US Safety Equipment Requirements

Note: Organizing Authorities may want to consider adding items in beige tint based on the conditions of their specific races.

Effective Date: 1/1/2014

Section Name	#	Requirement	US Ocean	US Coastal	US Nearshore
Overall	1.1	The Minimum 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 the US Coast Guard, the Racing Rules of Sailing (RRS), the rules of Class Associations and all applicable rating rules.	**Long distance races, well offshore, where rescue may be delayed**	**Races not far removed from shorelines, where rescue is likely to be quickly available**	**Races during the day, close to shore, in relatively protected waters**
Overall: Responsibility	1.2	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.	x	x	x
Overall: Inspections	1.3	A boat may be inspected at any time by an inspector or measurer of the Organizing Authority. If she does not comply with these regulations her entry may be rejected, or will be liable to disqualification, or such other penalty as may be prescribed by the race protest committee.	x	x	x
Overall: Equipment and Knowledge	1.4	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 the size of the crew, who will have practiced with the use of equipment. This equipment shall be readily accessible while underway and, when not in use, stored in such a way that deterioration is minimized.	x	x	x
Overall: Secure Storage	1.5	A boat's heavy items such as batteries, stoves, toolboxes, anchors and chain shall be secured.	x	x	x
Overall: Strength of Build	1.6	A boat shall be strongly built, watertight and, particularly with regard to hulls, decks and cabin trunks, capable of withstanding solid water and knockdowns. A boat shall be properly rigged and ballasted, 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.	x	x	
Overall: Watertight Integrity	1.7	A boat's hull, 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.	x	x	x
Overall: Scantlings	1.8	Hull Construction Standards - Scantlings with plan review approval - (Appendix will address this in a future edition.)	x		
Hull and Structure: Hull Openings	2.1.1	A boat's companionway(s) shall be capable of being blocked off to main deck level. The method of blocking should be solid watertight and rigidly secured, if not permanent.	x	x	
Hull and Structure: Hull Openings	2.1.2	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.	x	x	
Hull and Structure: Cockpit	2.1.3	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.	x	x	
Hull and Structure: Cockpit	2.1.4	A boat's cockpit drains shall be capable of draining six inches of water in 5 minutes. One square inch (645mm2) of effective drain per eight square feet (0.743m2) of cockpit sole will meet this requirement.	x	x	
Hull and Structure: Cockpit	2.1.5.1	A boat's maximum cockpit volume for cockpits not open to the sea, including any compartments capable of flooding, to lowest points of coaming over which water can adequately escape, shall not exceed 0.06 x LOA x Max. Beam x Freeboard aft. The cockpit sole shall be at least 0.02 x L above LWL.	x		
	2.1.5.2	A boat's maximum cockpit volume for cockpits not open to the sea, including any compartments capable of flooding, to lowest points of coaming over which water can adequately escape, shall not exceed 0.08 x LOA x Max. Beam x Freeboard aft. The cockpit sole shall be at least 0.02 x L above LWL.		x	
Hull and Structure: Through Hulls	2.1.6	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; however a means of closing such openings shall be provided.	x	x	

