spare batteries and bulbs as follows:
MoMu0,1,2,3	4.07 a)	a searchlight, suitable for searching for a person overboard at night and for collision avoidance
MoMu0,1,2,3	4.07 b)	a flashlight in addition to 4.07 a)
Mu3,4	4.07 c)	the watertight flashlight in OSR 4.07 b) shall be stowed in the grab bag or emergency container
MoMu0	4.07 d)	a high-intensity heavy duty searchlight powered by the boat's batteries, instantly available for use on deck and in the cockpit
	<b>4.08</b>	<b>First Aid Manual and First Aid Kit</b>
**	4.08.1	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 crew
	<b>4.09</b>	<b>Foghorn</b>
**	4.09.1	A foghorn
	<b>4.10</b>	<b>Radar Reflector</b>
**	4.10.1	A passive radar reflector with:
**	4.10.1 a)	octahedral circular plates of minimum diameter 30 cm (12"), or
**	4.10.1 b)	octahedral rectangular plates of minimum diagonal dimension 40 cm (16"), or
**	4.10.1 c)	a non-octahedral reflector with a documented Root Mean Square minimum Radar Cross Section (RCS) area of 2 m <sup>2</sup> (22 ft <sup>2</sup> ) from 0-360° of azimuth and ±20° of heel
MoMu0	4.10.2	A Radar Target Enhancer (RTE) which complies with ISO 8729-2:2009 or equivalent
	<b>4.11</b>	<b>Navigation Equipment</b>
**	4.11.1	Navigational charts (not solely electronic), light list and chart plotting equipment
	<b>4.12</b>	<b>Safety Equipment Location Chart</b>
**	4.12.1	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
	<b>4.13</b>	<b>Depth, Speed and Distance Instruments</b>
MoMu0,1,2,3	4.13.1	A knotmeter or distance measuring instrument (log)
MoMu,1,2,3,4	4.13.2	A depth sounder
MoMu0	4.13.2	Two independent depth sounders
	<b>4.14</b>	<b>Spare Number</b>
	<b>4.15</b>	<b>Emergency Steering</b>
MoMu0,1,2,3	4.15.1	An emergency tiller capable of being fitted to the rudder stock except when the principal method of steering is by means of an unbreakable metal tiller
MoMu0,1,2,3	4.15.2	A proven method of emergency steering with the rudder disabled
	<b>4.16</b>	<b>Tools and Spare Parts</b>
**	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
	<b>4.17</b>	<b>Boat's name</b>
**	4.17.1	The boat's name on miscellaneous buoyant equipment, such as lifejackets, cushions, lifebuoys, recovery slings, grab bags etc.
	<b>4.18</b>	<b>Retro-reflective material</b>
**	4.18	Marine grade retro-reflective material on lifebuoys, recovery slings, liferafts and lifejackets

	<b>4.19</b>	<b>EPIRBs</b>
MoMu0	4.19.1	Two water and manually activated 406 MHz EPIRBs
MoMu1,2	4.19.1	A water and manually activated 406 MHz EPIRB
MoMu0,1,2	4.19.2	A 406 MHz EPIRB registered after 2015 shall include an internal GPS
MoMu0,1,2	4.19.3	All EPIRBs 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 IBRD if the country does not provide a registration facility and the country has allowed direct registration in the IBRD
	<b>4.20</b>	<b>Liferafts</b>
	<b>4.20.1</b>	<b>Liferaft Construction</b>
MoMu1,2	4.20.1 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	4.20.1 a) i	SOLAS LSA Code 1997 Chapter IV or later version; or
MoMu1,2	4.20.1 a) ii	ISO 9650-1:2005, Type 1, Group A - Small Craft - Inflatable; or
MoMu1,2	4.20.1 a) iii	ISAF liferafts manufactured before 2016 until replacement is due at end of service life; or
MoMu1,2	4.20.1 a) iv	ORC liferafts manufactured before 2003 until replacement is due at end of service life
MoMu0	4.20.1 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 crewmembers
MoMu0	4.20.1 c)	Liferafts shall comply with SOLAS LSA code 1997 Chapter IV or later version
	<b>4.20.2</b>	<b>Minimum Liferaft Equipment</b>
MoMu0,1,2	4.20.2 a)	A SOLAS liferaft shall contain as a minimum a SOLAS A pack;
MuMo1	4.20.2 b)	An ISO 9650 liferaft shall contain as a minimum Pack 1 (greater than 24 hour pack);
MuMo2	4.20.2 c)	An ISO 9650 liferaft shall contain as a minimum Pack 2 (less than 24 hour pack);
MoMu1,2	4.20.2 d)	The minimum contents of the ISO liferaft equipment packs are listed below. Not all items are necessarily packed within the liferaft. Some items are permitted to be carried within an accompanying waterproof grab bag which shall be in a readily accessible location:

Equipment	Pack 1 > 24h	Pack 2 < 24h	In liferaft	In liferaft or in grab bag
Portable buoyant baler 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 SOLAS LSA Code Chapter III, 3.2	6	3	3 min	X
Red parachute flares in accordance with SOLAS LSA Code Chapter III, 3.1	2	2	1 min	X
Thermal protective aids in accordance with SOLAS LSA 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 (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	1	1	X	
Drinking water per person, in containers of each not more than 500mL	1.5 L	0	0.5 L	Xa
Food per person	10 000 kJ	0		X
* 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 4.20.3 a) Each liferaft shall be packed either in:-  
MoMu0,1,2 4.20.3 a) i a rigid container securely stowed on the working deck, in the cockpit or in an open space; or:-  
MoMu0,1,2 4.20.3 a) ii 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  
MoMu1,2 4.20.3 b) In a boat with primary launch before June 2001, a liferaft may be packed in a valise not exceeding 40 kg securely stowed below deck adjacent to a companionway  
MoMu0,1,2 4.20.3 c) On a multihull or on a monohull with moveable ballast the liferaft shall be readily deployable whether or not the boat is inverted  
MoMu0,1,2 4.20.3 d) The end of each liferaft painter should be securely fastened to the boat

MoMu0,1,2	4.20.3 e)	Each raft shall be capable of being got to the lifelines or launched within 15 seconds
	<b>4.20.4</b>	<b>Spare Number</b>
<b>MoMu0,1,2</b>	<b>4.20.5</b>	<b>Liferaft Servicing</b>
MoMu0,1,2	4.20.5 a)	A liferaft shall be serviced at a manufacturer authorized service station at the following maximum intervals:
MoMu0,1,2	4.20.5 a) i	SOLAS liferafts annually
MoMu0,1,2	4.20.5 a) ii	ISO 9650 canister packed liferafts every 3 years
MoMu0,1,2	4.20.5 a) iii	ISO 9650 valise packed liferafts every 3 years except that hired liferafts shall be serviced annually
MoMu0,1,2	4.20.5 a) iv	ISAF liferafts annually
MoMu0,1,2	4.20.5 a) v	ORC liferafts annually
MoMu0,1,2	4.20.5 b)	Servicing certificates (original or a copy) on board
	<b>4.21</b>	<b>Grab Bags</b>
Mu3,4	4.21	Either a watertight compartment or a grab bag, readily accessible whether or not the boat is inverted, with the following minimum contents:
Mu3,4	4.21 a)	a watertight hand-held marine VHF transceiver with spare batteries
Mu3,4	4.21 b)	a watertight flashlight with spare batteries and bulb
Mu3,4	4.21 c)	3 red hand flares
Mu3,4	4.21 d)	a watertight strobe light with spare batteries
Mu3,4	4.21 e)	a knife
**	4.21 f)	If a grab bag is provided it shall have inherent flotation, at least 0.1 m <sup>2</sup> (1 ft <sup>2</sup> ) area of fluorescent orange colour on the outside, shall be marked with the name of the boat, and shall have a lanyard and clip
	<b>4.22</b>	<b>Crew Overboard Identification and Recovery</b>
	4.22.1	Locator Beacons
MoMu0	4.22.1 a)	A PLB (Personal Locator Beacon) equipped with 406Mhz and 121.5Mhz for each crew member
<b>MoMu0,1,2</b>	<b>4.22.1 b)</b>	<b>An AIS personal crew overboard beacon for each crew member</b>
MoMu0	4.22.1 c)	A personal unit in addition to the PLB in OSR 4.22.1 b) if the location device carried by the boat in accordance with OSR 3.29.07 requires it;
MoMu0,1,2	4.22.1d)	Where possible every PLB 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 IBRD if the country does not provide a registration facility and the country has allowed direct registration in the IBRD.
	4.22.2	GPS Crew Overboard Position
MoMu0	4.22.2 a)	A GPS capable of recording a crew overboard position, within 10 seconds, and monitoring that position, and
MoMu0	4.22.2 b)	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 GPS
MoMu1,2	4.22.2 c)	A GPS capable of recording a crew overboard position, within 10 seconds, and monitoring that position
MoMu3,4	4.22.3	a lifebuoy with a self-igniting light, a whistle and a drogue within reach of the helmsman and ready for immediate use
<b>MoMu0,1,2</b>	<b>4.22.3</b>	<b>a lifebuoy with a self-igniting light, a whistle and a drogue</b>
MoMu0,1,2	4.22.4	In addition to 4.22.3 above, within reach of the helmsman and ready for immediate use, a second lifebuoy equipped with:
MoMu0,1,2	4.22.4 a)	a whistle, a drogue, a self-igniting light and
MoMu0,1,2	4.22.4 b)	a pole and flag. The pole shall be either permanently extended or be capable of being fully automatically extended
MoMu0	4.22.4 c)	Each lifebuoy shall be equipped with a sachet of fluorescein dye
MoMu0,1,2	4.22.5	At least one lifebuoy shall depend entirely on permanent buoyancy (e.g. foam)
**	4.22.6	Each inflatable lifebuoy and any automatic device shall be tested and serviced at intervals in accordance with its manufacturer's instructions

