



# NEWPORT BERMUDA RACE 2018

## SAFETY REQUIREMENTS FOR MONOHULLS

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Monohulls competing in the 2018 Newport Bermuda Race must comply with the safety standards outlined in this document. Every boat entered in the race is subject to inspection both before and after the race. Failure to be in compliance may result in invalidation of entry or protest. The Newport Bermuda Race Safety Requirements ("NBRSR") are a version of US Sailing's United States Safety Equipment Requirements ("USSER"), which can be found on the US Sailing website ([ussailing.org](http://ussailing.org)). The numbering system used below conforms to the USSER, and the absence of sequential numbers in this document indicates provisions not applicable to the Newport Bermuda Race.

### 1.0 GENERAL REQUIREMENTS

- 1.1 Purpose: The Newport Bermuda Race Safety Requirements for Monohulls establish uniform minimum equipment and training standards for Monohulls entered in the Newport Bermuda Race. These Requirements do not replace, but rather supplement, the requirements of the US Coast Guard, the Racing Rules of Sailing (RRS), the rules of Class Associations and all applicable rating rules. Use of the NBRSR does not guarantee total safety of the boat and her crew.
- 1.2 Responsibility of Person-In-Charge: The safety of a boat and her crew is the sole and inescapable responsibility of the "person in charge," as per RRS 4 and 46, who must ensure that the boat is seaworthy and manned by an experienced crew with sufficient ability and experience to face bad weather. S/he must be satisfied as to the soundness of hull, spars, rigging, sails, and all gear. S/he must ensure that all safety equipment meets these Newport Bermuda Race Safety

Requirements; is at all times properly maintained and safely stowed; and that the crew knows where it is kept and how it is to be used.

1.2.1 Neither the establishment of the NBRSR, nor their use by Bermuda Race Organizing Committee, nor the inspection of a boat under the NBRSR, in any way limits or reduces the complete and unlimited responsibility of the Person in Charge.

1.3 Inspections: A boat may be inspected at any time by an equipment inspector or measurer appointed for the event. If she does not comply with these regulations, her entry may be rejected or she will be subject to a protest filed by the Technical Committee. A violation of the Safety Equipment Requirements may result in disqualification or a penalty other than disqualification.

1.4 Equipment Maintenance and Performance: All equipment required shall function properly, be regularly checked, cleaned and serviced, and be of a type, size and capacity suitable for the intended use and size of the boat and number of crew. The crew shall have practiced with the equipment. This equipment shall be readily accessible while underway and, when not in use, stowed such that deterioration is minimized.

1.5 Heavy Items: A boat's heavy items – such as batteries, stoves, toolboxes, anchors and chain, and internal ballast – shall be secured.

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1.6 Strength of Build: A boat shall be strongly built, watertight and, particularly with regard to hulls, decks, and cabin trunks, capable of withstanding solid water and knockdowns. Boats must be properly rigged and ballasted, be fully seaworthy and must meet all standards set forth herein. A boat's shrouds and at least one forestay shall remain attached at all times.

1.7 Watertight: A boat's hull, including deck, coach roof, windows, hatches, and all other parts, shall form an integral watertight unit. Any openings in the hull shall be capable of being immediately secured to maintain this integrity.

- 1.8 Hull Construction Standards: A boat shall meet the scantling requirements outlined in Appendix 1.