Hull and Structure: Stability	2.2.1	The boat must have a stability index greater than or equal to 110, or meet the requirements of ISO 12217-1A	x		
Hull and Structure: Stability	2.2.2	The boat must have a stability index greater than or equal to 103 or meet the requirements of ISO 12217-2B.		x	
Hull and Structure: Accommodations	2.3.1	A boat shall be equipped with a head or a fitted bucket.	x		
Hull and Structure: Accommodations	2.3.2	A boat shall have bunks sufficient to accommodate the off-watch crew.	x		
Hull and Structure: Accommodations	2.3.3	A boat shall have a stove with a fuel shutoff.	x		
Hull and Structure: Accommodations	2.3.4	A boat shall have an installed water tank and delivery system.	x		
Hull and Structure: Accommodations	2.3.5	A boat shall have adequate hand holds below decks.	x		
Hull and Structure: Lifelines	2.4.1	A boat's deck including the headstay shall be surrounded by a suitably strong enclosure, typically consisting of lifelines and pulpits, meeting the requirements in 2.4.2 to 2.4.8.	x	x	
Hull and Structure: Lifelines	2.4.2	A boat's stanchion and pulpit bases shall be within the working deck (see future appendix for stanchion breaking strength). Stanchions used with HMPE shall have rounded openings to reduce chafe.	x	x	
Hull and Structure: Lifelines	2.4.3	Bow pulpits may be open, but the opening between the vertical portion of stanchion pulpit and any part of the boat shall not exceed 14.2" (360mm).	x	x	
Hull and Structure: Lifelines	2.4.4	Lifelines may be either uncoated stainless steel wire or high molecular weight polyethylene (HMPE) line with spliced terminations or terminals specifically intended for the purpose. A multipart-lashing segment not to exceed 4" per end termination for the purpose of attaching lifelines to pulpits is allowed. Lifelines shall be taut (see appendix for requirements). When HMPE is used, the load-bearing portion (core) shall meet or exceed minimum diameter requirements.	x	x	
Hull and Structure: Lifelines	2.4.5	The maximum spacing between the bases of lifeline supports (e.g. stanchions and pulpits) shall be 87" (2.2m).	x	x	
Hull and Structure: Lifelines	2.4.6	Boats under 30 feet (9.14m) shall have at least one lifeline with 18" (457mm) minimum height above deck, and a maximum vertical gap of 18" (457mm). Taller heights will require a second lifeline. The minimum diameter shall be 1/8" (3mm).	x	x	
Hull and Structure: Lifelines	2.4.7	Boats 30 feet and over (9.14m) shall have at least two lifelines with 24" (762mm) minimum height above deck, and a maximum vertical gap of 15" (381mm). The minimum diameter will be 5/32" (4mm) for boats to 43' (13.1m) and 3/16" (5mm) for boats over 43' (13.1m).	x	x	
Hull and Structure: Lifelines	2.4.8	Toe rails shall be fitted around the foredeck from the base of the mast with a minimum height of 3/4" (18mm) for boats under 30' (9.14m) and 1" (25mm) for boats over 30'. An additional installed lifeline that is 1-2" (25-51mm) above the deck will satisfy this requirement for boats without toerails.	x	x	-
Hull and Structure: Dewatering pumps	2.5.1	A boat shall have a permanently installed manual bilge pump 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 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.	x	x	x
Hull and Structure: Dewatering pumps	2.5.2	A boat shall have a second permanently installed manual bilge pump operable from below deck, meeting the same criteria as above.	x		
Hull and Structure: Mast and Rigging	2.6	A boat shall have the heel of a keel-stepped mast securely fastened to the mast step or adjoining structure.	x		
Hull and Structure: Mechanical Propulsion	2.7.1	A boat shall have 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.	x		
Hull and Structure: Mechanical	2.7.2	A boat shall have 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 (1.8 times the square root of the waterline in meters) for 4 hours.		x	

Propulsion					
Hull and Structure: Mechanical Propulsion	2.7.3	The boat's engine and generator installation (if so equipped) must conform to ABYC, ISO and/or U.S. Coast Guard standards.	x	x	
Safety Equipment: Personal	3.1.1	Each crewmember shall have 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. 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'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. Leg or crotch straps will be required starting 01/01/2014. Alternatively, each crewmember shall have a U.S. Coast Guard approved Type I life jacket equipped with crotch or leg straps, a whistle, a waterproof light, retro-reflective material, marked with the boat or owner's name, which is compatible with a safety harness.	x	x	
Safety Equipment: Personal	3.1.2	Each crewmember shall have a U.S. Coast Guard approved Type III or Type V life jacket intended for small boat sailing or other active boating for each crewmember or an inflatable life jacket as described above.			x
Safety Equipment: Personal	3.1.3	Each crewmember shall have a personal safety knife.	x	x	x
Safety Equipment: Personal	3.1.4	Each crewmember shall have a safety harness and compatible safety tether not more than 7 feet (2.13m) long. The tether shall have a snap hook at its far end and a means to quickly disconnect the tether at the chest end.	x	x	
Safety Equipment: Deck Safety	3.2.1	A boat shall carry 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.	x	x	
Safety Equipment: Deck Safety	3.2.2	A boat shall have adequate clipping points or jacklines that allow the crew to clip on before coming on deck and unclip after going below.	x		
Safety Equipment: Navigation Lights	3.3.1	A boat shall have navigation lights that meet U. S. Coast Guard requirements and mounted so that they will not be obscured by the sails nor be located below deck level.	x	x	
Safety Equipment: Navigation Lights	3.3.2	A boat shall have a second set of navigation lights that comply with US Coast Guard requirements and which can be connected to a different power source than the primary lights.	x	x	
Safety Equipment: Fire Extinguishers	3.4	A boat shall carry fire extinguisher(s) that meets U.S. Coast Guard requirements, when applicable.	x	x	x
Safety Equipment: Sound Producing Equipment	3.5	A boat shall carry a sound-making device that meets U.S. Coast Guard requirements, when applicable.	x	x	x
Safety Equipment: Visual Distress Signals	3.6.1	A boat shall carry SOLAS orange smoke flares not older than the expiration date.	2	1	
Safety Equipment: Visual Distress Signals	3.6.2	A boat shall carry SOLAS red parachute flares not older than the expiration date.	6	2	
Safety Equipment: Visual Distress Signals	3.6.3	A boat shall carry SOLAS red hand flares not older than the expiration date.	4	2	
Safety Equipment: Visual Distress Signals	3.6.4	A boat shall carry U.S. Coast Guard flares meeting day-night requirements not older than the expiration date.			x
Safety Equipment: Visual Distress Signals	3.6.5	Boat flares stored inside of life rafts may not be used to satisfy the flare requirement.	x	x	
Safety Equipment: Man Overboard	3.7.1	A boat shall carry a Lifesling or equivalent man overboard rescue device equipped with a self igniting light stored on deck and ready for immediate use.	x	x	

