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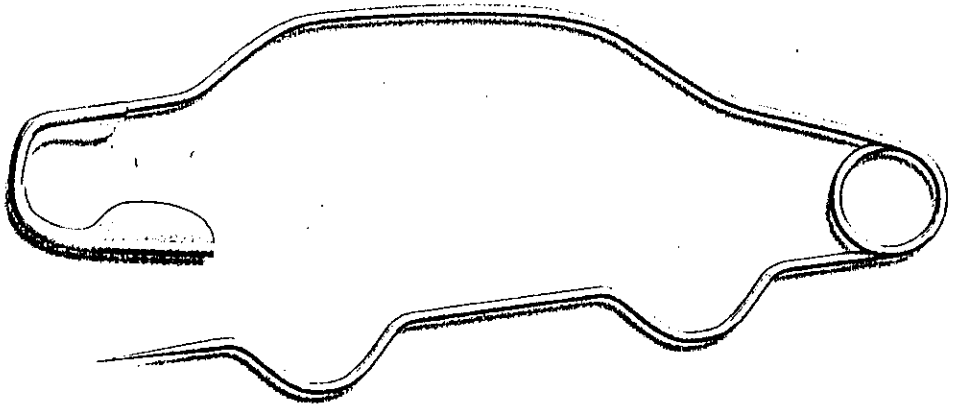
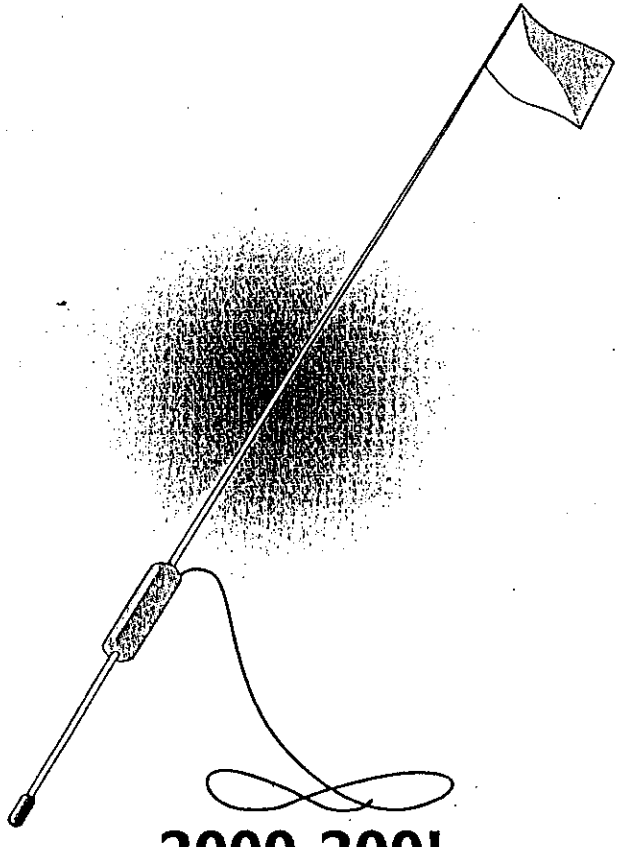


OFFSHORE RACING COUNCIL



2000-2001
SPECIAL REGULATIONS

governing offshore racing
for Monohulls and Multihulls
● structural features ● yacht equipment
● personal equipment ● training

OFFSHORE RACING COUNCIL

SPECIAL REGULATIONS 2000-2001

CONTENTS

TERMS OF REFERENCE

The committee shall be responsible for the maintenance, revision and amendment of the Special Regulations Governing Offshore Racing. It shall monitor developments in offshore racing to ensure the maintenance of standards of safety and seaworthiness.

These Regulations are reviewed annually in November following Council consideration of submissions for changes from National Authorities. Interested parties who wish to comment may do so through their National Authority or the office of the Offshore Racing Council

Published in association with FICO
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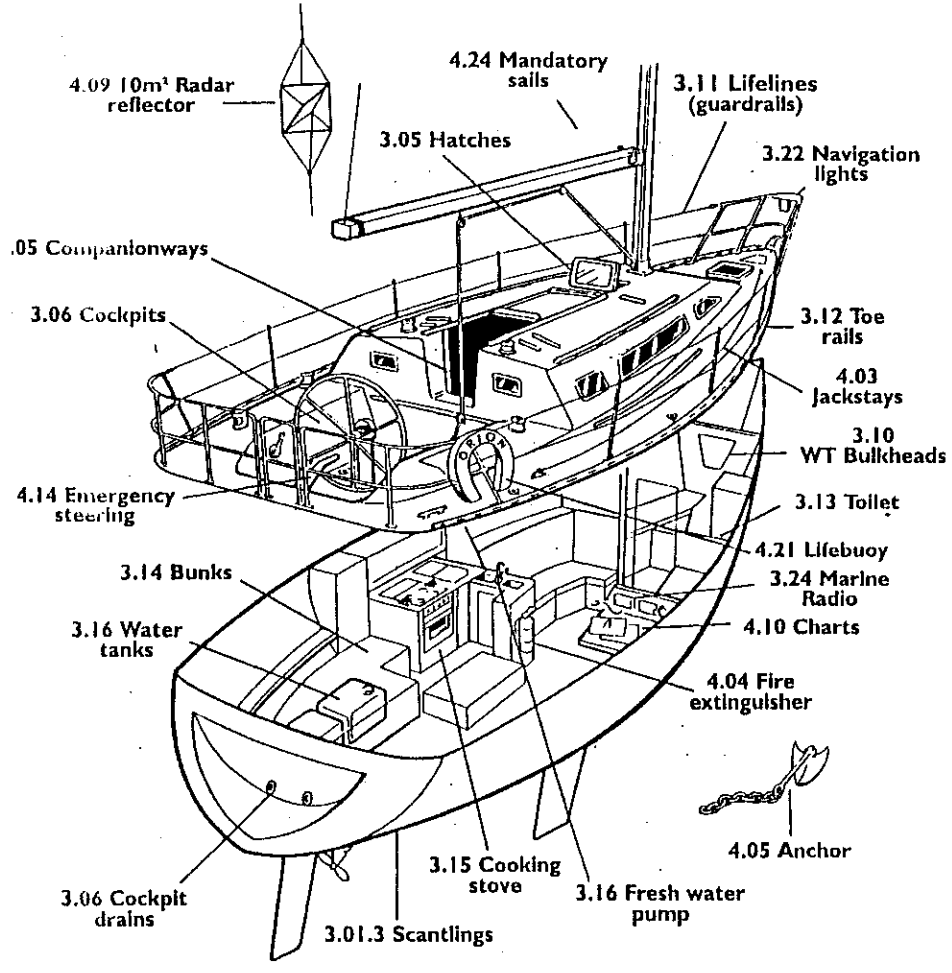
Designed & printed by DESLITH LIMITED Tel: (023) 8063 1473 www.deslith.co.uk

ORC SPECIAL REGULATIONS DIAGRAMMATIC GUIDE

(see also complete alphabetical index)



OFFSHORE RACING COUNCIL

JANUARY 2000 - DECEMBER 2001

Notes to the 2000/2001 edition:-
A side bar indicates significant changes in 2000. Revisions to this edition in respect of harnesses and liferafts will be published as soon as possible in the second half of 2000 following the Sydney-Hobart Coronial Enquiry. When reprinting these regulations National Authorities and Race Organisers should:-

- request copyright permission from the ORC (normally given free of charge)
- display a copyright acknowledgement with the reprint
- make any amendments by deleting contrary provisions and indicating that changes have been made
- supply a copy of the reprint to the ORC

Official interpretations may be provided at the discretion of the ORC. Official interpretations shall take precedence over these Special Regulations and will be indexed, numbered, dated and displayed at www.orc.org or available by post or fax at cost. Extract files are available at the web site for individual categories and boat types (monohulls and multihulls).

SECTION 1 - FUNDAMENTAL AND DEFINITIONS

Fundamental Regulations

1.01 Purpose And Use

- It is the purpose of these Special Regulations to establish uniform minimum equipment, accommodation and training standards for *monohull* and multihull yachts racing offshore. A *Proa* is excluded from these regulations.
- These Special Regulations do not replace, but rather supplement, the requirements of governmental authority, the Racing Rules and the rules of Class Associations and Rating Systems. The attention of owners is called to restrictions in the Rules on the location and movement of equipment.
- The Offshore Racing Council strongly recommends the use of these Special Regulations by all organisers of offshore races. Race Committees may select the category deemed most suitable for the type of race to be sailed.

1.02 Owner's Responsibility

- The Safety of a yacht and her crew is the sole and inescapable responsibility of the owner, or owner's representative who must do his best to ensure that the yacht 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 must be satisfied as to the soundness of hull, spars, rigging, sails and all gear. He must ensure that all safety equipment is properly maintained -see 2.03(a)- and stowed and that the crew know where it is kept and how it is to be used.
- Neither the establishment of these Special Regulations, their use by race organisers, nor the inspection of a yacht under these Regulations in any way limits or reduces the complete and unlimited responsibility of the owner or owner's representative.
- Decision to race – A yacht is solely responsible for deciding whether or not to start or to continue racing:- RRS Fundamental Rule 4.

1.03 Word Usage, Abbreviations, Definitions

- A term defined below is in the main text shown in italic type or, in italic notes, in bold italic type eg *coaming*, ***coaming***.
- The words "shall" and "must" are mandatory, and "should" and "may" are permissive.
- The word "yacht" shall be taken as fully interchangeable with the word "boat".

