



THE ROYAL PRINCE ALFRED YACHT CLUB

CRUISING REGULATIONS

Monohull, Multihull and Trailable Yachts

This document is based on the ISAF Special Regulations governing Structural Features, Boat Equipment, and Personal Equipment.

Amendments to this document will be published on the RPAYC website at www.rpayc.com.au

INTRODUCTION

The Club's prime objective in terms of on-water risk management is to identify the risks associated with on-water activities and mitigate these risks and their consequences so that the residual on-water risk is as low as is reasonably possible.

In the cruising context the mitigation of foreseeable risk and consequences is primarily achieved through standards, information, advice and requirements contained in this document, the RPAYC Incident Management Plan, Cruise Management Plan, Notice of Cruise and other special Cruising Event Instructions which may from time to time be produced.

The RPAYC Cruising Regulations represents the Club's baseline for cruising equipment, standards and requirements. It is based on the *ISAF Special Regulations* which assume that a boat meeting the regulations will be fully crewed and, in all other respects, be suitably equipped to race off-shore within the limitations of the prevailing weather and sea conditions and the safety category with which the boat, its equipment and its crew comply.

Cruising boats, unlike racing boats, usually sail with a minimum of crew, often two, and are not restricted by either the racing rules of sailing or the competitive drive to "minimalise" wherever possible to achieve a competitive edge.

The risk profiles of racing and cruising consequently differ in many areas just as they are common in many others. The maritime environment can be harsh on boats, equipment and crews, whatever the reason for venturing forth.

The RPAYC Cruising Regulations have been approved by the RPAYC Board for implementation on a trial basis for Club registered boats during the 2007-08 sailing season.

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Proposed amendments and comments on *The RPAYC Cruising Regulations* are welcomed and should be addressed to the Chairman, RPAYC On-Water Risk Management Committee. Amendments will be posted on the official RPAYC website (www.rpayc.com.au) as they are issued.

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CONTENTS

Section 1	Scope, Responsibility and Definitions	
	1.01 Scope	1
	1.02 Owner's Responsibility	1
	1.03 Definitions	1
	1.04 Abbreviations	3
Section 2	Application and General Requirements	
	2.01 Categories of Event	4
	2.02 Inspection	4
	2.03 General Requirements	5
	2.04 Crew Experience	5
Section 3	Structural Aspects, Stability and Fixed Equipment	
	3.01 Strength of Build, Ballast and Rig	7
	3.02 Watertight Integrity of Hull	7
	3.03 Hull Construction Standards	7
	3.04 Stability – Monohulls	7
	3.05 Stability – Multihulls	8
	3.06 Exits	9
	3.07 Hatches and Companionways	11
	3.08 Cockpits	11
	3.09 Sea-cocks	12
	3.10 Plugs	12
	3.11 Mast Step	12
	3.12 Pulpits, Stanchions, Lifelines	13
	3.13 Multihull Nets or Trampolines	17
	3.14 Toe Rail or Foot-stop	18
	3.15 Toilet	18
	3.16 Bunks	18
	3.17 Galley	19
	3.18 Water Tanks and Potable Water	20
	3.19 Hand Holds	20
	3.20 Bilge Pumps	20
	3.21 Compass	21
	3.22 Navigation Lights	21
	3.23 Engine and Fuel	22

3.24	Communications	23
3.25	Batteries	24
3.26	Barometer	25
3.27	Hull Identification	25

Section 4 Portable Equipment and Supplies

4.01	Fire Extinguishers	26
4.02	Anchors	26
4.03	Flashlights	28
4.04	Foghorn	28
4.05	Radar Reflector	28
4.06	Navigational Charts and Books	29
4.07	GPS	29
4.08	Depth Sounder	29
4.09	Log	29
4.10	Emergency Steering	29
4.11	Tools and Spare Parts	30
4.12	Boat's Name	30
4.13	Retro-reflective Tape	30
4.14	EPIRBS	30
4.15	Liferafts	31
4.16	Grab Bag	32
4.17	Lifebuoys	32
4.18	Pyrotechnics (Flares)	32
4.19	Heaving Line	33
4.20	Storm and Heavy Weather Sails	33
4.21	Sail Numbers	37
4.22	Halyards	37
4.23	Drogue, Sea Anchor	37
4.24	Retrieval of Crew from the Water	38
4.25	Distress Sheet	38
4.26	Stowage Chart	38

Section 5 Personal Equipment

5.01	Personal Flotation Devices	39
5.02	Safety Harnesses, Safety Lines, Tethers	39
5.03	Jackstays	41
5.04	Clipping Points	41
5.05	Personal Lights	41
5.06	Personal Clothing	42
5.07	Personal EPIRB	42

Section 6 Medical

6.01	General Requirements	43
6.02	Medical Kits	44

Section 7	Training	
	7.01 Safety and Sea Survival Courses	49
	7.02 Onboard Training	49

Section 8	Appendices	
	A Liferrafts	
	B Man Overboard Recovery	
	C Hypothermia	
	D Drogues and Sea Anchors	
	E Stability	

SECTION 1 SCOPE, RESPONSIBILITY AND DEFINITIONS

1.01 SCOPE

1.01.1 This document defines the minimum standards and requirements for cruising boats in the following areas:

- Structural features, stability, and fixed equipment;
- Portable equipment and supplies;
- Personal equipment;
- Medical kits; and,
- Training.

1.01.2 Legislation and the requirements of government authorities have precedence over the contents of this document.

1.01.3 Use of a letter ('O', 'L', 'S', 'I') designates the category of cruising event for which the item is mandatory. The letter 'R' is a recommendation, based on experience and sound seamanship, that owners adopt the higher standard.

1.01.4 Sailing vessels and crews complying with the standards and requirements defined in the Yachting Australia (YA) Special Regulations for Racing Boats shall comply with the standards and requirements herein if they intend to participate in RPAYC cruising events.

1.01.5 Sailing vessels and crews complying with the standards and requirements herein shall comply with the standards and requirements defined in the Yachting Australia (YA) Special Regulations for Racing Boats if they intend to participate in RPAYC racing events.

1.02 OWNER'S RESPONSIBILITY

1.02.1 The safety of a boat and her crew is the sole and inescapable responsibility of the owner or skipper, acting as the owners representative, who shall do his or her best to ensure that the boat is fully found, thoroughly seaworthy and manned by an experienced crew who have undergone appropriate training and are physically fit to face bad weather. He or she must be satisfied as to the soundness of hull, spars, rigging, sails and all gear. He or she shall ensure that all safety equipment is properly maintained and stowed and that crew members know where it is kept and how it is to be used.

- 1.02.2 Neither the establishment of these Cruising Regulations, their use by event organisers, nor the inspection of a boat under these Regulations in any way limits or reduces the complete and unlimited responsibility of the owner or owner's representative.
- 1.02.3 The person in charge of the boat (the skipper) owes a duty of care to the crew and other participants in the activity where there is a reasonably foreseeable risk of harm or injury to them as a result of their actions. Similarly, crew members owe a duty of care to each other. Legislation (Civil Liability Act 2002 (NSW) requires that reasonable steps be taken to reduce the likelihood of injury to crew members and other participants as a result of those risks which are foreseeable.
- 1.02.4 The skipper is solely responsible for deciding whether or not the boat under his command should participate, or continue to participate in an event.

1.03 DEFINITIONS

1.03.1 The following definitions are used in this document:

Buoyancy	Shall be achieved by the use of:- <ul style="list-style-type: none">i) Semi-rigid or rigid non-absorbent material permanently fixed into the hull.ii) Dedicated empty sealed compartments which may be fitted with screw-in drain plugs or an inspection port but which shall remain closed whilst participating in an event.iii) Inflated airbags, permanently sealed and fixed below decks.
Cruising	A non-competitive, non-time based, on-water sailing activity
Event	An on-water cruising activity that is organised and coordinated under the auspices of the RPAYC.
Event Organisers	The RPAYC Cruising Committee, or a properly constituted Cruising sub-committee tasked to organise an on-water cruising event in accordance with the regulations contained in this document.

Section 1

Gale	Force 8 on the Beaufort Wind Scale, with wind 34 to 47 knots, and seas moderately high (4 to 6 metres), long waves; edges of crests begin to break into spindrift; foam is blown in well-marked streaks
Hatch	The term hatch includes the entire hatch assembly and also the lid or cover as part of that assembly (the part itself may be described as a hatch).
Heavy Weather	Bad, or foul weather, characterised by rough seas, stormy, windy and uncomfortable conditions
Lifeline	Wire rigged as a guardrail around the deck.
LOA	Length Overall not including pulpits, bowsprits, bumpkins etc.
LWL	Loaded Waterline Length.
Monohull	A hull in which the hull depth in any section does not decrease towards the centreline. All other boats are considered to be multihulls.
Permanently Installed	Means the item is effectively built-in by bolting, welding, glassing etc. and may not be removed while participating in an event.
Safety Line	A safety line, also known as a tether, is used to connect a safety harness to a strong point.
Sheerline	The line of curvature of the deck, fore and aft, as viewed in side elevation.
Skipper	A person authorised by the owner of the boat to exercise command of and otherwise take charge of the boat and its crew.
Sheltered Waters	Are those waters sheltered from the extremes of the sea by reefs, headlands or islands. This is to be interpreted as the ocean swell having been broken and that there is limited fetch. It may include harbours, estuaries and lakes.
Static Safety Line	A safety line (usually shorter than a safety line carried with a harness) kept clipped on to a

strong point at a work-station.

Securely Fastened Held firmly in place by a method (eg lashings, brackets, and other physical restraints) which will safely retain the fastened object in severe weather and sea conditions including a 180 degree capsize and which allows for the item to be removed and replaced whilst participating in an event.

Safety Regulations The standards and requirements defined in this document ("The RPAYC Cruising Regulations

Stability Stability can be defined as the tendency of a vessel to return to an upright condition after it is inclined by external forces: wind, seas, weight shifts, and other factors.

Storm Force 10 on the Beaufort Wind Scale, with wind 48 to 55 knots, and seas with very high waves (6 to 9 metres) with overhanging crests; sea takes on a white appearance as foam is blown in very dense streaks; rolling is heavy and visibility is reduced.

Working Deck Shall be deemed to be any surface on which the crew might stand in order to work the boat and its sails in a seamanlike manner.

1.03.2 The use of "shall" and "must" indicate mandatory requirements; "should" and "may" indicate recommendations and are permissive.

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

1.04 ABBREVIATIONS

1.04.1 The following abbreviations are used in this document:

ABS	American Bureau of Shipping
AG	Australian Gas
AS	Standards Australia
CPR	Cardio-Pulmonary Resuscitation
EN	European Norm (signified by use of a CE symbol)
ISAF	International Sailing Federation
ISO	International Standards Organisation
ORC	Offshore Racing Congress

Section 1

SOLAS International Convention for Safety of Life at Sea
USL Uniform Shipping Laws
YA Yachting Australia

SECTION 2 APPLICATION & GENERAL REQUIREMENTS

2.01 CATEGORIES OF EVENT

Four event categories are defined in this document. These events range from long-distance ocean cruises which may be sailed under extreme and adverse conditions to shorter events sailed in sheltered waters. Each category has its own requirements and applicable standards.

The Event Organisers shall select the category most suitable for the particular event and in doing so consider the likely prevailing weather and sea conditions over the route. Requirements may be added to a particular category but may not be deleted from them.

- 2.01.1 **Ocean (O):** These are generally trans-oceanic events, where boats must be completely self sufficient for extended periods of time, capable of withstanding extreme weather and sea conditions and be prepared to meet serious emergencies without any expectation of external assistance. Examples of Ocean events include, but are not limited to, sailing between mainland Australia and New Caledonia, New Zealand, Tasmania and Lord Howe Island.
- 2.01.2 **Long Coastal (L):** These events usually consist of a series of offshore coastal passages (legs) where boats must be self-sufficient for at least seven days, capable of withstanding storms and heavy seas and be prepared to meet serious emergencies without the expectation of external assistance in less than 48 hours. A cruise from Pittwater to the Whitsundays is an example of a Long Coastal event.
- 2.01.3 **Short Coastal (S):** These events usually consist of a coastal passage, by day and night, where boats must be prepared to meet emergencies without the expectation of external assistance in less than twelve hours. Cruises from Pittwater to Port Hacking or Port Stephens, and from Wollongong to Jervis Bay are examples of Short Coastal events.
- 2.01.4 **Inshore (I):** These events are usually held in sheltered waters, or under conditions similar to those experienced in sheltered waters, during daylight hours, and involve passages less than two miles offshore. Boats must be prepared to meet emergencies without the expectation of external assistance in less than two hours. Cruises in the Pittwater and Broken Bay areas are considered examples of Inshore events. A cruise to Sydney Harbour is not an Inshore event.

2.02 INSPECTION

- 2.02.1 A boat will be inspected for compliance with these regulations annually and may be required to demonstrate compliance to a person appointed by the Event Organiser at any time. Should the boat or crew be deemed non-compliant with the RPAYC Cruising Regulations by the Event Organiser then the boat may be refused the opportunity to participate in an event.

In the following list a letter (O, L, S, I) indicates that the item is a mandatory requirement for a particular cruising category. The letter 'R' indicates that the item is recommended and the letter "N" indicates the item is mandatory for night sailing.

2.03 GENERAL REQUIREMENTS **CATEGORY**

2.03.1 All required equipment shall function effectively and be: **O L S I**

- (a) Regularly checked, cleaned and serviced.
- (b) Readily accessible.
- (c) Of a type, size and capacity suitable and adequate for the intended use and displacement of the boat.
- (d) Stowed in conditions in which deterioration is minimised when not in use.

2.03.2 Heavy items (for example more than 10 kg): **O L S I**

- (a) Such as ballast, tanks, ballast tanks and associated equipment shall be permanently installed.
- (b) Heavy movable items such as batteries, stoves, gas bottles, toolboxes, and anchors and chain shall be securely fastened.

Note: Items weighing less than 10kg may also cause damage and injury if the items are not adequately secured or stowed.

It is strongly recommended that all loose gear be secured and/or stowed before proceeding to sea.

2.04 CREW EXPERIENCE

The number of crew as specified below, including the skipper shall have completed at least one event of the category entered or an equivalent passage. Evidence of such participation shall be provided if requested.

