2. SAFETY EQUIPMENT

This section covers the World Cruising Club Safety Equipment Requirements that apply to every World Cruising Club rally.

The section looks at choosing and using safety equipment, followed by a handy check list for preparing for your safety equipment inspection.

Useful Safety Checklist

Questions	*Notes*
Does your liferaft comply with WCC requirements? *See page 14*	
Does your liferaft have an over 24 hour equipment pack, either in the raft, or in a grab bag? See page 17	
Do each of your crew have a lifejacket-harness that complies; with a whistle, light, sprayhood, crotch strap and safety line/ tether? *See pages 20-21*	
Do you have the correct man overboard equipment? *See page 22*	
Is your safety equipment clearly marked with the boat's name?	
Have you practiced man overboard recovery with your crew? How will you get the casualty back onboard the boat? *See page 23 for suggestions*	
Have you thought about your abandon ship grab bag contents? *See page 24 and 30 for recommendations*	
Use the checklist on pages 25 to 30 to ensure that you comply with all parts of the World Cruising Club Safety Equipment Requirements. *You won't be allowed to start the rally otherwise!*	
Have you practiced or discussed emergency scenarios with your crew? • *Man overboard, including recovery see page 23* • *Fire* • *Sinking* • *Dismasting see page 86* *If you want training, these topics should be covered by a Sea Safety course (page 35), or buy a good book (see page 54-55)*	
Do your crew need training in: • *First aid* • *Sea survival (liferafts etc)* • *Communications equipment* • *Navigation* • *Sailing skills* *It is a recommendation that the skipper and at least one crew have undertaken formal training in the past 5 years (page 30)* *More information on crew training on page 35-36*	

Requirements

The WCC safety equipment requirements have been drawn up to ensure the minimum level of safety for yachts participating in World Cruising Club events. The International Sailing Federation (ISAF) Offshore Special Regulations have been used as a guideline to compile these regulations. See www.sailing.org/documents/offshorespecialregs/index.php

These safety equipment requirements do not override any greater safety requirement demanded by the yacht's national or flag country, maritime authorities or appropriate regulatory bodies.

Safety Equipment Inspection

Before the rally starts, every boat will have a safety equipment inspection, checking that all of the mandatory equipment required in the WCC Safety Equipment Requirements is onboard and suitable for use.

The check lists on pages 25-30 will help you to ensure that you are ready.

Extra Paperwork

In addition to the safety equipment, we will also want to see:

- Proof that your liferaft complies with one of the three approved types (ISO 9650, ISAF or SOLAS A, as explained on page 14. This may mean providing a copy of the liferaft certificate, or a letter from the manufacturer.
- A copy of your boat's insurance certificate
- And for boats in the Racing Divisions only, a copy of the IRC certificate.

Getting Help

If you are unsure about any aspect of the regulations, please contact us:

UK:	Tel: +44 (0)1983 296060
	mail@worldcruising.com
USA:	Tel: +1 (757) 778-8872
Germany:	Tel: +49 (0)9533 8733
Netherlands:	Tel: +31 (70) 3040466

It is much easier to sort out possible problems months before the rally starts!

The Inspection

When you check-in for the rally, you will be able to book a time for your inspection. It is a good idea to do this as soon as possible, so that any problems can be sorted out in good time.

On the day of the inspection:

- Put all of the small equipment, like first aid kit, lifejackets/PFDs, flares and grab bag on the saloon table.
- Get the emergency steering system out of the locker and be prepared to demonstrate.
- Find all paperwork, such as insurance certificates and liferaft certificates.
- Make sure that your jackstays/jacklines are fitted.

The inspection will take around 40 minutes, but may take a lot longer if you are not prepared.

The inspector will check every item on the list, including ensuring that items are secured properly and ready to be used. This will include testing the EPIRB.

The inspector will make suggestions for improving your safety set-up, and will explain any issues or 'failures'.

Can I 'Fail' Inspection?

If you do not have suitable equipment installed correctly to meet the WCC Safety Equipment Requirements, then you will not pass your inspection. The inspector will explain the problem with you and talk through the solutions.

This usually means making some simple improvements, like putting the boat's name on the lifebuoys or buying a lifejacket sprayhood. The inspector will come back and re-check until he is satisfied. Ultimately, the inspector can stop the boat from participating in the rally.