Age Date	Month/year of first launch
CEN	Comité Européen de Normalisation
Coaming	For the purposes of SR 3.06(c) includes the transverse after limit of the cockpit, over which water would run in the event that when the yacht is floating level the cockpit is flooded or filled to overflowing.
DSC	Digital Selective Calling
EN	European Norm
EPIRB	Electronic Position-Indicating Radio Beacon
FA station	The transverse station at which the upper corner of the transom meets the sheerline.
FICO	Fédération Internationale des Organisateurs de Courses Oceaniques
GMDSS	Global Maritime Distress & Safety System
GPIRB	EPIRB, with integral GPS position-fixing
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).
IMO	International Maritime Organisation
ISAF	International Sailing Federation

ISO	International Standard or International Organization for Standardization.
Lifeline	wire line rigged as a guardrail around the deck
LOA	Length overall not including pulpits, bowsprits, boomkins etc.
LWL	(Length of) loaded waterline
Monohull	Yacht in which the hull depth in any section does not decrease towards the centre-line.
Permanently installed	Means the item is effectively built-in by eg bolting, welding, glassing etc. and should not be removed during racing.
Proa	Assymetric catamaran
Series date	Month/year of first launch of the first yacht of the production series
SOLAS	Safety of Life at Sea Convention
Safety line	A tether used to connect a safety harness to a strong point
Securely fastened	Held strongly in place by a method (eg rope lashings, wing-nuts) which will safely retain the fastened object in severe conditions including a 180 degree capsize and allows for the item to be removed and replaced during racing
Static safety line	A *safety line* (usually shorter than a *safety line* carried with a harness) kept clipped on at a work-station

SECTION 2 - APPLICATION & GENERAL REQUIREMENTS

.01 Categories of offshore events

In many types of race, ranging from trans-oceanic sailed under adverse conditions to short-course day races sailed in protected waters, five categories are established, to provide for differences in the minimum standards of safety and accommodation required for such varying circumstances:

Category 0 trans-oceanic races, including races which pass through areas in which air or sea temperatures are likely to be less than 5° Celsius other than temporarily, where yachts must be completely self-sufficient for very extended periods of time, capable of withstanding heavy storms and prepared to meet serious emergencies without the expectation of outside assistance.

Category 1 races of long distance and well offshore, where yachts must be completely self-sufficient for extended periods of time, capable of withstanding heavy storms and prepared to meet serious emergencies without the expectation of outside assistance.

Category 2 races of extended duration along or not far removed from shorelines or in large unprotected bays or lakes, where a high degree of self-sufficiency is required of the yachts.

Category 3 races across open water, most of which is relatively protected or close to shorelines, including races for small yachts.

Category 4 short races, close to shore in relatively warm or protected waters normally held in daylight.

.02 Inspection

A yacht may be inspected at any time. If she does not comply with these Special Regulations her entry may be rejected, or she will be liable to disqualification or such other penalty as may be prescribed by the national authority or the race organisers.

ey to Indices: Mo means Monohull, Mu means Multihull.

egulations refer either to the indices printed on the same line or to the next indices above

.03 General Requirements

	Category
1) All equipment required by Special Regulations shall:-	
• function properly • be regularly checked, cleaned and serviced • when not in use be stowed in conditions in which deterioration is minimised • be readily accessible • be of a type, size and capacity suitable and adequate for the intended use and size of the yacht.	Mo Mu0 1 2 3 4
2) Heavy Items:	
• Ballast, ballast tanks and associated equipment shall be *permanently installed* • Heavy movable items including eg. batteries, stoves, gas bottles, tanks, toolboxes and anchors and chain (see 4.05) shall be *securely fastened* • Heavy items for which fixing is not specified in Special Regulations shall be *permanently installed* or *securely fastened*, as appropriate	Mo Mu0 1 2 3 4
3) When to show navigation lights	
• navigation lights (see 3.22) shall be shown as required by the International Regulations for Preventing Collision at Sea, (Part C and Technical Annex 1). All yachts shall exhibit sidelights and a sternlight at the required times.	Mo Mu0 1 2 3 4

SECTION 3 - STRUCTURAL FEATURES, STABILITY, FIXED EQUIPMENT

Category

3.01.1 Strength of build, ballast and rig — Mo Mu0 1 2 3 4

Yachts shall be strongly built, watertight and, particularly with regard to hulls, decks and cabin trunks capable of withstanding solid water and knockdowns. They must be properly rigged and ballasted, be fully seaworthy and must meet the standards set forth herein. "Properly rigged" means inter alia that shrouds shall never be disconnected.

3.01.2 Watertight Integrity of a hull — Mo Mu0 1 2 3 4

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. Centerboard and daggerboard trunks and the like shall not open into the interior of a hull except via a watertight inspection/maintenance *hatch* of which the opening shall be entirely above the waterline of the yacht floating level in normal trim.

3.01.3 Scantlings — Mo Mu0 1 2

A yacht defined in the table below shall have been designed and built in accordance with either:

- the EC Recreational Craft Directive for Category A (having obtained the CE mark), or
- the ABS Guide for Building and Classing Offshore Yachts (available from ORC) when a written statement or statements to this effect signed by the designer and builder respectively or a certificate of plan approval issued by ABS shall be on board, or
- (when so stated in the Notice of Race) other criteria similar to that above.

Any significant repairs or modifications to the hull, deck, coachroof, keel or appendages, on a yacht defined in the table below shall be certified by one of the methods above and an appropriate written statement or statements shall be on board.

LOA	earliest of age or *series date*	race category
all	1/86 and after	0 1
12m (39.4 feet) and over	1/87 and after	2
under 12m (39.4 feet)	1/88 and after	2

3.02.1 Stability – Monohulls

- Either with, or without, reasonable intervention from the crew a yacht shall be capable of self-righting from an inverted position. Self-righting shall be achievable whether or not the rig is intact. — Mo 0
- A yacht shall be designed and built to resist capsize. A National Authority or race organiser should require compliance with a minimum stability or stability/buoyancy index. Attention is drawn to the stability index in IMS Regulations 201 and screening indices published by various national authorities. — Mo 0 1 2 3 4
- *ISO* 12217-2 when published as an international standard (not a draft) is expected to be capable of being used as a guide to general suitability for competition in Special Regulations race categories as follows:

  ISO Category A B C
  SR Category 1 2-3 4

  Use of the ISO or any other index does not guarantee total safety or total freedom of risk from capsize or sinking.

3.02.2 Stability and Flotation – Multihulls — Mu0 1 2 3 4

- Attention is drawn to *ISO* 12217-7.
- 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 half the length of one hull flooded. See Special Regulation 3.10.
- Multihulls built on or after 1/99 shall in every hull without accommodation be divided at intervals of not more than 4m (13ft 3") by one or more transverse watertight bulkheads.

3.04.1 Emergency Exits – Monohulls — Mo 0 1 2 3 4

LOA	earliest of age or *series* date	detail
8.5 m (28 ft) and over	1/95 and after	Yachts shall have two escape exits. One exit shall be located forward of the foremost mast except where structural features prevent its installation.

	Category
.04.2 Emergency Exits - Multihulls	
Each hull which contains accommodation shall have:	Mu0 1 2 3 4
) at least two means of exit	
) a *hatch* for access to and from the hull in the event of an inversion	Mu0 1 2 3
• the ORC recommends where structural features permit, a minimum clearance diameter of 450mm or when the clearance space is not circular, such that allows a crew member to pass through fully clothed	
• when the yacht is inverted the *hatch* shall be above the waterline	
• in a multihull first launched on or after 1/2001 each escape *hatch* shall be at or near the midships station	
• each escape *hatch* must have been opened both from inside and outside within 6 months prior to an intended race.	
.05 Hatches & Companionways	
No *hatch* forward of the maximum beam station shall open inwards excepting ports having an area of less than 0.071m2 (110 sq in).	Mo Mu0 1 2 3 4
) a *hatch* shall be:	
• so arranged as to be above the water when the hull is heeled 90 degrees	
• permanently attached	
• capable of being firmly shut immediately and remaining firmly shut in a 180 degree capsize (inversion)	
) a companionway *hatch* extending below the local sheerline, shall:	
• not be permitted in a yacht with a cockpit opening aft to the sea. See Special Regulation 3.06.1(f)	
• be capable of being blocked off up to the level of the local sheerline, provided that the companionway *hatch* shall continue to give access to the interior with the blocking devices (eg washboards) in place	
) a companionway *hatch* shall:	
• be fitted with a strong securing arrangement which shall be operable from above and below including when the yacht is inverted	
• have any blocking device:	
• capable of being retained in position with the hatch open or shut	
• whether or not in position in the hatchway, secured to the yacht (eg by lanyard) for the duration of the race, to prevent the blocking device being lost overboard.	
• permitting exit in the event of inversion	
.06.1 Cockpits - Attention is drawn to *ISO* 11812	Mo Mu0 1 2 3 4
) 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.	
) cockpits must be essentially watertight, that is, all openings to the hull must be capable of being strongly and rigidly secured.	
) bilge pumps shall not be connected to cockpit drains. See Special Regulation 3.18(a). See table below for cockpit drain minimum sizes	
) a cockpit sole must be at least 2% L above *LWL* (2% *LOA* above *LWL*).	
) a bow, lateral, central or stern well shall be considered a cockpit for the purposes of Special Regulation 3.06	
) cockpit volume shall be subject to the limitations in the table below, provided that in cockpits opening aft to the sea:	
• the lower edge of a companionway *hatch* shall not be below the local sheerline. See Special Regulation 3.05(b).	
• structural openings aft shall be not less in area than 50% maximum cockpit depth x maximum cockpit width	
• the limitations in the table below do not apply except to any volume of a cockpit below the lowest *coaming*.	

.06.2 Cockpit volume

earliest of age or *series* date	detail	
before 4/92	the total volume of all cockpits below lowest coamings shall not exceed 6% L x B x FA (6% *LWL* x maximum beam x freeboard abreast the cockpit).	Mo Mu0 1
before 4/92	the total volume of all cockpits below lowest coamings shall not exceed 9% L x B x FA (9% *LWL* x maximum beam x freeboard abreast the cockpit).	Mo Mu 2 3 4
4/92 and after	as above for the appropriate category except that the determination of lowest *coamings* shall not include any aft of the FA station, and any extension of a cockpit aft of the working deck shall not be included in calculation of cockpit volume	Mo Mu0 1 2 3 4

3.06.3 Cockpit drains

LOA	earliest of age or *series* date	minimum drain size after allowance for screens	race category
under 8.5 m	any	2 x 25 mm diameter or equivalent	0 1 2 3 4
8.5 m and over	before 1/72	2 x 25 mm diameter or equivalent	0 1 2 3 4
8.5 m and over	1/72 to 1/77	2 x 25 mm diameter or equivalent	3 4
8.5 m and over	1/72 to 1/77	4 x 20 mm diameter or equivalent	0 1 2
8.5 m and over	after 1/77	4 x 20 mm diameter or equivalent	0 1 2 3 4

conversions: 8.5 m = 28 ft, 25 mm = 1 in, 20 mm = 3/4 in.