2.04.1 At least two crew members

O

2.04.2 At least one crew member

L S R

SECTION 3 **STRUCTURAL ASPECTS, STABILITY, AND FIXED EQUIPMENT**

3.01	STRENGTH OF BUILD, BALLAST AND RIG	
3.01.1	A boat shall be: <ul style="list-style-type: none"> ▪ soundly constructed; ▪ properly rigged and ballasted; ▪ well maintained; ▪ fully seaworthy in all respects; and, ▪ suitable for the event in which it intends to participate. 	O L S I
3.01.2	Hulls shall be watertight and, particularly with regard to hulls, decks and cabin trunks, be capable of withstanding solid water and knockdowns	O L S I
3.02	WATERTIGHT INTEGRITY OF HULL	
3.02.1	A hull, including, deck, coach roof, windows, hatches and all other parts, shall form an integral, essentially watertight unit and any openings in it shall be capable of being immediately secured to maintain this integrity.	O L S I
3.02.2	Centreboard and daggerboard trunks and the like shall not open into the interior of a hull except via a watertight inspection or maintenance hatch of which the opening shall be entirely above the waterline of the yacht floating level in normal trim.	O L S I
3.02.3	Boats with movable keels or centreboards shall have a positive non-friction device which will prevent the keel or centreboard from moving in the event of a knockdown or capsize.	O L S I
3.02.4	Where a boat is required to have the keel or centreboard at a specific position to comply with the resistant to capsize requirements of these regulations then it shall not be moved to a higher position during an event.	O L S I
3.03	HULL CONSTRUCTION STANDARDS	
3.03.1	A boat's structural strength shall be commensurate with the intended service of the boat, taking into account the maximum anticipated loads.	O L S I
3.03.2	Boats shall be designed and built in accordance with good boat building practices and appropriate design and construction standards recognised by the marine industry, and include those promulgated by the	O L R R

International Organization for Standardisation (ISO), American Bureau of Shipping (ABS), Lloyd's Register of Shipping (LRS), Bureau Veritas (BV), Det Norske Veritas (DNV), Germanischer Lloyd (GL).

- 3.03.3 Any significant repairs or modifications to the hull, deck, coach roof, keel or appendages, shall be certified by an appropriately qualified professional naval architect or engineer as not reducing stability below appropriate standards or the structural integrity or otherwise causing the boat to be unfit for purpose. O L S R

3.04 STABILITY – MONOHULLS

Attention is drawn to ISO 12217-2 [Small craft -- Stability and buoyancy assessment and categorization - Part 2: Sailing boats of hull length greater than or equal to 6 m]

- 3.04.1 A yacht shall be designed and built to resist capsize. O L S I
- 3.04.2 Compliance with the minimum stability or stability / buoyancy index requirements as set out in Appendix E. O R R R
- 3.04.3 Compliance with Appendix E does not guarantee that a boat will, in fact, resist capsize or self-right in all sea conditions. O L S I

3.05 STABILITY – MULTIHULLS

Attention is drawn to ISO 12217-2 [Small craft - Stability and buoyancy assessment and categorization - Part 2: Sailing boats of hull length greater than or equal to 6 m]

- 3.05.1 Adequate watertight bulkheads and compartments (which may include permanently installed flotation material) in each hull shall be provided to ensure that a multihull is effectively unsinkable and capable of floating in a stable position with at least half the length of one hull flooded. O L S I
- 3.05.3 Any required watertight bulkhead shall be strongly built to take a full head of water pressure without allowing any leakage into the adjacent compartment. O L S I
- 3.05.4 A hull shall have a watertight "crash" or "collision" bulkhead either: O L S R
- (a) Within 15% of LOA from the bow and abaft the forward

end of LWL; or

- (b) Between 5% and 15% of LWL behind the forward end of LWL. This watertight compartment shall be divided horizontally by a bulkhead above the waterline; or
- (c) Permanently installed closed-cell foam buoyancy effectively filling the forward 30% LOA of the hull.

3.06 EXITS

3.06.1 Monohulls

Boats shall have two escape exits. One exit shall be located forward of the foremost mast. In very unusual circumstances, eg cat-rigged yachts, where structural features prevent its installation forward of the mast, an alternative location may be acceptable.

O L S I

3.06.2 Multihulls

Each hull which contains accommodation shall have at least two exits.

O L S I

3.06.4 Multihulls of 12m LOA and greater in each hull which contains accommodation shall have:-

O L S R

- (a) An escape hatch for access to and from the hull in the event of an inversion.
- (b) The recommended minimum clearance diameter through a multihull escape hatch is 450mm or when the escape hatch is not circular, sufficient clearance is recommended to allow a crew member to pass through fully clothed.
- (c) When the multihull is inverted each escape hatch shall be above the waterline.
- (d) In a multihull each escape hatch shall be at or near the midships station.
- (e) In a catamaran each escape hatch shall be on the side of a hull nearest the centreline of the boat.
- (f) A catamaran fitted with a central nacelle shall have on the underside of the boat around the central nacelle, handholds of sufficient capacity to enable all persons on board to hold and/or clip on securely.
- (g) In a catamaran with a central nacelle, each hull should have an emergency refuge, accessible via a special hatch in the side of the hull nearest the central nacelle,

which may be opened and closed from the inside and outside.

- | | | |
|-------------|---|---------|
| 3.06.5 | A trimaran of 12m LOA and greater shall have: | O L S R |
| | <ul style="list-style-type: none"> (a) At least two escape hatches in accordance with 3.06.4(b). (b) On the underside of the boat around the central hull, handholds of sufficient capacity to enable all persons on board to hold on and/or clip on securely. | |
| 3.06.6 | Multihulls less than 12m LOA shall either comply with 3.06.4(b), or shall comply with the following as a minimum:- | O L S R |
| | <ul style="list-style-type: none"> (a) Each hull which contains accommodation shall have, for the purpose of cutting an escape hatch, appropriate tools kept ready for instant use adjacent to the intended cutting site. Each tool shall be secured to the vessel by a line and a clip, and (b) In each hull at 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. | |
| 3.07 | HATCHES & COMPANIONWAYS | |
| 3.07.1 | No hatch forward of the maximum beam station shall open in such a way that the lid or cover moves into the open position towards the inside of the hull excepting ports having an area of less than 0.071m ² . | O L S I |
| 3.07.2 | An access hatch shall be: | O L S I |
| | <ul style="list-style-type: none"> (a) Located such that it is above the waterline when the hull is heeled at 90 degrees to the horizontal. (b) Permanently attached to the hull. (c) All hatches shall be capable of being immediately shut and clipped and remaining shut in the event of a 180 degree capsize. | |
| 3.07.3 | A companionway hatch extending below the local sheerline, shall: | O L S I |
| | <ul style="list-style-type: none"> (a) Not be permitted in a boat with a cockpit opening aft to the sea. | |

- (b) Be capable of being blocked off up to the level of the local sheerline provided the companionway hatch shall continue to give access to the interior with blocking devices (eg washboards) in place.
- 3.07.4 A companionway hatch shall be fitted with a strong securing arrangement, which shall be operable from above and below with the hatchway blocked and the boat inverted.
- 3.07.5 Washboards (or blocking devices) shall be capable of being retained in position in the hatchway with the companionway hatch in both the open and shut positions.
- 3.07.6 Washboards (or blocking devices), whether or not in position in the hatchway shall be secured to the boat (eg by lanyard) for the duration of the event to prevent them being lost overboard.
- 3.07.7 Washboards (or blocking devices), shall be readily removable to permit exit in the event of an inversion.
- 3.08 COCKPITS**
Attention is drawn to ISO 11812 [Small craft - Watertight cockpits and quick-draining cockpits].
- 3.08.1 Cockpits shall be structurally strong, self-draining quickly by gravity at all angles of heel and permanently incorporated as an integral part of the hull. O L S I
- 3.08.2 Cockpits shall be essentially watertight, that is, all openings to the hull from the cockpit and cockpit lockers must be capable of being sealed and secured. O L S I
- 3.08.3 A bilge pump outlet pipe or pipes shall not be connected to a cockpit drain. O L S R
- 3.08.4 A bow, lateral, central or stern well shall be considered a cockpit for the purposes of 3.08. Anchor and other lockers fitted with a hatch are not considered "wells". O L S R
- 3.08.5 In cockpits opening aft to the sea structural openings aft shall be not less in area than 50% maximum cockpit depth x maximum cockpit width. O L S R
- 3.08.6 **Monohulls**
At least two drains, each with a minimum unobstructed opening diameter of 25mm shall be fitted. ISO11812 will dictate the minimum number of drains required. O L S R

3.08.7	Multihulls The minimum drain sizes after allowance for screens shall be 20cm ² per m ³ of cockpit.	O L S R
3.09	SEACOCKS	
3.09.1	Seacocks shall be permanently installed on all through-hull openings below LWL except for shaft logs, speed sensors, depth sensors and the like, however a means of shutting off, or blocking such openings shall be provided.	O L S I
3.10	PLUGS	
3.10.1	Soft wood or rubber plugs, tapered and of a suitable size, shall be attached by a lanyard to the hull fitting for every through-hull opening fitted with a sea cock or valve.	O L S I
3.11	MAST STEP	
3.10.1	The heel of a keel stepped mast shall be securely fastened to the mast step or adjoining structure.	O L S R
3.12	PULPITS, STANCHIONS, LIFELINES	
	Attention is drawn to ISO 15085 [Small craft - Man-overboard prevention and recovery]	
3.12.1	Where lifelines are not fitted or are not continuous the crew shall wear safety harnesses which shall be attached at all times when a crew member is outside the cabin and the boat is underway in other than "sheltered waters".	R
3.12.2	Lifelines shall be "taut".	O L S R
3.12.3	Monohulls The following shall be provided:	O L S R
(a)	A bow pulpit forward of the headstay (however for yachts under 8.5m the bow pulpit may be aft of the headstay provided the forward upper rail is within 405mm of the headstay) with vertical height and openings essentially conforming to 3.12.6. Bow pulpits may be open but the opening between the pulpit and any part of the boat, including the forestay, shall not exceed 360mm. This requirement may be checked by presenting a 360mm sphere inside the opening.	
(b)	A stern pulpit with vertical openings conforming to 3.12.6. Lifelines may be fitted in place of a pulpit.	

- (c) Lifelines supported on stanchions, which, with pulpits, shall form an effectively continuous barrier around a working deck with the aim of minimising the risk of crew falling overboard. Lifelines shall be permanently supported at intervals of not more than 2.2m and shall not pass outboard of the supporting stanchions.
- (d) Upper rails of pulpits at no less height above the working deck than the upper lifelines as in 3.12.6.
- (e) Any opening upper rails in bow or stern pulpits shall be secured shut whilst underway unless conforming with 3.12.3.(a)
- (f) Pulpits and stanchions shall be permanently installed. When there are associated sockets or studs, these shall be through-bolted, bonded or welded. The pulpit(s) and/or stanchions fitted to these shall be mechanically retained without the use of the life-lines. Pulpits and/or stanchions without sockets or studs shall be through-bolted, bonded or welded.
- (g) The bases of pulpits and stanchions shall not be further inboard from the edge of the appropriate working deck than 5% of maximum beam or 150mm, whichever is greater. A toerail is considered part of the working deck.
- (h) Stanchion bases shall not be situated outboard of a working deck. For the purpose of this rule a stanchion or pulpit base shall be taken to include a sleeve or socket into which a stanchion or pulpit tube is fitted but shall exclude a baseplate which carries fixings into the deck or hull..
- (i) Lifeline terminals and support struts may be fixed to the hull aft of the working deck provided the complete lifeline enclosure is supported by stanchions and pulpit bases effectively within the working deck.
- (j) Lifelines need not be fixed to a bow pulpit if they terminate at, or pass through, adequately braced stanchions set inside and overlapping the bow pulpit, provided that the gap between the upper lifeline and the bow pulpit does not exceed 150mm.
- (k) Stanchions shall be straight and vertical except that:
 - i) within the first 50 mm 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 10mm, and

- ii) stanchions may be angled to not more than 10 degrees from vertical at any point above 50mm from the deck.

3.12.5 **Multihulls**

When due to the particular design of a multihull it is impractical to precisely follow the Safety Regulations regarding pulpits, stanchions, and lifelines, the regulations for monohulls shall be followed as closely as possible with the aim of minimising the risk of crew falling overboard.

O L S R

- (a) Trimaran - a bow pulpit on the main hull, with lifelines around the main hull supported on stanchions. The lifelines may be discontinuous where there are nets or crossbeam wings outboard of the main hull.
- (b) Trimaran – where a net joins the base of a bow pulpit on the main hull, an additional lifeline from the top of the pulpit to the forward crossbeam at or outboard of the crossbeam mid-point.
- (c) Trimaran - at a main or emergency steering position on an outrigger with or without a cockpit, lifelines protecting an arc of 3 meters diameter centred on the steering position. (When measuring between lifelines their taut, undeflected positions shall be taken for this purpose).
- (d) Catamaran - lifelines from bow to stern on each hull. A catamaran without a forward or aft crossbeam shall have transverse lifelines at the extremity of the net forward and aft. The transverse lifelines shall be attached to bow and stern pulpits or superstructure. A webbing, strop or rope (minimum diameter 6mm) shall be rove zigzag between the transverse lifelines and the net.

3.12.6 **Lifelines - height, vertical openings, and numbers**

Lifeline arrangements shall conform with the requirements in Table 1 below:

Table 1: Lifeline Arrangements

LOA	Minimum Requirements	Category
Under 8.5m	Taut double lifelines with the upper lifeline not less than 450mm above the working deck.	O L S R
8.5m and over	Taut double lifelines with the upper lifeline not less than 600mm above the working deck.	O L S R
All	All Intermediate lifeline(s) shall be fitted so that no vertical opening exceeds 380mm.	O L S R
All	The intermediate lifeline shall be not less than 230mm above the working deck.	O L S R

3.12.7 Lifelines - minimum diameters, required materials, and specifications

- (a) Where lifelines are fitted they shall be stranded stainless steel wire of minimum diameter as shown in Table 2 below. Lifelines shall be uncoated and without close-fitting sleeving. O L S R
- (b) The term "uncoated" in 3.12.6 (a) above means that the wire must not be coated by any material that is moulded or otherwise bonded to the wire. The application of a loose sleeve to uncoated wire is permitted provided that air can circulate along the length of the wire and that it is regularly removed for inspection and the wire remains in good condition. O L S I
- (c) Notwithstanding 3.12.6 (a) and (b) above, where lifelines are coated or do not exist the crew shall wear safety harnesses which shall be attached by tether to a clipping point or jackstay at all times when a crew member is outside the cabin and the boat is underway in other than sheltered waters. O L S R
- (c) Lifelines should be made from Grade 316 stainless R R R R

wire.

- (d) A taut lanyard of synthetic rope may be used to secure lifelines provided the gap it closes does not exceed 100mm. O L S I
- (e) All wire, fittings, anchorage points, fixtures and lanyards shall comprise a lifeline enclosure system which has at all points at least the breaking strength of the required lifeline wire. O L S I

Table 2: Lifeline Wire Diameter

LOA	Minimum Wire Diameter	Category
Under 8.5m	3mm (1/8')	O L S I
8.5m to 13m	4mm (5/32")	O L S I
Over 13m	5mm (3/16")	O L S I

- 3.12.8 Carbon fibre shall not be used in the construction of pulpits, stanchions, lifelines. O L S I

3.13 MULTIHULL NETS OR TRAMPOLINES

- 3.13.1 The word "net" is interchangeable with the word "trampoline". Nets shall be: O L S I

- (a) Essentially horizontal.
- (b) Made from durable woven webbing, water permeable fabric, or mesh with openings not larger than 508mm in any dimension. Attachment points shall be designed to avoid chafe. The junction between a net and a yacht shall present no risk of trapping the limbs of the crew under normal operating conditions at sea.
- (c) Solidly fixed at regular intervals on transverse and longitudinal support lines and shall be fine-stitched to a bolt rope.
- (e) Able to carry the full weight of the entire crew either in normal operating conditions at sea or in case of capsized when the yacht is inverted.
- (f) Each tie point of the net shall be individually tied and not continuously connected to more than four attachment

points per connecting line.