## 2.0 HULL AND STRUCTURE CONSTRUCTION AND DESIGN GUIDELINES

A boat shall meet or exceed the following construction and design guidelines:

- 2.1.1 Companionways: A boat's companionway(s) shall be capable of being blocked off to main deck level. The method of blocking must be solid, watertight and rigidly secured, if not permanent.
- 2.1.2 Hatch Boards: A boat's hatch boards, whether or not in position in the hatchway, shall be secured to the boat (e.g. by a lanyard) for the duration of the race to prevent their being lost overboard.
- 2.1.3 Watertight Cockpit: A boat's entire cockpit shall be solid, watertight, strongly fastened and/or sealed. Weather-tight seat hatches are acceptable only if capable of being secured when closed.
- 2.1.4 Cockpit Drains: A boat's cockpit drains shall be capable of draining six (6) inches (152mm) of water in five (5) minutes. One (1) square inch (645 mm<sup>2</sup>) of effective drain per eight (8) square feet (0.743m<sup>2</sup>) of cockpit sole will satisfy this requirement.
- 2.1.5.1 Cockpit Volume: A boat's maximum cockpit volume for cockpits not open to the sea, including any compartments capable of flooding, to the lowest points of coaming over which water can adequately escape, shall not exceed (.06 x LOA x Max. Beam x Freeboard Abreast the cockpit). The cockpit sole shall be at least (0.02 x LWL) above LWL.
- 2.1.6 Openings below the Waterline: A boat's through-hull openings below the waterline shall be equipped with sea cocks or valves, except for integral deck scuppers, speed transducers, depth finder transducers and the like. A means of closing all openings shall be provided.

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2.2.1 Stability Index: (ORR SI = Limit of Positive Stability + Capsize Increment): Boats not subject to Appendix 2 must have an ORR SI of 115 or greater.

2.2.3 Moveable and Variable Ballast: Boats with movable ballast (water or canting keel) shall comply with Appendix 2.

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2.3.1 Toilet: A boat shall be equipped with a head or a bucket which is fitted below deck and designated for this purpose only.

2.3.2 Sleeping arrangements: A boat shall have bunks sufficient to accommodate the off-watch crew.

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2.3.3 Cooking: A boat shall be equipped with a stove with a fuel shutoff.

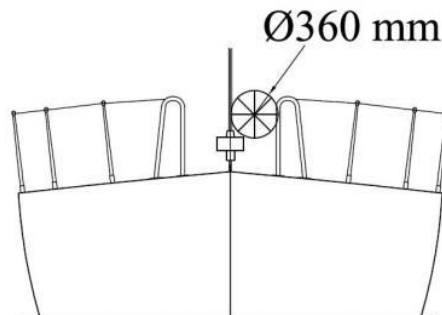
2.3.4 Potable Water: A boat shall have an installed water tank and delivery system. Care should be taken to ensure potable water is accessible to the crew in the event of a failure of the primary water delivery system.

2.3.5 Hand Holds: A boat shall have adequate hand holds below deck.

2.4.1 Enclosed Deck: The deck, including the headstay, shall be surrounded by a suitably strong enclosure, typically consisting of lifelines and pulpits, meeting the following requirements:

2.4.2 A boat's stanchion and pulpit bases must be within the working deck.

2.4.3 Bow pulpits may be open, but the opening between the vertical portion of the pulpit and any part of the boat shall not exceed 14.2" (360 mm). See diagram below.



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2.4.4 Lifelines must be uncoated stainless steel wire. A multipart lashing not to exceed 4" (101 mm) per end

termination for the purpose of tying lifelines to pulpits and pushpits is allowed. Lifelines shall be taut (defined as a deflection of less than 2" (50mm) when a force of 9 lbs (40N) is applied midway between stanchions).