- \*\* 4.22.7 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 4.22.8 A recovery sling which includes a:
- MoMu0,1,2,3 4.22.8 a) buoyant line of length no less than the shorter of 4 times LH or 36m (120')
- MoMu0,1,2,3 4.22.8 b) buoyancy section (horseshoe) with no less than 90 N (20#) buoyancy
- MoMu0,1,2,3 4.22.9 c) minimum strength capable to hoist a crewmember aboard

**4.23 Pyrotechnic and Light Signals**

- \*\* 4.23.1 Pyrotechnic signals shall be provided conforming to SOLAS LSA 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.

Race Category	Red Hand Flares LSA III 3.2	Orange Smoke Flares LSA III 3.3
MoMu0,1,2,3	4	2
MoMu4		2

- 4.24 Spare Number

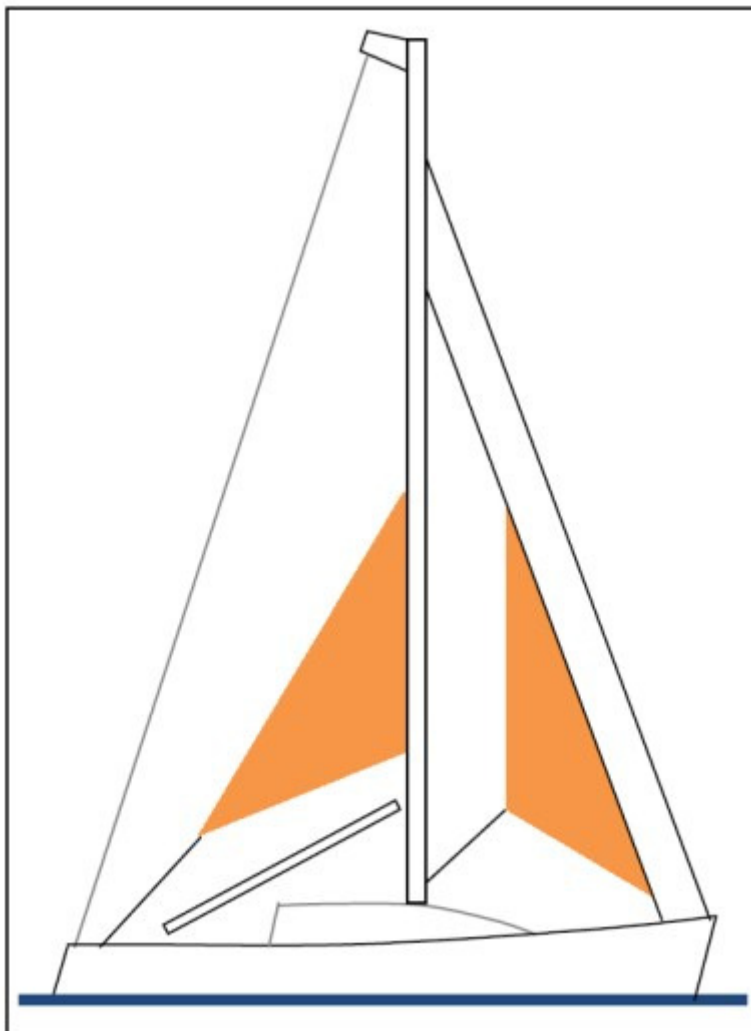
**4.25 Cockpit Knife**

- \*\* 4.25.1 A strong, sharp knife, sheathed and securely restrained shall be provided readily accessible from the deck or a cockpit.

**4.26 Storm & Heavy Weather Sails**

**4.26.1 Design**

Figure 3



- MoMu1,2
- \*\* 4.26.1 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)
- \*\* 4.26.1 b) Aromatic polyamides, carbon and similar fibres shall not be used in a trysail or storm jib but HMPE and similar materials are permitted
- \*\* 4.26.1 c) Sheeting positions on deck for each storm and heavy-weather sail
- \*\* 4.26.1 d) Sheeting positions for the trysail independent of the boom



**		
**	<b>4.26.2</b>	<b>Sail Areas</b>
**	4.26.2	The maximum area of storm sails shall be lesser of the areas below or as specified by the boat designer or sailmaker
MoMu0,1,2,3	4.26.2 a)	A heavy-weather jib (or heavy-weather sail in a boat with no forestay) with:
**	4.26.2 a) i	area of 13.5% height of the foretriangle (IG) squared
**	4.26.2 a) ii	readily available means, independent of a luff groove, to attach to the stay
<b>MoMu0,1,2</b>	<b>4.26.2 b)</b>	<b>A storm jib with:</b>
MoMu0,1,2	4.26.2 b) i	area of 5% height of the foretriangle (IG) squared
MoMu0,1,2	4.26.2 b) ii	maximum luff length 65% of IG
MoMu0,1,2	4.26.2 b) iii	permanently attached means, independent of a luff groove, to attach to the stay
**	4.26.2 c)	For sails made after 2011: Storm and heavy weather jib areas calculated as: (0.255 x luff length x (luff perpendicular + 2 x half width))
<b>MoMu0,1,2</b>	<b>4.26.2 d)</b>	<b>A storm trysail (or rotating wing mast if suitable) with:</b>
MoMu0,1,2	4.26.2 d) i	area of 17.5% mainsail hoist (P) x mainsail foot length (E)
MoMu0,1,2	4.26.2 d) ii	For sails made after 2011: The storm trysail are calculated as (0.5 x leech length x shortest distance between tack point and leech)
MoMu0,1,2	4.26.2 d) iii	no headboard
MoMu0,1,2	4.26.2 d) iv	no battens
MoMu0,1,2	4.26.2 d) v	sail number and letters on both sides, as large as practicable
MoMu0,1,2	4.26.2 d) vi	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
MoMu3	4.26.2 d) vii	either a storm trysail as defined in OSR 4.26.2 d), or mainsail reefing to reduce the luff by at least 40%
MoMu4	4.26.2 e)	Either mainsail reefing to reduce the luff by 12.5% or a heavy-weather jib as defined in 4.26.2 a) (or heavy-weather sail in a boat with no forestay)
	<b>4.27</b>	<b>Drogue, Sea Anchor</b>
MoMu0	4.27.1	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)
	4.28	Spare Number
	<b>4.29</b>	<b>Deck Bags</b>
Mo0	4.29.1	If permitted by the Notice of Race, Sailing Instructions or Class Rules, bags for storing sails on deck shall be:
Mo0	4.29.1 a)	so constructed to ensure rapid draining of water
Mo0	4.29.1 b)	securely fastened in such a way that the integrity of deck fittings e.g. stanchions and lifelines, is not compromised
		<b>SECTION 5 - PERSONAL EQUIPMENT</b>
**		Each crew member shall have:
	<b>5.01</b>	<b>Lifejacket</b>
**	5.01.1	A lifejacket which shall:
**	5.01.1 a)	
**	5.01.1 a)i)	if manufactured before 2012 comply with ISO 12402 - 3 (Level 150) or equivalent, including EN 396 or UL 1180 and:
**	5.01.1 a)i)	if inflatable have a gas inflation system
**	5.01.1 a)i)	have crotch/thigh straps (ride up prevention system (RUPS))
MoMu0,1,2	5.01.1 a)i)	have an integral safety harness in compliance with OSR 5.02
**	5.01.1 a) ii	if manufactured after 2011 comply with ISO 12402-3 (Level 150) and be fitted with a whistle, lifting loop, reflective material automatic/manual gas inflation system
**	5.01.1 a) ii	crotch/thigh straps (ride up prevention system (RUPS))
MoMu0,1,2	5.01.1 a) ii	an integral safety harness in compliance with OSR 5.02
MoMu0,1,2,3	5.01.1 b)	have an emergency position indicating light in accordance with either ISO 12402-8 or SOLAS LSA code 2.2.3
**	5.01.1 c)	be clearly marked with the boat's or wearer's name
MoMu0,1,2,3	5.01.1 d)	have a sprayhood in accordance with ISO 12402-8