- 3.13.2 **Trimarans with double crossbeams**
 A trimaran with double crossbeams shall have nets on each side covering the: O L S R
- (a) Rectangles formed by the crossbeams, central hull and outriggers.
 - (b) 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.
 - (c) Triangles formed by the aftermost part of the cockpit or steering position (whichever is furthest aft), the midpoint of each after crossbeam, and the intersection of the crossbeam and the central hull; except that the requirement in 3.13.2(d) shall not apply when cockpit coamings and/or lifelines are present which comply with the minimum height requirements in 3.12.6.
- 3.13.3 **Trimarans with single crossbeams**
 A trimaran with single crossbeams shall have nets between the central hull and each outrigger: O L S R
- (a) 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).
- 3.13.4 **Catamarans**
 On a catamaran the total net surface shall be limited: O L S R
- (a) Laterally by the hulls.
 - (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.
- 3.14 TOE RAIL OR FOOT-STOP**
- 3.14.1 A toe rail of minimum height 20mm shall be permanently installed around the foredeck from abreast the mast, except in way of fittings and not further inboard from the edge of the working deck than one third of the local halfbeam. O L S I
- 3.14.2 A toe rail is not required on multihulls.

3.15	TOILET	
3.15.1	A toilet, which may be a fixed installation or a portable toilet, shall be securely installed inside the boat.	O L S E
3.15.2	The onboard systems for the storage and discharge of both black (toilet) and grey (shower, sink etc) waste shall comply with the environmental regulations and legislation applicable to the cruising area	O L S I
3.16	BUNKS	
3.16.1	Bunks, securely fastened and sufficient for all of the crew shall be fitted.	O L S R
	It is recommended that they satisfy the following guidelines:	
	(a) For yachts with an of LOA 8.5m or greater, each berth should be at least 1.9m in length measured to the inside of any structure of the berth, bulkheads or partitions encompassing the berth. The minimum width measured in a similar manner to length at the top surface of the mattress should be 0.6m measured at 1/4 of the berth length.	
	(b) For yachts with an LOA less than 8.5m the minimum length should be 1.83m and minimum width should be 0.55m.	
	(c) For all yachts the minimum width of a double berth measured as above should be twice that required for a single berth.	
	(d) The foot and head ends of berths may taper as required by the hull shape.	
	(e) With all berths in the horizontal position the minimum clearance above any mattress at the centerline over half of the length of the berth should not be less than 0.5m.	
	(f) Mattresses of a size covering the entire surface should be fitted to all berths; they should be of a thickness not less than 0.03m for soft bottom berths. For hard bottom berths the minimum thickness should be 0.1m for yachts of LOA 8.5m or greater and 0.075m for yachts with an LOA of less than 8.5m. Minimum mattress density should be 8kg/ m ³	

3.16.2	Bunks should be suitable for use at sea. Fixed bunks for at least half the crew should be fitted with either lee cloths, or restraints where necessary. Lee cloths should be capable of restraining a bunk occupant at any point of sail.	
3.17	GALLEY	
3.17.1	A cooking stove capable of being safely operated in a seaway shall be installed. Note: Microwave ovens fixed in a horizontal plane may not function satisfactorily at sea.	O L S R
3.17.2	A cooking stove, where installed, shall be securely fastened, and fitted with a safe and accessible fuel or power shutoff control device.	O L S I
3.17.3	Gas stoves shall be fitted and maintained in accordance with the relevant Australian Gas (AG) Standard. It is recommended that onboard gas systems include a combustible gas detection system and automatic shut-off device.	O L S I
3.17.4	A sign reading " REMEMBER TURN OFF GAS AT BOTTLE " shall be displayed near any gas appliance. Gas is only permitted for cooking. The use of petrol (or any fuel with a flashpoint below 60°C) for lighting, cooking or heating is prohibited. Methylated spirits, kerosene and lamp oil are acceptable for use as cooking and lighting fuels.	O L S I
3.17.5	Galley facilities including sink, icebox, food and utensil storage shall be provided and be capable of being secured in a seaway.	O L S R
3.18	WATER TANKS AND POTABLE WATER	
3.18.1	At least two independent potable water tanks shall be permanently installed, or securely fastened and these shall be capable of being discharged through a pump. If the water pump is dependent on the electrical supply for operation then an alternative means of pumping potable water should be provided.	O L R R
3.18.2	The total volume of potable water carried shall not be less than that required to supply 10 litres per day per crew member for the duration of the event leg.	O L R R
3.18.3	A leak in any one component of the potable water system shall not result in the loss of more than two thirds of the total water volume carried.	O L R R

Section 3

3.18.3	At least 10 litres of potable water, additional to that required in clause 3.18.2, shall be carried in a dedicated container, or containers. This water is for emergency use.	O L S R
3.19	HAND HOLDS	
3.19.1	Hand holds shall be fitted below decks so that crew members may move about safely at sea.	O L S R
3.20	BILGE PUMPS AND BUCKETS	
3.20.1	No bilge pump may discharge into a cockpit unless the cockpit opens aft to the sea. Bilge pumps shall not be connected to cockpit drains.	O L S I
3.20.2	Bilge pumps shall have a 25mm minimum bore on the suction line.	O L S I
3.20.3	Bilge pumps and strum boxes shall be readily accessible for maintenance and for cleaning out any debris.	O L S I
3.20.3	Two manual bilge pumps shall be securely fitted to the boat's structure, one operable above, the other below deck. Each pump shall be operable with all cockpit seats, hatches and companionways shut and shall be provided with permanently fitted discharge pipe(s) of sufficient capacity to accommodate the simultaneous discharge from both pumps.	O L R R
3.20.4	Multihulls shall have provision to pump out all watertight compartments except those filled with impermeable buoyancy.	O L S R
3.20.5	At least one manual bilge pump shall be carried and this shall be operable with all cockpit seats, hatches and companionways shut.	S R
3.20.6	At least one manual bilge pump shall be carried	I
3.20.7	Unless permanently fitted, each bilge pump handle shall be secured to the boat by a lanyard, or catch, or similar device to prevent accidental loss.	O L S I
3.20.8	Two buckets of stout construction each with at least 9 litres capacity shall be carried. Each bucket shall be fitted with a lanyard of length no less than the distance between the uppermost lifeline and the waterline at the point of maximum beam.	O L S I

3.21	COMPASS	
3.21.1	A marine magnetic compass independent of any power supply shall be permanently installed and correctly adjusted.	O L S R
3.21.2	A spare magnetic compass independent of any power supply for its operation and capable of being used as an emergency steering compass shall be carried.	O L R R
3.22	NAVIGATION LIGHTS	
3.22.1	Navigation lights shall be fitted that conform to the International Regulations for Preventing Collision at Sea (IRPCAS), (Part C and Technical Annex 1) and shall be shown as required by those Regulations.	O L S R
3.22.2	Navigation lights shall be mounted so that they will not be masked by sails or the heeling of the boat.	O L S R
3.22.4	Reserve navigation lights, capable of being quickly mounted with a power supply independent of the boat's main supply shall be carried.	O L S R
3.22.5	Spare lamps for other than the reserve navigation lights shall be carried.	O L S R
3.23	ENGINE AND FUEL	
3.23.1	An inboard propulsion engine based system capable of producing a minimum boat speed in knots of $1.8 \times$ square root of LWL (metres) against a 12 knot headwind shall be permanently installed.	O L R R
3.23.2	A propulsion engine based system capable of producing a minimum boat speed in knots of $1.8 \times$ square root of LWL (metres) against a 12 knot headwind shall be fitted. Where an outboard engine is fitted it shall be securely mounted at all times.	S I
3.23.3	Inboard engine based propulsion systems shall be installed so that the engine, or generator when running, can be securely and effectively covered. The associated exhaust and fuel supply sub-systems shall be securely installed and adequately protected from the effects of heavy weather. The boat shall be fitted with at least one permanently installed fuel tank.	O L S I
3.23.4	The minimum volume of fuel carried shall be sufficient to meet battery charging and propulsion requirements for the anticipated duration of the event, or the current leg of the event and be capable of achieving a boat	O L S I

Section 3

speed in knots of $1.8 \times \text{square root of LWL (metres)}$ against a 12 knot headwind for these durations.

- | | | |
|---------|--|---------|
| 3.23.5 | Notwithstanding the above it is recommended that the minimum volume of fuel to be carried at the start of an event should enable the boat to motor the following distances: | |
| (a) | 200nm | O L |
| (b) | 100nm | S |
| (c) | 20nm | I |
| 3.23.6 | Fixed fuel tanks shall have a shut-off valve or cock fitted directly to tank outlets except when it is not possible for fuel to escape should the fuel supply line fracture. | O L S I |
| 3.23.7 | Fixed petrol fuel tanks shall be metal, vented to the open, air electrically grounded and have the filler positioned so that spillage and fumes cannot enter the boat. | O L S I |
| 3.23.8 | Diesel fuel tanks shall be metal or other material certified as suitable by the tank manufacturer. | O L S I |
| 3.23.9 | For inboard engine systems, fuel lines shall be metal, clipped rigidly in place and with a flexible connection between the fixed line and the engine. A flexible line may be used throughout provided that the material and terminals are designed for that purpose. | |
| 3.23.10 | In the case of petrol engines the flexible fuel line shall be fire resistant and coded by the manufacturer as such (eg. with a red stripe). | O L S I |
| | Attention is drawn to the installations standards required by AS1799.3 (Small Pleasure Boats Code - General Requirements for Yachts) | |
| 3.23.11 | For an outboard engine based propulsion system any remote fuel tanks and fuel lines shall be as supplied by the manufacturer or built to a recognised National Standard and branded as complying with the standard | O L S I |
| 3.23.12 | Remote fuel tanks shall be secured on the upper deck or in a separately ventilated compartment draining directly to sea. | O L S I |

3.24 MARINE COMMUNICATIONS

3.24.1

Marine transceivers shall be fitted with the frequencies or channels specified in the table below plus any frequencies or channels required by the event organiser.

3.24.2

Operators of maritime ship stations, other than those operating solely on 27 MHz frequencies, are required to hold a relevant Australian marine radio operator's certificate of proficiency, or an equivalent overseas qualification. The minimum requirement for HF operation is the Marine Radio Operator's Certificate of Proficiency (MROCP); for VHF operation, a Marine Radio Operator's VHF Certificate of Proficiency (MROVCP) is required.

O L S I

3.24.3

Marine transceivers shall be permanently installed and, as a minimum, be capable of operation on the channels and frequencies as shown in Table 3 below.

Table 3: HF Communication Frequencies / Channels

Type	Frequencies / Channels	Licensed Operators	Category
HF	4125, 4149, 4426, 6215, 6230, 6507, 8113, 8176, 8291	2	O
		1	L
HF	12290, 12359, 12362, 12365		R R

Table 4: VHF Communication Frequencies / Channels

Type	Frequencies / Channels	Licensed Operators	Category
VHF	6, 13,16, 67, 71, 72, 77, 73, 80	2	O
		1	L S I

3.24.3

A permanently installed HF transceiver shall be fitted and have:

O L

- (a) A suitable HF antenna system
- (b) A dedicated HF emergency antenna.

3.24.4	A permanently installed VHF transceiver shall be fitted and have:	O L S I
	(a) A rated output power of 25 watts.	
	(b) A masthead antenna with a coaxial feeder should be installed on boats with a mast height (above the water) of 11m or greater. The power loss in the antenna and feeder should not exceed 40%.	
	(c) A dedicated emergency antenna.	
3.24.6	In addition to the installed VHF transceiver, a waterproof hand-held VHF transceiver and associated battery charging equipment, or spare batteries, shall be carried. It is recommended that the hand-held be capable of operation on one or more aviation frequencies including 121.5MHz.	O L R
3.24.7	The effective operation of radio communication systems shall be checked by test transmissions immediately prior to an event.	O L S I
3.24.8	A radio receiver capable of receiving weather bulletins shall be carried.	O L S I
3.24.9	Satellite telephones are acceptable alternative to HF communication systems	O L
3.24.10	A fully charged mobile telephone shall be carried.	O L S R
3.25	BATTERIES	
3.25.1	Batteries shall be of a sealed, AGM or gel filled type.	O R R R
3.25.2	When the primary propulsion engine can only be started with an electric starter, a battery dedicated for that purpose shall be fitted. The dedicated battery shall be able to be isolated from other uses to preserve power for starting.	O L S I
3.25.3	The dedicated starting battery shall be of sealed construction.	O L S R
3.26	BAROMETER	
3.26.1	A barometer shall be fitted.	O L S R

Section 3

3.27

HULL IDENTIFICATION

3.27.1

Boats shall have on both sides or on the transom in legible characters a minimum of 50mm high:

O L S I

(a) The Boat's name.

O L S I

(b) Its State Marine Authority number or Sail Number.

O L S I

(c) Name of the club, or home port which may be abbreviated.

R R R R

SECTION 4 PORTABLE EQUIPMENT and SUPPLIES

4.01 FIRE EXTINGUISHERS

- 4.01.1 Fire extinguishers, marked as complying with AS1841.5 (Portable Fire Extinguishers - Powder Type) and AS1841.6 (Portable Fire Extinguishers - CO₂ Type) shall be readily accessible in suitable and different parts of the boat. The numbers and ratings of extinguishers shall conform with the details shown on Table 4 below. O L S I

Table 5: Fire Extinguisher Requirements

LOA	Conditions	Required Rating		Category
		Pre-July 07	Post-July 07	
Under 8.5m	Carries petrol or LPG below decks	2 x 5BE	2 x 10BE	O L S I
8.5m and over	Carries petrol or LPG below decks	2 x 10BE or 1 x 10BE and 2 x 5BE or 4 x 5BE	2 x 10BE	O L S I
Any	Any form of auxiliary engine or naked flame from other than LPG	2 x 5BE	2 x 10BE	O L S R
Any	Any form of auxiliary engine or naked flame from other than LPG	1 x 5BE	1 x 10BE	I

- 4.01.2 A boats shall carry a fire blanket. O L S I
- 4.01.3 Fire extinguishers shall be serviced at the time interval specified by the manufacturer on the extinguisher or annually whichever is the lesser interval. O L S I

4.02 ANCHORS

- 4.02.1 The nature of the holding ground together with the

water depth, amount of swinging room, sea conditions, tidal range and proximity of other vessels will largely dictate the most effective anchoring system - the type of anchor, its size, and the make-up and length of anchor cable. Scope (Length of cable / Water depth) is a major factor in determining the holding capability of an anchor and generally, the larger the scope, the greater the holding capability.