Choosing a Liferaft

A liferaft is designed to be used as the last resort; when you need to escape from your boat because of fire or sinking. The liferaft is designed to help shipwrecked sailors to survive while waiting for rescue. Using a liferaft won't be an enjoyable experience, but it may save your life.

Even with EPIRBs, AIS beacons, SARTs and modern voice communications, it may take some time before your distress call results in a rescue. The contents of your liferaft will help to keep you alive, and to attract the attention of your rescuers. We require all liferafts to be packed with enough food, water and equipment for more than 24 hours. You may need to supplement the standard pack of your raft with extra equipment and water.

Features of a Modern Liferaft

Your liferaft will be built to the standard you have selected - either ISO 9650, ISAF or SOLAS. This is a minimum design standard, and it is worth looking for rafts that provide more features, as these are more likely to perform best when needed the most. As well as the standard features, look for the following:

Self-inflating canopy, ***brightly coloured with internal and external lights and retro-reflective tape.***

Look-out port ***for ventilation and watch-keeping***

Canopy opening: ***large enough to allow access wearing lifejackets, but easy to close with cold hands***

Brightly coloured: ***canopy, tubes and underside for better visibility***

Strong grab lines: ***all around the inside and outside of the raft***

Step ***(rigid or inflatable) to make boarding easier.***

Pull-in ladder ***extends across the raft floor***

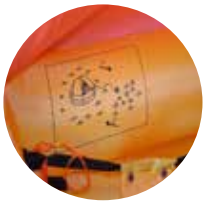
Ladder under raft ***to help righting in case of capsize***

Multiple oversized and strongly secured **ballast pockets** ***for better stability***

Good sized, securely affixed **drogue**

CO^2 bottle secured out of the way

Fully-fitted insulated floor



Clear instructions: ***these are printed as a diagram directly onto the raft***

Comprehensive emergency pack ***with quality contents. Pack and contents should be easy to use with wet, cold hands***

More information on liferaft specifications can be obtained from

ISO: http://tinyurl.com/buy-iso9650

ISAF: www.sailing.org/documents/offshorespecialregsindex.php

or contact your liferaft manufacturer

Types of Liferaft

When making a liferaft choice for an offshore passage, there are several questions to consider; not only whether to hire or buy, but also additional raft features, number of people and stowage.

Offshore liferafts are constructed with two main buoyancy tubes, whereas a coastal liferaft usually only has one, making the offshore liferaft more stable and buoyant. The contents of liferafts also vary, with packs for offshore rafts being more comprehensive.

The choice of liferafts available in the market place can be bewildering. Whichever raft you choose for participating in a World Cruising Club rally, it must conform to one of the following standards:

World Cruising Club Safety Equipment Requirements. A liferaft shall be either:

i. **An 'ISO Standard 9650' Type 1 Group A raft with service Pack 1 (>24 hours) or equivalent contents; or**

ii. **An 'ISAF' model in compliance with Special regulations Appendix A Part II (2006-2007), with emergency equipment equivalent to ISO 9650 above; or**

iii. **A commercial SOLAS model - (LSA Code 1997 Chapter IV) containing a SOLAS A pack.**

See the ISAF website [www.sailing.org/rules] for the full text of the ISAF Offshore Special Regulations.

ISO 9650 Liferaft

Type 1 Group A with Pack 1

ISO 9650 is the international standard for small craft liferafts, established in 2005. The correct ISO raft for World Cruising Club rallies is the Type 1 Group A. This raft is designed for offshore conditions, and inflates in air temperatures between -15°C and +65°C.

Ocean Safety Ocean ISO liferaft

The raft shall be equipped with service Pack 1, providing supplies for more than 24 hours. The items in Pack 1 can be packed with the liferaft, or in a separate grab bag (abandon ship bag).

The benefits of the ISO 9650 raft are:

- boarding step and ladder system for easier entry
- double floor for better insulation
- comprehensive pack of equipment and food/drink

If your ISO liferaft is packed with a less than 24 hour pack, you will have to pack the extra rations and equipment in a grab bag to meet the required standard. See page 17.

Rafts can be round, as well as rectangular. Winslow Global Rescue ISO9650-1

ISAF Liferaft

Offshore Special Regulations Appendix A Part II (2006-2007)

ISAF liferafts are very similar to ISO 9650 liferafts. The correct ISAF raft for World Cruising Club rallies is compliant with Appendix A Part II. This raft is designed for offshore conditions, and inflates in air temperatures between -15°C and +65°C.