- 2.4.5 The maximum spacing between the bases of lifeline supports (e.g. stanchions and pulpits) shall be 87"(2.2m).
- 2.4.7 Boats shall have at least two lifelines with 24" (610 mm) minimum height above deck, and a maximum vertical gap of 15" (381 mm). The minimum diameter will be 5/32" (4 mm) for boats to 43' (13.1 m) and 3/16" (5 mm) for boats over 43' (13.1 m).
- 2.4.8 A toe rail shall be fitted around the foredeck from the base of the mast on each side with a minimum height of 1" (25 mm). An additional installed lifeline that is 1-2" (25 - 51 mm) above the deck will satisfy this requirement for boats without toe rails.
- 2.5.1 Bilge Pumps: A boat shall have a permanently installed manual bilge pump of at least 10 gallons per minute (GPM) (37.8 liters per minute) capacity and which is operable from on deck with the cabin closed with the discharge not dependent on an open hatch. Unless permanently attached to the pump, the bilge pump handle shall be securely attached to the boat in its vicinity via a lanyard or catch. A bilge pump discharge shall not be connected to a cockpit drain. The bilge pump shall not discharge into a cockpit unless that cockpit opens aft to the sea.
- 2.5.2 Second Bilge Pump: A boat shall have a second permanently installed manual bilge pump of at least 10 GPM capacity, operable from below deck, meeting the same criteria as above.
- 2.6 Mast Step: A boat shall have the heel of a keel-stepped mast securely fastened to the mast step or adjoining structure.
- 2.7.1 Mechanical Propulsion: A boat shall have an engine that is quickly available and capable of propelling the boat at a minimum speed in knots equivalent to the square root of LWL in feet (1.81 times the square root of the waterline length in meters).

2.7.1(a) Fuel On Board: A boat shall carry sufficient fuel to provide a cruising range under power of at least 100 nautical miles after finishing.

2.7.3 Engine Installation: A boat's engine and generator installation (if so equipped), shall conform to ABYC, ISO or U.S. Coast Guard standards or manufacturer's recommendations.

### 3.0 SAFETY EQUIPMENT:

Portable and affixed safety gear shall include:

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3.1.1 Lifejackets: Each crew member shall have a life jacket that provides at least 33.7 lbs (150 N) of buoyancy, intended to be worn over the shoulders (no belt packs), meeting either U.S. Coast Guard or ISO specifications. Life jackets shall be equipped with crotch or leg straps, a whistle, a waterproof light, be fitted with marine-grade retro-reflective material, and be clearly marked with the boat or wearer's name, and be compatible with the wearer's safety harness. **After 1/1/2018, each life jacket intended for regular use while racing (one per crewmember) shall be equipped with an AIS personal crew overboard beacon.** If the life jacket is inflatable, it shall be checked for air retention regularly. Alternatively, each crewmember shall have a U.S. Coast Guard approved inherently buoyant offshore life jacket that provides at least 22 lbs (100 N) of buoyancy equipped with crotch or leg straps, a whistle, a waterproof light, AIS personal crew overboard beacon and retro-reflective material, marked with the boat or wearer's name, which is compatible with a safety harness.

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3.1.4 Safety Harness: Each crew member shall have a safety harness and compatible safety tether not more than seven feet (2.13m) long with a breaking strength of 4,500 lbs (20 kN). The tether shall have a snap hook at its far end and a means to quickly disconnect the tether at the chest end.

3.2.1 Jack Lines: A boat shall have jack lines with a breaking strength of at least 4,500 lbs (20 kN), that allow the crew to reach all points on deck and are connected to similarly strong attachment points.

3.2.2 Companionway Clipping Points: A boat shall have adequate clipping points or jack lines which allow the crew to clip on before coming on deck and unclip after going below.

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3.3.1 Navigation Lights: A boat shall have navigation lights that meet U. S. Coast Guard requirements and are mounted above deck level in such a way that they will not be obscured by the sails.

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3.3.2 Spare Navigation Lights: A boat shall have a second set of navigation lights that comply with U.S. Coast Guard requirements and which can be connected to a different power source than the primary lights.

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3.4 Fire Extinguishers: A boat shall carry fire extinguisher(s) that meet U.S. Coast Guard requirements.

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3.5 Horn: A boat shall carry a sound making device that meets U.S. Coast Guard requirements.

