

## R2AK - Safety Equipment Requirements - For west of Vancouver Island

### R2AK SER's — Monohulls — 2020

R2AK High Command may add or delete items based on real prudance of the moment, but we won't leave you hanging in your prep.

Effective Date: March 12, 2020

Section Name	#	Requirement	Required
Overall	1.1	These 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 authorities for boating, any additional rules we have created, like no motors, and common sense, which should tell you to always err on the side of caution.	x
Overall: Responsibility	1.2	The responsibility for a boat's decision to participate in a race or continue racing is hers alone. The safety of a boat and her crew is the sole and inescapable responsibility of the "person in charge", 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
Overall: Responsibility	1.2.1	Should there be an incident during a race the Organizing Authority may conduct an investigation to determine the facts of the incident and provide recommendations. By participating in a race conducted under this SER, the person in charge, each competitor and boat owner agrees to reasonably cooperate with R2AK authority and governing bodies responsible for conducting maritime investigations.	x
Overall: Inspections	1.3	A boat may be inspected at any time by an equipment inspector for the event. If she does not comply with these regulations, her entry may be rejected . A Violation of the Safety Equipment Requirements may result in a penalty other than disqualification.	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. This equipment shall be readily accessible while underway and, when not in use, stored in such a way that deterioration is minimized.	x
Overall: Secure Storage	1.5	A boat's heavy items such as batteries, stoves, toolboxes, anchors, chain and internal ballast shall be secured.	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
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
Hull and Structure: Hull Openings	2.1.1	A boat's companionway(s) shall be capable of being blocked off to main deck level (sheerline). The method of blocking should be solid, watertight, and rigidly secured, if not permanent.	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 in a way that prevents their being lost overboard.	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
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 (645mm <sup>2</sup> ) of effective drain per eight square feet (0.743m <sup>2</sup> ) of cockpit sole will meet this requirement.	x

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Hull and Structure: Cockpit	2.1.5	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 LOA 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 speed transducers, depth finder transducers and the like; however a means of closing such openings shall be provided.	x
Hull and Structure: Stability	2.2.1	A boat shall comply with Section 3.04, Stability - Monohulls, of the Offshore Special Regulations. (Found: <a href="https://www.sailing.org/special regs">https://www.sailing.org/special regs</a> )	RECOMMENDED
Hull and Structure: Stability	2.2.2	A boat with moveable or variable ballast (water or canting keel) shall comply with the requirements of Appendix A of the Offshore Special Regulations. (Found: <a href="https://www.sailing.org/special regs">https://www.sailing.org/special regs</a> )	RECOMMENDED
Hull and Structure: Accommodation	2.3.1	A boat shall be equipped with a head or a fitted bucket.	x
Hull and Structure: Accommodation	2.3.2	A boat shall have bunks sufficient to accommodate the off watch crew.	x
Hull and Structure: Accommodation	2.3.3	If a boat has a stove it shall have a fuel shutoff.	x
Hull and Structure: Accommodation	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
Hull and Structure: Lifelines	2.4.2	A boat's stanchion and pulpit bases shall be within the working deck.	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
Hull and Structure: Lifelines	2.4.4	Lifelines SHALL be uncoated stainless steel wire, coated stainless steel wire, or high molecular weight polyethylene (HMPE) line with spliced terminations or terminals specifically intended for the purpose. If coated stainless steel wire, it must have been installed within the last 10 years and the Person in Charge must have visually inspected them prior to the race. If lifelines are of high molecular weight polyethylene (HMPE) line, terminations or terminals must have been specifically spliced for this intended purpose and the Person in Charge must be is satisfied they are well constructed and not UV damaged. A multipart-lashing not to exceed 4" per end termination for the purpose of attaching lifelines to pulpits is allowed. Lifelines shall be taut (see Appendix- Lifelines for requirements).	x
Hull and Structure: Lifelines	2.4.5	The maximum spacing between lifeline supports (e.g. stanchions and pulpits) shall be 87" (2.2m).	x
Hull and Structure: Lifelines	2.4.6	Boats under 28 feet (8.5m) 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 as per Appendix- Lifelines.	x
Hull and Structure: Lifelines	2.4.7	Boats 28 feet and over (8.50m) shall have at least two lifelines with 24" (762mm) minimum height above deck, and a maximum vertical gap of 15" (381mm). The minimum diameter shall be as per Appendix- Lifelines.	x