Lifeguard ISAF liferaft

The standard ISAF liferaft is not packed with food or water or many flares, and these will have to be packed separately in a grab bag (abandon ship bag). We require that the ISO 9650 Pack 1 is used as a guide. See page 17 for the list.

The benefits of the ISAF raft are:

- designed for yachts sailing offshore
- boarding step and ladder system for easier entry
- however, the ISAF raft lacks the food and drink rations and flares found in the ISO 9650 more than 24 hour liferaft

Please note that from 01 January 2012, ORC/RORC liferafts built to the earlier ISAF standard Appendix A Part 1 are no longer accepted by World Cruising Club.

SOLAS Liferaft

LSA Code 1997 Chapter IV with Solas A pack

SOLAS liferafts are usually found on commercial boats, or on charter boats. The correct SOLAS raft for World Cruising Club rallies is compliant with LSA Code 1997 Chapter IV, with a Solas A pack. This raft is designed for commercial boats and has a comprehensive pack of equipment. The raft inflates in air temperatures down to -30°C, making it suitable for high latitude sailing. These rafts are often too large and bulky to be easily stored on a sail boat, but versions for yachts are available.

The raft shall be equipped with a SOLAS A pack, providing supplies for more than 24 hours. The items in the SOLAS A pack can be packed with the liferaft, or in a separate grab bag.

The benefits of the SOLAS raft are:

- Comprehensive pack of equipment and food/drink with SOLAS A pack
- Inflates in more extreme temperatures, making it suitable for high latitude cruising
- Double canopy for greater comfort.

However, SOLAS rafts are usually larger and heavier than ISO or ISAF rafts and can be hard to stow onboard boats under 15m (50').

If your raft has a SOLAS B pack, you will need to bring it up to the SOLAS A pack standard by putting the additional water, food and equipment in the grab bag (abandon ship bag).

Self-righting Liferafts

Lifeguard self-righting liferaft

Self-righting rafts are available, these have a double top tube which create a righting moment when the raft is capsized. They are more expensive than standard rafts, but worth considering if you are unfit or unlikely to be able to turn the raft over by yourself in case of capsize or inverted launch.

Liferaft Contents

The contents of the liferaft will vary, depending upon which type you choose. As an example, a standard leisure liferaft will only contain: a bailer, pump, paddles, repair kit, sponge, survival instructions, a set of leak stoppers, 30m throwing line, signal card, safety knife, and a sea anchor. Offshore, you will need a more robust liferaft and extra equipment for keeping the crew alive and comfortable and to signal to rescuers, which is why we set minimum standards for liferaft contents.

If you have an ISAF liferaft; an ISO 9650 raft with a less than 24 hour pack; or a SOLAS B pack; you will need to supplement the contents with extra rations and/or equipment to meet the WCC Safety Equipment Requirements.

Typical ISO less than 24 hour pack

Use the table on page 17 and the list of contents provided with your raft to help you decide what extra equipment you need. This extra equipment can be packed in the raft, or in a separate grab bag (abandon ship bag).

SOLAS A Pack Because it is designed for commercial boats, the SOLAS A pack is the most comprehensive. Many liferafts are sold with a SOLAS B pack - you will need to upgrade this to a SOLAS A pack or ISO 9650 Pack 1. If you choose an ISAF raft, you will need to add water, food and flares to comply with WCC Safety Equipment Requirements.

Extra equipment needed for a >24 hour pack

The table on page 17 will give you an indication as to the minimum likely contents of various raft types. This information will be extremely useful in forming the basis of what to pack in your grab bag. It is important to note that pack contents can vary slightly so do check with your agent to get an accurate inventory.

Most good service agents will welcome you to watch your raft being serviced, and this is a good way to understand what your raft and its equipment really look like. Don't forget that you can ask for extra items to be packed in the raft. Useful additions might include spare glasses, medication, copies of passports/ship's papers and so on.

The emergency pack contents should be seen as a minimum level of equipment, and it is always worth packing more rations, flares and other equipment into an extra grab bag (abandon ship bag). See page 24 for more suggestions for grab bag contents.

Liferaft Rations

The food and water rations provided with liferafts have been carefully designed to provide a minimum level of sustenance. Water rations now usually come in easy-open plastic bags, rather than tin cans. It is important to have a marked drinking cup so that the water can be rationed, and an infant's drinking cup is a good idea, as it will prevent the water spilling. The recommendation is no water for the first 24 hours, then 0.5 litre per person per day. This half litre (approx 1 pint) should be split into three drinks, one each at sunrise, midday and sunset. Children and the injured/sick will require water during the first day.