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3.6 Flares: A boat shall carry:

3.6.1 Two (2) SOLAS orange smoke flares not older than the expiration date.

3.6.3 Four (4) SOLAS red hand flares not older than the expiration date.

3.6.5 Flares stored inside of life rafts may not be used to satisfy the flare requirement.

3.7.1 Lifesling: A boat shall carry a Lifesling®, or equivalent man overboard rescue device, equipped with a self-igniting light and stored on deck ready for immediate use.

3.7.2 MOB Pole: A boat shall carry a man overboard pole and flag with a lifebuoy, a self-igniting light, a whistle, and a drogue attached. A self-inflating MOB module, Dan-Buoy or similar device will satisfy this requirement. Self-inflating apparatus shall be tested and serviced in accordance with the manufacturer's specifications. These items shall be stored on deck, ready for immediate use, and affixed in a manner that allows for "quick release".

3.7.3 Heaving Line: A boat shall have a throwing sock-type heaving line of 50' (15 m) or greater floating line readily accessible to the cockpit.

3.8.1 Installed VHF Radio and Antenna: A boat shall have a permanently installed 25-watt VHF radio connected to a masthead antenna by a co-axial feeder cable with no more than a 40% power loss. All permanently installed VHF radios



shall have DSC capability, have an antenna of at least 15" (381 mm) in length, be connected to or have an internal GPS, and have the assigned MMSI number (unique to the boat) programmed into the VHF.

3.8.2 Handheld VHF Radio: A boat shall have a watertight handheld VHF radio or a handheld VHF radio with waterproof cover. This radio shall have DSC/GPS capability with an MMSI number properly registered to the vessel.

3.8.3 Emergency VHF Antenna: A boat shall have an emergency VHF antenna equipped with sufficient coax to reach the deck.

3.8.4 VHF Operational Modes: A boat shall be equipped with VHF transceivers that are operational in International and USA channel mode.

3.9 AIS: All boats shall have an AIS Transponder, sharing a masthead VHF antenna via a low loss AIS antenna splitter. An acceptable alternative is a dedicated AIS antenna that is a minimum of 15" (0.381 m), mounted with its base at least 3 meters above the water, and fed with coax that has a maximum 40% power loss.

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3.11 Satellite Phone: A boat shall carry a satellite telephone or satellite communications system designed for use with a smartphone that:

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3.11.1 is programmed to operate with a satellite communications provider of continuous, uninterrupted signals for two-way voice communications on the Western North Atlantic Ocean;

3.11.2 is powered or recharged by the boat's electrical system;

3.11.3 is operable below deck using a mounted external antenna;

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3.11.4 shall remain "on" and ready to accept incoming voice calls, except when making necessary intermittent data connections while underway; and

3.11.5 shall have a telephone number that is provided to the BROCC via the race website before close of Newport Check-in.



If the method of complying with this requirement depends on the use of a smartphone, the handset shall be securely mounted in the living quarters of the boat via a docking station connected to the boat's electrical system; shall remain continuously connected to the satellite communication system during the race; and shall be set at a ringer volume sufficient to be heard over other ambient noise while at sea.

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- 3.14 Global Positioning System: A boat shall carry a GPS receiver.
- 3.15 Man Overboard: A boat shall be equipped with an electronic means to record the position of a man overboard within ten seconds. This may be the same instrument used to comply with 3.14.
- 3.16.1 Emergency Position Indicating Radio Beacon: A boat shall carry a 406MHz EPIRB that is properly registered to the boat. Boats with more than one life raft must carry at least one EPIRB meeting the requirements of this section per life raft. All EPIRBS purchased after 1/1/2016 must be equipped with an internal GPS.
- 3.17 Distance Measuring: A boat shall be equipped with a knot meter and/or distance measuring instrument separate from the GPS.
- 3.18 Depth Sounder: A boat shall be equipped with a permanently installed depth sounder that can register to a depth of at least 200 ft (61 m).
- 3.19.1 Steering Compass: A boat shall have a permanently-mounted magnetic compass independent of the boat's electrical system suitable for steering at sea.
- 3.19.2 Second Compass: A boat shall have a second marine compass suitable for steering a boat at sea which may be hand held.
- 3.20 Charts: A boat shall have non-electronic charts that are appropriate for the race area.
- 3.21 Sail Numbers: A boat shall have the ability to display sail numbers and letters of the size carried on the mainsail by an alternative means when none of the numbered sails is set.
- 3.22 Tapered Soft Plugs: A boat shall have soft plugs of an appropriate material, tapered and of the appropriate size, attached or stowed adjacent to every through-hull opening.