Safety Equipment: Man Overboard	3.7.2	A boat shall have 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 a "quick release".	x	x	
Gear: Man Overboard	3.7.3	A boat shall have a throwing sock-type heaving line of 50' (15m) or greater of floating polypropylene line readily accessible to the cockpit.	x	x	x
Safety Equipment: Emergency Communications	3.8.1	A boat shall have a permanently installed 25-watt VHF radio with a masthead mounted antenna of at least 15" (381mm) in length (required after 01/01/2015) and co-axial feeder cable with no more than a 50% power loss. After 01/01/2015 all radios shall have DSC capability, be connected to or have an internal GPS, and have the assigned MMSI number (unique to the boat) programed into the VHF.	x	x	
Safety Equipment: Emergency Communications	3.8.2	A boat shall have a handheld VHF radio. After 01/01/2015, this radio shall have DSC/GPS capability.	x	x	x
Safety Equipment: Emergency Communications	3.8.3	A boat shall have an emergency VHF antenna. After 01/01/2015 the emergency antenna shall be equipped with sufficient coax to reach the deck, and have a minimum antenna length of 15" (381mm).	x		
Safety Equipment: Emergency Communications	3.9	A boat shall have an AIS Class B transponder with a masthead mounted antenna at least 15" (381mm). The AIS can use the boat's VHF antenna if a low loss AIS antenna splitter is used.	x		
Safety Equipment: Emergency Communications	3.10	A boat shall carry a cellular phone in a waterproof container.			
Safety Equipment: Emergency Communications	3.11	A boat shall carry a satellite telephone in a waterproof container.			
Safety Equipment: Emergency Communications	3.12	A boat shall carry man overboard alarms for each crewmember based on AIS or other method.			
Safety Equipment: Emergency Communications	3.13	A boat shall have a method of receiving weather information in addition to the fixed mount and hand held VHF radio.	x		
Safety Equipment: Emergency Communications	3.14	A boat shall carry a GPS receiver.	x	x	
Safety Equipment: Emergency Communications	3.15	A boat shall carry an electronic means to record the position of a man overboard within ten seconds. This may be the same instrument listed in 3.14.	x	x	
Safety Equipment: Emergency Communications	3.16.1	A boat shall carry a 406MHz EPIRB that is properly registered to the boat. This device shall either have an internal GPS (self-locating) or be connected to a continuously functioning external GPS. After 01/01/2016, this device shall be equipped with an internal GPS.	x		
Safety Equipment: Emergency Communications	3.16.2	A boat shall carry either a 406MHz EPIRB which is properly registered to the boat, or a floating 406MHz Personal Locator Beacon, registered to the owner with a notation in the registration that it is aboard the boat. After 01/01/2016, this device shall be equipped with an internal GPS.		x	
Safety Equipment: Emergency Communications	3.17	A boat shall have a knotmeter and/or distance-measuring instrument.	x		
Safety Equipment: Emergency Communications	3.18	A boat shall have a permanently installed depth sounder that can measure to depths of at least 200 ft. (61m).	x	x	
Safety Equipment: Navigation	3.19.1	A boat shall have a permanently mounted magnetic compass independent of the boat's electrical system suitable for steering at sea.	x	x	x
Safety Equipment: Navigation	3.19.2	A boat shall have a second marine compass suitable for steering at sea.	x		