4.02.2 An anchor or anchors shall be carried according to the table below:

Table 6:

LOA	Detail	Category
Any	The specification of anchor, chain and rope shall be in accordance with relevant class rules or the rules of a recognised Classification Society (eg Lloyd's, DNV, etc.)	O L R R
8.5m and under	One anchor together with a suitable combination of chain and rope, all ready for immediate use	I
8.5m and over	Two anchors together with a suitable combination of chain and rope, all ready for immediate use.	O L R R

4.02.3 The bitter (inboard) end of the warp or chain cable shall be secured to a structurally strong point in the boat prior to deploying the anchor O L S I

4.02.3 Anchor and cable arrangements such as those shown in Tables 7 and 8 are indicative of those commonly specified by Classification Societies and boat designers. AS2198-1983: Anchors for Small Boats is relevant.

4.02.4 Chain cable should be manufactured in accordance with BS 6405: Non-Calibrated Short Link Steel Chain (Grade 30) for General Engineering Purposes: Class 1 and 2 or equivalent. The minimum breaking force R R R R

should in no way be construed as a safe working load.

Table 7: Anchor Cable (Rode) Length

Minimum length of chain	Plus length of warp or chain	Details
10m	50m	Primary anchor and cable
5m	45m	Primary anchor and cable
2m	40m	Secondary anchor and cable

Table 8: Minimum Ground Tackle Details

Displacement	Anchor (High Holding Power)		Chain	Warp	Warp Size (Suggested)	
	Plough Type eg CQR	Spade Type eg Danforth			Standard Link	Minimum Breaking Force
kg	kg	size	mm	kN	mm	mm
Less than 815	4	8S	6	9	10	10
816 - 2500	7	13S	6	9	10	10
2501 - 4300	9	22S	8	20	16	12
4301 - 6550	11	22S	8	30	20	14
6551 - 9500	15	40S	10	39	24	16
9501 - 13600	20	65S	10	39	24	16
13601 - 20400	25	65S	13	45	26	18

Section 4

20401 - 27200	34	80S	13	45	26	18
27201 and over	45	80S	14	60	32	20

4.03 FLASHLIGHTS

4.03.1 At least three flashlights of a water resistant and floating type, with spare batteries and bulbs, one of which is suitable for signalling shall be carried. O L R

4.03.2 At least two flashlights of a water resistant and floating type shall be carried. S I

4.04 FOGHORN

4.04.1 A foghorn shall be carried. It is recommended that it be capable of operation without reliance on a containerised gas supply. O L R R

4.05 RADAR REFLECTOR.

4.05.1 A radar reflector shall be carried. Attention is drawn to ISO 8729: Ships and marine technology - Marine radar reflectors. If a radar reflector is octahedral it must have a minimum diagonal measurement of 456mm, or if not octahedral must have a documented RCS (radar cross section) of not less than 10m². The minimum effective height of the antenna above water is 4.0m. O R

4.06 NAVIGATIONAL CHARTS AND BOOKS

4.06.1 Navigational charts (not solely electronic) for the cruising areas and chart plotting equipment shall be carried. Charts (both paper and electronic) should be corrected and maintained up to date. O L S R

4.06.2 A copy of the current "International Regulations for the Prevention of Collision at Sea" shall be carried. O L S R

4.06.3 A current copy of "The RPAYC Cruising Regulations" shall be carried. O L S I

4.07 GLOBAL POSITIONING SYSTEM

4.07.1 A permanently installed GPS receiver shall be fitted. O L S R

4.07.2 A second GPS which is hand held and water resistant O R

shall be carried onboard.

4.08	DEPTH SOUNDER	
4.08.1	A calibrated depth sounding instrument shall be permanently installed. The display should be visible from the helm.	O L S R
4.09	LOG	
4.09.1	A distance measuring instrument (other than GPS) shall be fitted.	O L R R
4.10	EMERGENCY STEERING	
4.10.1	An emergency tiller, capable of being fitted quickly to the rudder stock where the normal method of steering is other than by a strong tiller fitted directly to the rudder stock shall be carried.	O L S R
4.10.2	Crews must be aware of alternative methods of steering the boat in any sea condition in the event of rudder loss. At least one alternative method of steering must have been proven to work on board the boat and may be required to be demonstrated.	O L S R
4.11	TOOLS AND SPARE PARTS	
4.11.1	Tools and spare parts, including an effective means to disconnect or separate the rigging from the mast or hull shall be carried onboard.	O L S R
4.11.2	Boats shall carry sufficient spares and the necessary tools to enable routine and emergency engine oil, drive belt and filter changeouts. Spares should include fuel filter(s), drive belt(s), engine oil, and water pump impeller(s), and any associated seals and gaskets.	O L S R
4.11.3	A bosun's chair shall be carried.	O L S R
4.11.4	A sharp knife capable of cutting high modulus fibre lines, sheathed and restrained, shall be located in or near each cockpit.	O L S I
4.12	BOAT'S NAME	
4.12.1	The boat's name shall be marked on or otherwise fixed to miscellaneous buoyant equipment which as a minimum shall include PFDs, cockpit cushions, lifebuoys, danbuoys, lifebuoys and lifeslings.	O L S I

Section 4

4.12.2	Where a PFD is the personal equipment of a crew member it shall be marked instead to identify the owner. Preferably this should be the name of the owner and a contact telephone number.	O L S I
4.13	RETRO-REFLECTIVE TAPE	
4.13.1	Marine grade retro-reflective material shall be fitted to lifebuoys, lifeslings, liferafts and PFDs.	O L S I
4.14	EPIRBS	
4.14.1	An Emergency Position Indicating Radio Beacon capable of transmitting on 406 Mhz shall be carried.	O R
4.14.2	The number of EPIRBS carried on board shall be not less than the number of liferafts carried. EPIRBS in addition to those required at 4.14.1 above may be capable of transmitting on either or both 121.5 or 406 Mhz. They may be packed in the liferaft or stored in a dry, well marked location near the companionway.	O L
4.14.3	An Emergency Position Indicating Radio Beacon capable of transmitting on 121.5, 243, or 406 Mhz shall be carried.	O L S R
4.14.4	EPIRBS shall be:	O L S R
(a)	Serviced in accordance with the manufacturer's instructions.	
(b)	Stored in a dry, well marked location near the companionway.	
(c)	Any 406 Mhz beacon shall be properly registered in the boat's name with the appropriate authority.	
4.15	LIFERAFTS	
4.15.1	Liferafts designed and constructed in accordance with Appendix A and capable of carrying the entire crew shall be carried.	O L
4.15.2	The liferaft stowage should be such that the liferaft can be readily removed and launched regardless of whether or not the yacht is inverted.	O L
4.15.3	A liferaft shall be stowed either:	O L
(a)	In a transportable rigid container on the working deck or in the cockpit, or	

- (b) In a purpose-built rigid compartment opening into or adjacent to the cockpit or working deck, or opening through a transom, containing liferaft(s) only, provided that:
- i) Each compartment is watertight or self-draining (self draining compartments will be counted as part of the cockpit volume except when entirely above working deck level or when draining independently overboard from a transom stowage); and
 - ii) The cover of each compartment is capable of being easily opened under water pressure; and
 - iii) The compartment is designed and built to allow the liferaft to be removed and launched quickly and easily; or
- (c) Packed in a valise not exceeding 40kg in weight and securely stowed below deck adjacent to the companionway.
- (d) A SOLAS liferaft may be stowed only in accordance with either 4.19.2 (a) or (b).

4.15.4	Liferaft stowage should be such that the liferaft can be readily removed and prepared for launching within 15 seconds.	O L
4.15.4	Liferafts of more than 40kg weight should be stowed in such a way that they can be dragged or slid into the sea without significant lifting. The yacht end of the liferaft painter should be permanently secured to a strong point on board the yacht	O L
4.15.5	On a multihull, the liferaft stowage should be such that the liferaft can be readily removed and launched regardless of whether or not the yacht is inverted.	O L
4.15.6	Each liferaft shall have a valid annual certificate from the manufacturer or an approved servicing agent certifying that it has been inspected, that it complies with the design and construction and equipment standards defined in Appendix A and stating the official capacity of the liferaft which shall not be exceeded. The certificate, or a copy, shall be carried on the boat. When a manufacturer so specifies, a raft may be externally inspected (ie not unpacked) and certified annually by the manufacturer or an approved servicing agent.	O L

4.16	GRAB BAG	
4.16.1	It is recommended that a grab bag be carried and that its contents conform with those defined in Appendix A.	R R
4.17	LIFEBUOYS	
4.17.1	A lifebuoy with a drogue, or a Lifesling, OSCAR, Seattle sling or a man overboard module (without a drogue) equipped with a self-igniting light and marked with the boat's name shall be carried.	O L S I
4.17.2	The lifebuoy, or alternative as described above, shall be accessible by the helmsman and ready for immediate use.	O L S I
4.17.3	Attention is drawn to AS 2261:Rescue Buoys. The colour of a lifebuoy other than lines, fittings and retroreflective material shall be a safety colour in the yellow to red range.	O L S I
4.17.4	In addition to 4.17.1, one lifebuoy accessible by the helmsman and ready for immediate use shall be carried. It shall be equipped with a whistle, drogue, a self-igniting light, and a pole and flag. The pole shall be either permanently extended or be capable of being fully automatically extended in less than 20 seconds. It shall be attached to the lifebuoy with 3m of floating line. The pole shall be of a length and so ballasted that the flag will fly at least 1.8m above the water.	O L
4.17.5	When two lifebuoys are carried at least one of them shall be a lifesling, OSCAR, Seattle sling or man overboard module.	O L
4.17.6	Every inflatable lifebuoy or pole device shall be tested annually or at such other interval as prescribed by the manufacturer.	
4.18	PYROTECHNICS (FLARES)	
4.18.1	Pyrotechnic Signals conforming with AS 2092 -1988 Pyrotechnic Marine Distress Flares and Signals for Pleasure Craft or a higher standard (SOLAS Life Saving Appliance [LSA] Code Chapter 111: Visual Signals) shall be carried and stored in waterproof container(s).The age of all required pyrotechnics shall not exceed the manufacturer's expiry date marked on the items.	O L S I
4.18.2	Irrespective of the minimum requirements shown in	O L S I

Table 7 below, the numbers and types of flares shall conform with state legislative requirements for the cruising area.

Table 8: Pyrotechnic (Flare) Requirements

Red parachute flares (LSA 111 3.1)	Red hand flares (LSA 111 3.2)	White hand flares (See note)	Orange smoke (LSA 111 3.3)	Category
6	4	2	4	O
4	4	2	4	L
	3	2	3	S
	2	2	2	I

Note: Specifications (except colour and candela rating) should comply with the SOLAS LSA Code Chapter 111 3.2

4.19

4.19.1

HEAVING LINE

A floating line that is readily accessible to cockpit, with a buoyant object at one end and of 15m - 25m length shall be carried. The “throwing sock” type is recommended.

O L S R

4.20

4.20.1

STORM AND HEAVY WEATHER SAILS

Design

It is strongly recommended that the boat designer and sailmaker be consulted to determine the most effective size and materials for storm and heavy weather sails and to ensure that they are fit for purpose. The purpose of these sails is to provide safe propulsion for the yacht in severe and heavy weather conditions. The sail areas referred to below are maxima. Smaller areas are likely to suit some yachts according to their stability and other characteristics.

4.20.2

High Visibility

All trysails and storm jibs should be of highly visible coloured material (eg Dayglo pink, orange or yellow) or, shall have a highly visible coloured patch of at least 20% of the area of the sail added on each side to assist visibility and identification in extreme conditions.

O L R R

A multihull with a rotating wing mast used in lieu of a trysail should have a highly-visible coloured patch on each side.

4.20.3	Materials Aromatic polyamides such as kevlar, and carbon and similar fibres shall not be used in the construction of a trysail or a storm jib but spectra / dyneema and similar materials are permitted.	O L R R
4.20.4	It is strongly recommended that aromatic polyamides, carbon and similar fibres not be used in the construction of a heavy-weather jib but spectra / dyneema and similar materials are permitted.	R R R R
4.20.4	The following shall be provided:	
	(a) Sheeting positions on deck for each storm and heavy-weather sail;	O L R R
	(b) Each storm jib shall have a means to attach the luff to the stay, independent of any luff-groove device.	O L R R
	(c) A heavy weather jib, including one on a roller furler, should have a means to attach the luff to the stay, independent of any luff-groove device.	O L S R
	(d) A storm trysail capable of being sheeted independently of the boom with area not greater than 17.5% mainsail luff length x mainsail foot length shall be carried. The storm trysail shall have neither headboard nor battens, however a storm trysail is not required in a yacht with a rotating wing mast which can adequately substitute for a trysail;	O L R
	(e) A storm jib of area not greater than 5% height of the foretriangle squared, and luff maximum length 65% height of the foretriangle;	O L R
	(f) A heavy-weather jib (or heavy-weather sail in a yacht with no forestay) of area not greater than 13.5% height of the foretriangle squared;	S R
	(g) Either a storm trysail as above or mainsail reefing to reduce the luff by at least 40%, except that for multihulls the mainsail luff reduction shall be 50%;	S R
	(h) Either a storm trysail or mainsail reefing points to reduce the luff by at least 25%.	I
	(i) In a yacht with an in-mast furling mainsail, the storm	O L S I

trysail must be capable of being set while the mainsail is furled;

- (j) A trysail track should allow for the trysail to be hoisted quickly when the mainsail is lowered whether or not the mainsail is stowed on the main boom; R R R R
- (j) Sheets should be permanently attached to the storm jib by sewing or splicing, not by J clips. R R R R

Table 9: Minimum Sail Requirements - Summary

Sail	Category
Storm jib	O L
Heavy weather jib	S
Trysail	O L
Mainsail reefing to 40% (monohull)	S
Mainsail reefing to 50% (multihull)	O L S
Mainsail reefing to 25%	I

- 4.20.5 There are many times when the potential severity of the weather and sea conditions is unclear and the choice between setting either storm or heavy weather sails is difficult. The adage: "reef early and reef deep", should be followed at all times. If there is any possibility that the weather may deteriorate then it is recommended that sail be reduced at the earliest opportunity, especially when sailing short-handed. The use of a storm trysail rather than a heavily reefed mainsail in strong wind and uncomfortable sea conditions may improve crew comfort and safety, especially at night.
- 4.20.6 Wind speed information is usually defined as the equivalent speed at a standard height of 10m above open flat ground. Table 7 shows the wind descriptions used by the Australian Bureau of Meteorology.

Table 10: Wind Descriptions

	Knots	Description at Sea
Calm	0	Sea like a mirror.
Light Winds	10 knots or less	Small wavelets, ripples formed but do not break: A glassy appearance maintained.
Moderate Winds	11-16 knots	Small waves - becoming longer; fairly frequent white horses.
Fresh Winds	17-21 knots	Moderate waves, taking a more pronounced long form; many white horses are formed - a chance of some spray
Strong Winds	22-27 knots	Large waves begin to form; the white foam crests are more extensive with probably some spray
	28-33 knots	Sea heaps up and white foam from breaking waves begins to be blown in streaks along direction of wind.
Gale	34-40 knots	Moderately high waves of greater length; edges of crests begin to break into spindrift; foam is blown in well marked streaks along the direction of the wind.
	41-47 knots	High waves; dense streaks of foam; crests of waves begin to topple, tumble and roll over; spray may affect visibility.
Storm	48-55 knots	Very high waves with long overhanging crests; the resulting foam in great patches is blown in dense white streaks; the surface of the sea takes on a white appearance; the tumbling of the sea becomes heavy with visibility affected.
	56 knots plus	Exceptionally high waves; small and medium sized ships occasionally lost from view behind waves; the sea is completely covered with long white patches of foam; the edges of wave crests are blown into froth.

