Safety Equipment for Vessel and Crew

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YOUR CHOICE FOR BLUE WATER BOATS

ANNAPOLIS - NEWPORT
2023

Safety Equipment Requirements Checklist

- US Sailing Safety Equipment Requirements ("SERs") are promulgated by the US Sailing Safety at Sea and Offshore Committees.`

- Three categories: Offshore, Coastal and Nearshore

- A2N is classified as an "Ocean" race – Long Distance race, well offshore, where rescue may be delayed

- The Checklist for Offshore, now updated for 2023, can be found on on US SAILING Website. Hyperlink to page in the Notice of Race

- Divided into sections: Overall, Hull & Structure, Safety Equipment, and Skills.

- Your guide to the 'scavenger hunt.'

- ***No endorsement of any product described or depicted.***

Secure Storage – SER 1.5

- A boats heavy items such as batteries stoves, toolboxes, anchors, chain and internal ballast shall be secured

- Preparing for worst case – not just significant heel.

- Battery tiedowns

- Anchor and rode

- Stove

- Water bottles

Cockpit Drainage – SER 2.1.4 & 2.1.5.1

- 2.1.4 - Cockpit shall be capable draining six inches of water in 5 minutes. One square inch of effective drain per 8 square feet of cockpit sole will meet requirement

- 2.1.5.1 – Formula for maximum volume of enclosed cockpit (not open to sea)

- **Inspect and replace drain hoses.**

Through-Hulls – SER 2.1.6

- "A boat's through-hull fittings shall be equipped with sea cocks or valves, except for integral deck scuppers, speed transducers, depth finders and the like; however, a means of closing such entries shall be provided."

- Inspect and try through-hulls and sea cocks

- Soft wood plugs, drilled and tied to through-hull. (3.22) Bead of silicon keeps them from rattling

Stability Index – SER 2.2.1

- The boat must have a stability index greater than or equal to 115, or meet the requirements of ISP 12217-2A (RORC SSN minimum of 28, IRC STIX minimum of 32)

- Importance of SI

- Self-certifying on Certificate of Compliance and Readiness

- True Sistership

- Where to find SI

Dewatering Pumps – SER 2.5.1 & 2.5.2

- Two <u>manual</u> bilge pumps
- 10 GPM, not connected to a cockpit drain or emptying into cockpit unless cockpit opens aft to sea.
- <u>Permanently</u> mounted.
- One operable from on deck, 2nd from below deck, not dependent on an open hatch.
- Handle either permanently attached or on lanyard.
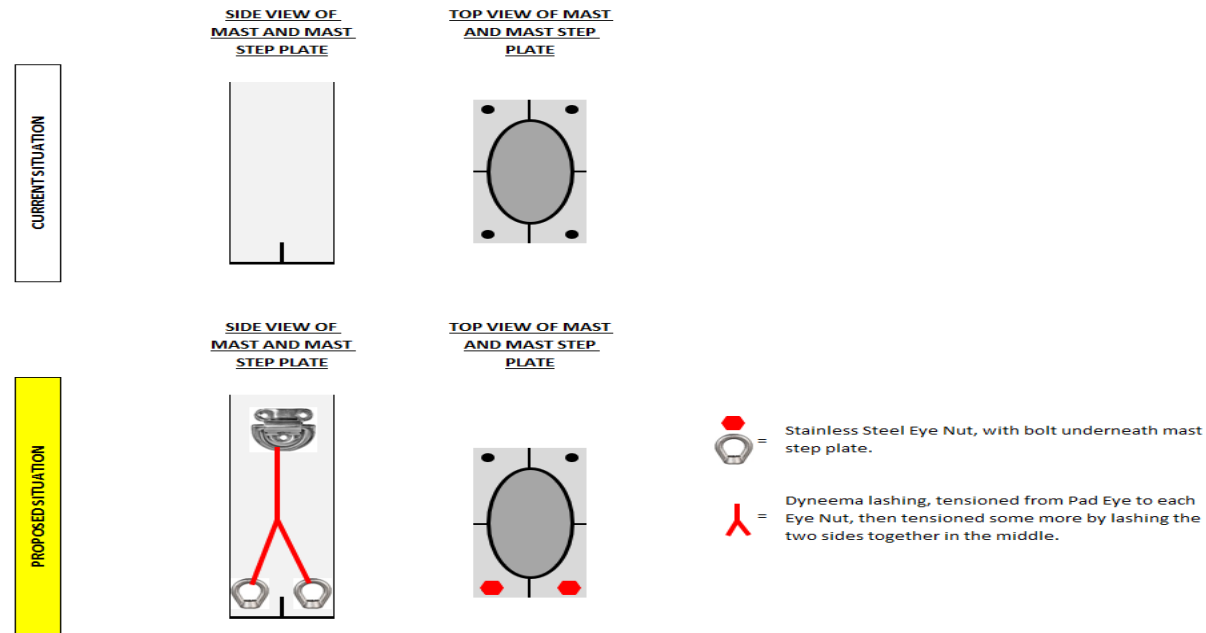
Manual Bilge Pumps