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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
Hull and Structure: Dewatering pumps	2.5.1	A boat shall have 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.	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	2.7.2	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 1/2 the square root of LWL in feet (.9 times the square root of the waterline in meters) for 4 hours.	x
Hull and Structure: Mechanical Propulsion	2.7.3	The boat's generator installation (if so equipped) must conform to ABYC, ISO, or U.S. Coast Guard standards.	x
Safety Equipment: Personal	3.1.1	Each crewmember shall have a life jacket that provides at least 33.7lbs (150N) of buoyancy, to be worn over the shoulders (no belt pack), meeting either Coast Guard/Transport Canada 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.	x
Safety Equipment: Personal	3.1.3	Alternatively, each crewmember shall have a US Coast Guard or Transport Canada & ISO approved Type V life jacket equivalent 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
Safety Equipment: Personal	3.1.4	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.	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
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.	RECOMMENDED
Safety Equipment: Navigation Lights	3.3.1	A boat shall carry navigation lights that meet International Standards and applicable government requirements mounted so that they will not be obscured by the sails nor be located below deck level.	x
Safety Equipment: Navigation Lights	3.3.2	A boat shall have a second set of navigation lights that comply with International Standards or applicable government requirements and which can be connected to a different power source than the primary lights.	x
Safety Equipment: Fire Extinguishers	3.4	A boat shall carry fire extinguisher(s) that meets International Standards and applicable government requirements, when applicable.	x
Equipment: Sound Producing Equipment	3.5	A boat shall carry-sound-making devices that meets International Standards and applicable government requirements, when applicable.	x

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Safety Equipment: Visual Distress Signals	3.6.3	A boat shall carry flares and or S.O.S. Distress light meeting International Standards or applicable government entity, satisfying day-night requirements not older than the expiration date.	x
Safety Equipment: Visual Distress Signals	3.6.4	Boat flares stored inside of life rafts may not be used to satisfy the flare requirement.	x (liferaft not required)
Safety Equipment: Man Overboard	3.7.1	A boat shall carry a recovery Lifesling or equivalent MOB rescue device stored on deck and ready for immediate use, and which includes: a) buoyant line of length no less than the shorter of 4 times LH or 36m (120') b) buoyancy section (horseshoe) with no less than 90 N (20#) buoyancy c) minimum strength capable to hoist a crewmember aboard The recovery sling shall bear retro-reflective material and be marked with the boat's name	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". The lifebuoy shall bear retro-reflective material and be marked with the boat's name.	x
Safety Equipment: 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
Safety Equipment: Man Overboard	3.7.4	A boat shall carry a International Standard 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.	x
Safety Equipment: Emergency Communications	3.8.1	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. 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. (masthead antenna not mandatory)	x
Safety Equipment: Emergency Communications	3.8.2	A boat shall have the listed number of waterproof handheld VHF radios or handheld VHF radios with waterproof cover. Radios manufactured after 01/01/2015, shall have DSC/GPS capability. (Handheld VHF radios with DSC must have a Maritime Identity or MMSI number programmed into it)	x
Safety Equipment: Emergency Communications	3.8.3	A boat shall have an emergency VHF antenna. The emergency antenna shall be equipped with sufficient coaxial cable to reach the deck, and have a minimum antenna length of 10" (254mm).	x
Safety Equipment: Emergency Communications	3.9	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 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.	RECOMMENDED
Safety Equipment: Emergency Communications	3.10	A boat shall carry a cellular phone. (A satellite telephone is an acceptable alternative)	x
Safety Equipment: Emergency Communications	3.12	A boat shall carry man overboard alarms for each crewmember based on AIS or other method.	RECOMMENDED