	Category
3.07 Sea cocks or valves shall be *permanently installed* on all through-hull openings below *LWL* except integral deck scuppers, shaft log, speed indicators, depth finders and the like, however a means of closing such openings shall be provided.	Mo Mu0 1 2 3 4
3.08 Sheet winches shall be mounted in such a way that an operator is not required to be substantially below deck.	Mo Mu0 1 2 3 4
3.09 Mast step. The heel of a keel stepped mast shall be *securely fastened* to the mast step or adjoining structure.	Mo Mu0 1 2 3 4
3.10 Watertight Bulkheads. See Special Regulation 3.02.2	
• a hull shall have either a watertight "crash" bulkhead within 15% of *LOA* from the bow and abaft the forward end of *LWL*, or *permanently installed* closed-cell foam buoyancy effectively filling the forward 30% (linear measurement) of the hull.	Mu0 1 2 3 4 Mo 0
• a yacht shall have at least two watertight transverse main bulkheads (in addition to "crash" bulkheads at bow or stern).	
• any required watertight bulkhead shall be strongly built to take a full head of water pressure without allowing any leakage into the adjacent compartment.	
• outside deck access for inspection and pumping shall be provided to every watertight compartment terminated by a hull section bulkhead, except that deck access to extreme end "crash" compartments is not required.	
• after flooding any one compartment, a yacht should be capable of providing shelter and sustenance for a full crew for 1 week in a dry compartment having direct access to the deck.	
• an access *hatch* shall be provided in every required watertight bulkhead (except a "crash" bulkhead) and should have closures permanently attached. An access *hatch* should be capable of being securely shut within 5 seconds.	
• any required watertight compartment should be provided with a means of manually pumping out from a position outside the compartment.	
• the ORC strongly recommends an extreme end "crash" bulkhead at the stern in addition to the bulkheads described above. If practicable the aft "crash" bulkhead should be forward of the rudder post.	
3.11 Lifelines, Pulpits and Stanchions - Attention is drawn to ISO 15085	Mo Mu0 1 2 3 4
When due to the particular design of a multihull it is impractical to precisely follow Special Regulations regarding lifelines, stanchions and pulpits, the regulations shall be followed as closely as possible with the aim of minimising the risk of people falling overboard.	
***Lifelines* required in Special Regulations shall be "taut".** *As a guide, when a deflecting force of 50 N (5.1 kgf, 11.2 lbf) is applied to a lifeline midway between supports, the lifeline should not deflect more than 50 mm.*	
(a) Lifelines The following shall be provided:	
• *lifelines* supported on stanchions, effectively continuous around the working deck. *Lifelines* may be substituted by horizontal rails in pulpits. *Lifelines* shall be permanently supported at intervals of not more than 2.13m (7 ft) and shall not pass outboard of supporting stanchions.	Mo Mu0 1 2 3 4
• a bow pulpit forward of the headstay (however on yachts under 8.5 m (28 ft) the bow pulpit may be aft of the headstay provided the forward upper rail is within 405 mm (16 in) of the headstay)	Mo 0 1 2 3 4
• a stern pulpit, or *lifelines* arranged as an adequate substitute	
• upper rails of pulpits at no less height above the working deck than the upper *lifelines* (see table 1 below)	Mo Mu0 1 2 3 4
• on a trimaran- a bow pulpit on the main hull, with *lifelines* around the main hull supported on stanchions. The lifelines may be interrupted where there are nets or crossbeams outboard of the main hull	Mu0 1 2 3 4
• on a 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.	
• at a main or emergency steering position on a trimaran outrigger with or without a cockpit, *lifelines* protecting an arc described by 1.5 metres radius centred on the steering position. (When measuring between *lifelines* their taut, undeflected positions shall be taken for this purpose).	
• on a 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 zig-zag between the transverse lifelines and the net.

Permitted variations:-

provided the complete *lifeline* enclosure is supported by stanchions and pulpit bases effectively within the working deck, *lifeline* terminals and support struts may be fixed to a hull aft of the working deck

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 150 mm (6 in).

upper rails in bow pulpits may be openable but shall be secured shut whilst racing.

b) Number of *lifelines*, vertical spacing- 3.11 table 1

	LOA	earliest of age/series date	minimum requirements
(i)	under 8.5 m (28 ft)	before 1/92	taut single *lifeline*, at a height of no less than 450 mm (18 in) above the working deck. No vertical opening shall exceed 560 mm (22 in).
(ii)	under 8.5 m (28 ft)	1/92 and after	as (i) above except that when an intermediate *lifeline* is fitted, no vertical opening shall exceed 380 mm (15 in).
(iii)	8.5 m (28 ft) and over	before 1/93	taut double *lifeline* with upper *lifeline* at a height of no less than 600 mm (24 in) above the working deck. No vertical opening shall exceed 560 mm (22 in)
(iv)	8.5 m (28 ft) and over	1/93 and after	as (iii) above except that no vertical opening shall exceed 380 mm (15 in).
(v)	all	all	on yachts with intermediate *lifelines*, the intermediate line shall be not less than 230 mm (9 in) above the working deck.

c) *Lifeline* materials

Lifelines shall be stranded stainless steel wire of minimum diameter in the table below. Grade 316 stainless wire is recommended. *Lifelines* installed from 1/99 should be uncoated and used without close-fitting sleeving *(water trapped in sleeving can cause stainless steel to corrode due to lack of free air).*

A taut lanyard of synthetic rope may be used to secure life-lines provided the gap it closes does not exceed 100 mm (4 in).

All wire, fittings, anchorage points, fixtures and lanyards shall comprise a life-line enclosure system which has at all points at least the breaking strength of the required life-line wire.

d) *Lifeline* materials- 3.11 table 2

LOA	minimum wire diameter
under 8.5 m (28ft)	3 mm (1/8 in)
8.5m – 13 m	4 mm (5/32 in)
over 13 m (43 ft)	5 mm (3/16 in)

e) Stanchions and pulpits

- Within the first 50 mm (2 in) from the deck, stanchions shall not be displaced horizontally from the point at which they emerge from the deck or base by more than 10 mm (3/8 in). Stanchions shall not be angled at more than 10° from vertical at any point above 50 mm (2 in) from the deck.
- Pulpits and stanchions shall be *permanently installed*. When there are 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 help of the life-lines. Without sockets or studs, pulpits and/or stanchions shall be through-bolted, bonded or welded.
- The bases of pulpits and stanchions shall not be further inboard from the edge of the working deck than 5% of maximum beam or 150 mm (6 in), whichever is greater.
- Stanchion bases shall not be situated outboard of the 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.

Category: Mu0 1 2 3 4

Mo Mu0 1 2 3 4

Category: Mo Mu0 1 2 3 4

(f) Stanchions and pulpit materials- 3.11 table 3

LOA	earliest of age/*series date*	detail
any	before 1/87	carbon fibre is not recommended in stanchions, pulpits and *lifelines*.
any	1/87 to 12/87	stanchions, pulpits and *lifelines* shall not be made of carbon fibre.
any	1/88 and after	stanchions, pulpits and *lifelines* shall not be made of carbon fibre. Stanchions shall be straight, except that one bend is permitted in the first 50 mm (2 in) above deck.

3.11.1 Multihull Nets or Trampolines Mu0 1 2 3 4

The word "net" is interchangeable with the word "trampoline"

(a) A net shall be:-

- essentially horizontal
- made from durable woven webbing, water permeable fabric, or mesh with openings not larger than 5.08cm (2 inches) in any dimension. Attachment points shall be planned to avoid chafe. The junction between a net and a yacht shall present no risk of foot trapping
- solidly fixed at regular intervals on transverse and longitudinal support lines and shall be fine-stitched to a bolt rope. Lines used to tie the nets should be individually tied or not continuously connected to more than four attachment points per connecting line.
- able to carry the full weight of the crew either in normal working conditions at sea or in case of capsize when the yacht is inverted.

(b) A trimaran with two crossbeams between the main hull and each outrigger shall have a net surface to cover at least the space between the beams plus:

- on each side of the yacht forward, a triangle joining:
  - -the aft end of the pulpit on the main hull,
  - -the mid-point on each forward crossbeam between main hull and outrigger, and
  - -the intersection of each forward crossbeam and the main hull.
- on each side of the yacht aft a triangle joining:
  - -the intersection of the aft crossbeam and the main hull
  - -the intersection of the aft crossbeam and the outrigger
  - -the after-most part of the cockpit or steering position (whichever is furthest aft)

(c) On a trimaran with a single crossbeam between the main hull and each outrigger, the net surface on each side of the yacht shall be at least that between two straight lines from the intersection of the crossbeam and the outrigger and ending:

- one at the aft end of the pulpit on the main hull, and the other
- at the aftermost point of the cockpit or steering position on the main hull (whichever is furthest aft).

(d) On a catamaran the total net surface shall be limited:

- laterally by the hulls
- longitudinally by transverse stations through
  - - the forestay base, and
  - - the aftermost point of the boom or balestron when the boom is lying fore and aft.

However, a catamaran with a central nacelle (non- immersed) may satisfy the regulations for a trimaran.

3.12 A toe rail of minimum height 25 mm (1 in) 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 half beam. Mo 0 1 2 3

		Category
ie following variations shall apply:-		Mo 0 1 2 3 4
LOA	**earliest of age or *series date***	**minimum requirements**
any	before 1/93	an additional *lifeline* of minimum height 25 mm (1 in) and maximum height 50 mm (2 in) is acceptable in lieu of a toe rail (but shall not count as an intermediate lifeline in 3.11 table 1).
any	before 1/81	a toe rail minimum height of 20 mm (3/4 in) is acceptable.
any after	1/94 and	the toe rail shall be fitted as close as practicable to the vertical axis of stanchion bases but not further inboard than 1/3 the local half beam.
.13 Toilet, *permanently installed*		Mo Mu0 1 2
toilet, *permanently installed* or fitted bucket		Mo Mu 3 4
14 Bunks, *permanently installed*, one for each member of the declared crew		Mo Mu0
bunks, *permanently installed*		Mo Mu 1 2 3 4
15 Cooking **stove**, *permanently installed* or *securely fastened* with safe accessible fuel shutoff control capable of being safely operated in a seaway.		Mo Mu0 1 2 3
Galley facilities		Mo Mu 4
.16 Water Tanks & Drinking Water		
i) Tanks		
yacht shall have a *permanently installed* delivery pump and water tank(s):		Mo Mu0 1 2 3
dividing the water supply into at least three compartments		Mo Mu0
dividing the water supply into at least two compartments		Mo Mu 1
ii) Drinking water		
hen not specified in the Notice of Race the quantity of drinking water on board at the start of a race shall be: in the absence of a watermaker, at least 9 litres (2 UK gallons or 2.4 US gallons) per person per 1000 miles, or		Mo Mu0
when a watermaker is on board at least 3 litres (0.7 UK gallon or 0.8 US gallon) per person per 1000 miles.		
i) Emergency drinking water		
at least 9 litres (2 UK gallons, 2.4 US gallons) of drinking water for emergency use shall be provided in a dedicated container or container(s)		Mo Mu0 1 2 3
.17 Hand holds.		
Adequate hand holds shall be fitted below deck so that crew members may move about safely at sea.		Mo Mu0 1 2 3 4
.18 **Bilge Pumps and Buckets**		Mo Mu0 1 2 3 4
i) General		
no bilge pump may discharge into a cockpit unless that cockpit opens aft to the sea.		
bilge pumps shall not be connected to cockpit drains. See Special Regulation 3.06.		
bilge pumps and strum boxes shall be readily accessible for maintenance and for clearing out debris		
unless *permanently installed*, each bilge pump handle shall be provided with a lanyard or catch or similar device to prevent accidental loss		
ii) The following shall be provided:		
two *permanently installed* manual bilge pumps, one operable above, the other below deck. Each pump shall be operable with all cockpit seats, hatches and companionways shut and shall have *permanently installed* discharge pipe(s) of sufficient capacity to accommodate simultaneously both pumps		Mo Mu0 1 2
multihulls shall have provision to pump out all watertight compartments (except those filled with impermeable buoyancy). See Special Regulations 3.02.2, 3.10.		Mu0 1 2 3 4
one *permanently installed* manual bilge pump operable with all cockpit seats, hatches and companionways shut		Mo 3
one manual bilge pump		Mo 4
two buckets of stout construction each with at least 9 litres (2 UK gallons, 2.4 US gallons) capacity. Each bucket to have a lanyard.		Mo Mu0 1 2 3 4
3.19 Compass		
he following shall be provided:-		
• a marine magnetic compass, independent of any power supply, *permanently installed* and correctly adjusted with		Mo Mu0 1 2 3 4