NEW Emergency Dewatering Pump – SER 2.5.3

- A boat shall have either fixed or portable electric pump(s) to remove ingress water from any compartment. This pump shall have a minimum rated capacity of 3,000 gal/hr, be operated by battery, main engine power or a separate engine. If portable electric-powered, power cables shall have connectors suitable for connection to the boats electrical system and have sufficient hose to discharge directly overboard or into the cockpit. A combination of permanent installed and portable pumps may be combined to meet the above requirement.

Mast Step – SER 2.6

- "A boat shall have the heel of a keel-stepped mast securely fastened to the mast step or adjoining structure."

- "Bermuda Bolt" through the mast step.

- Alternatively - restraining harness attached to adjoining structure.

CURRENT SITUATION

SIDE VIEW OF MAST AND MAST STEP PLATE

TOP VIEW OF MAST AND MAST STEP PLATE

PROPOSED SITUATION

SIDE VIEW OF MAST AND MAST STEP PLATE

TOP VIEW OF MAST AND MAST STEP PLATE

= Stainless Steel Eye Nut, with bolt underneath mast step plate.

= Dyneema lashing, tensioned from Pad Eye to each Eye Nut, then tensioned some more by lashing the two sides together in the middle.

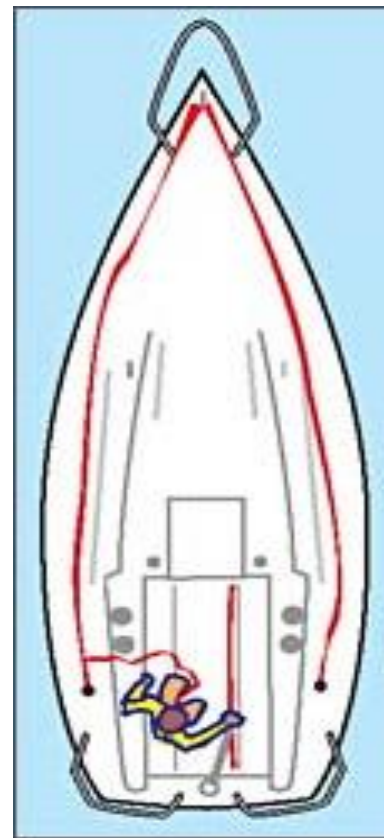# Personal Equipment – SER 3.1.1 to 3.1.4

- Life jacket with minimum 33.7lbs (150 newtons) of buoyancy

- Harness and 2m tether.
    - ("ORC" or "Bermuda")
    - Stress indicator (since 2001)

- Crotch or leg straps, whistle, waterproof light (strobe). Spray hood hood optional.

- Retro-reflective material.

- Additional personal equipment:
    - Knife
    - Headlamp/flashlight (red/white)
    - AIS Beacon/PLB
    - Re-arm kit

Safety Equipment - Deck Safety   SER 3.2

- Jacklines – 4500 lbs. min. strength allowing crew to reach all points on deck.
  - NOT lifelines.
  - Webbing vs. line or wire.
  - Check for chafe and UV damage.
  - Attachment points – bow and stern cleats.
- Clipping points - Must allow you to clip in prior to coming on deck and unclip after going below.
- *Harnesses, tethers and jacklines only work if you use them*.

Jacklines, Pad Eyes.

Safety Equipment SER 3.3.1 & 3.3.2

- Navigation Lights (3.3.1) – Nav Lights meeting USCG requirements
  - 2nm visibility.
  - LEDs work well – way less power required.
  - Tricolor at masthead
- Second set of Nav Lights (3.3.2)

Fire Extinguishers – SER 3.4

Boat Model 2018 and newer:

- 26 - 39' - 2 5-B or 1 20-B extinguishers required

- 40 - 64' – 3 5-B or 1 20-B extinguishers required

Boat Models 1953 through 2017

- 26 – 39' 2 B-1/5-B or 1 B-II/20-B extinguishers required

- 40 – 64' 3 B-1/5-B or 2 B-II/20-B extinguishers required

- Location – You may only be suppressing fire to allow escape

- Three primary causes of fire: Electrical, Stove and Engine

- Age/Compression of extinguishers

- Engine Area Access (Fire Port)

- Fire Blanket

Sound Making Device   SER 3.5

- Bring an extra can of air!