4.21 SAIL NUMBERS

4.21.1 Sail numbers and any associated letters used to identify a particular boat shall be carried on mainsails, trysails, storm jibs and heavy weather sails so that the numbers are clearly visible. Other sails should be similarly marked. O L S I

4.21.2 Letters and sail numbers shall be in capital letters and Arabic numerals, be clearly legible and of the same colour. The sizes of characters and minimum space between adjoining characters on the same and opposite sides of the sail should be related to the boat's overall length as shown in Table 7 below. Where this is not possible they should be as large a size as practicable. O L S I

Table 11: Sail Numbers and Letters

LOA (m)	Minimum Height (mm)	Minimum Spacing (mm)
3.5 - 8.5	300	60
8.5 - 11	375	75
over 11	450	90

4.21.3 A separate piece of dacron or heavy-duty material with the boat's sail number on it shall be carried. It shall be capable of being displayed across the deck or along the lifelines when none of the numbered sails is set and it shall be complete with eyelets and lashings. The size and spacing of the numbers shall conform with those used on the boat's sails. Use of this identification banner enables search and rescue units to rapidly identify the boat in an distress situation. O L S R

4.22 HALYARDS

4.22.1 No mast shall have less than two halyards and each shall be capable of hoisting a sail. O L S I

4.23 DROGUE, SEA ANCHOR

4.23.1 A drogue or alternatively a sea anchor or parachute anchor should be considered. (Appendix D refers). R R R

Section 4

- 4.24**
4.24.1 **RETRIEVAL OF CREW FROM THE WATER**
Boats shall be able to demonstrate equipment and a method by which crew may be assisted back on board. O L S I
- 4.25**
4.25.1 **DISTRESS SHEET**
A standard orange` sheet 1.8m x 1.2m with a black “V” or black square above a black circle, with lanyards attached, shall be carried. O L S R
- 4.26**
4.26.1 **STOWAGE CHART**
A durable stowage chart shall be displayed in a clearly visible position inside the boat. It shall be clearly marked with the location and name of principal items of safety equipment. O L S R

SECTION 5 PERSONAL EQUIPMENT

5.01 PERSONAL FLOTATION DEVICES

5.01.1	A personal flotation device Type 1 (PFD1) shall be carried for each crew member. All PFD1s shall be of the vest type, the bulky "Mae West" type of PFD is not acceptable.	O L S I
5.01.2	On a boat without lifelines complying with the requirements of Clause 3.12, a PFD1 shall be worn by each crew member while on deck.	I
5.01.3	Each PFD1 shall:	O L S R
	(a) Comply with Australian Standard AS1512: Personal Flotation Devices - Type 1; or	
	(b) An equivalent or more stringent overseas standard such as EN 396: Lifejackets and personal buoyancy aids. Lifejacket 150; and shall incorporate a mark of compliance with the standard..	
	(c) A combined PFD1 and Safety Harness may be used provided both the PFD and harness are compliant with their respective standards.	
5.01.4	Each PFD 1 shall have marine grade retroreflective tape, an attached whistle and a crotch strap or thigh straps.	O L S I
5.01.5	Each PFD should have a light attached.	R R R R
5.01.6	Each inflatable PFD1 shall be checked annually or at such other interval as prescribed by the manufacturer. This check shall include bladder air retention, gas bottle date, connection and activation arrangements, and for any signs of chafe and wear to the bladder, stole and harness.	O L S I
5.01.7	PFD1s shall be worn by crew members on deck when the boat is two or more miles offshore.	O L S I
5.01.8	PFDs shall be worn by all crew members when crossing bars.	O L S I
5.01.9	It is strongly recommended that lifejackets are worn at times of heightened risk. It is also recommended that each child aged 12 or under, elderly persons or people with a medical condition that might impair their mobility wear a lifejacket at all times when underway.	R R R R

5.02	SAFETY HARNESES, LINES, TETHERS and JACKSTAYS	
5.02.1	Each person on board shall have a safety harness and safety line (tether). The tether length shall not exceed 2m.	O L S R
5.02.2	Each safety harness and line shall comply with:	O L S R
	(a) Australian Standard AS 2227: Yachtsmen's Safety Harnesses and Lines; or	
	(b) An equivalent overseas standard such as EN 1095: Deck safety harness and safety line for use on recreational craft. Safety requirements and test methods; and	
	(c) Shall incorporate a mark of compliance with the standard.	
5.02.3	Each boat may be required to demonstrate that all members of the crew can be simultaneously and adequately attached to strong points on the boat.	O L S R
5.02.4	A crotch strap or thigh straps shall be fitted to each safety harness.	O L R R
5.02.5	Crew members should carry a personal knife capable of cutting a safety line (tether) in an emergency.	R R R R
5.02.6	At least 30 % of the crew shall, in addition to the above, be provided with either:	O L R
	(a) A safety line (tether) not more than 1m long; or	
	(b) A 2 m tether, with a manufacturer fitted mid-point snap hook.	
5.02.3	A crew member's PFD and harness shall be compatible and before an event each crew member shall adjust a harness to fit themselves and retain that harness for the duration of the cruise.	O L S R
5.03	JACKSTAYS	
5.03.1	Jackstays shall be attached to through-bolted or welded deck plates or other suitable and strong anchorage points fitted on deck. Jackstays shall be arranged to port and starboard of the boat's centreline to provide secure attachments for safety harness tethers. Jackstays shall extend far enough aft to allow crew to clip their tethers on to the jackstay without leaving the	O L S R

cockpit.

- | | | |
|-------------|---|---------|
| 5.03.2 | Jackstays shall be made from uncoated stainless steel 1 x 19 wire of minimum diameter 5mm (3/16 in), or spectra line, or 25mm webbing, with an equivalent breaking strength (20000N, 2040Kgf, 4535lbf). The 25mm polyester webbing option is strongly recommended). | O L S R |
| 5.03.3 | At least two jackstays or multiple tether clipping points shall be fitted on the underside of a multihull in case of inversion. | O L R R |
| 5.03.4 | All fastenings and lashings for jackstays shall have an equivalent strength to that of the jackstay. | O L S R |
| 5.03.5 | Stanchion bases shall not be used as strong points for the attachment of jackstays | O L S R |
|
 | | |
| 5.04 | TETHER CLIPPING POINTS | |
| 5.04.1 | Pad eyes, eye plates and other fixtures used as clipping points for tethers shall be attached to through-bolted or welded deck plates or other suitable and strong anchorage points adjacent to frequently occupied locations such the helm, sheet winches and masts. | O L S R |
| 5.04.2 | Plain, single action, snap hooks shall not be used in any tether, static safety line, or jackstay system.

Warning: U-bolts or eye plates can cause plain snap hooks to "capsize" or "roll-over" when rotated on one leg of the u-bolt so that the hook "gate" bears against the other leg and opens. This occurrence is known as "roll-over reversal" and is a known cause of death and injury. | O L S I |
| 5.04.3 | Clipping points, together with jackstays and static safety lines shall be located and fitted in such a way as to enable: | O L S I |
| | (a) Crew members to safely clip on before coming on deck and to unclip after going below. | |
| | (b) Facilitate crew members moving between the working areas on deck and the cockpit(s) with minimal tether clipping and unclipping. | |
| | (c) At least two-thirds of the crew to be simultaneously clipped on without use of jackstays or static safety lines. | |

Section 5

- 5.04.4 In a trimaran with a rudder on the outrigger, adequate clipping points that do not constitute any part of the deck gear or the steering mechanism shall be fitted to enable the steering mechanism to be reached by a crew member whilst clipped on. O L S I
- 5.05 PERSONAL LIGHTS**
- 5.03.1 A personal location light (either a strobe or complying with SOLAS LSA 2.2.3, shall be carried by, or attached to, each crew member when on deck. O L R R
- 5.03.2 A light as defined above shall be carried by or attached to each crew member likely to be on deck at night. S I
- 5.06 PERSONAL CLOTHING**
- 5.06.1 During heavy, wet and/or cold weather, crew members on deck should wear clothing that will protect them from hypothermia. O L S I
- 5.06.2 Crew members shall be clothed such as to afford protection against the extremes of weather and temperature at all times. O L S I
- 5.07 PERSONAL EPIRB**
- 5.07.1 A personal EPIRB shall be carried by or attached to each member of the crew when on deck. It is recommended that these EPIRBs transmit on 406Mhz in order to reduce the search area. Crew members are to be trained in the use of this equipment. O R

SECTION 6 MEDICAL

6.01 GENERAL REQUIREMENTS

- 6.01.1 The skills and training of crew and the quantities and types of medical supplies to be carried will depend on a number of factors including the number of crew, individual state of health, the duration and location of cruise, the level of access to external assistance and the approach to risk management.
- 6.01.2 Skippers shall be able to demonstrate that the level of first aid skills and training amongst the crew is adequate to competently render first aid and that the boat has on board the range and scales of medical equipment and supplies to deal with the medical emergencies and conditions most likely to occur on the cruise. O L S I
- 6.01.3 Each skipper is responsible for onboard medical risk planning and management. The most likely medical emergencies and conditions to require treatment during a cruise include: O L S I
- Pain relief - mild moderate and severe
 - Sunburn
 - Dehydration
 - Seasickness
 - Diarrhea / Constipation
 - Flesh bruises, wounds,
 - Damage to eyes, digits, limbs and ribs.
 - Strained muscles
 - Burns – minor and severe
 - Antibiotics and other medication
 - Cardiac emergencies
- 6.01.4 It is the responsibility of individual crew members to inform the skipper of any medical condition or ongoing treatment that may affect their capabilities as a crew member. Similarly, it is the responsibility of the skipper to inform the crew of any medical condition that may impair her capabilities as skipper. O L S I
- 6.01.5 All crew members shall know where medical equipment and supplies are stored. The location of all medical items shall be shown on the boat's stowage plan which shall be displayed in a prominent position in the boat (eg chart table, saloon) O L S I

Section 6

6.01.6	The skipper shall demonstrate that the scope and currency of the medical reference information carried on board is adequate for the likely emergencies and medical conditions noted above. All crew members shall be capable of seeking external medical assistance by phone, radio or other means and relevant instructions shall be readily available.	O L S I
6.02 MEDICAL KITS		
6.02.1	As a minimum, boats shall carry:	
(a)	<i>Ship Captain's Medical Guide</i> (21st edition or later) or the <i>International Medical Guide for Ships</i> (W.H.O), or an equivalent publication.	O
(b)	<i>First Aid at Sea</i> ; Douglas Justins, Colin Berry; Adlard Coles, or <i>First Aid - Authorised manual of the St. John Ambulance Assn. In Australia</i> (current edition), or <i>Advanced First Aid Afloat</i> ; Peter F. Eastman MD, or <i>The Authorised Manual of the Australian Red Cross Society</i> .	L S I
6.02.2	Boats shall be equipped with a Medical Kit of which the contents and their storage reflect the guidelines of the recommended manual, the likely conditions and duration of the passage, and the number of people onboard the boat.	O L S I
6.02.3	At least two members of the crew shall hold a current Senior First Aid Certificate, or equivalent, or be a practising medical practitioner.	O R
6.02.4	At least one member of the crew shall hold a current Senior First Aid Certificate, or equivalent, or be a practising medical practitioner.	L R R
6.02.5	Medical Kits listed below are BASIC . It is therefore recommended that if there is any possibility that special medication is needed for any crew member then that crew member should obtain medical advice before the event and provide any necessary medication.	O L S I
6.02.6	Items in the Medical Kit shall be increased on a pro-rata basis when there are more than 4 crew members onboard.	O L

Section 6

- 6.02.7 The medical kit shall be stored in a waterproof container(s) which shall have the contents listed so as to be visible without opening the container and shall contain as a minimum the items as shown in Table 11. O L S I
- 6.02.8 All required items shall be "in date", that is the expiry date marked on the item must not have passed. O L S I
- 6.02.9 Items in Table 11 marked thus **, are only obtainable on prescription. It should be noted that most prescription medication must be stored at a temperature of 25 °C or less. As the temperatures inside a yacht during the summer months can exceed 50 °C it is recommended that all prescription medication be replaced annually. R
- 6.02.10 One of the more common brand names of the generic product is indicated in brackets and the quantities for each category are indicated under the category column in Table 6. Alternate pharmaceuticals in equivalent amounts and having similar action to those stated are acceptable. O L S I
- 6.02.11 **IN AN EMERGENCY, MEDICAL ADVICE SHOULD FIRST BE OBTAINED FROM THE NEAREST COASTAL RADIO STATION OR BY CONTACTING A DOCTOR. THIS IS PARTICULARLY IMPORTANT:**
- (a) **BEFORE ADMINISTERING MORPHINE OR PETHADINE (WHEN CARRIED),**
 - (b) **WHEN TREATING AN EYE INJURY,**
 - (c) **WHEN TREATING DIARRHOEA WHERE THE PATIENT ALSO HAS A FEVER, AND**
 - (d) **WHEN TREATING SEVERE BURNS.**

Table 11: Medical Kit Items

	CATEGORY			
	O	L	S	I
FOR VARYING DEGREES OF PAIN	Quantity			
Mild Pain Paracetamol 500mg.	40	40	20	20

Section 6

(Panadol)				
Moderate Pain Codeine 8mg + Paracetamol 500mg (Panadeine)	40	40	20	
Moderate to Severe Pain Codeine 30mg + Paracetamol 500mg (Panadeine Forte)	20	20	R	
Very Severe Pain ** Oxycodone – 5mg (Endone) or ** 30mg suppositories (Prolodone) ** 5 Morphine injections 15mg/1ml ** 5 Pethedine injections 100mg/2ml ** 15 Disposable 2ml syringes/ 23G X 1 1/4 inch needles	20 10 R R R			
CARDIAC EMERGENCIES				
Soluble Aspirin (Disprin)	20	20	20	
Nitrolingual Spray (Anginine)	1	1		
FOR WOUNDS AND LIMBS				
Butterfly Steristrips (Strips of 5)	10	R		
Disposable Gloves	20	20	20	10
Crepe bandages 75mm x 1.5m	2	2	2	2
Crepe bandages 100mm x 1.5m	1	1		
Triangular bandage	1	1	1	
Band-aids	20	20	20	20
Adhesive tape 50mm x 2.5m (Leukoplast)	1	1	1	1
Roll cotton wool	1	1	1	1
Non adherent dressing (Unitulle)	10	10	5	