The more water you carry in the raft or grab bag, the more comfortable you will be. You can carry a hand watermaker in the grab bag instead of extra water.

The food rations usually come in a foil wrapped block of hard biscuits, and provide a total of 10,000 KJ per person. Again, you can add to this supply with extra foods, either packed in the grab bag or as last-minute grabs, but try to pick foods that will not increase thirst (boiled sweets, tinned fruit, energy bars and tinned condensed milk).

Thermal Protective Aids (TPAs)

All liferafts must have at least two thermal protective aids onboard, or in the grab bag. These may vary from a simple foil blanket or aluminiumized polythene bag that is wrapped around the casualty to stop wind chill, to all-in-one aluminiumized polythene suits.

You may choose to carry immersion suits instead of simple TPAs.

Get to Know your Liferaft

It is a good idea to see your liferaft inflated, and if possible, to try using it in a swimming pool as part of an organised demonstration or sea safety course. Understanding how big (or small) it is for the number of crew that may have to use it; the quality and range of the equipment packed in the raft; the time it takes to inflate (3 minutes at 20°C is the ISAF standard); and what it feels like to board a fully-crewed liferaft wearing your lifejacket are all useful experiences and will help you to make decisions if you ever have to abandon your boat in an emergency.

The best way to learn about liferafts is attending an ISAF safety at sea course with a practical water-based session. Some liferaft manufacturers offer useful familiarisation courses.

Ask your service agent if you can watch your raft being serviced - this is also a good opportunity to have extra items packed into your raft, such as medication, spare glasses, or copies of passports.

Liferaft Contents Table

The table shows the typical contents of the ISAF, ISO and SOLAS liferafts that meet WCC Safety Equipment Regulations. The actual contents may vary slightly between manufacturers, so check what your raft contains.

Make sure that your liferaft pack meets one of these standards, by either buying the right pack, or adding extra rations/equipment to a grab bag.

These lists will help you to decide what extra equipment you should pack in your grab bag (abandon ship bag) to supplement the liferaft contents.

Please note that items in **RED** *are required to supplement a <24h ISO 9650 pack to make it >24h.*

Abbreviations: pp = per person for the number of people rated in the raft, so a 6-man liferaft will contain 6 seasick bags as a minimum.

Item	*ISAF Part II*	*ISO 9650 Pack 1 > 24h*	*Solas A*
Bailer	1	1	1
Pump	1	1	1
Paddles	2	1	2
Repair kit	1	1	1
Sponge	1pp	2	2
Survival instructuctions	1	1	1
Leak stoppers	Set	Set	Set
Throw line 30m	1	1	1
Signal card	1		1
Safety knife	1	1	1
Sea anchors	1	1	2
First aid kit	1	1 (not in <24h)	1
Whistle	1	1	1
Torches/flashlights	2	2 (only 1 in <24h)	1
Spare batteries & bulbs for torch		1	1
Signal mirror	1	1	1
Anti-seasick pills	6pp	6pp	6pp
Seasick bag	1pp	1pp	1pp
Thermal TPAs	2	2 (not in <24h)	2 (only 1 in SOLAS B)
Scissors			1
Fishing kit			1 (not in SOLAS B)
Waterproof notebook	1		
Radar reflector			1
Tin opener			3 (not in SOLAS B)
Graduated drinking cup			1 (not in SOLAS B)
Red hand flares	3 - Put 3 more in grab bag	6 (only 3 in <24h)	6 (only 3 in SOLAS B)
Parachute rocket flare	None. Put 2 in grab bag	2	4 (only 2 in SOLAS B)
Floating smoke flare			2 (only 1 in SOLAS B)
Water rations	None. Put 1.5 litre pp in grab bag	1.5 litre pp (not in <24h)	1.5 litre pp (not in SOLAS B)
Food rations	None. Put 10,000 KJ pp in grab bag	10,000 KJ pp (not in <24h)	10,000 KJ pp (not in SOLAS B)

Liferaft Stowage

There are many different ways of stowing a liferaft. Valise (soft bag) liferafts should be protected from water, chafe and heavy weights - they should never be used as a seat. A dedicated cockpit locker or an accessible and secure location below decks may be best for this type of raft.