	Category
variation card	Mo Mu0 1 2 3
• a spare magnetic compass independent of any power supply	
3.20 Halyards No mast shall have less than two halyards, each capable of hoisting a sail.	Mo Mu0 1 2 3 4
3.21 A bow fairlead, closed or closable and a cleat or securing arrangement, suitable for towing shall be *permanently installed.*	Mo 0
3.22 Navigation Lights see Special Regulation 2.03 (c)	Mo Mu0 1 2 3 4
• navigation lights shall be mounted so that they will not be masked by sails or the heeling of the yacht.	
• navigation lights shall not be mounted below deck level and should be at no less height than immediately under the upper *lifeline*.	
navigation light intensity	
LOA — **guide to minimum bulb power**: under 12 m (39.4 ft) — 10 W; 12 m (39.4 ft) and above — 25 W	
• reserve navigation lights shall be carried having the same minimum specifications as the navigation lights above, with a separable power source, and wiring essentially separate from that used for the normal navigation lights	Mo Mu0 1 2 3
• spare bulbs for navigation lights shall be carried.	
3.23 Engine and Fuel	
(a) A securely covered inboard propulsion engine shall be provided together with associated exhaust and fuel supply systems and fuel tank(s), all *permanently installed.*	Mu0
(b) A propulsion engine shall be provided, either an inboard as in (a) above or on a multihull of less than 12.5m LOA in cats 1 2 or 3, or a monohull in cat 3, an outboard is acceptable with associated tanks and fuel supply systems, all *securely fastened*	Mo 0 1 2 Mu 1 2 3 Mo 3
(c) A propulsion engine installation required by (a) or (b) above shall:-	
• provide a minimum speed in knots of (1.8 x square root of LWL in metres) or (square root of *LWL* in feet)	Mo Mu0 1 2 3
• have a minimum amount of fuel which may be specified in the Notice of Race but if not, shall be sufficient to be able to meet charging requirements for the duration of the race and to motor at the above minimum speed for at least 8 hours	
• have adequate protection from the effects of heavy weather	
• when an electric starter is the only method for starting the engine, have a separate battery, the primary purpose of which is to start the engine.	
• have a fuel tank provided with a shutoff valve. Except for *permanently installed* linings or liners, a flexible tank is not permitted as a fuel tank.	
3.24 Marine Radio, Navigational Position-Fixing Device *Provision of GMDSS and DSC is unlikely to be mandatory for small craft during the term of the present ORC Special Regulations However the ORC recommends that owners consider including these facilities when installing new equipment.*	
The following shall be provided:	
(a) A marine radio transceiver (or if stated in the Notice of Race, a satcom tranceiver). When the marine radio transceiver is VHF:	Mo Mu0 1 2 3
• it shall have a minimum power of 25W	
• it shall have a masthead antenna and co-axial feeder with not more than 40% power loss	
• it should include channel 72 (an international ship-ship channel which, by "common use", could become an accepted yacht-yacht channel for ocean racing yachts anywhere in the world).	
(b) An emergency antenna when the regular antenna depends upon the mast.	
(c) Independent of a main radio transceiver:	
• a waterproof hand-held VHF transceiver.	Mo 01 Mu0123
• a radio receiver capable of receiving weather bulletins	Mo Mu0 1 2 3 4
(d) a D/F radio receiver for man-overboard recovery (see Special Regulation 5.07)	Mo Mu0
(e) an automatic position fixing device (eg GPS)	Mo Mu0 1 2 3

SECTION 4 - PORTABLE EQUIPMENT & SUPPLIES FOR THE YACHT
for water & fuel see Special Regulations 3.16 and 3.23

Category

4.01 Sail Letters & Numbers — Mo Mu0 1 2 3 4

RRS 77 and Appendix H shall apply modified as follows:- ***delete*** H1 (title) and H1.1 (a) (b) and the first paragraph of (c), ***insert*** :-

"H1.1 Identification.

In the following text
- *rules governing class insignia apply only to a boat of an ISAF International or Recognised Class*
- *for "national letters" read "national or state letters".*

Every boat shall carry on her mainsail and, according to rules H.1.3 (d) and (e) for letters and numbers only, on her spinnakers and headsails:-

(a) national or state letters denoting either her national authority from the table below or letters denoting a state authority
(b) a sail number allotted or approved by her national authority or
(c) a sail number allotted or approved by her state authority."

Sail numbers and letters of the size carried on the mainsail must be displayed by alternative means when none of the numbered sails is set.

4.01.2 Hull marking. — Mo Mu0 1

To assist in SAR location a hull should show:
- on the coachroof, deck and/or topsides where it can best be seen at least one block or strip of highly-visible colour (eg dayglo pink, orange or yellow) of at least one square meter in area
- on each underwater appendage an area of highly-visible colour.

4.02 Soft wood plugs, tapered and of the appropriate size, shall be attached or stowed adjacent to the appropriate fitting for every through-hull opening. — Mo Mu0 1 2 3 4

4.03 Jackstays, Clipping Points And *Static Safety Lines* — Mo Mu0 1 2 3

The following shall be provided:

(a) Jackstays:
- attached to through-bolted or welded deck plates or other suitable and strong anchorage fitted on deck, port and starboard of the yacht's centre line to provide secure attachments for safety harness
- comprising stainless steel 1 x 19 wire of minimum diameter 5 mm (3/16 in), or webbing of equivalent strength. (20kN -2 040 kgf or 4 500 lbf-) breaking strain webbing is recommended)
- which, when made from stainless steel wire installed on or after 1/99 shall be uncoated and used without any sleeving
- at least two of which should be fitted on the underside of a multihull in case of inversion.

(b) Clipping points:
- attached to through-bolted or welded deck plates or other suitable and strong anchorage points adjacent to stations such as the helm, sheet winches and masts, where crew members work for long periods. *Warning: U-bolts can cause plain snap hooks to "capsize" when rotated on one leg of the u-bolt so that the "gate" bears against the other leg. For this reason the use of plain snap hooks is not recommended.*
- which, together with jackstays and static *safety lines* shall enable a crew member:
  - to clip on before coming on deck and unclip after going below
  - whilst continuously clipped on, to move readily between the working areas on deck and the cockpit(s) with the minimum of clipping and unclipping operations
- to enable two-thirds of the crew to be simultaneously clipped on without depending on jackstays
- in a trimaran with a rudder on the outrigger, adequate clipping points that are not part of the deck gear or the steering mechanism, in order that the steering mechanism can be reached by a crew member whilst clipped on. — Mu0 1 2 3

4.04 Fire extinguishers, at least two, readily accessible in suitable and different parts of the yacht. — Mo 0 1 2 3 4

OFFSHORE RACING COUNCIL

Category
Mo Mu0 1 2 3 4

4.05 Anchors shall be carried according to the table below:

LOA	detail	category
8,5 m (28 ft) and over	2 anchors together with a suitable combination of chain and rope, all ready for immediate use	0 1 2 3
under 8,5 m (28 ft)	1 anchor together with a suitable combination of chain and rope, all ready for immediate use	0 1 2 3
any	1 anchor, readily accessible	4

4.06 Flashlight(s): the following shall be provided:
- Flashlights, watertight, with spare batteries and bulbs — Mo Mu 0 1 2 3
- A watertight flashlight with spare batteries and bulb — Mo Mu 4

4.07 First aid kit and manual — Mo Mu0 1 2 3 4
- A suitable manual shall be provided. In the absence of a national authority's requirement, the ORC recommends the latest edition of:
  - International Medical Guide for Ships
    World Health Organisation, Geneva — Categories 0, 1
  - First Aid at Sea
    Douglas Justins and Colin Berry
    Adlard Coles Nautical,London — Categories 2, 3, 4
- A yacht shall provide a suitable first-aid kit. The ORC recommends that yachts have a first-aid or medical kit whose contents and storage reflects the guidelines of the recommended manual, the likely conditions and duration of the passage and the number of people aboard the yacht.
- The ORC recommends that at least one member of the crew should be familiar with the management of medical emergencies that may occur at sea and radio communications operations for obtaining medical advice by radio and (if carried) by Satcom. See Special Regulations section 6 – training.

The following shall be provided:-

4.08 Foghorn — Mo Mu0 1 2 3 4

4.09 Radar reflector. Attention is drawn to ISO8729. If a radar reflector is octahedral it must have a minimum diagonal measurement of 456 mm (18in), or if not octahedral must have a documented RCS (radar cross-section) of not less than 10 m2. The minimum effective height above water is 4.0 m (13 ft). *In addition to (but not in place of) the above, the ORC recommends an RTE (Radar Target Enhancer). However users should be fully aware of the limitations of these devices. A fact sheet is available from the ORC and also at www.orc.org.* — Mo Mu0 1 2 3 4

4.10 Navigational charts (not solely electronic), light list and chart plotting equipment. — Mo Mu0 1 2 3 4

4.11 A durable stowage chart displayed in the main accommodation where it can best be seen, clearly marked with the location of the principal items of safety equipment.