REVISED
Flares - SER 3.6.1 & 3.6.3

- ~~2 SOLAS Orange smoke flares (3.6.1).~~

- 4 SOLAS Red hand flares (3.6.3).

- World is moving toward fewer pyrotechnics and more electronics.

- Should be kept in a waterproof container and readily accessible.

- Check expiration dates – expire 42 months after manufacture.
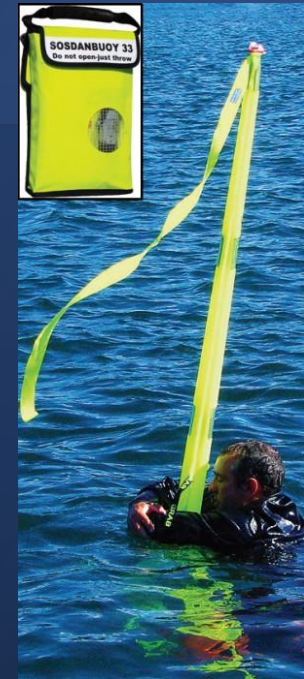
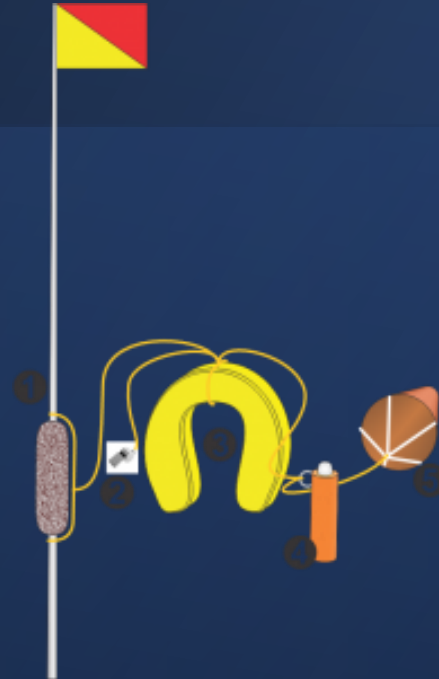- Flares stored in life raft don't count.

SOLAS = International Convention for the **S**afety **O**f **L**ife **A**t **S**ea

Safety Equipment MOB - SER 3.7.1

- Lifesling or equivalent equipped with a self igniting light
- Make sure it is cleated.

Man Overboard Pole/Lifebuoy – 3.7.2

Throw Line – SER 3.7.3

- Sock-type heaving line of 50' (15m) or greater, floating polypropylene line.

- Midships location

Throwable Device – SER 3.7.4

- USCG Approved throwable device

VHF Radios – SER 3.8.1, 3.8.2 & 3.8.4

- 25 watt fixed VHF
  - Coax cable with no less than 40% power loss.
  - DSC capable with (or connected) to GPS.
  - Emergency antenna at least 15" in length.
  - MMSI number registered to vessel.
- Handheld VHF
  - Watertight/waterproof cover
  - DSC/GPS capability
  - MMSI number assigned to vessel
- Additional Handheld VHF for ditch bag?

AIS Transponder – SER 3.9

- Transponder required, not just receiver.

- NoR 3.5 requires it continuously transmit position from 2000EDT on day of start until finish or retirement.

- Caution: VHF antenna splitters default to AIS.

MOB Position – SER 3.15

- Means to record position of MOB within 10 seconds.

  - Running below to chartplotter not an option
  - MOB button on binnacle.
  - Separate GPS at binnacle.

406MHz EPIRB – SER 3.16.1

- "*E*mergency *P*osition *I*ndicating *R*adio *B*eacon"
- Internal GPS
- Registered to Boat, with boat description and emergency contact information
- Rentable from BoatUS and others
- Difference between EPIRP, PLB and Personal AIS Beacon (PAB)