Canister (hard case) liferafts can be mounted on deck or on the stern rail, usually in a purpose-made cradle. Don't install where the raft will be used as a step - this will break the seal and allow water to get into the raft, causing corrosion.

The WCC Safety Equipment Requirements state that the raft must be stowed so it can be ready to launch within 15 seconds. Boats with externally-mounted canister liferafts can have a hydrostatic release on the cradle lashing, so that in the event of a sudden catastrophic sinking the liferaft would automatically be launched.

The release mechanism works on water pressure - within 4 metres, an integral sharp knife cuts the lashing and the liferaft will float free from its cradle, although it is still attached to the boat. As the boat sinks, the liferaft painter line will be stretched and the liferaft will inflate. A weak point in the line will break to ensure the liferaft isn't pulled down with the boat.

The hydrostatic release mechanisms usually have to be replaced every two years.

Stowing options for canister liferafts

Buying a Liferaft

When you are deciding which liferaft to buy or hire, try to see as many as possible so you can make a comparison. Boat shows are often a good place to see lots of rafts from different manufacturers.

It is worth getting information from as many sources as possible. Search out comparitive tests published by boating magazines or other third-party journals. These should be unbiased.

Some manufacturers have taken the additional step of gaining accreditation from a 'notified body', such as RYA or Bureau Veritas, third-party confirmation that the product meets the required standard.

Servicing

Liferafts need to be serviced by an approved agent, usually every 3 years. Rafts over 10 years old may require annual servicing. Yachts racing under ISAF rules (or in the ARC Racing Division) with a valise raft will also require an annual service, as valise-packed rafts are more easily damaged.

During a service the raft will be inflated and the fabric and construction checked for corrosion and damage. The gas bottle will be refilled or replaced as necessary, and the pack contents checked and replaced if they are out-of-date. Liferafts that no longer meet the standard will be condemned.

Try to watch your liferaft being serviced, as this is a good opportunity to see what it looks like when inflated, and to view the contents. You can usually add extra small items to the raft when it is being repacked, such as boat's papers, spectacles, medication or an EPIRB or SART.

Your liferaft will need to be within service period for the duration of the rally. Keep your service certificate on board the boat, as it will be needed for the safety equipment inspection before the rally start.

Safety Equipment Review

Your safety is our prime concern. In the next few pages you will find useful information on safety equipment with some requirements and recommendations on what to carry on board.

The rally Safety Equipment Requirements are printed as an easy checklist on pages 25-30, helping you to prepare and to ensure you have everything on board. These include more information on mandatory safety equipment requirements for the event.

Whilst working through the list, it is a good opportunity to check all your safety equipment is in good working order, has current certification (where appropriate), and is stored in the best place on board. The rally Safety Equipment Requirements will be used as the basis for the pre-start safety equipment inspection.

EPIRB

Emergency Position Indicating Radio Beacon

All yachts participating in the event are required to carry at least one floating, water or manually operated SOLAS-approved 406MHz EPIRB also operating on 121.5MHz.

When activated, either automatically or manually, the 406 MHz signal is picked up by the COSPAR-SARSAT satellite system and forwarded to a ground monitoring station, and the rescue authorities are informed. The 121.5MHz signal is used by the rescue authorities to pinpoint the distress location.

The EPIRB must be correctly registered with your home authority, with up-to-date vessel details and emergency contact information. Contact your local Coastguard authority or EPIRB manufacturer for advice.

Personal locator beacons (PLBs) carried by the crew do not replace the requirement for a yacht's EPIRB.

Flares

All yachts are required to carry a minimum of: 6 red parachute; 4 red hand held; and 2 orange float smokes (required for ISAF Offshore Special Regulations Category 1). Flares packed in the liferaft do not count as they are not accessible.

Each flare must be in date for the duration of the rally. Yachts that are going long term cruising should consider departing with a complete new set of flares, as it can be expensive and difficult to replace them once en route.

Whilst no longer a requirement, keeping white collision warning flares to hand for the watch on deck is a good idea whilst the yacht is at sea. Ideally they should be stowed (perhaps in spring clips) within easy reach of the helmsman, in a waterproof position. Many yachts stow them just inside the main companionway hatch.

All other flares must be kept in a waterproof canister, prolonging their life and ensuring their operability at the required moment.

Passive Radar Reflector

All boats must be visible to shipping, even if there is a power failure onboard. All boats must carry a passive radar reflector with a radar cross section of 10m^2 or more. Passive radar reflectors require no power, and can be traditional 'octahedral' type or cylinder type. The Echomax inflatable reflector is also accepted.