4.12 Echo sounder or lead line.

4.13 Speedometer or distance measuring instrument (log). — Mo Mu0 1 2 3

4.14 Emergency steering: — Mo Mu0 1 2 3
- except when the principal method of steering is by means of an unbreakable metal tiller, an **emergency tiller** shall be provided capable of being fitted quickly to the rudder stock
- crews must be aware of alternative methods of steering the yacht in any sea condition in the event of rudder loss. At least one method must have been proven to work on board the yacht. An inspector may require that this method be demonstrated.

4.15 Tools and spare parts, including effective means to quickly disconnect or sever the standing rigging from the hull. — Mo Mu0 1 2 3 4

4.16 Yacht's name on miscellaneous buoyant equipment, such as lifejackets, oars, cushions, lifebuoys and lifeslings etc.

4.17 Marine grade retro-reflective material shall be fitted to required lifebuoys, lifeslings, liferafts and lifejackets. See Special Regulation 5.01, 5.04, 5.08.

	Category
.18 EPIRB	
• a 406 MHz EPIRB (*"GPIRB" type is recommended*), or an INMARSAT "E" (*which is also of the "GPIRB" type*). A beacon shall be properly registered with the appropriate authority. From 1/2001 a 406 or "E" EPIRB shall be required in Mo Mu Cat. 2.	Mo Mu 0 1
Notes: 1. Satellite processing of 121.5 MHz will eventually be discontinued. 121.5 will continue to be used in MoB-recovery D/F systems and also provides short-range homing when installed within a 406 EPIRB. A separate 121.5 EPIRB may be carried as an adjunct to a 406 EPIRB.	
2. The ORC recommends that EPIRBs should be tested in accordance with manufacturer's instructions when first commissioned and then at least annually.	
.19 Liferafts	
The following shall be provided:	
Liferaft(s) in accordance with *SOLAS* regulations, in rigid container(s), capable of carrying the whole crew, stowed in accordance with (a) (i) or (a) (ii) and complying with (b), (c)(i), (d) and (e) below:	Mo Mu 0
Liferaft(s) in accordance with Appendix A, (Appendix A is under revision and will be re-published in 6/2000) capable of carrying the whole crew	Mo Mu 1 2
a) Liferaft stowage shall be either:	
(i) on the working deck; or	
(ii) in purpose-built compartment(s) opening into or adjacent to the cockpit or working deck containing liferaft(s) only provided that:	
- 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); and	
- the cover of each compartment is capable of being easily opened under water pressure; or	
(iii) packed in valise(s) each not exceeding 40 kg securely stowed below deck adjacent to the companionway. **Option (iii) shall not apply to a yacht having an age date or series date on or after 6/2001. *The ORC strongly recommends that liferafts are stowed in accordance with (ii) above.***	
b) Recovery Time. Each raft shall be capable of being got to the *lifelines* within 15 seconds.	
c) Annual service or inspection. Each raft shall have either:	
(i) a valid annual certificate from the manufacturer or an approved servicing agent confirming that it has been satisfactorily serviced within the last 12 months. The certificate, or a copy shall be carried on the yacht, or	
(ii) when a manufacturer so specifies, a raft may annually be inspected (not necessarily unpacked) and the yacht provided with written confirmation by a manufacturer or an approved servicing station that the inspection was satisfactory. Written confirmation of the satisfactory inspection shall be carried on the yacht.	
d) Liferaft canopy. The National Authority or Notice of Race should specify whether or not a canopy or cover (Appendix A (d)) is required. (A canopy is mandatory in a *SOLAS* raft and is strongly recommended by the ORC in every raft).	
e) Insulated Floor. The National Authority or Notice of Race should specify whether or not an insulated floor (Appendix A (k)) is required. (An insulated floor is mandatory in a *SOLAS* raft and is strongly recommended by the ORC in every raft.)	
.20 Grab Bag	Mo Mu 0 1 2
The ORC strongly recommends a grab bag to accompany each liferaft. (See Appendix A, 4.0).	
.21 Lifebuoys	
The following shall be provided within reach of the helmsman and ready for instant use:	
a) a lifebuoy with a self-igniting light and a drogue or a Lifesling with a self-igniting light and without a drogue (See Lifesling diagram on page 24)	Mo Mu 0 1 2 3 4
b) In addition to (a) above, one lifebuoy within reach of the helmsman and ready for instant use, equipped with:	Mo Mu 0 1 2
• a whistle, a drogue, a self-igniting light and	
• a pole and flag (dan buoy). The pole shall be either permanently extended or be capable of being fully automatically extended (not extendable by hand) in less than 20 seconds. It shall be attached to the lifebuoy with 3 m (10 ft) of floating line and is to be of a length and so ballasted that the flag will fly at least 1.8 m (6 ft) off the water.	
c) In equipment made on or after 1/96, when two lifebuoys are carried in accordance with (a) and (b) above, at least one of them shall either be a lifesling or have permanent (eg foam) buoyancy.	
d) An inflatable lifebuoy and/or pole and flag (dan buoy) shall be tested or serviced at intervals in accordance with its manufacturer's instructions.	Mo Mu 0 1 2 3 4
e) A lifebuoy or lifesling shall be fitted with marine grade retro-reflective material (see Special Regulation 4.17).	
4.22 Pyrotechnic signals shall be provided conforming to *SOLAS* Regulations Chapter VII Visual Signals and not more than 3 years old stowed in waterproof container(s) except that National Authorities may prescribe a longer pyrotechnic life for yachts under their jurisdiction. See Special Regulation 5.03.	Mo Mu 0 1 2 3 4

race category	red parachute flares *SOLAS* regulation 35	red hand flares *SOLAS* regulation 36	white hand flares*	orange smoke *SOLAS* regulation 37
0 1	12	4	4	2
2 3	4	4	4	2
4	-	4	4	2

*Specifications (except colour and candela rating) should comply with *SOLAS* regulation 36.

4.23 Heaving Line & Cockpit Knife	Mo Mu 0 1 2 3 4
• A heaving line shall be provided 15 m – 25 m (50 ft – 75 ft) length readily accessible to cockpit. (The "throwing sock" type is recommended by ORC - see Appendix D).	
• A strong, sharp knife, sheathed, attached by a lanyard shall be provided readily accessible in each cockpit.	Mu 0 1 2 3
4.24 Storm & Heavy Weather Sails	
The ORC strongly recommends that owners consult their designer and sailmaker to decide the most effective size for storm and heavy weather sails. The purpose of these sails is to provide safe propulsion for the yacht in severe weather -they are not intended as part of the racing wardrobe. The areas below are maxima. Smaller areas are likely to suit some yachts according to their stability and other characteristics.	Mo Mu 0 1 2 3 4
• A required storm sail should either be of **highly-visible** coloured material (eg dayglo pink, orange or yellow) or have a highly-visible coloured patch added on each side	
• **Aromatic polyamides,** carbon and similar fibres shall not be used in a trysail or storm jib but spectra/dyneema and similar materials are permitted. The ORC recommends that a heavy-weather jib does not contain aromatic polyamides, carbon and similar fibres other than spectra/dyneema.	
The following shall be provided:	
• **Sheeting positions** on deck shall be provided for required storm and heavy-weather sails.	
• Any storm or heavy-weather jib if designed for a seastay or luff-groove device shall have **an alternative method** of attachment to the stay.	
• **A storm trysail** capable of being sheeted independently of the boom and of area not greater than 17.5% mainsail luff length x mainsail foot length. It 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. The yacht's sail number and letter(s) shall be placed on both sides of a trysail in as large a size as is practicable, or in a yacht with a rotating wing mast as substitute for a trysail the sail number and letters should be placed on the wing mast, which should also display on each side a highly visible coloured patch (eg dayglo pink, orange or yellow).	Mo Mu 0 1 2
• **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.	
• **A storm jib** of area not greater than 5% height of the foretriangle squared, and luff maximum length 65% height of the foretriangle.	
• **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 and without reef points.	Mo Mu 0 1 2 3 4
• **Either: - a storm trysail as above, or - mainsail reefing** to reduce the luff by at least 40%.	Mo Mu 3 4
4.25 Drogue or Sea Anchor A drogue (for deployment over the stern), or a sea anchor or parachute anchor (for deployment over the bow), is strongly recommended as a means to reduce the risk of capsize in heavy breaking seas (see Appendix F).	Mo Mu 0 1

SECTION 5 - PERSONAL EQUIPMENT

5.01 Lifejacket	Mo Mu 0 1 2 3 4
Each crew member shall have a lifejacket with:	
• a whistle	
• marine grade retro-reflective material (see Special Regulation 4.17)	
A crew member's lifejacket and harness shall be compatible	

	Category
The ORC strongly recommends that a lifejacket has: • at least 150N of buoyancy, arranged so that an unconscious man will be securely suspended face upwards at approximately 45° to the water surface. Compliance with EN396 recommended. • a lifejacket light. Compliance with *SOLAS* LSA (Life Saving Appliance Code) 2.2.3 recommended, which specifies a white light with at least 0,75 candelas intensity for a duration of at least 8 hours • a crotch strap or thigh straps • a splashguard. Compliance with EN394 recommended • if inflatable, a regular check for air retention • yacht's name marked (see Special Regulation 4.16)	

5.02 Safety Harness and Safety Lines (tethers)
• Each crew member shall have a harness, and a *safety line* not more than 2m long with a snaphook at each end
• At least 30% of the crew shall each, in addition to the above, be provided with either
  • a *safety line* not more than 1m long or
  • a mid-point snaphook on an existing 2m *safety line*
• A *safety line* purchased in1/2001 or later shall have a coloured flag embedded in the stitching, to indicate an overload. A line which has been overloaded must be replaced as a matter of urgency.
• A crew member's harness and lifejacket shall be compatible
	Mo Mu0 1 2 3

