Safety Equipment Requirements

Note: Organizing Authorities may add or delete items based on the conditions of their specific races.

Effective Date: January 1, 2027, version 2027.0 valid through December 31, 2028

Changes from the prior version are highlighted with red text

Multihull Version

1	**Overall**
1.0.1 Definition	Ocean: Long distance races, well offshore, where rescue may be delayed
1.1	The Safety Equipment Requirements establish uniform minimum equipment and training standards for a variety of boats racing in differing conditions. These regulations do not replace, but rather supplement, the requirements of applicable local or national authority for boating, the Racing Rules of Sailing, the rules of Class Associations and any applicable rating rules.
1.2 Responsibility	The safety of a boat and her crew is the sole and inescapable responsibility of the "person in charge", as per RRS 46, who shall ensure that the boat is seaworthy and manned by an experienced crew with sufficient ability and experience to face bad weather. S/he shall be satisfied as to the soundness of hull, spars, rigging, sails and all gear. S/he shall ensure that all safety equipment 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 Responsibility, Investigations	Should there be an incident during a race the Organizing Authority or US Sailing may conduct an investigation to determine the facts of the incident and provide recommendations. By participating in a race conducted under the SER, the person in charge, each competitor and boat owner agrees to reasonably cooperate with the organizing authority and US Sailing in the development of an independent incident report.
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 RC. A Violation of the Safety Equipment Requirements may result in a penalty other than disqualification.
1.4 Equipment and Knowledge	All equipment required shall function properly, be regularly checked, cleaned and serviced, not be beyond their expiration date and be of a type, size and capacity suitable for the intended use and size of the boat and the size of the crew. This equipment shall be readily accessible while underway and, when not in use, stored in such a way that deterioration is minimized.
1.5 Secure Storage	A boat's heavy items such as batteries, stoves, toolboxes, anchors, chain and internal ballast shall be secured.
1.6.1 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. A boat shall be properly rigged, be fully seaworthy and shall meet the standards set forth herein. A boat's shrouds and at least one forestay shall remain attached at all times.
1.7.1 Watertight Integrity	A boat's hulls and amas, including, deck, coach roof, windows, hatches and all other parts, shall form an integral 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 to the interior of the hull unless the opening is watertight and situated entirely above the waterline floating level in normal trim.
1.9 Sailing without power	The crew of a boat must demonstrate that normal sailing functions (including but not limited to: raising and lowering sails; trimming sails; steering; raising and lowering dagger boards; positioning canting centerboards and moveable ballast; operating bilge pumps; rotating masts (if applicable); and deploying safety gear) can be performed in the event of a complete loss of power.
2	**Hull and Structure** **A boat shall have or be equipped with:**
2.1.1.1 Exits	At least 2 exits in each hull which contains accommodation.

2.1.1.2 Escape hatches	Either an escape hatch in each hull that contains accommodation for access to and from the hull in the event of an inversion or cutting lines shall be clearly marked both inside and outside with an outline and the words “ESCAPE CUT HERE” and appropriate tools for cutting an escape opening stowed securely in a location accessible from both inside and outside the boat in the event of capsize.
2.1.1.4 Escape hatches	Escape hatches that are above the waterline when the boat is inverted.
2.1.1.5 Escape hatches	Escape Hatches shall have sufficient minimum clearance of 450mm (approximately 18”) in diameter or when an escape hatch is not circular, sufficient clearance to allow a crew member to pass through fully clothed.
2.1.1.6 Escape hatches	Each Escape Hatch shall have been opened both from the inside and outside within six (6) months prior to the race.
2.1.2 Hull Openings	Hatch boards, whether or not in position in the hatchway, shall be secured in a way that prevents their being lost overboard.
2.1.3 Cockpit	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.
2.1.6 Through Hulls	Sea cocks or valves on through-hull openings below the waterline except for integral deck scuppers, speed transducers, depth finder transducers and the like; however a means of closing such openings shall be provided.
2.1.7 Floatation	A boat shall be designed to ensure that the boat is effectively unsinkable.
2.2.1 Stability	A boat must meet the requirements of ISO 12217-2A
2.3.1 Head	A head or a fitted bucket.
2.3.2 Bunks	Bunks sufficient to accommodate the off watch crew.
2.3.3 Stove	A stove with a fuel shutoff.
2.3.3.1 Fire Blanket	A fire blanket adjacent to each stove.
2.3.4 Water Storage	Water as required by the Notice of Race such that a single failure of a tank or delivery system will not allow the loss of more than half the water.
2.3.5 Hand Holds	Adequate hand holds below decks.
2.5.1 Dewatering pumps	A permanently installed manual bilge pump of at least a 10 GPM (37.8 liter 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.
2.5.2.1 Dewatering pumps	A portable manual bilge pump of at least 10 GPM capacity capable of dewatering any part of the boat. When not in use, the pump shall be attached to the boat.
2.5.3 Dewatering pumps	Each ama of a trimaran shall have a minimum of three independent compartments of significant volume, completely separated by watertight bulkheads, such that flooding of one section does not jeopardize flooding in the others. Alternatively, a trimaran shall have plumbing permanently installed in each ama allowing provision to pump out all compartments in the ama without having to open an access hatch in the ama.
2.7.1 Mechanical Propulsion	A mechanical propulsion system that is quickly available and capable of driving 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 in meters) for 10 hours.
2.7.3 Mechanical Propulsion Installation	The boat's engine and generator installation (if so equipped) must conform to ABYC, ISO, or U.S. Coast Guard standards.