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3.23 Ground Tackle: A boat shall carry one anchor, meeting the anchor manufacturer's suggested size for the boat's size, with a suitable combination of chain and line.

3.24.1 Searchlight: A boat shall have a watertight, high-powered searchlight, suitable for searching for a person overboard at night or for collision avoidance.

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3.24.2 Flashlights: A boat shall carry a watertight flashlight for each crewmember with spare batteries in addition to the above.

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3.25 First Aid Gear: A boat shall carry a first aid kit and first aid manual suitable for the likely conditions of the passage and the number of crew aboard.

3.26 Radar Reflector: A boat shall have an 11.5" diameter or greater octahedral radar reflector or one of equivalent performance.

3.27.1 Buckets: A boat shall carry two (2) stout buckets of at least two gallons (7.6 liters) capacity, each with a lanyard attached.

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3.28 Safety Gear and Through Hull Diagram: A boat shall post a durable, waterproof diagram in the main accommodation area where it can be seen easily, identifying the location of the principal items of safety equipment and through hulls.

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3.29.1 Emergency Tiller: A boat shall have an emergency tiller, capable of being fitted to a rudder stock (except when the principal method of steering is by means of an unbreakable metal tiller).

3.30 Tools and Spare Parts: A boat shall carry tools and spare parts, including an effective means to quickly disconnect or sever the standing rigging from the hull.

3.31 Marking of Safety Gear: All lifesaving equipment shall bear retro-reflective material and be marked with the boat's or wearer's name. The exception would be for new equipment or rented equipment (e.g. life rafts) that would require the unpacking of sealed equipment in order to meet this requirement. The boat's name shall be marked on such gear during the first servicing.

3.32 Knife: A boat shall carry at least one strong, sharp knife, sheathed and securely restrained, which is readily accessible from the deck and/or cockpit.

3.33.1 Reefing: A boat shall have mainsail reefs capable of reducing the area of the sail by an amount appropriate for the weather conditions possible on the race course.

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3.33.2 Storm Trysail: A boat shall carry a storm try sail, with the boat's sail number displayed on both sides, that can be set independently of the main boom, has an area less than 17.5% of "E" x "P", and which is capable of being attached to the mast. Storm sails manufactured after 1/1/2014 must be constructed from a highly visible material.

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3.33.3 Heavy Weather Jib: A boat shall carry a heavy weather jib (or heavy weather sail in a boat with no forestay) of area not greater than 13.5% height of the foretriangle squared.

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3.33.4 Storm Jib: A boat shall carry a storm jib not exceeding 5% of the boat's "I" dimension squared, and equipped with an alternative means of attachment to a stay. Storm sails manufactured after 1/1/2014 must be constructed from a highly visible material.

3.35 Halyards: A boat shall not be rigged with any halyard that requires a person to go aloft in order to lower a sail.

3.36.1 Preventer or Boom Restraining Device: A boat shall have a preventer or boom restraining device, shall practice rigging it and shall be prepared to demonstrate its use to the satisfaction of BROCC.

3.36.2 Boom Support: A boat shall have a means to prevent the boom from dropping if support from the mainsail or halyard fails.

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3.37 Emergency Drinking Water: A boat shall carry 1 gallon (3.785 liters) per crewmember of emergency drinking water in sealed containers in addition to any other water carried aboard the boat, and it shall be aboard after finishing.