Sturdy Buckets – SER 3.27.1

- Nothing moves water faster than adrenaline and a bucket
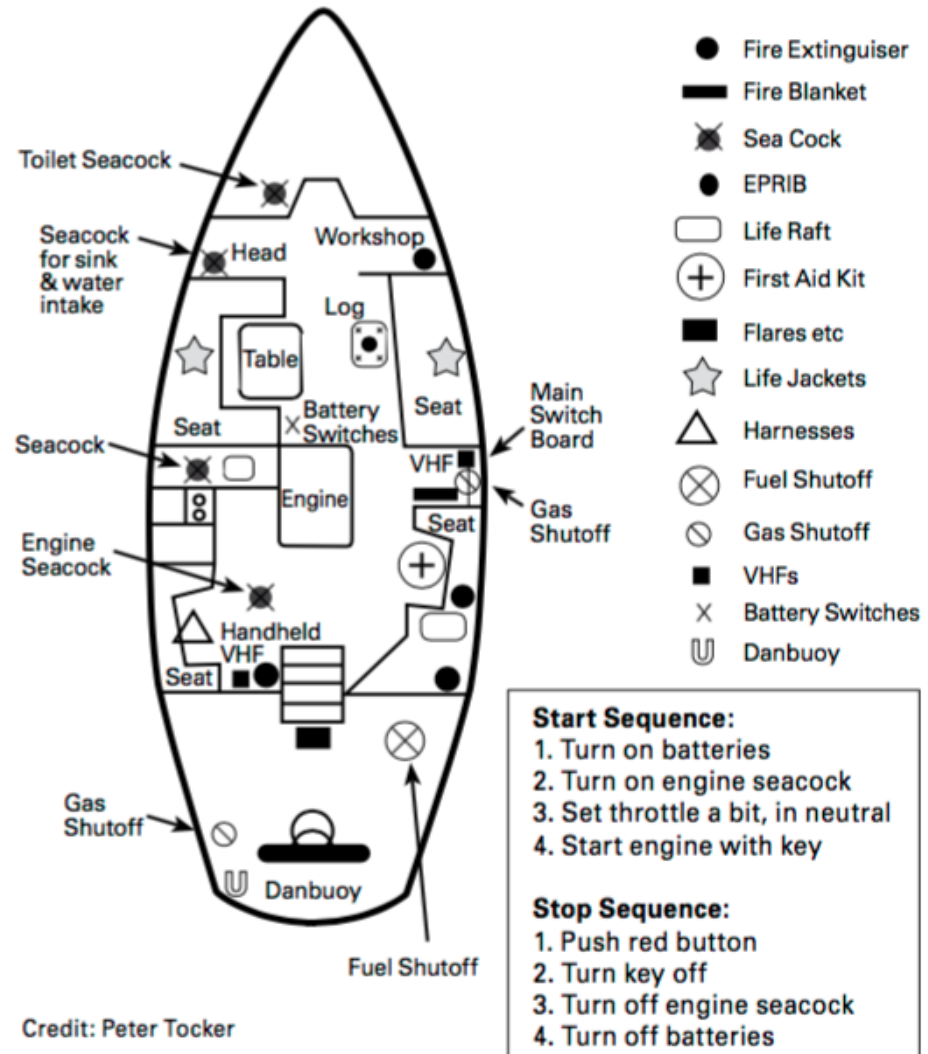- Alternate head
- Deck wash down

Radar Reflector - SER 3.26

11.5' or greater octahedral or similar performance

Safety Chart – SER 3.28

Yacht Diagram Example

Emergency Tiller – SER 3.29.1

Life Rafts - SER 3.39

- Designed capacity for entire crew.
- ISO 9650-1, SOLAS, ISAF (prior to 2016) or ORC (prior to 2004)approved.
- Ocean category, not Coastal.
- Standards are murky. ISO 9650-1 probably the best bet.
- Protective cover, light, double (thermal) flooring.
- Landfall, LRSE good sources.
- Stowage - must be deployable in 15 seconds. Ideally, on deck.

Grab Bag – SER 3.40

- Including at least an EPIRB and watertight handheld VHF (not additional).
- Lanyard and clip
- Water
- Emergency rations
- Patch kit
- Flashlight
- Knife
- Thermal blankets
- First Aid Kit

Skills – SER 4.1 thru 4.6

- 4.1.1 – Ability to steer boat with rudder disabled

- 4.2 – Man Overboard practice

- 4.3.1 – Safety at Sea Training: 30% of crew, including the PIC; Offshore or International Offshore Certificate

- 4.4 – Crew Training: MOB, Grounding, Steering Loss, Fire, Dismasting, Abandon Ship

- 4.6 – Lifejackets. To be worn in any conditions where recovery may be difficult. Recommended they be worn by all crew on deck unless PIC has indicated they may be set aside.

SCANMAR SOS Emergency Rudder

Assembles and attached to transom