2.8 Nets or Trampolines	All trampolines shall be (a) essentially horizontal; (b) Made from durable woven webbing, water permeable fabric or mesh with openings not larger than 2" (5cm) in any dimension. Attachment points shall avoid chafe and the junction between net and boat shall present no risk of foot trapping; (c) Solidly fixed at regular intervals on transverse and longitudinal support lines and (d) Able to carry the full weight of the crew either in normal working conditions at sea or when the boat is inverted.
2.9 Nets or Trampolines	Each multihull shall have one or a combination of netting, coamings, bulwarks, railings, lifelines or jacklines, extending from the aft most part of the cockpit or steering station to the aft most part of the central pulpit or forestay, to keep the crew aboard while sailing and sail handling in conditions expected for Offshore, Coastal or Inshore racing. If lifelines are used, they may be either stainless or HMPE with a minimum diameter of 3/16" (5mm), they must be taut, supported at distances of no greater than 87" (2.2 m), and be a minimum of 24" (762 mm) above the deck with a maximum vertical gap of 15" (381mm).
2.10 Nets or Trampolines	A trimaran with a single crossbeam shall have nets between the central hull and each outrigger on each side between two straight lines from the intersection of the crossbeam and the outrigger, respectively to the aft end of the pulpit on the central hull, and to the aftermost point of the cockpit or steering position on the central hull (whichever is furthest aft).
2.11 Nets or Trampolines	A catamaran shall have nets covering at least the area bounded: (a) laterally between the hulls and (b) Longitudinally between transverse stations through the forestay base and the aftermost point of the boom lying fore and aft. However, a catamaran with a central nacelle (non-immersed) may satisfy the regulations for a trimaran
3	**Safety Equipment** **A boat shall have or be equipped with:**
3.1.1 Lifejackets	For each crewmember, a life jacket that provides at least 33.7lbs (150N) of buoyancy, intended to be worn over the shoulders (no belt pack), meeting either U.S. Coast Guard or ISO specifications. Alternatively, each crewmember shall have an inherently buoyant off-shore life jacket that provides at least 22lbs (100N) of buoyancy meeting either U.S. Coast Guard or ISO specifications.
3.1.2 Lifejacket Features	Life jackets shall be equipped with crotch or leg straps, that are manufactured for the purpose and are attached to the lifejacket at all times while racing, a whistle, a waterproof light, be fitted with marine-grade retro-reflective material, ~~and~~ be clearly marked with the boat's or wearer's name, and be compatible with the wearer's safety harness. If the life jacket is inflatable, it shall be regularly checked for air retention.
3.1.2.1 Lifejacket Features	Life jackets shall be equipped with a knife suitable for cutting through the trampoline on the boat, with a tether attaching the knife to the life jacket.
3.1.4 Lifejacket Use	Lifejackets as described in 3.1.1 – 3.1.3 shall be worn by all crew on deck unless the person in charge has indicated that they may be set aside.
3.1.5 Harness	Each crewmember shall have a safety harness and compatible safety tether not more than 6'7" (2m) long with a minimum tensile strength of 4500 lb. (20kN). The tether shall have a snap hook at its far end and a means to quickly disconnect the tether at the chest end while under load and without the use of a tool.
3.2.1 Jacklines	Jacklines with a breaking strength of at least 4500 lb. (20kN) which allow the crew to reach all points on deck, connected to similarly strong attachment points, in place while racing.
3.2.1.1 Jacklines	Jack lines with a breaking strength of at least 4,500 lbs. (20 kN), running the length of the underwing deck adjacent to the escape hatches, which allow the crew to clip in before exiting the hull. On a trimaran, these shall be around the central hull. In addition, the underwing deck shall (if there is one) be outfitted with nonskid pathways suitable for crew to cross between hulls and to access safety equipment while remaining clipped in.
3.2.2.1 Clipping Points	A trimaran with a rudder on the outrigger must have clipping points available for a crewmember to repair the steering mechanism while clipped in.