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Safety Equipment: Emergency Communications	3.14	A boat shall carry a GPS receiver.	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
Safety Equipment: Emergency Communications	3.16.1	A boat shall carry a 406MHz EPIRB that is properly registered to the boat. This device shall be equipped with an internal GPS.	RECOMMENDED
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. This device shall be equipped with an internal GPS.	x
Safety Equipment: Navigation	3.17	A boat shall have a knotmeter and/or distance- measuring instrument (this requirement may be satisfied by compliance with section 3.14.)	x
Safety Equipment: Navigation	3.18	A boat shall have a permanently installed depth sounder that can measure to depths of at least 200 ft. (61m).	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
Safety Equipment: Navigation	3.19.2	A boat shall have a second magnetic compass suitable for steering at sea which may be handheld.	x
Safety Equipment: Navigation	3.20	A boat shall have non-electronic charts that are appropriate for the race area.	x
Safety Equipment: Damage Control	3.21	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. [Alternatively, some soft plugs (e.g., Forespar Tru Plug) and/or Stay Afloat Instant Leak Plug & Sealant may be stored in an easy to-obtain place and the location identified on the Safety Equipment Chart per SER #3.28]	x
Safety Equipment: Damage Control	3.22	A boat shall carry one commercially made anchor, meeting the anchor manufacturer's recommendations based on the yacht's size, with a suitable combination of chain and line, ready for immediate assembly and ready for deployment within five minutes	x
Gear: Lights	3.23.1	A boat shall carry a watertight, high-powered searchlight, suitable for searching for a person overboard at night or for collision avoidance.	x
Gear: Lights	3.23.2	A boat shall carry a watertight flashlight for each crewmember with spare batteries in addition to requirement 3.23.1	RECOMMENDED
Gear: Lights	3.24.3	A boat shall carry at least two watertight flashlights with spare batteries in addition to the requirement of 3.23.1	x
Gear: Medical Kits	3.24	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
Gear: Radar Reflectors	3.25	A boat shall carry an octahedral passive radar reflector with circular sector plates of minimum diameter 30 cm (12") or a reflector with a documented minimum Radar Cross Section (RCS) of area of 2 m <sup>2</sup> .	x
Gear: Dewatering	3.26	A boat shall carry two sturdy buckets of at least two gallons (8 liters) capacity with lanyards attached.	x

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Gear: Safety Diagram	3.27	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	3.28.1	A boat shall have an emergency tiller, capable of being fitted to the rudder stock. Boats with twin rudders and twin tillers connected directly to the rudders are exempt from this requirement.	x
Gear: Emergency Steering	3.28.2	Wheel steered boats shall have an emergency tiller, capable of being fitted to the rudder stock.	x
Gear: Spare Parts	3.29.2	A boat shall carry tools and spare parts, suitable for duration & nature of event, including an effective means to quickly disconnect or sever the standing rigging from the hull.	x
Gear: Identification	3.3	All lifesaving equipment shall bear retro-reflective material and be marked with the yacht'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 name shall be added during the first servicing of any new equipment.	x
Gear: Cockpit Knife	3.31	A boat shall carry a strong, sharp knife, sheathed and securely restrained which is readily accessible from the deck and/or cockpit.	x
Sails: Heavy Weather Jib	3.32.2	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% of the height (I) of the foretriangle squared.	x
Sails: Headsail/ Mainsail Reefing	3.32.3	Mainsail reefing to reduce the luff by at least 10% or a heavy-weather jib (or heavy-weather sail in a boat with no forestay)	x
Rigging: Halyards	3.33.1	A boat shall not be rigged with any halyard that requires a person to go aloft in order to lower a sail.	x
Rigging: Boom Support	3.33.2	A boat over 30' LOA (9.14m) shall have a means to prevent the boom from dropping if support from the mainsail or halyard fails.	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.	RECOMMENDED
Supplies: Rations	3.38	A boat shall carry adequate food energy bars and snacks to maintain crew stamina	RECOMMENDED
Gear: Hypothermia Protection	3.39	A boat shall carry means to protect the crew from hypothermia in the event of capsize, in the form of a life raft or anti- exposure suit meeting the following requirements:  1. minimum inherent buoyancy of 22 lbs., 2. minimum immersed CLO value of .40, 3. suits must be a full body suit of one piece construction, 4. one suit must be carried for each crew member on board, 5. each suit must be equipped with a personal strobe light, and 6. each suit must be equipped with a whistle.	RECOMMENDED
Skills: Emergency Steering	4.1	A boat's crew shall be aware of multiple methods of steering the boat with the rudder disabled.(All boats must have a secondary steering mechanism. A sea drogue system is acceptable.)	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. 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.	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 Safety at Sea Seminar within the last 5 years, or other courses as accepted by their National Authority.	RECOMMENDED

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x	4.4	jas	x
Skills: Crew Training	4.6	Lifejackets as described in 3.1.1 – 3.1.4 should be worn by all crew on deck in any conditions where recovery may be difficult. It is recommended that lifejackets be worn by all crew on deck unless the person in charge has indicated that they may be set aside.	RECOMMENDED