MoMu0	5.01.1 e)	have a PLB unit (as with other types of EPIRB, should be properly registered with the appropriate authority)
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 in OSR 5.01.1, except a PLB described in 5.01.1(e)
**	5.01.4	The person in charge shall personally check each lifejacket at least once annually.
	<b>5.02</b>	<b>Safety Harness and Tethers</b>
MoMu0,1,2,3	5.02.1	A harness that complies with ISO 12401 or equivalent
	5.02.2	A tether that shall:
MoMu0,1,2,3	5.02.2 a)	comply with ISO 12401 or equivalent
MoMu0,1,2,3	5.02.2 b)	not exceed 2 m (6'-6") including the length of the hooks
	5.02.2 c)	have self-closing hooks
MoMu0,1,2,3	5.02.2 d)	have overload indicator flag embedded in the stitching
MoMu0,1,2,3	5.02.1 e)	be manufactured after 2000
MoMu0,1,2,3	5.02.3	All of the crew shall have either:
MoMu0,1,2,3	a)	a tether not exceeding 1m(3'3") including the length of the hooks, or
MoMu0,1,2,3	b)	an intermediate self-closing hook on a 2 m (6'-6") tether
MoMu0	c)	a boat shall carry spare harnesses and tethers as required in OSR 5.02 above sufficient for at least 10% of the crewmembers (minimum one unit)
MoMu0,1,2,3	5.02.4	A tether which has been overloaded shall be replaced
	<b>5.03</b>	<b>Personal Location Lights</b>
MoMu0	5.03.1	Two packs of miniflares or two personal location lights (either SOLAS or strobe): one to be attached to, or carried on, the person when on deck at night
	<b>5.04</b>	<b>Foul Weather Suits</b>
MoMu0	5.04 a)	A foul weather suit with hood
	<b>5.05</b>	<b>Knife</b>
MoMu0	5.05.1	A knife, to be worn on the person at all times
	<b>5.06</b>	<b>Flashlight</b>
MoMu0	5.06.1	A buoyant watertight flashlight
	<b>5.07</b>	<b>Survival Equipment</b>
MoMu0	5.07.1	an immersion suit (attention is drawn to EN ISO 15027-1 constant wear suits, and EN ISO 15027-2 abandonment suits and the LSA Code Chapter II, 2,3);
	<b>5.08</b>	<b>Diving Equipment</b>
MoMu0	5.08.1	The boat shall have at least two diving suits each to cover the entire body and including gloves, fins and portable air supplies
	<b>SECTION 6 - TRAINING</b>	
MoMu0	6.01.1	Every member of a crew including the Person in Charge shall have undertaken training within the five years before the start of the race in OSR 6.02 Training Topics
MoMu0,1,2	6.01.2	At least 30% but not fewer than two members of a crew, including the Person in Charge shall have undertaken training within the five years before the start of the race in OSR 6.02 Training Topics
MoMu3	6.01.3	When there are only two crewmembers, at least one shall have undertaken training within the five years before the start of the race in OSR 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 / ISAF Approved Offshore Personal Survival Training course shall be accepted by a race organizing authority as evidence of compliance with Special Regulation 6.01. See Appendix G - Model Training Course, for further details.

	<b>6.02</b>	<b>Training Topics</b>
	6.02.1	Giving Assistance to Other Craft
	6.02.2	Personal Safety Gear, theory and practice
	6.02.3	Care and Maintenance of Safety Gear
	6.02.4	Fire Precautions and Firefighting, theory and practical
	6.02.5	Crew Overboard Identification and Recovery
	6.02.6	Hypothermia, Cold Shock and Drowning
	6.02.7	Crew Health
	6.02.8	Marine Weather
	6.02.9	Heavy Weather
	6.02.10	Storm Sails
	6.02.11	Damage Control
	6.02.12	Search and Rescue Organization
	6.02.13	Pyrotechnics and Signalling Gear, theory and practical
	6.02.14	Emergency Communications, theory and practical
	6.02.15	Liferafts and Abandon Ship, theory and practical
	6.03	Spare Number
	<b>6.04</b>	<b>Routine Training On-Board</b>
**	6.04	At least annually the crews shall practice the drills for:
**	6.04	Crew-Overboard Recovery
**	6.04	Abandonment of vessel
	<b>6.05</b>	<b>Medical Training</b>
MoMu0	6.05.1	At least one crewmember shall have a valid STCW A-VI/4-2 (Proficiency In Medical Care) certificate or equivalent
MoMu0	6.05.2	In addition to 6.05.1 another crewmember shall have a valid first aid certificate completed within the last five years meeting:
MoMu1	6.05.2	At least two crewmembers shall have a valid first aid certificate completed within the last five years meeting:
MoMu2	6.05.2	At least one crewmember shall have a valid first aid certificate completed within the last five years meeting:
MoMu0,1,2	6.05.2 a)	A certificate listed on the World Sailing website <a href="http://www.sailing.org/specialregs">www.sailing.org/specialregs</a> of MNA recognised courses
MoMu0,1,2	6.05.2 b)	STCW First Aid Training complying with A-VI/1-3 - Elementary First Aid or higher STCW level
MoMu3,4	6.05.3	At least one member of the crew shall be familiar with First Aid procedures, hypothermia, drowning, cardio-pulmonary resuscitation and relevant communications systems
	<b>6.06</b>	<b>Diving Training</b>
MoMu0	6.06.1	At least 30% of the crew shall have received appropriate diving training to enable them to carry out basic repairs underwater and to provide assistance if necessary in recovery of a crew overboard
		<b>APPENDICES TO SPECIAL REGULATIONS</b>
		<b>Appendix A - Moveable and Variable Ballast</b>
		<b>Appendix B - For Inshore Racing</b>
		<b>Appendix C - For Inshore Dinghy Racing</b>
		<b>Appendix D - A guide to ISO and other Standards</b>
		<b>Appendix E - World Sailing Code for the organisation of Oceanic Races</b>
		<b>Appendix F - Standard Inspection Card</b>
		<b>Appendix G - Model Training Course</b>
		<b>Appendix H - Model First Aid Training Course</b>
		<b>Appendix J - Hypothermia</b>
		<b>Appendix K - Drogues and sea anchors</b>

## **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 KFR (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. This Appendix does not apply to boats racing under the Category for Inshore Racing.

#### **1 Stability**

##### **1.1 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.

##### **1.2 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.

##### **1.3 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 FKR<sub>90</sub> and FKR<sub>-90</sub> shall be used:

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

Boats with age date prior to 11/04 may seek dispensation from this section 1.3 by application to World Sailing.

## 1.4 Capsize Recovery

For boats racing under Special Regulations Category 0, Regulation 3.04.1 is modified to read:

- 3.04.1 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:

SR Category	0
FIR	0.9

Boats with age date prior to 11/04 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.*

*All the items relevant to Special Regulations for inshore racing are shown in Appendix B.*

#### Part A Basic

**The following regulations shall be observed:-**

Regulation	Item
1.02	Responsibility of Person in Charge
1.02.1	Under RRS 4 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 bad weather. The person in charge shall also assign a person to take over his/her responsibilities in the event of his/her incapacitation.
2.03.1	All equipment required by OSR shall:
a)	function properly
b)	be regularly checked, cleaned and serviced
c)	when not in use be stowed in conditions in which deterioration is minimised
d)	be readily accessible
e)	be of a type, size and capacity suitable and adequate for the intended use and size of the boat.