3.3.1 Navigation Lights	A boat racing between sunset and sunrise shall carry navigation lights that meet U. S. Coast Guard or applicable government requirements mounted so that they will not be obscured by the sails nor be located below deck level.
3.3.2 Navigation Lights	A second set of navigation lights that comply with US Coast Guard or applicable government requirements and which can be connected to a different power source than the primary lights.
3.4 Fire Extinguishers	Fire extinguisher(s) that meets U.S. Coast Guard or applicable government requirements, when applicable.
3.5 Sound Producing Equipment	Sound-making devices that meets U.S. Coast Guard or applicable government requirements, when applicable.
3.6.3 Visual Distress Signals	Four SOLAS red hand flares not older than the expiration date.
3.6.5 Raft Flares	Boat flares stored inside of life rafts may not be used to satisfy the flare requirement.
3.7.1 Crew Overboard Sling	A Lifesling or equivalent man overboard rescue device equipped with a light stored on deck and ready for immediate use.
3.7.2 Crew Overboard Equipment	A man overboard pole and flag, with a lifebuoy, a light, a whistle, and a drogue attached. A self-inflating Man Overboard Module, Dan Buoy or similar device with or without a lifebuoy with at least 150n buoyancy 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 a "quick release".
3.7.3 Throw Line	A throwing sock-type heaving line of 50' (15m) or greater of floating polypropylene line readily accessible to the cockpit.
3.7.4 Throwable Device	A Coast Guard or applicable government approved "throwable device". If the device carried under 3.7.1 or 3.7.2 satisfies this requirement, then no additional device is needed.
3.8.1 Fixed Mount VHF	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. Such radio shall have DSC capability, have an antenna of at least 15" (381mm) in length, be connected to or have an internal GPS, and have the assigned MMSI number (unique to the boat) programed into the VHF.
3.8.2 Handheld VHF	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.
3.8.4 VHF Emergency Antenna	An emergency VHF antenna with sufficient coax to reach the deck, and have a minimum antenna length of 15" (381mm).
3.9 AIS	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 0.9 meters long, mounted with its base at least 3 meters above the water, and fed with coax that has a maximum 40% power loss.
3.10 AIS COB Beacon	For each crew member, a dedicated AIS personal crew overboard beacon. This shall be on the crew member's person at all times while on deck.
3.13 Weather	A method of receiving weather information in addition to the fixed mount and hand held VHF radio.
3.14 GPS	A GPS receiver.
3.15 Crew Overboard Button	An electronic means to record the position of a man overboard within ten seconds. This may be the same instrument listed in 3.14. For boats with only two crewmembers, this device shall be accessable without having to go below deck.
3.16.1 EPIRB	A 406MHz EPIRB that is properly registered to the boat. This device shall be equipped with an internal GPS. Units registered after 2026 shall be equipped with AIS transmit capability.
3.17.1 Knot Meter	A knotmeter or alternatively a handheld GPS, in addition to the primary GPS referenced in 3.14

3.18 Depth Sounder	A permanently installed depth sounder that can measure to depths of at least 200 ft. (61m).
3.19.1 Compass	A permanently mounted magnetic compass independent of the boat's electrical system suitable for steering at sea.
3.19.2 Second Compass	A second magnetic compass suitable for steering at sea which may be handheld.
3.20 Charts	Non-electronic charts that are appropriate for the race area.
3.21 Alternate Sail Numbers	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 Plugs	Soft plugs of an appropriate material, tapered and of the appropriate size, attached or stowed adjacent to every through-hull opening.
3.23 Anchor	One anchor, meeting the anchor manufacturer's recommendations based on the boat's size, with a suitable combination of chain and line.
3.24.1 Searchlight	A watertight, high-powered searchlight, suitable for searching for a person overboard at night or for collision avoidance.
3.24.2 Flashlights	A watertight flashlight for each crewmember with spare batteries in addition to the above.
3.25 Medical Kits	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 Reflectors	~~An 11.5" (292mm) diameter or greater octahedral radar reflector or one of equivalent performance.~~
3.27.1 Buckets	Two sturdy buckets of at least two gallons (8 liters) capacity with lanyards attached.
3.28 Safety Diagram	A durable, waterproof diagram or chart locating the principal items of safety equipment and through hulls in the main accommodation area where it can be easily seen.
3.29.1.1 Emergency Steering	A demonstrated ability to be steered after the failure of any one component in the steering system.
3.30 Spare Parts	Tools and spare parts, including an effective means to quickly disconnect or sever the standing rigging from the hull.
3.31 Identification	Retro-reflective material and be marked with the boat's or wearer's name on all lifesaving equipment. 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 name shall be added during the first servicing of any new equipment.
3.32.1 Cockpit Knife	At least one strong, sharp knife, sheathed and securely restrained on deck which is readily accessible from each trampoline in the event of inversion. In addition, a second knife meeting the requirements above which is accessible from the underside of the boat.
3.32.2 Cockpit Knife	A strong, sharp knife, sheathed and securely restrained adjacent to each escape hatch.
3.33.1.2 Mainsail Reefing	Mainsail with reefing capable of reducing the luff length by at least 50%.
3.33.2.1 Trysail	A trysail, with the boat's sail number displayed on both sides (or rotating wing mast if suitable), which 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 01/01/2014 shall be constructed from a highly visible material. If a boat has a mainsail capable of reducing the luff length by at least 60%, this requirement is omitted.
3.33.4.1 Storm Jib	A storm jib not exceeding 5% of the boat's I dimension squared, and equipped with an alternative means of attachment to the headstay in the event of a failure of the head foil. Storm sails manufactured after 01/01/2014 shall be constructed from a highly visible material.
3.33.4.2 Storm Jib	Storm sails shall be designed to provide propulsion and steerage in 34-40 knots and on all points of sail. Heavy weather sails shall be designed to provide propulsion and steerage in 22-27 knots and on all points of sail.