• The ORC strongly recommends: • spare *safety lines* positioned at work stations • to draw attention to wear and damage, that stitching on harness and *safety lines* be of a colour contrasting strongly with the surrounding material • that a crotch strap or thigh straps be fitted on a safety harness • that snaphooks be of a type which will not capsize on a u-bolt (see Special Regulation 4.03b) and which can be easily released under load (crew members are reminded that a personal knife may free them from a *safety line* in emergency) • compliance with *EN 1095*, to be published also as *ISO* 12401. • that a crew member before a race adjusts a harness to fit then retains that harness for the duration of the race	
5.03 Two packs of miniflares or a personal location (either SOLAS or strobe) light (in addition to that required in Special Regulation 5.01) shall be provided for each crew member; one should be attached to, or carried on, the person when on deck at night.	Mo Mu0
5.04 A foul weather suit with hood shall be provided for each crew member. A foul weather suit should be fitted with marine-grade retro-reflective material, and should have high-visibility colours (eg daygło pink, orange or yellow) on its upper parts and sleeve cuffs.	
5.05 A knife, one shall be provided for each crew member.	
5.06 A watertight flashlight, one shall be provided for each crew member.	
5.07 Survival Equipment, one set shall be provided for each crew member to include: • an immersion suit (attention is drawn to pr EN1913-1 constant wear suits, and pr EN 1913-2 abandonment suits). • a personal 121.5MHz *EPIRB* for use with the on-board D/F receiving equipment (see Special Regulation 3.24)	
SECTION 6 – TRAINING	
6.01 At least 30% of a crew including the skipper shall have undertaken training within the five years before the start of the race in both theoretical and practical sessions in the following topics. The ORC strongly recommends 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 • giving assistance to other craft • hypothermia • cpr and first aid • SAR systems • using communications equipment (VHF, *GMDSS*, satcomms, etc.) • weather forecasting	Mo Mu0 1

APPENDIX A

ORC MINIMUM SPECIFICATIONS FOR YACHTSMENS LIFERAFTS

Note - ORC Appendix A is expected to be updated in 6/2000

1.0 GENERAL DESIGN:

Liferaft(s) capable of carrying the entire crew shall meet the following requirements:

a) Stowage see Special Regulations 4.19 (a)

b) Must be designed and used solely for saving life at sea.

c) The liferaft shall be so constructed that, when fully inflated and floating with the cover uppermost, it shall be stable in a seaway.

d) The construction of the liferaft shall include a canopy or cover which shall when specified by the National Authority or Notice of Race automatically be set in place when the liferaft is inflated. This cover shall be capable of protecting the occupants against injury from exposure, and means shall be provided for collecting rain. The cover of the liferaft shall be of a highly visible colour.

e) The liferaft shall be fitted with a painter and shall have a lifeline becketed round the outside. A lifeline shall also be fitted round the inside of the liferaft.

f) The liferaft shall be capable of being readily righted by one person if it inflates in an inverted position.

g) The liferaft shall be fitted at each opening with efficient means to enable persons in the water to climb on board.

h) The liferaft shall be contained in a valise or other container so constructed as to be capable of withstanding hard wear under conditions met with at sea. The liferaft in its valise or other container shall be inherently buoyant.

i) The buoyancy of the liferaft shall be so arranged as to achieve a division into an even number of separate compartments, half of which shall be capable of supporting out of the water the number of persons which the liferaft is fit to accommodate, without reducing the total supporting area.

j) The number of persons which an inflatable liferaft shall be permitted to accommodate shall be equal to:

  i) the greatest whole number obtained by dividing by 96 the volume, measured in cubic decimetres of the main buoyancy tubes (which for this purpose shall include neither the arches nor the thwart or thwarts if fitted) when inflated; or

  ii) the greatest whole number obtained by dividing by 3720 the area measured in square centimetres of the floor (which for this purpose may include the thwart or thwarts if fitted) of the liferaft when inflated whichever number shall be the less.

k) The floor of the liferaft shall be waterproof and which when specified by the National Authority or Notice of Race shall be capable of being sufficiently insulated against the cold either

  i) by means of one or more compartments which the occupants can inflate if they so desire, or which inflate automatically and can be deflated and re-inflated by the occupants; or

  ii) by other equally efficient means not dependent on inflation.

2.0 EQUIPMENT: All the following equipment must be secured to the raft.

a) one buoyant rescue quoit, attached to at least 30 metres of buoyant line;

b) one safety knife and one baller;

c) two sponges;

e) two paddles;

f) one repair outfit capable of repairing punctures in buoyancy compartments;

g) one topping-up pump or bellows;

h) one waterproof electric torch;

i) three hand-held distress flare signals in accordance with SOLAS regulation 36, capable of giving a bright red light;

) six anti-seasickness tablets for each person which the liferaft is deemed fit to accommodate;

c) instructions on a plastic sheet on how to survive in the liferaft;

) the liferaft shall be inflated by a gas which is not injurious to the occupants and the inflation shall take place automatically either on the pulling of a line or by some other equally simple and efficient method. Means shall be provided whereby a topping-up pump or bellows may be used to maintain pressure.

1.0 MARKING OF LIFERAFTS

Each liferaft shall be clearly marked with the yacht's name or sail number or an identification code on:

the canopy

the bottom

the valise or container

the certificate

Numbers and letters on the liferaft should be as large as possible and in a strongly contrasting colour. Marine grade retro effective material shall be appropriately fitted to every raft.

1.0 GRAB BAGS:

The ORC recommends that a "grab bag" accompanies each liferaft. The following contents are recommended and should be appropriately packed and waterproofed (packing should be openable by wet fingers without tools):

waterproof hand-held GPS
SART (Search and Rescue Radar Transponder
"dry" survival suit(s)
second sea anchor and line
two safety tin openers
waterproof hand-held VHF transceiver
406 EPIRB
a first aid kit
one plastic drinking vessel graduated in 10, 20 and 50 cubic cm
two "cyalume" sticks or two watertight floating lamps
one daylight signalling mirror and one signalling whistle
two red parachute flares and three red hand flares
non-thirst provoking rations and barley sugar or equivalent
watertight receptacles containing fresh water (at least half a litre per person)
one copy of the illustrated table of life-saving signals
nylon string, polythene bags, seasickness tablets

Note: Equipment in the grab bag may be included in that required under O.R.C. Special Regulations.

APPENDIX B
A GUIDE TO ISO AND OTHER STANDARDS

Development Policy

When an ISO Standard, CEN Norm or SOLAS regulation is adopted it will be considered by ORC and may replace part of ORC Special Regulations. Significant changes will when possible affect new yachts only.

ISO

ORC Special Regulations refer to Standards established by ISO (the International Organization for Standardization) and other authorities. ISO is a world-wide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO Technical Committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations governmental and non-governmental, in liaison with ISO, also take part in the work.

Copies of International Standards may be obtained from a national standards body.

The following International Standards (or Draft Standards) are mentioned in ORC Special Regulations:-

ISO Standard	Subject	ORC SR
12217-2	assessment of stability & buoyancy	3.02.1
12217-7	as above, multihulls	3.02.2
11812	watertight & quick draining cockpits	3.06
15085	guardlines (lifelines) trampolines, nets, stanchions, hooking points	3.11
8729	marine radar reflectors	4.09
9650	liferafts	4.19
12401	deck safety harness**	5.02

CEN

Standards (Norms) are developed in Europe by CEN (European Committee for Standardization - Committée Européen de Normalisation) which publishes ENs (European Norms) and which works closely with ISO. In ORC Special Regulations the following are mentioned:

EN Standard	Subject	ORC SR
394	lifejacket accessories (splashguard)	5.01
396	lifejackets	5.01
1095	deck safety harness**	5.02
1913-1-3	immersion suits	5.07

**ISO 12401 will replace EN 1095

ABS

ABS Guide for Building and Classing Offshore Yachts - This Guide to Scantlings was originally published by ABS (American Bureau of Shipping) in co-operation with the Offshore Racing Council. A plan approvals service formerly offered by ABS has been discontinued. However, copies of the Guide are available from the office of the ORC. Attention is drawn to the introduction of the EC Recreational Craft Directive under which "nominating bodies" (usually classification societies) operate schemes to approve construction standards of yachts which may then be entitled to display a CE mark. See ORC SR 3.01.3.

SOLAS

SOLAS Regulations are published by the International Maritime Organisation.

SOLAS Regulation	Subject	ORC SR
Chapter III 35, 36, 37	flares (pyrotechnics)	4.22
Chapter III 32.3	lifejacket lights	5.01
Chapter III 38, 39	liferafts	4.19

SOLAS Liferafts are intended for use by sea-going ships in a wide range of operating conditions. SOLAS Liferafts are build to more stringent standards than most "leisure" liferafts and are usually heavier and more expensive. SOLAS Liferafts are mandatory from 1/98 in Category 0 races. Liferafts for Categories 1 and 2 shall as a minimum comply with ORC Special Regulations Appendix A (Minimum Specifications for Yachtsmens Liferafts) due for revision in 6/2000. Organisers are recommended to consider carefully the range of conditions likely to be experienced in a planned offshore event and if necessary to upgrade the type of liferaft accordingly.

SOLAS Regulations are printed in "SOLAS 97" which is available from IMO at a price of £55 Sterling.

ADDRESSES:

CEN Central Secretariat
rue de Stassart 36
B-1050 Brussels
Belgium

ISO Central Secretariat
1, rue de Varembé
Case Postale 56,
CH-1211 Genève 20,
Switzerland
e-mail: central@isocs.iso.ch
Website: www.iso.ch
Tel: +41 22 749 01 11
+41 22 733 34 30

IMO (International Maritime Organisation)
4 Albert Embankment
London EC1 7SR, UK
Tel: +44 (0)171 735 7611

OFFSHORE RACING COUNCIL

APPENDIX C

STANDARD INSPECTION CARD

(Please note that this appendix is not comprehensive but only a guide for use by Race Organisers.
Add items as appropriate. A copy of the card should be given to the yacht in advance).

INSPECTORS mark each item with either a tick (OK) or a cross (NOT OK) in the check boxes.

YACHT_____ Sail No_____

No of crew on board for this race_____ Total liferaft capacity_____

IMPORTANT Inspection is carried out only as a guide to owners. An inspector cannot limit or reduce the complete and unlimited responsibility of the owner or owner's representative

"I, owner or representative, have read and understood Special Regulations, in particular the three points in 1.02 (Owner's Responsibility)."

Signed _____ (Printed) _____

Please prepare your yacht as requested. This will save everyone's time! Have somebody ready on the boat who is thoroughly familiar with her and her gear (as all crew members must be). Failure to comply may result in penalty or exclusion from the race or the race results. The inspector may check items not listed here. Thank you for your help.