3.02	<p><b>Watertight Integrity of a Boat</b>                  A boat shall be essentially watertight and all openings shall be capable of being immediately secured. Centreboard, daggerboard trunks and the like shall not open into the interior of a hull except via a watertight maintenance hatch with the opening entirely above the Waterline</p>
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**Part B Portable Equipment**

**The following shall be provided:-**

Regulation	Item
3.23	one strong bucket with a lanyard and of at least 9 litres (2.4 US Gal) capacity
3.24	one compass (a hand-held is acceptable)
4.05	one fire extinguisher required if electrical system, engine or stove on board
4.06	one anchor
4.22	a lifebuoy with a drogue
4.22.5	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, sheathed and securely restrained shall be provided readily accessible from the deck or a cockpit.
5.01.1	each crew member shall have: A personal flotation device which shall: (a) be equipped with a whistle (b) clearly marked with the boat's or wearer's name (c) if inflatable, regularly checked for air retention Unless otherwise specified by a boat's applicable class rules or by sailing instructions, personal flotation devices shall have at least 150N buoyancy, arranged to securely suspend an unconscious man face upwards at approximately 45 degrees to the water surface.

**APPENDIX C**  
**SPECIAL REGULATIONS**  
**for inshore dinghy racing**

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

- participating boats may not be self-sufficient
- the races are short in duration and close to a single manned shore base, in relatively warm and protected waters, in daylight and good visibility
- participating boats can be observed by race organisers at all times
- safety/rescue boats are available all along the course sufficient to enable any competitor to be returned to the shore base in a timely manner
- safety/rescue boats 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

That the Requirements for Special Regulations for inshore dinghy racing are:-

Unless otherwise prescribed in Notice of Race and/or Sailing Instructions, where class rules include items of safety such rules shall override the corresponding part of these Regulation.

All equipment required by Special Regulations for inshore dinghy racing 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
- be of a type, size and capacity suitable and adequate for the intended use and size of the boat.

All boats sailing under Special Regulations for inshore dinghy racing shall be fitted with:-

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

All boats sailing under Special Regulations for inshore dinghy racing shall carry:-



- A personal flotation device (PFD) for each person aboard to ISO 12402-5 -Level 50 or equivalent
- 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
- A paddle or means of propelling the boat when not under sail

## APPENDIX D

### A Guide to ISO and other standards

#### Application and Development Policy

Whenever possible a relevant ISO Standard, CEN Norm, SOLAS regulation or other internationally-recognised standard is called up by OSR. Changes and developments in international standards are reviewed by the Special Regulations sub Committee and may replace part of Special Regulations. Significant changes will when possible affect new boats and/or new equipment only.

#### 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 eg 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 Special Regulations:-

ISO standard	Subject	Special Regulation
8729-1	marine radar reflectors	4.10
8729-2	marine radar reflectors	4.10
9650	liferafts	4.20
11812	watertight & quick draining cockpits	3.09
12401	deck safety harness (also published as EN 1095)	5.02
12402	Personal Flotation Devices	5.01
12215	hull construction standards	3.03
12217-2	assessment of stability and buoyancy	3.04.4, 3.05
15085	guardlines (lifelines) trampolines, nets, stanchions, hooking points	3.14, 3.15
17339	sea anchors	4.27

## **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. In OSR the following are mentioned:-

EN standard	Subject	Special Regulation
394,399	lifejacket accessories	5.01
396	lifejackets	5.01
1095	deck safety harness (also published as ISO 12401)	5.02
1913-1-3	immersion suits	5.07

## **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 EC under which “notified bodies” may approve construction standards of boats which may then be entitled to display a CE mark permitting sale in the EC (see OSR 3.03).

## **SOLAS**

The SOLAS (Safety of Life At Sea) Convention is published by IMO (International Maritime Organisation) 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, 3.2, 3.3	Flares (pyrotechnics)	4.23
Chapter II, 2.2.3	Lifejacket lights	5.01
Chapter IV, 4	Liferafts	4.20
Chapter II, 2.3	Immersion suits	5.07.1
Chapter II, 2.5	Thermal protective aids	4.20

### **Addresses**

CEN Central Secretariat,  
rue de Stassart 36,  
B-1050 Brussels,  
Belgium  
tel +32 2 550 08 11  
fax +32 2 550 08 19  
[www.cenorm.be](http://www.cenorm.be)

ISO Central Secretariat,  
1 rue de Varembé,  
Case Postale 56,  
CH-1211 Genève 20,  
Switzerland  
email: [central@isocs.iso.ch](mailto:central@isocs.iso.ch)  
tel +41 22 749 01 11  
fax + 41 22 733 34 30  
[www.iso.org](http://www.iso.org)

IMO International Maritime Organization,  
4 Albert Embankment,  
London EC1 7SR,  
Great Britain  
email: [info@imo.org](mailto:info@imo.org)  
tel +44 207 735 7611  
fax +44 207 587 3210  
[www.imo.org](http://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.*

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
2. A **Risk Analysis** should be made, covering topics like;
  - Meteorological conditions (icebergs, major currents, fogbanks, eddies etc)
  - Commercial traffic, separation zones etc
  - Stability requirements
  - SAR assets and coverage
  - Piracy and other security matters etc
3. **Environmental aspects** as wild life protective zones should be considered.
4. A **Notice to Mariners** about the race should be produced, usually in cooperation with the organizers national authorities.
5. An **Organization 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.
6. The Race Organizer 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

7. A **Race Control Centre** should be organized 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 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 Log Book should be maintained. A format for daily situation reports (sitreps) should be developed. A Voice recorder should be available to record radio communications and crisis management.

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 MRCC's.

9. A **Crisis Management Group** should be organized with the Chairman of the Race Committee, the Safety officer, Medical officer and others as relevant. The team should include media and legal representatives from the organizing body.

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.

11. There may occur incidents that are significant, but still not that serious that MRCC and SAR units will get engaged. For such incidents the Race Organizer should consider to maintain a network of contacts and resources across the racing area to be able to support with towing, transport of equipment etc.

12. The organizer 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.

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.

14. In accordance with Special Regulations, an adequate number of crew members on each yacht shall have **Survival Training**. Apart from the basic requirements for ISAF/World Sailing Personal Survival Course as stipulated in Special Regulations Appendix G, the Race organizer can also prescribe ;

- What level of sailing together in the actual boat that may be required
- Which practical training sequences that shall be required to by the crew to be performed, like MOB drills, helicopter evacuations etc.

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.

16. A **Positioning Reporting system** should be available, linked to the official race webpage.

17. **Meteorological services** may be allowed to be downloaded from public meteorological centres or may be centrally provided from the Race Organizer to reduce satcom costs.

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 zones and to give way to commercial traffic.

19. A race organizer 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 organizers 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 crew member:
- name and contact details of physician who certified the crew members fit for entry (when applicable)
- name and contact details of the crew members home physician
- methods for gaining quick access to medical records if necessary
- details of first aid and medical training received

20. The **Notice of Race** may include ;

- Insurance requirements
- Which individual and collective training that is required
- What meteorological data and forecasts that will be allowed
- Other matters as appropriate

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

22 A **Lessons Learned meeting** about safety issues should be arranged after the race.



## **APPENDIX F**

### **Standard Inspection Cards**

Standard inspection cards for each category can be found on the World Sailing website.

<http://www.sailing.org/documents/offshorespecialregs/index.php>

## **APPENDIX G TRAINING Model Training Course Offshore Personal Safety**

*With acknowledgements to IMO (International Maritime Organisation), YA (Yachting Australia) and RYA (Royal Yachting Association) whose publications have been consulted in the preparation of Appendix G.*

### **INTRODUCTION**

**1 Purpose of the model course.** To help provide training under World Sailing Offshore Special Regulation Section 6. The model course is not the only means of providing such training. Other courses meeting the needs of Section 6 may apply to the appropriate MNA for World Sailing Approval (see Introduction paragraph 7).