3.33.5 Mainsheet Release	The ability of the crew to manually release sufficient mainsheet or traveler to cause the end of the boom to move at least 15 degrees in arc in under two (2) seconds from all steering or consistently manned trimming station while racing. Hydraulics manufacturer design specifications or video are acceptable compliance.
3.34 Search & Rescue Visibility	The display a one square meter area of highly visible pink, orange or yellow showing if the boat is inverted.
3.35.1 Halyards	A single roller-furling headsail of no larger than 125% LP may be lashed to the swivel at the top of the forestay, thus requiring a person to go aloft to hoist or drop this sail. No other sail, either headsail or mainsail, may be rigged so that someone has to go aloft to hoist or drop it.
3.35.2 Halyards	A boat shall have a means of hoisting a person out of the water. This may consist of a halyard that reaches the water, a multipart tackle capable of reaching from the water to at least six feet above the boat's upper lifeline, or an equivalent system.
3.39 Life Rafts	Adequate inflatable life raft(s) designed for saving life at sea with designed capacity for containing the entire crew. The raft shall be certified by the manufacturer or manufacturer-authorized inspection certificate as compliant with ISO 9650-1, or SOLAS, or ISAF (if made before 2016), or ORC (if made before January 1, 2004). Each raft shall be stored in such a way that it is capable of being launched within 15 seconds. Boats built after 01/06/2001 shall stow each life raft a deck-mounted rigid container in watertight or self-draining purpose-built rigid compartment(s) opening adjacent to the cockpit or the working deck. Boats built prior to 01/06/2001 may alternatively stow each life raft in a valise not weighing over 88 lbs. securely below deck and adjacent to the companionway. Life raft(s) shall hold current manufacturer-authorized certificate(s) of inspection.
3.39.1 Life Rafts	The boat may alternatively stow the life raft in a valise not weighing over 88 lbs. securely below deck adjacent to the escape hatch(es) so long as the valise fits through the escape hatch without force. The life raft(s) shall be readily deployable whether or not the boat is inverted.
3.40.1 Grab bags	A grab bag with a lanyard and clip for each life raft. The grab bag shall have inherent flotation, be of a bright fluorescent color, and contain at least an EPIRB or PLB, a watertight handheld VHF radio, a waterproof flashlight, and cutting tools if required per 2.1.1.2. The VHF radio and EPIRB or PLB are in addition to the prior requirements and shall be properly registered to the boat in the case of the EPIRB, or to the owner with a notation that it is carried on the boat in the case of a PLB.
4	**Skills**
4.1.1 Emergency Steering	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 of steering the boat with the rudder disabled and be prepared to demonstrate said method of steering both upwind and downwind.
4.2 Man Overboard Practice	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 reboarding the crewmember.
4.3.1 Safety at Sea Training	At least 30% of those aboard the boat, but not fewer than two members of the crew, unless racing single-handed, including the person in charge, shall have a valid Offshore or International Offshore Certificate from US Sailing, or the equivalent from another national authority.
4.4 Crew Training	As required in 1.2 above the person in charge shall ensure that all crew members know where all emergency equipment is located and how to operate the equipment. In addition, the person in charge and crew should discuss how to handle various emergency situations including Crew Overboard, Grounding, Loss of steering, Flooding, Fire, Dismasting, and Abandon Ship.

4.6 Crew Training	~~Lifejackets as described in 3.1.1 – 3.1.3 should be worn by all crew on deck in any conditions where recovery may be difficult. It is recommended that lifejackets **shall** be worn by all crew on deck unless the person in charge has indicated that they may be set aside.~~ Requirement has been revised and moved to 3.1.4