Safety Equipment: Navigation	3.20	A boat shall have non-electronic charts that are appropriate for the race area.	x	x	
Safety Equipment: Damage Control	3.21	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.	x		
Safety Equipment: Damage Control	3.22	A boat shall carry soft plugs of an appropriate material, tapered and of the appropriate size, attached or stowed adjacent to every through-hull opening.	x	x	
Gear: Anchoring	3.23	A boat shall carry one anchor, meeting the anchor manufacturer's recommendations based on the yacht's size, with a suitable combination of chain and line.	x	x	x
Gear: Lights	3.24.1	A boat shall carry a watertight, high-powered searchlight, suitable for searching for a person overboard at night or for collision avoidance.	x	x	
Gear: Lights	3.24.2	A boat shall carry a watertight flashlight for each crewmember with spare batteries and bulbs in addition to the above.	x		
Gear: Lights	3.24.3	A boat shall carry at least two watertight flashlights with spare batteries and bulbs in addition to the requirement of 3.24.1.		x	
Gear: Medical Kits	3.25	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.	x	x	x
Gear: Radar Reflectors	3.26	A boat shall carry an 11.5" (292mm) diameter or greater octahedral radar reflector or one of equivalent performance.	x	x	
Gear: Dewatering	3.27	A boat shall carry a sturdy bucket(s) of at least two gallons (8 liters) capacity with lanyards attached.	2	2	1
Gear: Safety Diagram	3.28	A boat shall post 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.	x		
Gear: Emergency Steering	3.29.1	A boat shall have an emergency tiller, capable of being fitted to the rudder stock.	x		
Gear: Emergency Steering	3.29.2	Wheel steered boats shall have an emergency tiller, capable of being fitted to the rudder stock.		x	
Gear: Spare Parts	3.30	A boat shall carry tools and spare parts, including an effective means to quickly disconnect or sever the standing rigging from the hull.	x		
Gear: Identification	3.31	The boat or wearer's name shall be printed on all life saving equipment along with retro-reflective material. 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 stenciled on during the first servicing of any new equipment.	x	x	
Gear: Cockpit Knife	3.32	A boat shall carry a strong, sharp knife, sheathed and securely restrained which is readily accessible from the deck and/or cockpit.	x		
Sails: Mainsail Reefing	3.33.1	A boat shall have a mainsail reefing capable of reducing the luff length by at least 10%:	x	x	
Sails: Trysail	3.33.2	A boat shall carry a trysail, with the boat's sail number displayed on both sides, 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:	x		
Sails: Headsails	3.33.3	A boat shall carry 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.	x		
Sails: Headsails	3.33.4	A boat shall carry a storm jib not exceeding 5% of the yacht's I dimension squared, an 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.	x		
Rigging: Halyards	3.35	A boat shall not be rigged with any halyard that requires a person to go aloft in order to lower a sail.	x	x	
Rigging: Boom Support	3.36	A boat shall have a means to prevent the boom from dropping if support from the mainsail or halyard fails.	x	x	
Supplies: Water	3.37	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.	x		
Supplies: Rations	3.38	A boat shall carry adequate food, energy bars, and snacks to maintain crew stamina as described in the Notice of Race.			

Gear: Life Rafts	3.39	A boat shall carry adequate inflatable life raft(s) designed for saving life at sea with designed capacity for containing entire crew. The raft shall be SOLAS, ISAF, ISO 9650, or ORC approved. The raft shall be stored in such a way that it is capable of being launched within 15 seconds. The life raft shall hold a current certificate of inspection. Boats built after 01/06/ 2001 shall have the life raft stowed in a deck mounted rigid container or stowed in watertight or self draining purpose built rigid compartment(s) opening adjacent to the cockpit of the working deck.	x		
Gear: Life Rafts	3.40	A boat shall have for each life raft, a grab bag with a lanyard and clip. The grab bag shall have inherent flotation and be of a bright florescent color containing at least an EPIRB, and a waterproof handheld VHF radio. The VHF Radio and EPIRB need not be in addition to the prior requirements.	x		
Skills: Emergency Steering	4.1	A boat's crew 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.	x	x	
Skills: Man Overboard	4.2	Annually, two-thirds of the boat's racing crew shall practice man-overboard procedures appropriate for the boat's size and speed.	x	x	x
Skills: Safety at Sea Training	4.3.1	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 attended a one-day or two-day US Sailing Safety at Sea Seminar within the last 5 years, or other courses as accepted by US Sailing.	x		
Skills: Safety at Sea Training	4.3.2	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 attended a half-day, one-day, or two-day US Sailing Safety at Sea Seminar within the last 5 years, or other courses as accepted by US Sailing (required after 01/01/2015).		x	