**2 Use of the model course.** The chief instructor should review the experience and knowledge of the trainees before the course starts and revise details of the course plan accordingly. Trainees, who should have practical offshore sailing experience, should be encouraged to prepare for the course by familiarising themselves with the topics in Special Regulations 6.02 and 6.03. See also the reading list in A 4.2. Particular skills (e.g. First Aid or professional medical knowledge) when suitably documented, may be accepted to excuse a trainee from that part of the course.

**3 Presentation.** The presentation may have to be repeated in various ways until the instructor is satisfied that the trainees have attained a good understanding of each topic.

**4 Evaluation.** The final activities on each day are examinations, which should be used together with instructors' continuous assessments to provide an overall evaluation. The pass mark is to be taken as 60% in each of the marked units.

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

**6 Structure of the model course.**

**Part A** describes the framework for the course, with aims and objectives and notes on suggested teaching facilities and equipment.

**Part B** provides an outline of lectures, and practical sessions. A suggested timetable is included but it is more important that trainees achieve proficiency in the required skills than that a strict timetable is followed.

**Part C** sets out the detailed syllabus.

## **7 World Sailing Approved Training Courses and Trainee Certification.**

7.1.1 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 National Authority) who must be satisfied that the course delivers training as required by Special Regulation 6.01 and 6.02.

7.1.2 A grant of approved status carries with it a duty on the MNA to ensure that the course provider continues to deliver appropriate training over the course of time. An annual review may be appropriate for this purpose.

7.1.3 The MNA must remove approved status from the course provider if and when it judges this necessary.

7.2 It is not necessary for a training course to follow Appendix G Model Training Course in order to receive approval as in 7.1 above. The overriding requirement is that the course must deliver the training required by Special Regulation 6.01 and 6.02.

7.2 An MNA which lacks experience in offshore training or for other reasons needs advice should contact the World Sailing Secretariat – Offshore and Technical Department.

7.3 A sailor holding an in-date “pass” certificate (each has a validity of 5 years) from an ISAF/World Sailing Approved Offshore Personal Survival Course shall be accepted by a race organiser as having complied with the requirements of World Sailing Offshore Special Regulation 6.01.

7.4 “Pass” certificates issued at an ISAF/World Sailing Approved course shall carry the statement “ISAF/World Sailing Approved Offshore Personal Survival Course” and may carry the ISAF/World Sailing logo.

7.5 Unless otherwise stated in the Notice of Race, it is not mandatory that a training course for compliance with SR 6.01 is “ISAF/World Sailing Approved” however this status is encouraged wherever possible.

## **Part A Framework**

**A1 Class Size** The maximum recommended class size is 20. When smaller work groups are established, this will allow for about four in each group.

**A2 Instructors** should have:

- wide experience of offshore sailing including sailing in severe weather
- a thorough knowledge of the course material
- a thorough knowledge of the requirements of the World Sailing Offshore Special Regulations
- a good understanding of teaching methods
- an ISAF/World Sailing approved Offshore Personal Safety Course pass certificate
- experience of using a liferaft and lifejackets for in-water training purposes

## **A3 Facilities and equipment**

A 3.1 A suitable classroom is required with desks or tables and chairs. It should be possible to move the furniture around so that a variety of room arrangements can be used. Ideally, extra rooms will be available for when the class is split into groups, since each group should have a separate space in which to work.

A 3.2 The main room should be provided with the following equipment:

- a whiteboard or blackboard or flip chart
- writing materials for trainees
- a computer projector (with additional sound channel if not integral)
- a video player compatible with the computer projector
- a PC or laptop compatible with the computer projector
- adequate electric sockets located so that the equipment can be positioned safely.

A 3.3 Group rooms should be provided with a table and chairs and some form of board and writing materials.

A 3.4 A warm-water swimming pool with all appropriate safety equipment, personnel and facilities making it suitable for demonstration and training with lifejackets and liferafts. A wave-generator may provide added realism.

A 3.5 An outdoor location with appropriate safety equipment, personnel and facilities making it suitable for demonstration and training with pyrotechnics and fire extinguishers.

#### **A4 Recommended Reference and Display Material**

*This section will be updated as information is submitted from MNA's. Course providers are encouraged to refer to materials relevant to their own areas of operation.*

#### **A 4.1 For the Instructors**

##### **Printed Material**

- World Sailing Offshore Special Regulations
- World Sailing RRS (The Racing Rules of Sailing)
- International Regulations for the Prevention of Collision at Sea
- Admiralty Summary of Notices to Mariners (NP 247)
- IAMSAR (International Aeronautical and Maritime Search and Rescue) manual, or manual for small craft (in preparation)
- ALRS (Admiralty List of Radio Signals) Volume 5 GMDSS (NP 285)
- Appropriate World Sailing Member National Authority Training Booklet and the World Sailing Guide to Offshore Personal Safety

#### **A 4.2 For the Trainees**

##### **A 4.2.1 Available in the Class Room:**

- World Sailing Offshore Special Regulations
- World Sailing RRS (The Racing Rules of Sailing)
- International Regulations for the Prevention of Collision at Sea
- Admiralty Summary of Notices to Mariners (NP 247)
- IAMSAR (International Aeronautical and Maritime Search and Rescue) manual, or manual for small craft (in preparation).
- Appropriate World Sailing Member National Authority Training Booklet or where not available the World Sailing Guide to Offshore Personal Safety

##### **A 4.2.2 Recommended further study:**

- 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 C Detailed Syllabus**

*paragraph numbers refer to session numbers in Part B*

### **Session 1 Introduction**

- 1.0 The instructor gives an overview of the course and administrative arrangements, and explains the assessment and exam procedures. If the course has ISAF/World Sailing Approval (see introduction paragraph 7) the certificate will be so endorsed. The instructor should also deliver a final course timetable.
- 1.1 The importance of training both in formal sessions and also as part of the routine in running a sailing yacht.
- 1.2 The importance of a “safety ethos”
- 1.3 The crew brief including safety equipment, stowage details, emergency procedures, responsibilities and how to send a Mayday call and use EPIRB and flares in case the skipper and key crew members are incapacitated. Show stowage chart required in Special Regulations: crew experience, qualifications and fitness must be adequate
- 1.4 Responsibility of person in charge for safe conduct of vessel and oversight and direction of crew actions. Responsibility of crew members for their own safety and in the discharge of their duties, to contribute to the safety of the vessel and the rest of the crew.

### **Session 2 Care and maintenance of safety and other equipment**

- 2.1 Routine to check, service, clean, dry, fit and adjust to wearer, and correctly store safety equipment. Give examples eg safety harness, inflatable lifejackets, liferafts etc.
- 2.2 Checks to continue under way including e.g. rigging (types of ropes used for specific tasks and the loss of strength caused by splices, hitches or knots), pins in place and undistorted, wires not fractured, running rigging not unduly chafed, shackles seized when appropriate), seacocks, stern gland, toilet plumbing, etc.
- 2.3 Availability of reserve navigation lights and general spares.
- 2.4 Marking of floating equipment with vessel name.
- 2.5 Check and overhaul dan buoy, Jon Buoy, MoB modules, Recovery slings etc.
- 2.6 Understand that dormant water or dirt in a fuel tank may be kicked up and taken into the engine in very rough weather - ensure that engine oil and fuel filler caps etc are kept clean and secure.
- 2.7 Raise awareness of the potential consequences of running aground, and the need to carry out an inspection following any grounding incident, taking into account the danger of potential unseen damage.

### **Session 3 Storm sails**

- 3.1 Storm and heavy-weather sails including those on board the trainee’s boat.
- 3.2 How are they set?

- 3.3 Where are they stowed?
- 3.4 importance of practicing from time to time even in light weather.
- 3.5 Understand the changed pressures on the rig when using reduced sail in very heavy weather.
- 3.6 Dangers of heavy water breaking over the boat and carrying away poorly-stowed sails and sails set too low down.
- 3.7 Danger of heavy metal shackles in storm sails
- 3.8 Importance of bright colour in storm sails.
- 3.9 Value (in some boats) of lashing down the main boom in heavy weather and setting a trysail without the boom.