Section 6

Antiseptic skin solution (Betadine) 15ml	1	1	1	1
Antiseptic swabs (Betadine)	8	8	8	
Medi-crème tube (with Xylocaine 2%)	1	1	1	
FOR EYES				
Normal saline (for washing) – 250ml	1	1	1	
** Chloromycetin eye drops / 4gm tube	1	1		
Sterile eye patches	5	5		
ANTIBIOTIC				
** Achromycin 250mg 20	20			
** Kerflex 500mg caps.	20			
** Bactrim (sulphur based)	20			
FOR BURNS				
Superficial burns Solugel wound dressing 100gm	1	1	1	1
Severe burns Cover with a non-adherent dressing and obtain hospital treatment as soon as possible.	1			
Silvazine cream 100gm				
SUNSCREEN				
30+ SPF 250ml	1	1	1	1
FOR DIARROEA				
Loperanide Hydrochloride (Imodium) 2mg – pkt of 12	1	1		

Section 6

or Diphenoxylate 2.5mg atropine 0.025mg (Lomotil)				
FOR DEHYDRATION				
Gastrolyte 4.9g sachet - pkt of 10	1	1		
FOR SEASICKNESS				
Some form of seasickness remedy shall be carried. It should be noted that all types available may produce drowsiness and/or disorientation. In the case of severe sea sickness Stemetil suppositories are strongly recommended. ** Prochlorperazine suppositories (Stemetil) 25gm 5 5	5			
FOR ALLEGY				
** Prednisdone tablets 25 mg	25			
** Adrenaline Injections 1:1000	5			
INSTRUMENTS				
Scissors, stainless steel	1	1	1	1
Thermometer, clinical	1	1		
Forceps, splinter, stainless steel	1	1		
Safety pins, assorted sizes	10	10	10	10

SECTION 7 TRAINING

7.01 **Safety and Sea Survival Course**

7.01.1 At least 50% of the crew including the skipper or sailing master shall have undertaken training and received a Certificate of Competence in both theoretical and practical sessions in accordance with the YA Safety and Sea Survival Course (SSSC), or a Course of no less a standard acceptable to the Event Organisers that covers as a minimum, the following topics. It is strongly recommended that all crew members do likewise:

- care and maintenance of safety equipment
- liferafts
- storm sails
- fire precautions and fire fighting
- damage control and repair
- heavy weather - crew routines, boat handling, drogues
- man overboard prevention and recovery
- provision of assistance to other craft
- hypothermia
- SAR systems
- operation of communications equipment (VHF, GMDSS, satcoms)
- weather forecasting
- pyrotechnics – flares

7.01.2 The SSSC Certificate of Competence shall have a five year validity period. Revalidation shall be achieved by completing an accredited update course and maintaining a validated record of miles sailed.

7.02. **Onboard Training**

7.02.1 It is recommended that crews practice onboard safety exercise at regular intervals including the drill for man-overboard recovery.

APPENDIX A LIFERAFT SPECIFICATIONS

GENERAL DESIGN AND CONSTRUCTION:

Liferaft(s) capable of carrying the entire crew shall be carried and these shall comply with the construction requirements of Regulation 15 of the International Convention of the Safety Of Lives At Sea 1960 (SOLAS) except that an insulated floor and insulated canopy are optional.

EQUIPMENT

Each raft shall have at least the following equipment, properly stowed and secured so as to be available undamaged after launch and inflation.

- One sea anchor or drogue (attachment line should not be less than 15m) attached so that the entry point to the raft is leeward. Compliance with either ISO 17339: Ships and marine technology. Sea anchors for survival craft and rescue boats; or an equivalent specification, is recommended.
- One safety knife.
- One bellows or hand pump for hand inflation that is of one piece, ready for use and does not require assembling.
- One water resistant torch (signalling) together with one spare set of batteries and one spare bulb in a waterproof container.
- One heliograph mirror.
- One bailer easily identifiable as such.
- One sponge per person.
- One repair outfit complete with six emergency buoyancy tube leak stopping plugs capable of repairing punctures in buoyancy compartments.
- One buoyant rescue quoit attached to at least 30 metres of buoyant line.
- Four red hand-flares and two smoke signals.
- Two red parachute flares.
- One signalling whistle.
- Potable water, at least 0.5 litres per person.
- One tin of emergency rations per person.
- Two tubes of sun cream (SPF 30+)
- Five plastic bags, not less than 450mm x 300mm per person.
- An clearly legible operational instruction card describing the operation of the liferaft and its contents. This may be either waterproofed or stencilled on the inside of the canopy or on the inside of the buoyancy compartments.
- A USL Coastal Pack First Aid Kit.
- A hand operated water maker is recommended for "Ocean: and "Long Coastal" category events.
- Two buoyant paddles with handles.
- Six anti seasickness tablets for each person.
- One waterproof copy of the illustrated table of life-saving signals referred to in Regulation 38 of Chapter V of SOLAS 1997.

- One waterproof copy on how to survive in the life raft.

The above equipment must be packed in bags capable of holding the contents comfortably so that they do not burst out when opened in difficult conditions. The closure must be by a plastic zip or velcro along the side and not at one end. The bags must be securely fastened to the inside of the raft.

GRAB BAG

It is recommended that a “grab bag” be accessible. The following contents should be considered for inclusion and should be appropriately packed and waterproofed (the packing should be capable of being opened with wet fingers and without tools):

- waterproof hand held GPS
- SART (Search & Rescue Radar Transponder)
- "dry" survival suits
- second sea anchor and line
- two safety tin openers
- waterproof hand-held VHF transceiver
- 406 Mhz EPIRB
- a first aid kit
- one plastic drinking vessel graduated into 10, 20 and 50 cubic cm
- two "cyalume" sticks or similar watertight floating lights or lamps
- one daylight signalling mirror

Appendix B MAN OVERBOARD RECOVERY

For information only

QUICK STOP AND THE LIFE SLING (OR SEATTLE SLING) RECOVERY METHODS

When a crew member goes over the side recovery time is of the essence. In an effort to come up with a recovery system that is simple and lightning quick, the US Yacht Racing Union Safety at Sea Committee, the US Naval Academy Sailing Squadron, the Cruising Club of America Technical Committee and the Sailing Foundation of Seattle, Washington, joined forces to conduct extensive research and sea trials. The result of their collaboration is the "Quick-Stop" method of man-overboard recovery.

The hallmark of this method is the immediate reduction of boat speed by turning to windward and then manoeuvring slowly, remaining near the casualty. In most cases, this is better than reaching off, then gybing or tacking and returning on a reciprocal course.

QUICK-STOP PROCEDURE

- 1. Shout "man overboard"** and detail a crew member to spot and point to the casualty's position in the water. The spotter should not take his eyes off the casualty (see Figure 1).
- 2. Provide immediate flotation.** Throw buoyant objects such as cockpit cushions, life rings and so on. These objects may not only come to the aid of the casualty, but will "litter the water" where he went overboard and help your spotter to keep him in view. Deployment of the pole and flag (danbuoy) requires too much time. The pole is saved to "put on top" of the casualty in case the initial manoeuvre is unsuccessful.
- 3. Bring boat head-to-wind** and beyond.
- 4. Allow headsail to back** and further slow the boat.
- 5. Keep turning with headsail backed** until wind is abaft the beam.
- 6. Head on beam-to-broad reach course** for two or three lengths then go nearly dead downwind.
- 7. Drop the headsail** while keeping the mainsail centred (or nearly so). The jib sheets are not slacked, even during the dousing manoeuvre, to keep them inside the lifelines.
- 8. Hold the downward course** until casualty is abaft the beam.
- 9. Gybe.**
- 10. Approach the casualty** on a course of approximately 45 degrees to 60 degrees off the wind.

11. Establish contact with the casualty with heaving line or other device. The US Naval Academy uses a "throwing sock" containing 75 feet of light floating line and a bag that can be thrown into the wind because the line is kept inside the bag and trails out as it sails to the casualty.

12. Effect recovery over the windward side.

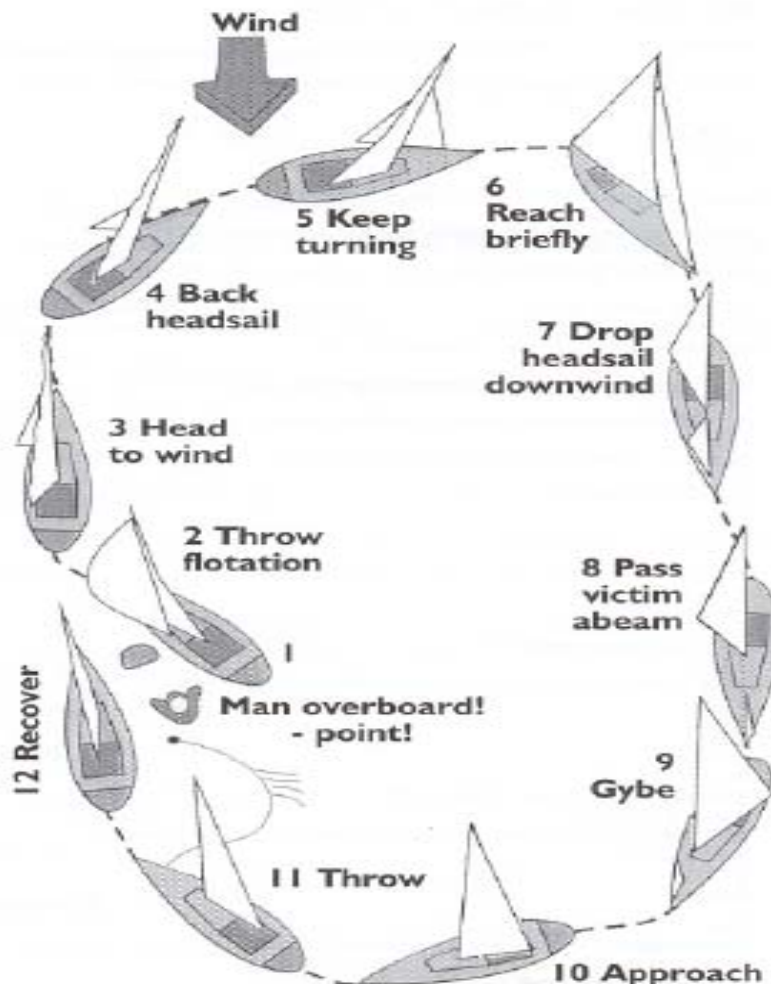


Figure 1: Twelve steps to a quick man-overboard recovery.

Quickstop Under Spinnaker

The same procedure is used to accommodate a spinnaker. Follow the preceding instructions. As the boat comes head-to-wind and the pole is eased to the head stay, the spinnaker halyard is lowered and the sail is gathered on the fore deck. The turn is continued through the tack and the approach phase commences.

Quickstop in Yawls & Ketches

Experiment with your mizzen sail. During sea trials, it was found best to drop the mizzen as soon as possible during the early phases of Quick-Stop.

Quickstop Using Engine

Use of the engine is not essential, although it's advisable to have it running in neutral, during Quick-Stop in case it is needed in the final approach. Check first for trailing lines!

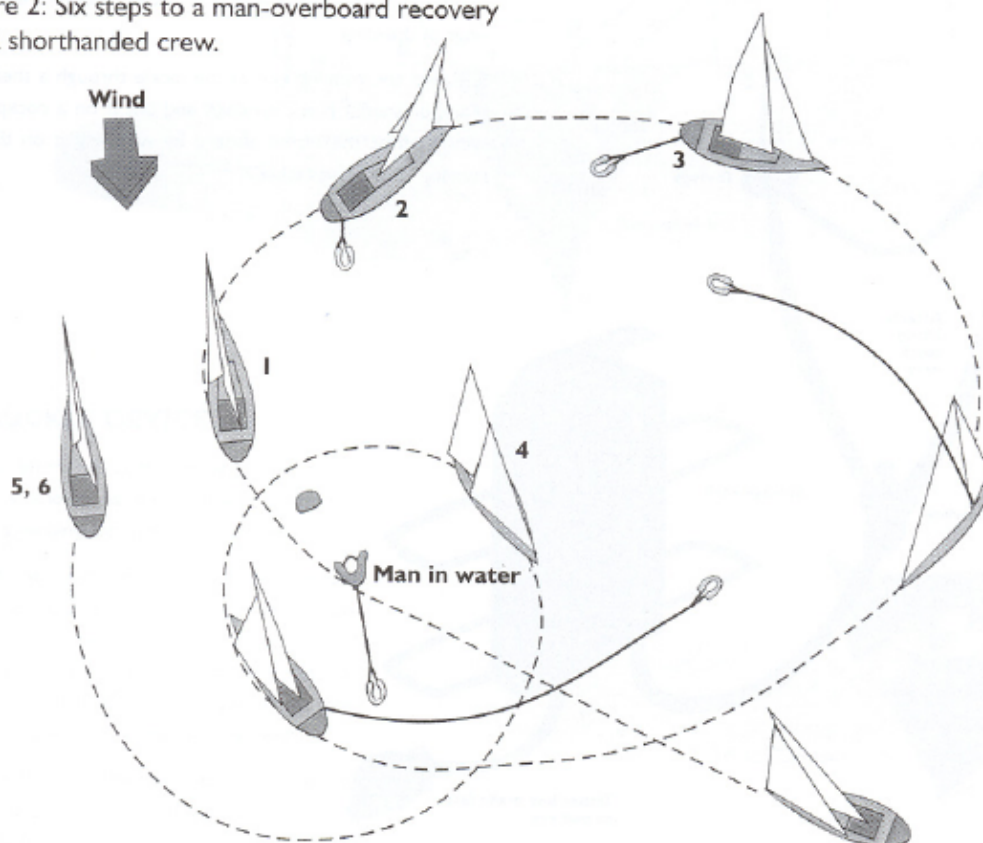
SHORTHANDLED CREWS

When there are only two people sailing together and a man-overboard accident occurs, the remaining crew member may have difficulty in handling the recovery alone. If the victim has sustained injuries, getting him back aboard may be almost impossible. The Quick-Stop method is simple to effect by a singlehander, with only one alteration to the procedure: the addition of the "Lifesling", a floating horsecollar device that doubles as a hoisting sling. The Lifesling is attached to the boat by a length of floating line three or four times the boat's length.