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3.39 Inflatable Life Raft(s): A boat shall carry adequate inflatable life raft(s) designed for saving life at sea with designed capacity for containing the entire crew. The raft(s) must be of proper design and construction for the conditions potentially faced on the ocean race course. Each raft shall be stored in such a way that it is capable of being launched within 15 seconds. Each life raft shall hold a current certificate of inspection. A boat built after June 2001 shall have the life raft(s) stowed in a deck mounted rigid container or stowed in

watertight or self-draining purpose built rigid compartment(s) opening adjacent to the cockpit or working deck. Boats built prior to June 2001 may alternatively stow the life raft in a valise not weighing over 88 lbs. securely below deck and adjacent to the companionway.

- 3.40 Grab Bag(s): A boat shall have a grab bag with a lanyard and clip for each life raft. The grab bag(s) shall have inherent flotation and be of a bright fluorescent color, and each grab bag shall contain a handheld VHF radio, either watertight or fitted with a waterproof cover. At least one VHF radio stored in a grab bag shall be DSC/GPS equipped. The VHF radio need not be in addition to the other requirements contained herein.

## 4.0 TRAINING AND SKILLS

- 4.1 Steering in an Emergency: A boat's crew shall be aware of multiple methods of steering the boat with the rudder disabled, and shall have chosen and practiced one method and be prepared to demonstrate it while sailing both upwind and downwind.

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- 4.2 Annual Man Overboard Training: Annually, two-thirds of the boat's racing crew shall practice man-overboard procedures appropriate for the boat's size and speed. The practice shall consist of marking and returning to a position on the water, and demonstrating a method of hoisting a crewmember back on deck, or other consistent means of re-boarding the crewmember.

- 4.3.1 Safety At Sea Seminar Attendance: At least 30% but not fewer than two members of the crew, including the Captain and Navigator or a Watch Captain shall have attended a one-day or two-day US Sailing Offshore Safety at Sea Seminar within the last five (5) years, or other courses as approved by US Sailing. **After 1/1/18, at least two members of the crew must hold a World Sailing Approved Offshore Personal Survival Course Certificate.**

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- 5.3 Routine Training On Board: The Captain and not less than 80% of a boat's crew shall, prior to the start of the race, participate in on-board training, including man overboard practice, use of AIS and AIS personal crew overboard

beacons, sailing with the storm trysail, use of the life raft, lifejackets, safety harnesses, main boom preventer, communications equipment, pyrotechnics, EPIRB(s), fire prevention, firefighting and the procedures for abandoning ship, dismasting and rudder/steering loss or failure. All participating crew shall sign and date the On Board Training Certificate.

5.4 Safety Demonstration: A boat's crew shall be able to demonstrate, to the satisfaction of the BROCC, an ability to return to a man-overboard in reasonable amount of time.

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5.5 Digital Selective Calling (DSC): All crew shall review the emergency features of DSC, including the response to a DSC Distress Call.

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5.6 CPR and First Aid: Two crew members must have current CPR and First Aid certifications.

## APPENDIX 1

### HULL CONSTRUCTION STANDARDS (SCANTLINGS)

#### 1.8.1

- a) A boat of less than 24m (78.74 feet) in hull length with the earliest of Age or Series Date on or after 1 January 2010 shall have:
- been designed, built and maintained in accordance with the requirements of ISO 12215 Category A.
  - on board a certificate of building plan review from a Notified Body recognized by ISAF.
  - on board a declaration signed and dated by the builder to confirm the boat is built in accordance with the plans reviewed by the Notified Body.

A list of Notified Bodies recognized by ISAF can be found at [http://www.sailing.org/classesandequipment/offshore/plan\\_review.php](http://www.sailing.org/classesandequipment/offshore/plan_review.php).