#### **Session 4 Damage Control and Repair**

- 4.1 Plan to minimise damage in forthcoming heavy weather
- 4.2 Remedial action including use of spare materials and tools to cope with:-
  - .1 loss of rudder/steering
  - .2 loss of mast
  - .3 flooding due to (a) collision damage forward, (b) amidships, (c) aft,(d) seacock failure
  - .4 stranding
  - .5 severe weather damage eg (a) hatch ripped off, (b) coachroof split
  - .6 In the event of keel damage a yacht's rapid capsize and inversion is possible, outline the potential cause of keel failure and how it can be avoided, and suggest actions that can be taken when there is concern over the security of a keel.
  - .7 collision with another vessel, a submerged object (eg container), sea life, etc.

#### **Session 5 Heavy Weather – crew routines, boat handling, drogues**

- 5.1 Detailed examination of risks, solutions and contingency plans including crew routines for:-
  - .1 general working in exposed positions – hooking on before leaving hatchway, remaining hooked on at all times (dual hooking), dangers of hooking on, dangers of not hooking on, importance of stopping boat, telling someone when going forward, when lifejackets and harnesses shall be worn, value of personal EPIRBs (PLBs) especially with on-board D/F and personal AIS locating devices.
  - .2 preparation for rough weather – secure stowage for moving items.
  - .3 ensure jackstays rigged
  - .4 rough weather operations
  - .5 severe weather strategies

- .6 galley operations lee strops, preparing hot food in thermos containers in advance of heavy weather
  - .7 importance of high visibility of yacht in heavy seaway: display of orange surface, use of white light, consider flying robust radar reflector.
- 5.2 boat handling in a seaway noting in particular helming techniques and effect of conditions on boat and crew taking into account:-
- .1 strength of wind
  - .2 duration of high wind
  - .3 length of fetch
  - .4 wave pattern
  - .5 definition of wave height and length including assessment methods
  - .6 wave refraction
  - .7 multiple wave patterns
  - .8 waves in tidal/current conditions
  - .9 predicting dangerous wave conditions
  - .10 angle of boat to a seaway and to individual waves
  - .11 early sail changes, sail change procedures, knowing the boat and its characteristics and tendencies
  - .12 heaving-to
  - .13 assessing options eg to stand off or cross a barred entrance
- 5.3 Effect of a drogue **or a sea anchor** on a boat in severe weather

## **Session 6 Man overboard prevention and recovery**

### 6.1 Prevention

- .1 lifelines to be maintained in accordance with Special Regulations
- .2 harness to be clipped on at night and in rough weather (see C5.1.1)
- .3 drawback of plain harness hooks
- .4 harness crotch straps prevent “slip-out”
- .5 use the sea toilet in bad weather not the stern
- .6 encourage the use of shorter safety line and in particular lines with mid-line clips as being most adaptable (highlighting issues with being towed in the water at speed while in a harness and how a shorter line (less than 1m) both aids recovery and reduces potential risk particularly on high performance boats)

### 6.2 Recovery

- .1 well-drilled routine
- .2 “Mayday” on radio is valid



- .3 quickly accessible hoisting rig
- .4 value of horizontal lift and retention of horizontal position
- .5 procedure and team ready to re-clothe, re-warm and check recovered person for injury, advising shore if necessary
- .6 use of whistle, SOLAS-type lifejacket light, strobe light.

### 6.3 Search Patterns

- .1 Explain the most common standard search patterns for finding a lost MOB (Expanding Square Search, Creeping Line, Parallel Search and Sector Search)
- .2 Navigation consideration (establishing a datum and then what affects the position of the MOB relative to the boat and the ground)
- .3 Importance of search lights, the use of PLB and high visibility clothing

## Session 7 Giving Assistance to other craft

### 7.1 Legal and rules requirements

- .1 SOLAS obligations apply to all ships on all voyages\*\*
- .2 Racing Rules of Sailing\*\*
- .3 moral imperative
- .4 communications obligations\*\*
- .5 log-keeping obligations\*\*

\*\*see supplement one (below)

### 7.2 manoeuvring close to a vessel sinking

- .1 keep other vessel and shore informed
- .2 be prepared to recover personnel from the water or a liferaft
- .3 tactics if other vessel is on fire

### 7.3 understand that another yacht may be the only source of help.

### 7.4 towing and being towed

## Session 8 Cold Shock, Drowning and Hypothermia

### 8.1 Actively counter its development by wearing proper protective clothing

### 8.2 Know the symptoms- shivering, irritability, lethargy, stumbling, slurred speech, loss of memory, victim feels cold, looks pale, breathing slow, pulse weak, leading to collapse and unconsciousness.

### 8.3 treatment - see textbook

### 8.4 do not – give alcohol, rub the skin to warm, or give up resuscitation.

### 8.5 value of immersion suits, thermal protective aids (TPA's)

### 8.6 Cold Shock

### 8.7 Actions in the water to reduce heat loss, increase visibility

### 8.8 Drowning and airway management

## **Session 9 Search and Rescue organisation and methods**

9.1 with regard to the SAR authorities, teach the method in the given country, (and outline that other methods are possible but await instructions from rescue craft) knowing:

- .2 their landline number to advise them of passage planning if appropriate
- .3 how to call them in emergency
- .4 what facilities they have (and don't have)
- .5 if helicopters are in use, know the sea-rescue system (hi-line, basket pick-up, winchman bridle, etc.) and whether a pick-up from a deck, in the water, or in a liferaft is preferred
- .6 know what radio frequency to expect to use for direct contact
- .7 know what fixed-wing aircraft may be deployed
- .8 understand fixed-wing search patterns, signal flares
- .9 have a knowledge of global SAR organisation
- .10 how to cope with rescue attempts from passing ships
- .11 knowledge of new IAMSAR for small craft

## **Session 10 Weather Forecasting**

- 10.1 sources of weather forecasts
- 10.2 terms and definitions and their exact meaning
- 10.3 Beaufort wind scale compared with mph (statute miles per hour) and speed in knots (nautical miles per hour), and sea state scale. Know that wind gusts may exceed forecast speeds by 40% or more and wave height may exceed forecast height by 87% or more
- 10.4 logging own weather observations of cloud, wind, sea, barometer, sea temperature (sometimes critical) and air temperature, etc.: making own deductions
- 10.5 be prepared for local abnormalities, what areas can create local heavy weather problems such as wind against stream, headlands, reefs, shallow areas – squeezes between land masses.

## **Session 11 Liferafts and Lifejackets (theory)**

### **11.1 Liferafts (theory)**

- 11.1.2 knowledge of liferaft standards: SOLAS, ISAF and ORC and ISO 9650:1 Type 1 Group A plus OSR requirements.
- 11.1.3 care and servicing of liferafts, stowage. In the event of a yacht capsizing and then inverting in circumstances in which survival is dependent on liferaft availability, it is vital that every effort is made to ensure that a liferaft remains readily accessible and capable of being deployed for use quickly and easily.
- 11.1.4 liferaft emergency packs
- 11.1.5 grab bag contents and application

- 11.1.6 two key elements in combating liferaft capsize – drogue, ballast water pockets
- 11.1.7 the capsize mechanism and the re-righting procedure
- 11.1.8 when and how to launch a liferaft
- 11.1.9 protecting a liferaft in the minimum time it is alongside after launch
- 11.1.10 boarding a liferaft if possible dry: use of dry suits if possible
- 11.1.11 boarding a liferaft from the water: importance of boarding ramp and grab lines
- 11.1.12 crew organisation before boarding and priority of actions within liferaft.
- 11.1.13 use of SART (optional in grab bag).

### **Session 11.2 Lifejackets (theory)**

- 11.2.1 Understand the terminology in your part of the world: know the difference between a 150N lifejacket (or equivalent title) capable of turning over an unconscious person in the water to the face-up position within 30 seconds, and a lesser device which may only aid buoyancy.
- 11.2.2 Understand the accessories required in Special Regulations: whistle, marine-grade retro-reflective material, yacht's or wearer's name
- 11.2.3 Understand the accessories and attributes recommended in Special Regulations: light in accordance with the SOLAS LSA code, compliance with EN376 (ISO 12402) or near equivalent, crotch strap, splash guard
- 11.2.3 Know the relative merits and methods of use of all-inflatable buoyancy and part-fixed, part-inflatable, automatic inflation, gas inflation on demand, mouth-only inflation.
- 11.2.3 Know the importance of a good fit, lifejacket organised for quick donning, compatibility with harness.