When a crew member falls overboard the scenario should proceed as follows:

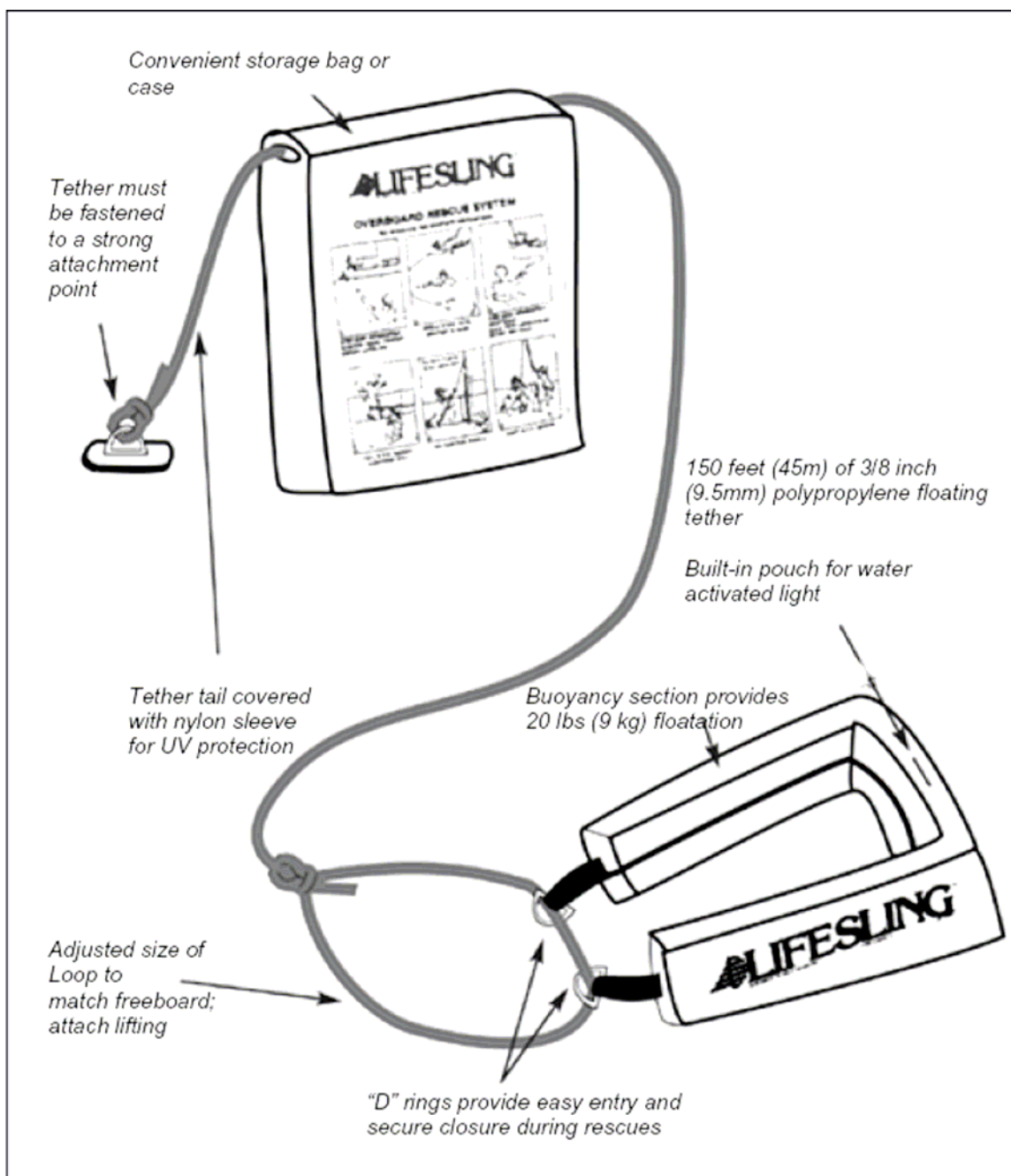
1. A cushion or other flotation is thrown while the boat is brought IMMEDIATELY head-to-wind, slowed and stopped.

Figure 2: Six steps to a man-overboard recovery for a shorthanded crew.



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2. The Lifesling is deployed by opening the bag on the stern pulpit and dropping the sling into the water. It will trail astern and deploy the line.



Reproduced with the kind permission of US Sailing.

3. One deployed, the boat is sailed in a wide circle around the casualty with the line and sling trailing. The jib is allowed to back from head-to-wind, increasing the rate of turn.
4. Contact is established with the casualty by the line being drawn inward by the boat's circling motion. The casualty places the sling over his head and under his arms.
5. Upon contact, the boat is put head-to-wind again, the headsail is dropped to the deck and the main is doused.

6. As the boat drifts slowly astern, the crew begins pulling the sling and the casualty to the boat. If necessary, a cockpit winch can be used to assist in this phase, which should continue until the victim is alongside and pulled up tightly until he is suspended in the sling (so that he will not drop out). A horizontal lift is preferable when there's a choice.

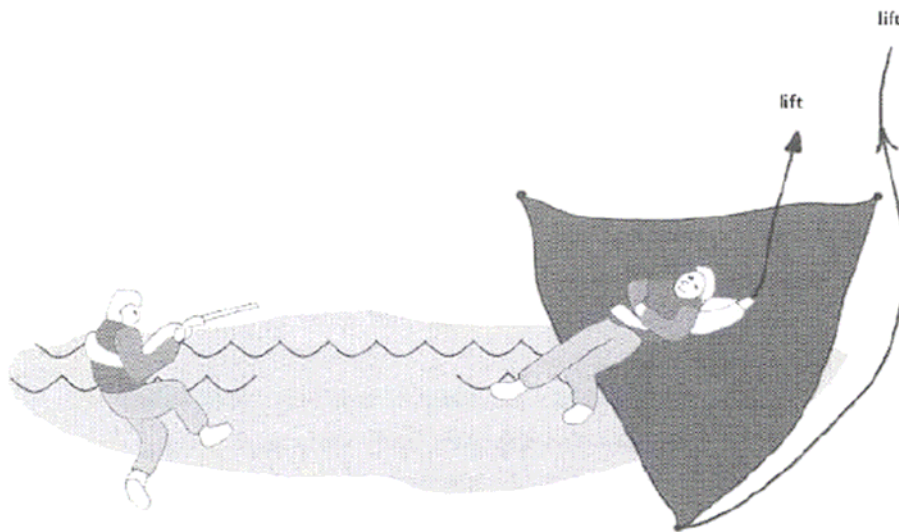
PARBUCKLE DEVICE

This is an alternative to the hoisting rig. A patent version is known as the Tribuckle. Another version is rectangular, like a climbing net. The net, or triangle of strong porous material, is clipped to the toe rail, the triangle top or net extremity

clipped to a halyard extension. The casualty is dragged or otherwise positioned into the triangle or net then rolled onto the deck by hoisting the halyard. Hypothermic aftershock may be minimised by this method which keeps the casualty essentially horizontal.

THE HOISTING RIG

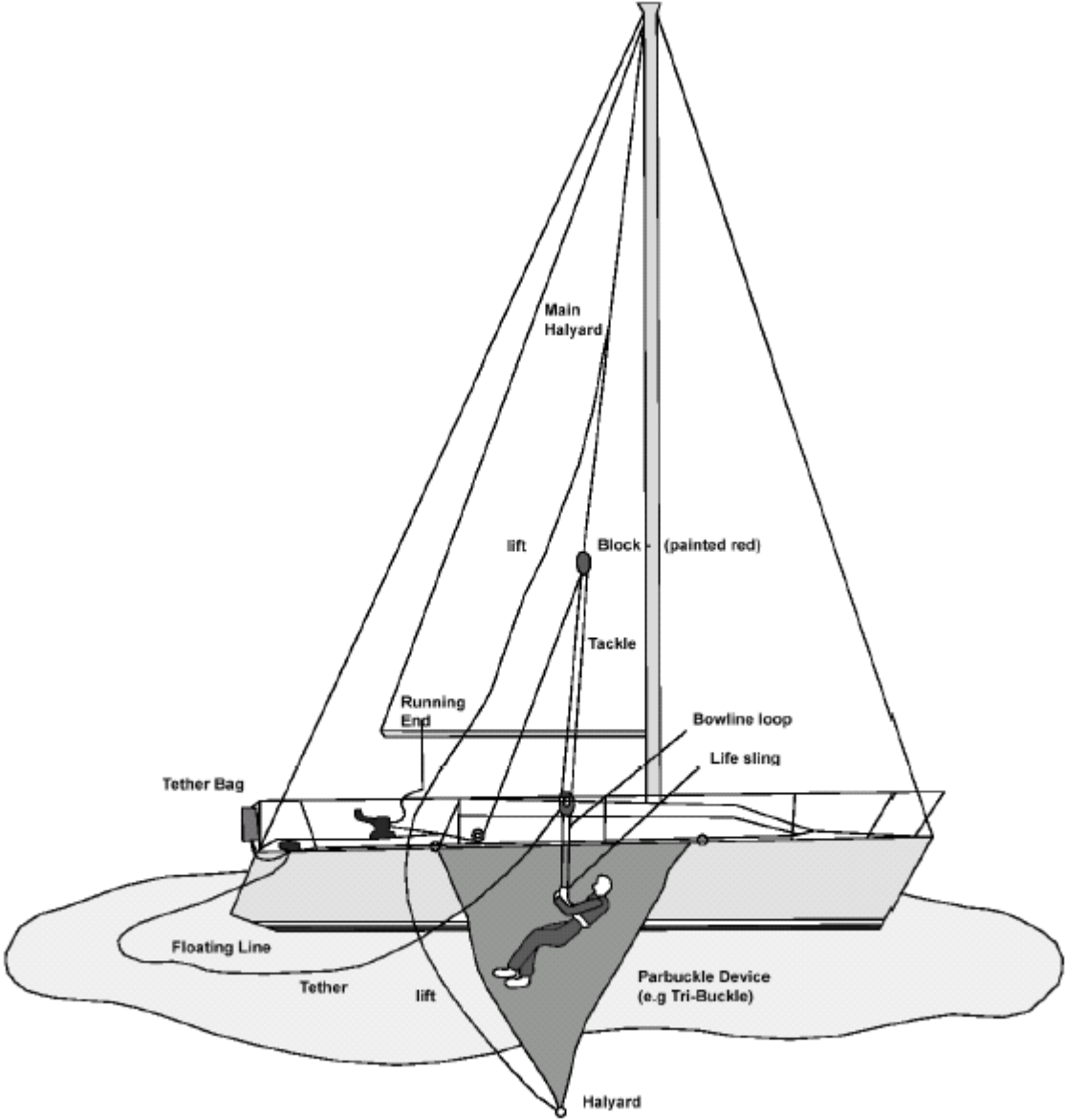
Note: Since the hoisting rig was developed, more evidence has emphasised the value in keeping a casualty horizontal particularly after long or hypothermic immersion. A parbuckle or horizontal lift is highly desirable (see below).



1. With the floating tether line, haul the casualty alongside, preferably on the windward side, from amidships to the quarter, wherever there are available cleats and winches.
2. Pull up on the tether line (with winch assistance, if necessary) to get the casualty's head and shoulders out of the water and cleat it. The casualty is now safe.
3. Attach a three- or four-part tackle to the main halyard, haul it up to a pre-determined point, about 10 feet above the deck or high enough so that the casualty can be hoisted up and over the lifelines. Cleat the halyard.
4. Attach the lower end of the tackle to the (previously sized) loop in the tether line

that passes through the D-rings of the sling.

5. Reeve the running end of the tackle through a sheet block or snatch block on deck and put it on a cockpit winch. Hoist the casualty aboard by winching on the running end of the tackle.



APPENDIX C HYPOTHERMIA

For information only

WHAT IS IT?

Hypothermia is 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 avoid accidents.

PREVENTION

Wear warm clothing and a lifejacket/harness and have proper foul-weather kit for all crew. Dry suits are excellent. Insulate all areas of the body, especially the high heat-loss areas such as the head, neck, armpits, sides of chest and groin. Keep warm and dry, but avoid sweating; wear layered clothes.

Other preventative measures include:

- Rotate the deck 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 the 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 VHP. 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.

WARNINGS

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 prove fatal; it will, at least, cause complications. Allow the body to re-warm itself slowly. Body core temperature lags behind skin temperature during re-warming. Keep the casualty protected for extended period after apparent full recovery or medical help arrives.

Many hours are required for full return to normal temperature even though the casualty may say she has recovered.

Always assume hypothermia has occurred in all man overboard situations in which the casualty has been exposed for more than 10-15 minutes. Casualties may also be suffering from near drowning, thus needing oxygen. Observe the casualty for any signs of vomiting.

In a helicopter rescue, protect the casualty - including the head - from rotor blast wind chill.

HYPOTHERMIA FIRST AID

ALL CASES

- Keep casualty horizontal
- Move casualty 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

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 casualty warm and horizontal for several hours

MODERATE CASES

- Primary task is to prevent further heat loss and allow body to re-warm itself
- Give warm, sweet drinks if the casualty is fully conscious and able to swallow without difficulty - no alcohol - no caffeine.
- Apply mild heat source to stabilise temperature and/or re-heat to point of perspiring. Keep the casualty warm and horizontal for several hours.
- **Have the casualty checked by doctor**

SEVERE CASES

- Obtain medical advice as soon as possible using your radio.
- Assist the casualty, but avoid jarring her as rough handling may cause cardiac arrest or ventricular fibrillation.
- No food or drink should be given.
- Observe for any vomiting and be prepared to clear airway.
- Ignore any pleas of "*Leave me alone, I'm OK*" - keep a continuous watch over the casualty.
- Lay casualty down in bunk, wedge in place, elevate feet, keep immobile; no exercise.
- Apply external mild heat to head, neck, chest and groin, keep the body temperature from dropping, but avoid too rapid a temperature rise.

CRITICAL CASES

- Always assume the patient is revivable; live hypothermic casualties may often look dead so 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 there is no breathing or pulse for one or two minutes, begin CPR immediately. Do not give up until the casualty is thoroughly warm - alive or dead.**
- Medical assistance is imperative - hospitalisation is necessary.

APPENDIX D DROGUES AND SEA ANCHORS

For information only

TERMINOLOGY

The term "drogue" generally describes a device dragged from the stern of a vessel. The vessel with a drogue deployed continues to make steerage way through the water but at reduced speed. The term "sea anchor" generally identifies a device streamed from the bows of a vessel whose drift is slowed or halted by the action of the sea anchor.

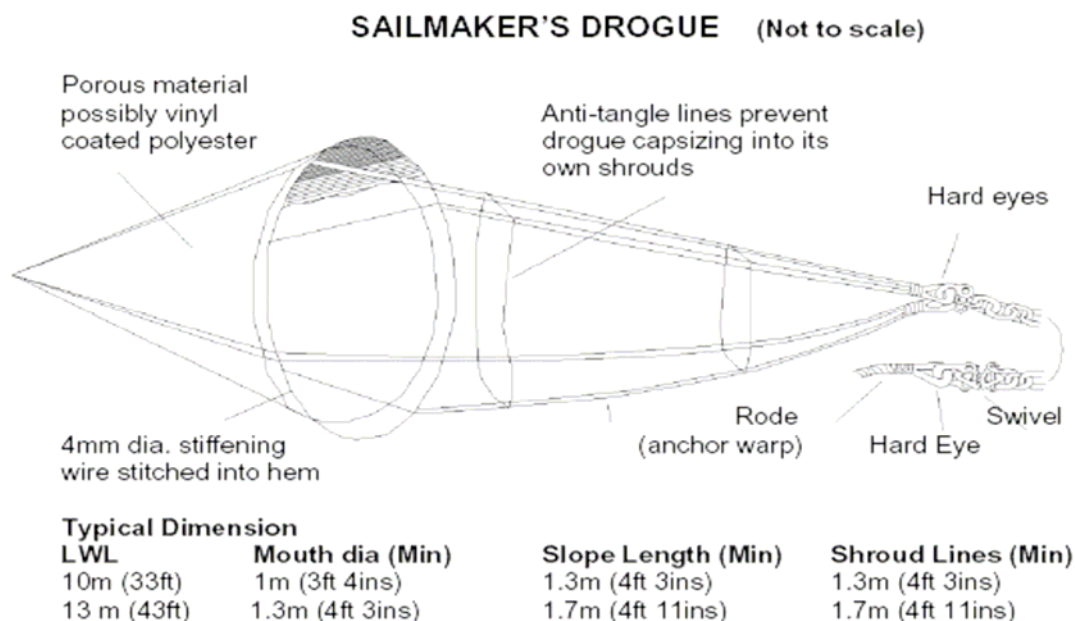
LIFERAFTS

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 significantly reduces the probability 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: Ships and marine technology. Sea anchors for survival craft and rescue boats, and the opportunity should be taken at service intervals to ensure compliance with this standard.