- b) A boat of 24m (78.74 feet) or greater in hull length with the earliest of Age or Series Date on or after 1 January 2010 shall have:
- been designed, built and maintained in accordance with the requirements of a Classification Society recognized by ISAF.
  - on board a certificate of building plan review from a Classification Society recognized by ISAF.
  - on board a declaration signed and dated by the builder to confirm the boat is built in accordance with the plans reviewed by the Classification Society.

A list of Classification Societies recognized by ISAF can be found at [http://www.sailing.org/classesandequipment/offshore/plan\\_review.php](http://www.sailing.org/classesandequipment/offshore/plan_review.php).

#### 1.8.2

- a) A boat of less than 24m (78.74 feet) in hull length, with the earliest of Age or Series Date on or after 1 January 2010, if subject to any significant repair or modification to the hull, deck, coach roof, keel or appendages on or after the 1 January 2010, shall have:
- the repair or modification designed and built in accordance with ISO 12215 Category A.
  - on board a certificate of building plan review for the repair or modification from a Notified Body recognized by ISAF.
  - on board a declaration signed and dated by the builder to confirm that the repair or modification is in accordance with the requirements of ISO 12215 Category A.

b) A boat of 24m (78.74 feet) in hull length and over, with the earliest of Age or Series Date on or after 1 January 2010, if subject to any significant repair or modification to the hull, deck, coach roof, keel or appendages on or after the 1 January 2010, shall have

- the repair or modification designed and built in accordance with the requirements of a Classification Society recognized by ISAF.
- on board a certificate of building plan review for the repair or modification from a Classification Society recognized by ISAF.
- on board a declaration signed and dated by the builder to confirm that the repair or modification is in accordance with the plans reviewed by the Classification Society.

### 1.8.3

A boat with the earliest of Age or Series Date before 1 January 2010 shall comply with NBR SR 1.8.1 or 1.8.2 above or with 1.8.4.

### 1.8.4

a) A boat with the earliest of Age or Series Date before the 1 January 2010 not complying with 1.8.1 or 1.8.2 shall have been designed built, maintained, modified and repaired in accordance with the requirements of one of the following:

- the ABS Guide for Building and Classing Offshore Yachts in which case the boat shall have on board either a certificate of plan approval issued by ABS, or written statements signed by the designer and builder which confirm that they have respectively designed and built the boat in accordance with the ABS Guide.
- ISO 12215 Category A, with written statements signed by the designer and builder which confirm that they have respectively designed and built the boat in accordance with the ISO standard, except that a race organizer or class rules may accept, when those standards described above is not available, the signed statement by a naval architect or other person familiar with the standards listed above that the boat fulfills the above requirements.
- the EC Recreational Craft Directive for Category A (having obtained the CE mark).
- except that a race organizer, when that described above is not available, may permit a boat to compete if there is successful past race or passage making history for the boat.

At the sole discretion of the race organizer, a boat otherwise required to comply with 1.8.1 or 1.8.2 may be permitted to compete based on compliance with 1.8.4, except that successful past race or passage making history for the boat shall not be sufficient for consideration in such cases.



## APPENDIX 2

### ISAF OFFSHORE SPECIAL REGULATIONS APPENDIX K

#### MOVEABLE AND VARIABLE BALLAST

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

This Appendix applies to Monohulls only. Unless specifically stated, a requirement applies to Special Regulations Categories 0, 1, 2, 3 and 4. This Appendix does not apply to boats racing under Category 5.

#### 1 Stability

##### 1.1 Boat Condition

In the calculation of stability data:

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

##### 1.2 General Standards

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

##### 1.3 Knockdown Recovery

Boats with moveable/variable ballast shall comply with a minimum Knockdown Recovery Factor (FKR) of 0.9, calculated in accordance with ISO 12217-2 paragraph 6.4.4 with the modification that the reference to ISO 8666 paragraph 5.5.2 changed to incorporate actual mainsail area and center of effort. The lesser of FKR90 and FKR-90 shall be used:

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