### **Session 12 Exam (1)**

This exam is one of two. Time for answering questions -about 15 minutes, with 5 minutes for marking after swapping the papers amongst the class. Questions should be set to be answered quickly, eg multiple-choice, with at least two questions needing some narrative or listing. Overall assessment for the course will be a combination of the two exams plus the tutors' assessments during class and practical work. (See introduction paragraph 4)

**Session 13 Liferafts and Lifejackets (practical - recommend 2 hours)**

- .1 a pool with a wave-making facility will add realism
- .2 trainees to don shirt and trousers plus oilskins and to try swimming first without, then with 150N lifejackets. Majority of exercises with all trainees wearing 150N lifejackets.
- .3 inflate a liferaft and transfer a full complement into the raft (a) from the poolside (b) from the water (show difference between boarding with ramp and without): paddle the liferaft for a distance.
- .4 capsize a liferaft and have each trainee right the raft whilst swimming
- .5 trainees to haul into a raft one survivor who plays helpless
- .6 In fully-loaded raft trainees to check out all equipment
- .7 trainees to try lifejackets both with and without crotch straps in place.
- .8 each trainee to experience use of the splashguard in wave conditions.
- .9 group to investigate ability of lifejacket to self-right.
- .10 forming circle in water to aid visibility/morale – HELP/Huddle techniques
- .11 towing an unconscious person
- .12 assistance using throwing line to recover nearby survivor
- .13 the opportunity of using the pool may be taken to demonstrate MOB modules, Lifeslings, lifebuoys etc.
- .14 if a darkened pool is available, demonstrate retro-reflective tape.

**Sessions 14/15 Fire precautions and fire fighting (theory and practical)**

- .1 fire theory
- .2 most common causes of fire in small craft
- .3 prevention
- .4 equipment – fire extinguishers, fire blankets, services, tested, maintained, fit for purpose. Advantages/ disadvantages of various types of extinguisher.
- .5 practical operation of fire extinguishers (actual fire is not required in this training course)

**Sessions 16/17 Communications equipment (VHF, GMDSS, satcomms) (theory and practical)**

- .1 VHF main installations and hand-helds.
- .2 Special Regulations requirements for VHF 25W output, masthead antenna, emergency antenna.
- .3 SSB (knowledge of email and other services via some shore stations, daily cruising yacht schedules, etc.).
- .4 Satcoms: A, B, C, D and M. Non-INMARSAT types (eg Iridium).

- .5 Terrestrial cellphones. Limitations.
- .6 GMDSS, DSC, AIS.
- .7 Aviation VHF and its use in SAR.
- .8 Obligation to log communications connected with distress working\*\*

\*\*see Supplement below

### **Sessions 18/19 Pyrotechnics and EPIRBs (theory and practical)**

- .1 pyrotechnics required in Special Regulations: hand flares, parachute flares, smoke signals. Usage, precautions, range of visibility, duration, behaviour in high winds, altitude of parachute flares and avoiding conflict with aircraft, different operating mechanisms.
- .2 stowage of pyrotechnics including some for ready use.
- .3 use of white flares
- .4 understand the operation of the 406 MHz EPIRB and its ancillary 121.5 beacon; the phasing out of 121.5 MHz as a distress alert system but its use in local area homing by SAR units and yachts with special-purpose D/F receivers on board in conjunction with PLB's.
- .5 understand the operation of ARGOS-type beacons.
- .6 understand the integration of distress beacons in the GMDSS framework.
- .7 Draw attention to Inmarsat Safety Services' web link: [www.inmarsat.com/safety](http://www.inmarsat.com/safety) which contains a wealth of information about maritime safety and security – including reception of maritime safety information via Inmarsat C or mini-C. It is useful for more than GMDSS alone.

### **Session 20 Exam (2)**

This exam is one of two. Time for answering questions -about 15 minutes, with 5 minutes for marking after swapping the papers amongst the class. . Questions should be set to be answered quickly, eg multiple-choice, with at least two questions needing some narrative or listing. Overall assessment for the course will be a combination of the two exams plus the tutors' assessments during class and practical work. (See Introduction paragraph 4 for marking details).

### **Supplement One**

#### **1 The Racing Rules of Sailing state:-**

“1 SAFETY

##### **1.1 Helping Those in Danger**

A boat or competitor shall give all possible help to any person or vessel in danger”

## **2 SOLAS Convention Chapter V**

### **Regulation 33 Distress Situations (replaces old Regulation 10) states:-**

“The master of a ship at sea which is in a position to be able to provide assistance, on receiving a signal from any source that persons are in distress at sea, is bound to proceed with all speed to their assistance, if possible informing them or the SAR service that the ship is doing so. If the ship receiving the distress alert is unable or, in the special circumstances of the case, considers it unreasonable or unnecessary to proceed to their assistance, the master must enter in the log-book the reason for failing to proceed to the assistance of the persons in distress and, taking into account the recommendations of the Organization++, inform the appropriate SAR service accordingly.

++Refer to the immediate action to be taken by each ship on receipt of a distress message in the IAMSAR Manual, as it may be amended.”

***Reference to the original text and its context is strongly recommended.***

## **3 Annual Summary of Admiralty Notices to Mariners NP 247 Section 4 Paragraph 1 states:-**

“The radio watch on the international distress frequencies, which certain classes of ships are required to keep when at sea, is one of the most important factors in the arrangements for the rescue of people in distress at sea, and every ship should make its contribution to safety by guarding one or more of these distress frequencies for as long as is practicable whether or not required to do so by regulation.”

**Part B Outline Timetable** (2 pages)

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

Session	SR	Topic	theory*	practical	start	stop
1		Introduction	00:30		11:00	11:30
		<b>6.02.0 Training topics for theoretical sessions</b>				
2	6.02.1	care and maintenance of safety equipment	00:15		11:30	11:45
3	6.02.2	storm sails	00:20		11:45	12:05
4	6.02.3	damage control and repair	00:20		12:05	12:25
5	6.02.4	"heavy weather – crew routines, boat handling, drogues"	00:25		12:25	13:00
		break	01:00		13:00	14:00
6	6.02.5	man overboard prevention and recovery	00:30		14:00	14:30
7	6.02.6	giving assistance to other craft	00:15		14:30	14:45
8	6.02.7	hypothermia	00:20		14:45	15:05
		break	00:15		15:05	15:20
9	6.02.8	SAR organisation and methods	00:30		15:20	15:40
10	6.02.9	weather forecasting.	00:30		15:40	16:10
		<b>6.03.0 Training topics to include practical, hand-on sessions</b>				
11	6.03.1	liferafts and lifejackets (theory)	00:30		16:10	16:40
12		exam	00:20		16:40	17:00
		Day 1 total tuition including breaks	06:00			
		Day 1 net tuition		04:45		
		Day 1 net breaks		01:15		

\*includes breaks

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

<b>Session</b>	<b>SR</b>	<b>Topic</b>	<b>theory*</b>	<b>practical</b>	<b>start</b>	<b>stop</b>
13		liferafts and lifejackets (practical)		02:00	09:00	11:00
		break	00:15		11:00	11:15
14	6.03.2	fire precautions and fire fighting (theory)	00:15		11:15	11:30
15	6.03.2	fire precautions and fire fighting (practical)		00:30	11:30	12:00
16	6.03.3	communications equipment "(VHF, GMDSS, satcomms. etc- theory)"	00:20		12:00	12:20
17	6.03.3	communications equipment "(VHF, GMDSS, satcomms. etc- practice)"		00:25	12:20	12:45
		break	00:45		12:45	13:30
18	6.03.4	pyrotechnics and EPIRBs (theory)	00:20		13:30	13:50
19	6.03.4	pyrotechnics and EPIRBs (practical)		00:30	13:50	14:20
20		exam	00:20		14:20	14:40
		Day 2 total tuition including breaks	02:05	03:25		
		Day 2 net tuition		01:05		
		Day 2 net breaks		01:00		
		net total tuition including breaks	08:05	03:25		
		net tuition		05:50		
		net breaks		02:15		



**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:

- |                           |  |
|---------------------------|--|
| <b>Session 1</b> (1 hr)   | Update on recent changes in Offshore Special Regulations, national relevant documents or any other changes of importance                                 |
| <b>Session 2</b> (1 hr)   | Update on new safety equipment   |
| <b>Session 3</b> (1 hr)   | Update on recent lessons learned from fatal accidents and incidents in offshore races  |
| <b>Session 4</b> (1 hr)   | Update on national/regional changes in Maritime Search and Rescue organisations, resources, locations etc as well as in relevant meteorological services |
| <b>Session 5</b> (2 hrs)  | In water training with life vests, liferafts, lifeslings etc   |
| <b>Session 6</b> (1½ hrs) | Medical and/or fire-fighting training as appropriate regarding national regulations.   |
| <b>Session 7</b> (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 an MNA 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 yacht with a crew member that is capable of taking care of common injuries and illnesses on board, as well as to take charge of the immediate medical actions at a major incident on board. Furthermore to advise the Person in Charge when a request for outside assistance is needed, 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 could be STCW training centres or land based first aid training providers who have personnel with suitable sailing experience but crucially an understanding of the liability issues. Should an MNA require advise please contact the World Sailing Secretariat – Technical and Offshore Department.