Below Deck

Lay out on one or more clear berths the following:

-all safety harnesses and lines (5.02)_____ how many?☐ _____ ☐

-storm jib/heavy weather jib (4.24 points 7 & 8) _____ ☐

-foghorn (4.08) _____ ☐

-flashlights and spare batteries and bulbs (4.06) _____ ☐

-rigging cutters (4.15) _____ ☐

-first aid kit and manual (4.07) _____ ☐

-2 stout buckets (3.18 (b) point 5) _____ ☐

-all lifejackets (5.01)_____ how many?☐ _____ ☐

-2 fire extinguishers (4.04) _____ ☐

-pyrotechnics (removed from their box)(see overleaf for checklist) (4.22) _____ ☐

-mast heel restrained? (3.09) _____ ☐

-liferaft (4.19) if stowed below deck is each less than 40kg and can each be got to the lifelines in 15 seconds? (ORC strongly recommends stowage opening to the deck -see 4.19(a)) _____ ☐

On the chart table

-liferaft annual certificate (4.19)_____ for how many persons? ☐ _____ ☐
-rating certificate(s) (in accordance with Notice of Race) _____ ☐
-radar reflector data sheet (if not 18" octahedral) showing minimum 10m2 RCS _____ ☐
-charts (not solely electronic) for this race/event (4.10) _____ ☐
-scantlings certificate or letters (3.01.3) _____ ☐
-406 MHz EPIRB with copy of registration document (4.18)
(Category 1 year 2000 then also Category 2)_____ ☐
-training: a written record of the training undertaken by at least 30% of the crew
including the skipper (6.01, for Categories 0 and 1) _____ ☐

On Deck

-have the blocking device (eg washboards) and retaining system in place (3.05 (c)) _____ ☐
-bilge pump handles (3.18 (a) point 4) -have retaining methods in place _____ ☐
-rig the trysail with sheets (4.24 points 1,2,3,5,6) _____ ☐
-lay out the equipment for steering without the rudder (4.14 point 2)_____ ☐
-rig the radar reflector at least 4.0m (13ft) above water (4.09) _____ ☐
-have main and reserve navigation lights rigged and ready to switch on (3.22) _____ ☐
-fix the cockpit lockers shut as for heavy weather (3.06.1 (b)) _____ ☐
-lifelines taut? (3.11) _____ ☐

Man Overboard

-on what date did you last complete a MoB drill? (Appendix D)? _____ ☐
-place? _____Engaging the propellor (Yes/No)? _____ ☐
-are you satisfied you can recover a Man Overboard quickly?___(Yes/No)? _____ ☐
-on which side did you recover? (windward/leeward?)_____ ☐
-have your hoisting-in gear rigged ready to show the inspector how it works _____ ☐

PYROTECHNICS CHECKLIST (4.22)

Race category	red parachute flares	red hand flares	white hand flares	orange smoke flares
0 and 1	12	4	4	2
2 and 3	4	4	4	2
4	–	4	4	2

-are all flares not more than 3 years old? _____ ☐ -are all flares in good condition? ___ ☐
-are the red and smoke flares in accordance with SOLAS regulations? _____ ☐

INSPECTOR'S REPORT TO RACE COMMITTEE

I have inspected the above yacht as indicated.
Comments_____

Signed_____ Date_____

APPENDIX D

For information only
Quickstop and Lifesling

MAN OVERBOARD – QUICK STOP AND THE LIFE SLING (OR SEATTLE SLING)

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 victim. In most cases, this is better than reaching off, then gybing or tacking and returning on a reciprocal course.

QUICK-STOP

1. Shout "man overboard" and detail a crew member to spot and point to **the victim's position** in the water. The spotter should not take his eyes off the victim (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 victim, but will "litter the water" where he went overboard and help your spotter to keep him in view. Deployment of the pole and flag (dan buoy) requires too much time. The pole is saved to "put on top" of the victim in case the initial manoeuvre is unsuccessful.
3. Bring boat head-to-wind and beyond (see Figure 1).
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 victim is abaft the beam.
9. Gybe.
10. Approach the victim on a course of **approximately** 45 degrees to 60 degrees off the wind.
11. Establish contact with the victim with heaving line or other device. The 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 victim.
12. Effect recovery over the windward side.

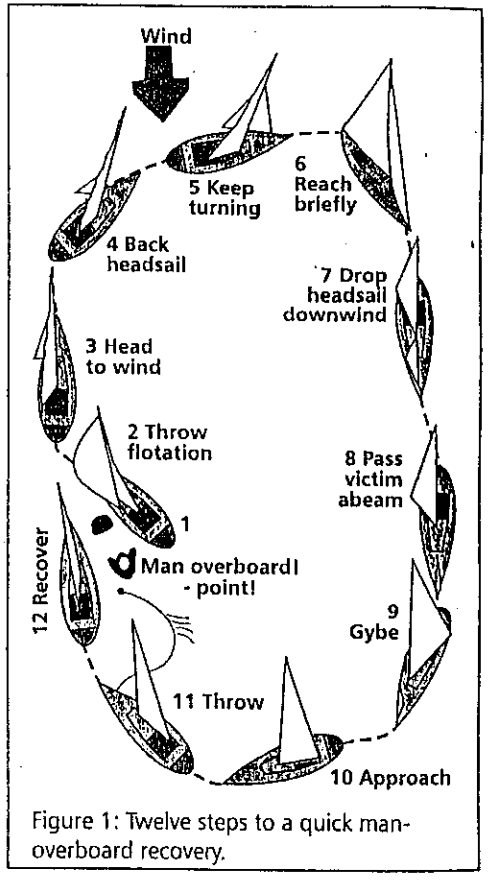


Figure 1: Twelve steps to a quick man-overboard recovery.

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 mizzensail. During sea trials, it

was found best to drop the mizzen as soon as possible during the early phases of Quick-Stop.

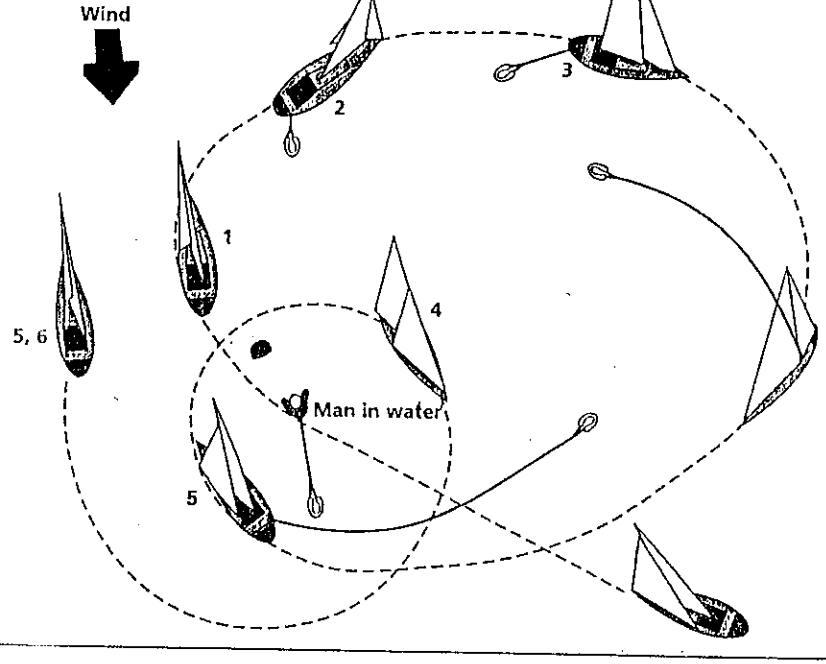
Quickstop Using Engine
Use of the engine is not essential, although it's advisable to have it running in neutral, during Quick-Stop in case it is needed in the final approach. Check first for trailing lines!

SHORTHANDED 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 below).
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 draw out the line.
3. Once deployed, the boat is sailed in a wide circle around the victim 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 victim by the line and sling being drawn inward by the boat's circling motion. The victim 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 backward, the crew begins pulling the sling and the victim 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). But see following page for advice on a horizontal lift which is preferable when there's a choice.

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



THE HOISTING RIG

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

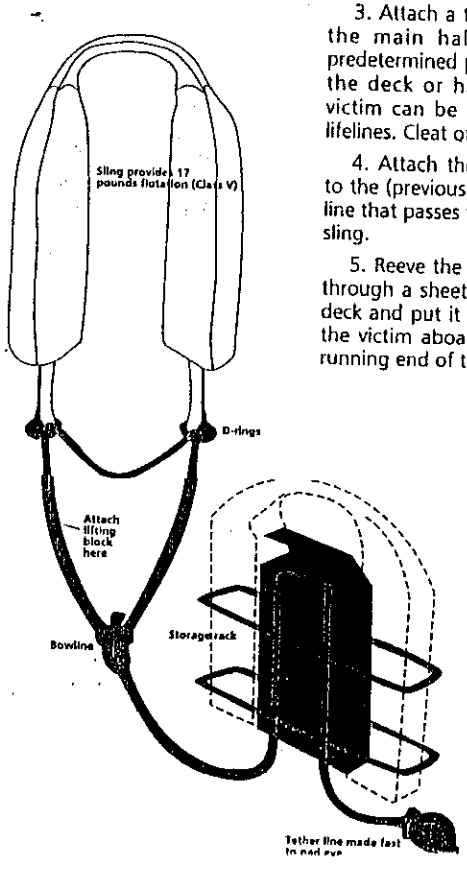
1. With the floating tether line, haul the victim alongside, preferably on the windward side, from amidships to the quarter, wherever there are available cleats and winches.

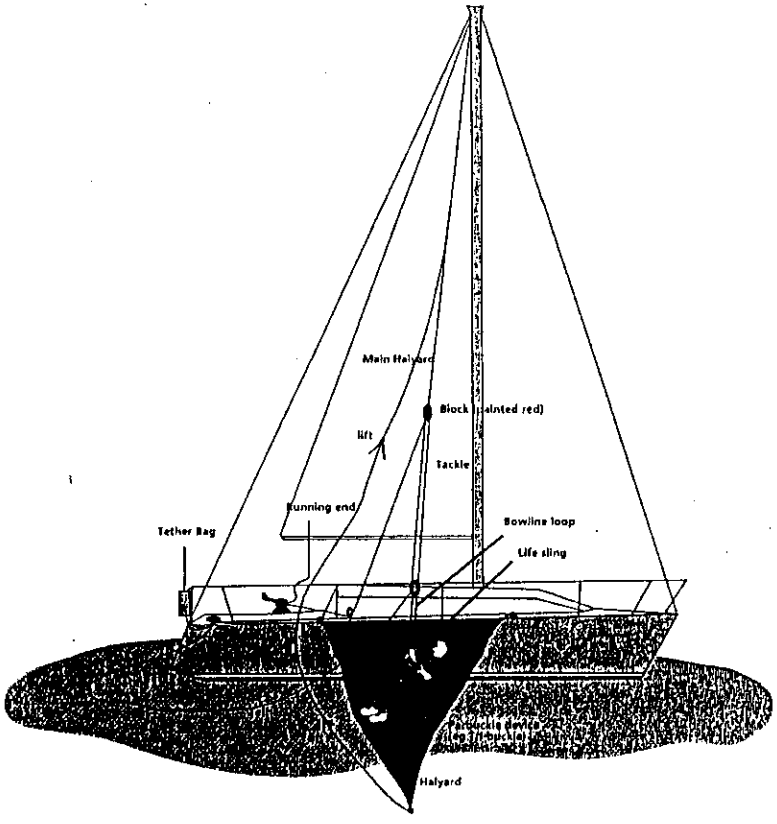
2. Pull up on the tether line (with winch assistance, if necessary) to get the victim's head and shoulders out of the water and cleat it. The victim is now safe.