DROGUES ON YACHTS

Research and testing associated with drogue deployment has repeatedly shown that the use of a drogue can prevent 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 whose design was originally based on that of aviation parachutes. Specialist manufacturers have accumulated a considerable volume of data which demonstrates 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. Bridle lines led to port and starboard main winches can provide emergency steering. It is recommended that any sea anchor or drogue be obtained from a specialist supplier/manufacturer.

APPENDIX E STABILITY

INTRODUCTION

Stability can be defined as the tendency of a vessel to return to an upright condition after it is inclined by external forces such as wind, seas, weight shifts, and other factors.

Ultimate (Latent) Stability is the resistance to capsize and heel. One of the best predictors of ultimate stability is the "angle of vanishing stability" (AVS) or the angle to which a boat can heel and still right itself.

A dinghy will have a stability range of about 80 degrees; an inshore cruising boat should have a stability range of at least 100 degrees; and, an offshore cruising boat of at least 120 degrees. Boats which have a vanishing stability angle of less than 140 degrees may be left floating upside down once capsized. Boats with a higher angle will usually right themselves. Compliance with these AVS figures does not guarantee that a boat will resist capsize or self-right in all sea conditions.

An introduction to the subject of stability for cruising boats may be found at <http://www.johnsboatstuff.com/technica.htm>

The 1998 Sydney to Hobart Race Review Committee report noted:

"There is no evidence that any particular style or design of boat fared better or worse in the conditions. The age of yacht, age of design, construction method, construction material, high or low stability, heavy or light displacement, or rig type were not determining factors. Whether or not a yacht was hit by an extreme wave was a matter of chance."

REQUIREMENTS

A cruising boat can demonstrate stability and compliance with 3.04.2 in one of two ways:

- if the boat has an IMS certificate (current or expired), that certificate could be used to demonstrate compliance. If the certificate is not current, more information may be required to verify that the information therein remains relevant (ie, if the boat has had significant changes made to it, the certificate may no longer be valid); or
- if the boat has no such certificate, it may demonstrate compliance with other standards and information which the Event Organisers deem acceptable. This could be design and build information about the boat, showing a GZ curve and the angle of vanishing stability (AVS). If it is a production boat, satisfactory stability information and applicable standards may be obtainable from the manufacturer.

ISO 12217-2 [Small craft – Stability and buoyancy assessment and categorization – Part 2: Sailing boats of hull length greater than or equal to 6m.] may be used as a guide to the boat's general suitability for cruising categories as follows:

Section 8

Boats participating in Offshore category events shall have an IMS Stability Index of 115 or greater; or comply with ISO 12217-2 Category A, except that the STIX number shall be a minimum of 35.

Boats participating in Long Coastal category events should have an IMS stability index of 110 or greater; or comply with ISO 12217-2 Category A.

Boats participating in Short Coastal category events should have an IMS stability index of 103 or greater; or comply with ISO 12217-2 Category C.

Note: Compliance with ISO 12217-2, or any other standard, does not guarantee total safety or total freedom of risk from capsize or sinking.

INDEX

Item	Reference
Abbreviations	1.04
ABS	1.04, 3.03.2
accessible, readily	2.03.1, 3.20.3
alternative method of steering	4.10.2
anchors	4.02
anchors and cables	4.02.2
anchors, sea	4.23, Appendix A
antenna	3.24.3
antenna, emergency	3.24.4
aromatic polyamides	4.20.3, 4.24.4
aviation frequencies	3.24.6
ballast	2.03.2, 3.01.1
barometer	3.26
bases, stanchion	3.12.3
batteries	2.03.2(b), 3.25, 4.03.1
bilge pump outlet	3.08.3
bilge pumps	3.20, 3.20.8
boat's name	3.27.1, 4.17.1
books, charts	4.06
bow pulpit	3.12.3(a), (e), (j), 3.12.5(a)
bucket	3.20, 3.20.8
build, strength of	3.01, 3.03.2, App. E
bulkheads	3.05.1, 3.05.2, 3.05.3, 3.05.4(a), 3.16.1
bunks	3.16
buoyancy	1.03.1, 3.04, 3.05, 3.20.4, 5.01.3. App. A, App. E,
cabin trunks	3.01.2
capacity	2.03.1, 3.06.4(f), 3.06.5(b), 3.20.3, 3.20.8, 4.15.6
capsize	1.03.1, 3.02.3, 3.04.1, 3.04.3, 3.07.2(c), 3.13.1(e), App. D, App. E
storm sails	4.20.1, 4.20.4, 7.01.1
central hull	3.06.5(b), 3.13.2, 3.13.3
central nacelle	3.06.4(f), (g), 3.13.4(b)
centreboard and daggerboard trunks	3.02.2, 3.02.3, 3.02.4
certificate, radio	3.24.2
certificate, first aid	6.02.3
certificate, liferaft	4.15.6
certificate, SSSC	7.01.1
certificate, IMS	App. E
chain	2.03.2, 4.02.2, 4.02.3
charts	4.06, 4.26
clipped	3.07.2, 3.23.9, 5.04.3(c), 5.04.4, App. B

clipping points	5.04
clothing, personal	5.04, 5.06, App. B
coach roof	3.02.1, 3.03
coaming	3.13.2(c)
cockpit drain	3.08.3, 3.20.1
cockpit volume	4.15.2(b)(i)
cockpits	3.07.3, 3.08, 3.13.2, 3.20.1, 4.11.4, 4.12, 4.15.2, 4.19.1, 5.03.1, 5.04.3(b)
cocks, sea	3.10.1
communications	3.24, 7.01.1
companionways	3.07, 3.20.3, 3.20.5
compartment	3.05.1, 3.05.3, 3.05.4, 3.20.4, 3.23.10, 4.15.2(b)
compass	3.21
construction standards	3.03
container, liferaft	App. A
container, waterproof	3.18.3, 4.18.1, 6.02.7
cooking stove	3.17.1, 3.17.2
crotch strap	5.01.4, 5.02.4
damage control	7.01.1
deck	1.03.1, 3.01.2, 3.02.1, 3.03.3, 3.12.3, 3.12.4, 3.14.1, 3.23.10, 4.20.4, 4.21, 5.01.2, 5.03.1, 5.06.1, 5.07.1
definitions	1.03.1
depth sounder	4.08
distress sheet	4.25.1
drinking (potable) water	3.18, App. A
drogue	4.17.1, 4.17.4, 4.23, 7.01.1, App. A, App. D
dyneema/spectra	4.20.3, 4.20.4
electric starter	3.25.2
emergency, antenna	3.24.3, 3.24.4
emergency, steering	3.12.5, 3.21.2, 4.10
engine and fuel	3.23, 4.11.2
engine, inboard	3.23.3, 3.23.9, 3.25.2
engine, outboard	3.23.2, 3.23.10
EPIRBS	4.14, 5.07
escape exits, hatch	3.06.1, 3.06.5(a)
event, categories	1.01.2, 1.03.1, 2.01.1
extinguishers, fire	4.01. 4.01.3
features, structural	Section 3
first aid	6.01, App. C
fixed equipment	Section 3
flares (pyrotechnics)	4.18, 7.01.1, App.A
flashlights	4.03
flotation, devices	5.01
flotation, permanently installed	3.05.1
foghorn	4.04
fuel	3.17.2, 3.17.4, 3.23.3, 3.23.4, 3.23.5, 3.23.6, 3.23.7, 3.23.8, 3.23.9, 3.23.10
fundamental and definitions	Section 1
galley	3.17
gas bottles	2.03.2(b), 3.17.3, 5.01.6

general requirements	Section 2, 2.03
GMDSS	7.01.1
GPS	4.07, 4.09, App. A
grab bag	4.16, App. A, App. D
halyards	4.22
hand holds	3.06.4, 3.06.5
harness, safety	3.12.1, 3.12.6, 5.01.3, 5.02, 5.03
hatch	1.03.1, 3.02.1, 3.02.2
hatch, escape	3.06.4, 3.07
headstay	3.12.3
heaving line	4.19
heavy items	2.03.2
heavy weather and storm sails	4.20
heel	3.08.1, 3.10.1, 3.22.2, App. E
height, above water	3.24.4, 4.05.1
height, lifeline	3.12.3, 3.12.6
height, minimum	3.14.1
highly visible colour	4.17.3, 4.20.2, 4.21.2
hull construction standards	3.03
hull identification	3.27
hypothermia	5.06.1, 7.01.1, App. C
IMS	Appendix E
inboard propulsion engine	3.23.3, 3.23.9, 3.25.2
index, stability	Appendix E
inspection	1.02.2, 2.02, 3.12.7(b)
Inspection port	3.02.2
inspection, liferafts	App. A
Integrity, hull,	1.02.1, 3.01.2, 3.03.2, 3.05.1, 3.05.4, 3.08.1, 3.08.2
IRPCAS	3.22.1
ISAF	1.04.1
ISO	1.04.1, 3.03.2
ISO 11812	3.08, 3.08.6
ISO 12217-2	3.04, 3.05, App. E
ISO 15085	3.12
ISO 17399	App. A, App. D
jackstays	5.02, 5.03, 5.04.3
knife	4.1.4, 5.02.5, App. A
lanyard	3.07.6, 3.10.1, 3.12.7(d), (e), 3.20.7, 3.20.8, 4.25.1
lifebuoy	4.12.1, 4.13.1, 4.17
lifeline/s	1.03.1, 3.12
lifelines, minimum diameter	3.12.7
lifelines, vertical opening	3.12.6
lifelines, pulpits, stanchions	3.12
liferaft, stowage	4.15.3
liferafts	4.15, App. A
lifesling	4.12.1, 4.13.1, 4.17.1, 4.17.5, App. B
lights, navigation	3.22
lights, personal	5.05
line, safety	1.03.1, 5.02, 5.04.2, 5.04.3(c)

LOA	1.03.1
Log	3.09.1, 4.09
loss (of) rudder	4.10
LWL	1.03.1
mainsail reefing	4.20.4(g), (h)
maintenance	3.02.2, 3.20.3, 7.01.1
man overboard	4.17.1, 7.01.1, Appendix B
marine radio	3.24.2
mast step	3.11
navigation lights	3.22
navigational charts	4.06, 4.26
nets, multihull. or trampolines	3.12.5(a), 3.13
openings aft (to the sea)	3.08.5
owner	1.02
owner's representative	1.02
owner's responsibility	1.02
parachute anchor	4.23.1, App. D
personal equipment	Section 5
personal survival training	7.01.1
PFD	4.12.1, 4.13.1, 5.01
plugs	3.10
points, clipping	5.04, 5.04.3, 5.04.4
portable equipment and supplies	Section 4
pulpit	3.12.3, 3.12.4, 3.12.5, 3.13.2, 3.13.3
purpose and use	1.01
pyrotechnics (flares)	4.18.1, 7.01.1
radar reflector	4.05.1
radar cross section (RCS)	4.5.1
readily accessible	2.03.1(b), 4.01.1, 4.19.1
receiver, radio	3.24.8
repairs, significant	3.03.35
retro-reflective tape	4.13, 5.01.4
rigging, standing	1.02.1, 4.11.1
roof, coach	3.02.1, 3.03
rope, synthetic, lifelines	3.12.5(d), 3.12.6(d)
rudder loss	4.10
safety harness	3.12.1, 3.12.6, 5.01.3, 5.02, 5.03
safety lines (tethers)	5.02, 5.04
sail numbers	4.21
sails	1.02.1, 3.22.2, 4.20, 4.21, 7.01.1
satcom	7.01.1
sea anchors	App. D
seacocks or valves	3.09
sealed batteries	3.25.1
servicing, liferafts	4.15.6
sheet, distress	4.25.1
sheeting positions	4.20.4
shutoff, fuel	3.17.2, 3.23.6
snap hook	5.02.6, 5.04.2
sock, throwing	4.19.1, App. B
sockets	3.12.3(f)

soft wood plugs	3.10.1
SOLAS	1.04.1, 4.15.2(d), 4.18.1, 5.03.1, App. A
speed	3.09.1, 3.23.1, 3.23.4, 4.20.6, App.B
stability	1.01.1, 1.03.1, Section 3, 3.04, 3.05, 4.20.1, Appendix E
stainless steel wire	3.12.7(a)
stanchion bases	3.12.3, 5.03.5
stanchions, lifelines and pulpits	3.12
standards, construction, hull	3.03
starter, electric	3.25.2
static safety line	1.03.1, 5.04.2, 5.04.3
steering, emergency	3.12.59c), 3.21.2, 4.10, App.D
stern pulpit	3.12.3(b), (e), 3.12.5(d)
storm jib	4.20.2, 4.20.3, 4.24.4(b), (e), (j), 4.21.1
storm trysail	4.20.4 (d), (g), (h), 4.20.5
stove	2.03.2 (b), 3.17.1, 3.17.2, 3.17.3
stowage chart	4.26
strum box	3.20.3
studs	3.12.3(f)
synthetic rope, lifeline closure	3.12.7(d)
tanks, fuel	3.23.6, 3.23.7, 3.23.8, 3.23.10
tanks, water	3.18
tape, retro-reflective	3.18, 5.01.4
terminals, lifeline	3.12.1(i)
tethers	5.02, 5.03.1, 5.04.1
thigh straps	5.01.4, 5.02.4
through-hull fittings	3.09.1, 3.10.1
toe rail or foot-stop	3.14
toilet	3.15
tools	3.06.6(a), 4.11
training	1.02.1, 6.01, Section 7
trampoline, nets	3.13
transceiver,VHF, handheld	3.24.6, Appendix A
trunks, cabin	3.01.2
trunks, centreboard	3.02.2, 3.02.3, 3.02.4
trysail, storm	4.20.2, 4.20.3, 4.20.4(g), (h), (i), (j), 4.20.5
valves, sea cocks	3.09
ventilated compartment	3.23.10
water pressure	3.05.3, 4.15.2(b)(ii)
watertight compartment	3.05.4 (b)
webbing, jackstays	5.03.2
whistle, lifebuoy	4.17.4
whistle, lifejacket	5.01.4, 5.01.5
winches, sheet	5.04.1, App. B