**4 Evaluation.** The final activities of the day should be an examination, which should be used together with instructors’ continuous assessments to provide an overall evaluation. The pass mark is to be taken as 70% in each of the marked/evaluated units.

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

##### **6 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
- MCA Ship Captain Medic book is now available free at [http://www.mcga.gov.uk/c4mca/mcga07-home/workingatsea/mcga-medicalcertandadvice/mcga-dqs\\_st\\_shs\\_ships\\_capt\\_medical\\_guide.htm](http://www.mcga.gov.uk/c4mca/mcga07-home/workingatsea/mcga-medicalcertandadvice/mcga-dqs_st_shs_ships_capt_medical_guide.htm)
- International Medical Guide for Ships, World Health Organisation, 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.

### **Part 2 - Syllabus**

The course is planned for 8 hours and includes 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 etc)
- 5.1 General illnesses, fatigue etc
- 5.2 Actions and treatment
- 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
- 6.3 Brain concussion
- 6.4 Keeping the blood sugar level up (what to eat and drink)

### **Session 7 Cardiac and respiratory arrest**

- 7.0 Cardiopulmonary resuscitation (CPR)
- 7.1 Artificial respiration
- 7.2 Use of Defibrillator

### **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?

### **Session 11 Examination**

- 11.0 A questionnaire of 25 questions, requirement >70 % correct.

## APPENDIX J

### Hypothermia

#### WHAT IS IT?

A condition in which exposure to cold air and/or water lowers body core temperature. Death can result from too low a brain and heart temperature.

#### WHY BE CONCERNED?

Hypothermia, even mild cases, decreases crew efficiency and increases risk of costly accidents. ***Proper planning against hypothermia can give a winning competitive edge.***

#### 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*.
- Prevent dehydration; watch urine colour (drink more if colour becomes more intense).
- Avoid seasickness.
- Take into account special medical problems of crew members.
- Regularly train crew in Man Overboard recovery.
- Have two or more crew trained in CPR (Cardio-pulmonary Resuscitation).

#### 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. Minimise

exposed body surface. A splashguard accessory on the lifejacket greatly improves resistance to swallowing seawater and also accommodates involuntary “gaspings” 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 man overboard situations in 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, shelter and warmth
- Allow to urinate from horizontal position
- Handle gently
- Remove 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, sweet 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**

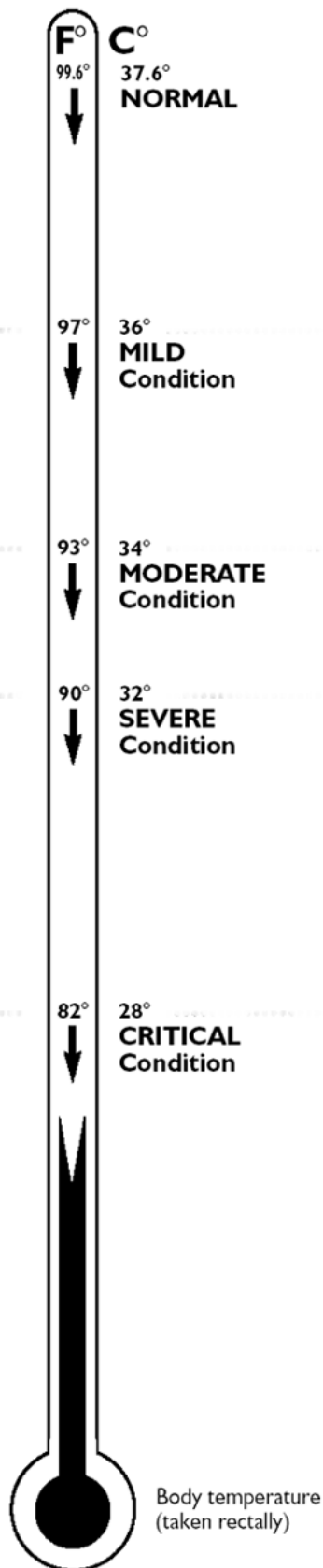
- Same as above
- Offer sips of warm liquid only if victim is fully conscious and able to swallow without difficulty – *no alcohol – no caffeine*
- Have victim checked by doctor

### **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 CASES**

- *Always assume the patient is revivable – hypothermic victims may look dead don’t 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 crew member (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.*
- *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 YACHTS

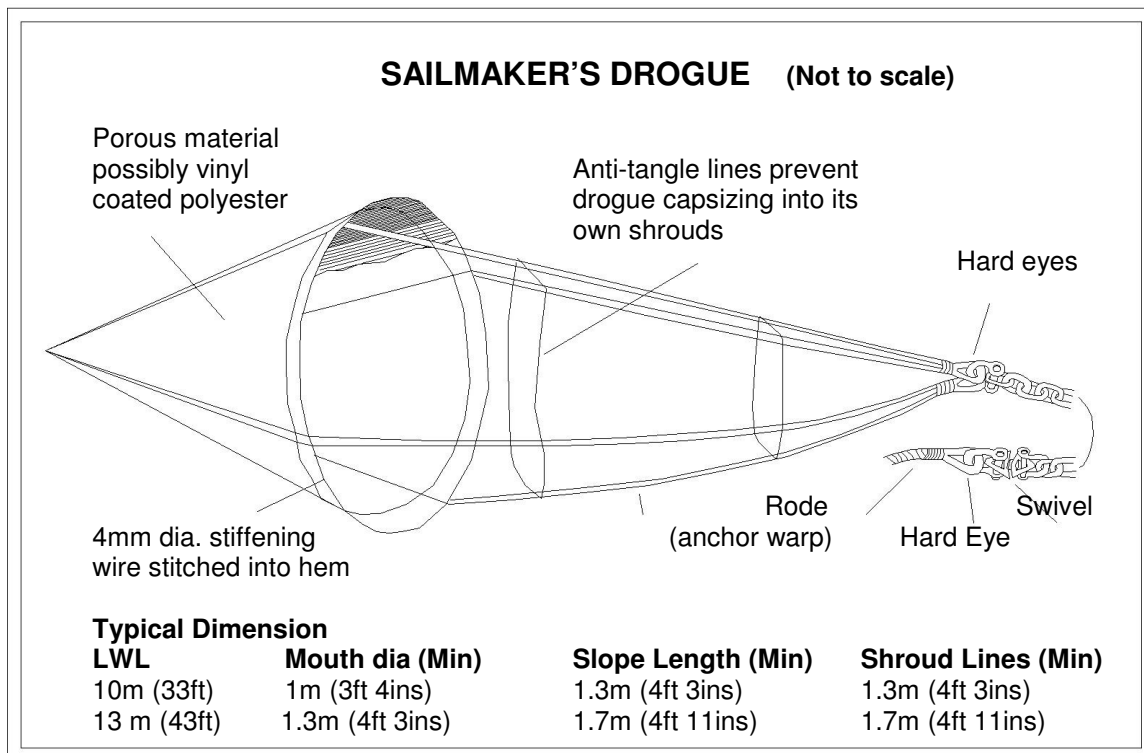
A number of research programmes have been conducted including one for the RORC by the Southampton University Wolfson Unit. In tests drogue deployment repeatedly prevented typical yacht forms from being slewed sideways and rolled in heavy breaking seas.

Deployment of a drogue over the stern means that heavy water will break over that part of the yacht, 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 YACHTS

The most common form of sea anchor for yachts 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 capsize.



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This index is intended to be a quick guide to the Regulations. It is not exhaustive. See also the diagrammatic guide and list of contents.

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