3. Attach a three-or four-part tackle to the main halyard, haul it up to a predetermined point, about 10 feet above the deck or high enough so that the victim can be hoisted up and over the lifelines. Cleat off 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 victim aboard by winching it on the running end of the tackle.



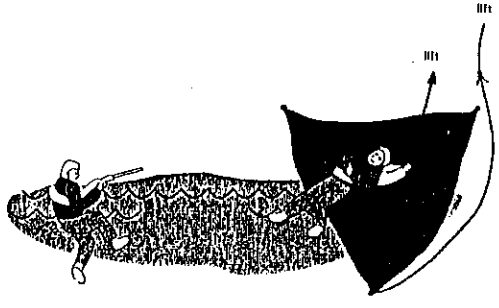


PARBUCKLE DEVICE

This is an alternative to the hoisting rig. A patent version is known as the Tri-buckle. 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 manoevred or dragged alongside 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.



HYPOTHERMIA

APPENDIX E

WHAT IS IT?

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

WHY BE CONCERNED?

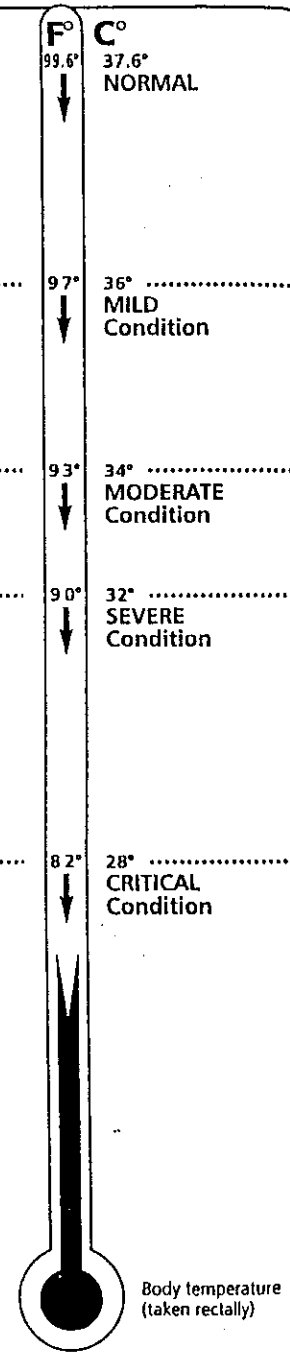
Hypothermia, even mild cases, decreases crew efficiency and increases risk of costly accidents. ***Proper planning against hypothermia can give a winning competitive edge.***

PREVENTION

- Wear warm clothing and a lifejacket/harness. Have proper foul-weather kit for all crew. Dry suits are excellent. Insulate all areas of the body, especially the high heat-loss areas: head, neck, armpits, sides of chest and groin. Keep warm and dry, but avoid sweating; wear layered clothes.
- Rotate watch frequently.
- Get plenty of rest, prevent fatigue.
- Eat and drink normally, *no alcohol*.
- Prevent dehydration; watch urine colour (drink more if colour becomes more intense).
- Avoid seasickness.
- Take into account special medical problems of crew members.
- Regularly train crew in Man Overboard recovery.
- Have two or more crew trained in CPR (Cardio-pulmonary Resuscitation).

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

- **If boat is in trouble**, put on dry or survival suits if carried. Radio for help; give position, number of crew, injuries, boat description. Make visual distress signals. Stay below if possible. Remain aboard until sinking is inevitable.
- **If going overboard**, launch life raft and EPIRB (Emergency Position Indicating Radio Beacon). Take grab bag, visual distress signals and waterproof hand-held VHF. Get into raft, stay out of water as water conducts heat out of the body 20 times faster than air. Remain near boat if practicable.
- **If in the water**, crew should stay together near the boat. This makes everyone easier to find, helps morale. Enter life raft, keep dry suit or survival suit on if worn.
- **If not wearing dry suit or survival suit**, make sure you wear a lifejacket, keep clothes and shoes on for some insulation and flotation. Keep hat on to protect head. Get all or as much of body out of water as soon as possible – into raft or swamped boat or onto flotsam. Avoid swimming or treading water, which increases heat loss. Minimise exposed body surface. A splashguard accessory on the lifejacket greatly improves resistance to swallowing seawater and also accommodates involuntary "gasping" when plunged into cold water.



RANGES OF
HYPOTHERMIA SYMPTOMS

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

MILD CONDITIONS
(97-93°F, 36-34°C)
- Shivering, cold hands and feet
- Still alert and able to help self
- Numbness in limbs, loss of dexterity, clumsiness
- Pain from cold

MODERATE CONDITIONS
(93-90°F, 34-32°C)
- Same as above
- Confusion, loss of time estimation and reasoning power

SEVERE CONDITIONS
(90-82°F, 32-28°C)
- Shivering decreases or stops
- Further loss of reasoning and recall, confusion, abnormal behaviour
- Victim appears drunk; very clumsy, slurs speech, denies problem and may resist help
- Unable to help themselves
- Victim semiconscious to unconscious
- Muscular rigidity increasing

CRITICAL CONDITIONS
'82°F, 28°C and below)
- Unconscious, may look dead
- Little or no apparent breathing
- Pulse slow and weak, or no pulse found
- Skin cold, may be bluish-grey colour
- Very rigid

HYPOTHERMIA FIRST AID

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

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

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

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

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

WARNING

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

OFFSHORE RACING COUNCIL

APPENDIX F

THE USE OF DROGUES TO COMBAT CAPSIZING IN HEAVY BREAKING SEAS

DROGUES ON LIFERAFTS

Nearly all liferafts are now fitted with a special type of drogue (developed by the National Maritime Institute, now British Marine Technology, and others). They are much larger than before, slightly porous and have anti-tangle lines. With bigger ballast pockets under the raft, they are highly effective against capsize. Tests in Iceland showed this despite the most furious weather. The secondary function of the drogue is to help limit drift. Your raft manufacturer will know whether an NMI-type drogue is fitted.

DROGUES ON YACHTS

Work was carried out for the RORC by the Wolfson Unit of Southampton University to see how drogues could help yachts combat capsizing in heavy breaking seas (a copy of the report and video is available from the RORC). A drogue towed astern slows a yacht down and pulls her end-on to the sea. **It was shown in the Wolfson model tests that this attitude repeatedly prevented the yacht from being slewed sideways and rolled over by a breaking wave. A drogue or sea anchor is recommended in ORC Special Regulations Category zero (monohulls) zero and one (multihulls) (SR 4.25).**

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.

This points to Special Regulations which require eg. that yachts shall be "strongly built, watertight and particularly with regard to cabin trunks capable of withstanding solid water and knockdowns". It is mandatory that hatch boards and washboards to shut the main companionway are retained permanently by some means - typically a strong lanyard. If these vital pieces are lost or defective, then seas breaking over the stern will jet below and quickly fill the yacht.

Cockpit locker hatches need special attention; sometimes they are very large and lead into the hull. They are thus critical to the yacht's watertight integrity and it is essential that they are strongly fixed shut. Many simple latches commonly used are not sufficient in themselves and should be padlocked at sea. Hatch hinges and latch fittings should be through-bolted rather than screwed. Good seals are vital on locker lids and hatches.

The Department of Transport has specified a drogue for ships' liferafts and lifeboats; the form is practical for yachts (see diagram) and can be made by a sailmaker. Mouth diameter should be between 10% and 15% of the yacht's LWL, with the other dimensions proportional.

TOWING LINE

As a guide, use 10 x LOA, best adjusted to period of seas. Material: 3-strand nylon anchor warp is suitable.

WEIGHT ON DROGUE-END OF TOW

Important to keep drogue well submerged - ideally some 10 metres below the surface up to around 20kg. Some weight could be provided by a 10m length of chain between drogue and warp.

DROGUE OPERATION

The main requirement to survive capsize is that the drogue line is always held sufficiently taut to prevent the yacht yawing beam on to the sea. Try to keep the drogue in the second or third wave astern. Two drogues in tandem offer a practical method of reducing the risk of the line slackening if one drogue is tumbled in a breaking wave.

FIXING ON BOARD

Strong points like sheet winches essential.

TENDING LINES

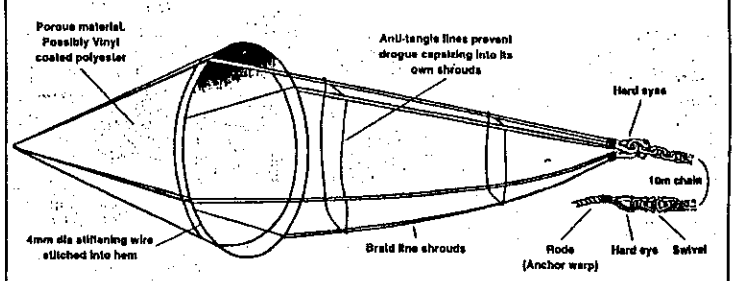
Periodic attention is essential to shift line to minimise localised chafe. Use anti-chafe (e.g. plastic sleeving in fairleads).

OTHER DEVICES

The Jordan "series drogue" is a long strong warp as above with a number of small cones made of terylene (dacron) permanently stitched at intervals into the line and deployed with the cones pointing aft. The advantage is that when a breaking wave tumbles one part of the device the remainder continues to provide essential drag.

The Parachute or Para-Anchor is a large parachute-like sea anchor. Its operation is similar to that of a drogue but is very much larger and designed to be streamed from the bow – 18ft across is recommended for yachts of 35-50 ft LOA. The para-anchor like a drogue is best weighted by chain. The para-anchor is particularly recommended by some multihull authorities.

SAILMAKER'S DROGUE *not to scale*



Typical Dimensions

LWL	Mouth dia (Min)	Slope Length (Min)	Shroud Lines (Min)
10m (33ft)	1m (3ft 4ins)	1.3m (4ft 3ins)	1.3m (4ft 3ins)
13m (43ft)	1.3m (4ft 3ins)	1.7m (4ft 11ins)	1.5m (4ft 11ins)

INDEX TO ORC SPECIAL REGULATIONS 2000 – 2001

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

OFFSHORE RACING COUNCIL