The reflector can be mounted permanently on the mast, or hoist on a halyard to a minimum of 5m (15') above deck.

Lifejackets

There are a wide range of lifejackets available with designs to suit all body shapes and budgets. Modern gas inflated combined lifejacket-harnesses are a far better choice than the older style permanent buoyancy type, as they are comfortable enough to wear at all times. A lifejacket that is comfortable is more likely to be worn; a lifejacket in a locker will not save your life.

The international standard is ISO 12402. Lifejackets and buoyancy aids are graded by flotation capacity (in Newtons or lbs.) The normal levels are 50, 100, 150 and 275N. 50 and 100N jackets are only considered as buoyancy aids or lifejackets for children. The 150N jacket is the minimum standard for offshore sailing. 275N lifejackets are designed for commercial applications when the wearer is carrying heavy tools or also wearing a survival suit. They are bulkier and heavier than 150N and not recommended for general cruising.

For US-flagged yachts the inflatable lifejacket/ harness should be USGC Type 1 approved; alternatively where Type 1 inherently buoyant PFDs are carried, an offshore inflatable lifejacket/ harness (preferably USGC Type II approved) shall also be carried.

There shall be a lifejacket/combined harness for each member of the crew.

Modern gas inflated jackets have three main operating systems:

1. **Manual pull**
   - CO^2 canister is fired by pulling the cord.
   - Full buoyancy in approximately 5 seconds.
   - Can also be inflated orally.
2. **Auto inflate (salt tablet activated)**
   - Operates within 5 seconds of immersion.
   - Mechanism pierces canister, inflating lifejacket in approximately 5 seconds.
   - Can also be inflated as manual version.
3. **Auto inflate (hydrostatic activation)**
   - This works by water pressure, only operating when submerged in 10cm (4-5”) of water.
   - No accidental inflation by spray or humidity even in extreme conditions.
   - Cylinder is mounted on the inside of the lifejacket inflation chamber.
   - Can also be inflated as manual version.

Required extras for Lifejackets

Most modern lifejackets come with crotch straps and a sprayhood as standard, but these can also be bought separately and retro-fitted.

It is a requirement that crotch straps are fitted for two reasons: they keep the man overboard floating higher in the water, so he is safer and more comfortable; and also assist in their recovery.

It is a requirement that sprayhoods (face shields) are fitted. These can be bought separately. When a casualty is in the water the legs act as natural drogues, orientating the body such that it lies facing the oncoming wind and waves. This can quickly cause the casualty to be overcome and possibly drown over time through water inhalation.

Spray hoods are not designed to be worn day-to-day, but specifically by the casualty in the water.

In addition to crotch straps and spray hoods:

Lifejackets should have a light, a whistle and retro reflective strips. Each lifejacket should be marked with the name of the yacht or owner.

It is a requirement that each lifejacket have a safety tether not more than 2m (6’6”) long with a snap hook at each end.

We recommend a safety tether with a snap hook in the centre of the line – the centre hook is clipped to the lifejacket, giving two shorter tethers to attach securely when working on deck.

The yacht should have strong clipping points attached to through-bolted or welded deck plates in positions close to the helm and companion-way, so that crew can clip on before coming onto deck and unclip after going below.

Lifejackets for Children

It is preferable for children to wear permanent buoyancy lifejackets. These can be fitted with a light, retro reflective strips, and marked with the boat name, and usually have a crotch strap as standard.

Younger children find permanent buoyancy jackets more comfortable, and they also offer some protection from knocks and bumps.

Children weighing over 40kg (88lb) should be wearing a 150N lifejacket, either inflatable or permanent buoyancy.

It is not possible to obtain sprayhoods for child-size lifejackets, and these are not expected as part of the safety equipment inspection.

Lifejacket Maintenance

Lifejackets are often dumped and left at the bottom of some damp locker and generally lead a tough life. When needed they may be found not to work, which is too late.

As part of your preparations before the start of the Rally, all life jackets should be given a thorough overhaul. Lifejackets should be serviced annually, ideally by an authorised agent. However you too should carry out frequent checks and maintenance to your lifejacket.Below is a list of some of the more important checks that should be completed.

1. Inflate orally and leave overnight
2. Check outer jacket for wear or tears
3. Clean zippers and lubricate with Vaseline
4. Check stitching and clean off salt
5. Check bladder for abrasion especially behind the bottle, the join to the outer skin and in folds
6. Check light and expiry date, blow the whistle
7. Check reflective strips
8. Check cylinder is not loose (common problem) and is the correct size
9. Check firing mechanism

It is important to carry re-arming spares for inflatable lifejackets, especially for yachts that are going long term cruising. It can be expensive and difficult to find spares, as Europe and America use different thread systems.

The skipper should have clear rules about when lifejackets are to be worn. Modern self inflating compact lifejackets are much more comfortable to wear and are therefore more likely to be worn for a greater part of the time.

Retro Reflective Tape

All modern foul weather clothing has this fitted as standard; the tape greatly enhances the visibility of the wearer to a third party and adds to safety at sea.

The Safety Equipment Requirements require retro-reflective tape to be fitted to all lifebuoys and lifejackets.

The tape can be bought on a roll or in pre-cut patches.

Man Overboard Equipment

Each yacht is required to carry lifebuoys (liferings) to aid in the event of a man overboard situation. The choice of devices can be broken down into four main categories:

1. Traditional lifebuoy/lifering
2. Traditional lifebuoy connected to a Danbuoy/ MOB pole
3. Lifesling
4. MOB Module

A danbuoy or man overboard (MOB) pole is a large floating pole carrying a flag and light, which clearly indicates the casualty's position. MOB poles come in a variety of designs, including inflatable units.

Due to the various combinations allowed in the rules, the area of man overboard equipment has traditionally caused most problems during the safety checks. Owners have had to waste a huge amount of time running back and forth to chandleries to buy new equipment, whistles and retro reflective tape. It is well worth spending the time now to get it right.

The Regulations specifically state that each yacht shall have the following:

1. One lifebuoy/lifering with a drogue, or a lifesling (without a drogue), with a self igniting light and whistle attached, and
2. One lifebuoy, or MOB module (eg Jonbuoy or Switlik MOM), equipped with a whistle, drogue, a self igniting light and a pole and flag (danbuoy/MOB pole)

- At least one lifebuoy or lifesling should have permanent (eg foam) buoyancy
- Inflatable lifebuoys/danbuoys should be tested in accordance with maker's instructions.
- Each lifebuoy shall have the boat's name marked on them and must be fitted with marine grade retro reflective material.

At least one item is required from both Lifebuoy 1 box and Lifebuoy 2 box, with the required specifications of whistles, tape etc. where indicated.

1. Choose one of these options:

i. Lifebuoy 1 with:

Name of vessel
Reflective Tape
Whistle
Light
Drogue

OR

ii. Lifesling with:

Whistle
Light
Reflective Tape

+

2. Choose one of these options:

iii. Lifebuoy 2 with:

Name of vessel
Reflective Tape
Whistle
Light
Drogue
Danbuoy (MOB pole)

OR

iv. MOB Module:

eg Jonbuoy or Switlik MOM

In service date

Recovering a Man Overboard (MOB)

While prevention of a man overboard situation occurring through the use of rigid safety policies is the priority, you must consider what to do in the event of it happening. Many crews routinely practice getting back to a man overboard, far fewer consider the possible difficulties in getting them back onboard.

There are various methods to achieve this and all have pros and cons. The important thing is to securely attach the victim to the yacht while you consider your options.
The type of method used will depend on many factors, not least of which are:

- the ability of the casualty to help themselves
- the size of the yacht
- the size and strength of the crew
- weather conditions

Whichever method you choose to use, it would be well worth practicing it before you leave, even if it is from the dockside.

Recovery Options

1. One option is simply hauling the casualty back onboard under the guardrails, or at the transom, using the boarding ladder. Beware of using the transom in anything but calm conditions.
   Hauling a wet heavy body is hard work and will require strong crew. Passing a loop of rope over the side may let the casualty get a foot hold and enable him to help.
2. Using a **block and tackle system** similar to a mainsheet system works well. It can be stored ready to go in a convenient place. One end can be attached to either a halyard or the end of the boom with a snap shackle. The other end has two safety lines attached to act as a lifting strop. If using the boom instead of a halyard it helps to raise it up beyond its usual position first. It also helps to try and brace it to reduce movement. All this takes time. The tail (fall) can be pulled by hand, such as with a mainsheet, or led back to a winch for additional power. The advantage of using a block and tackle instead of just a halyard, is that it provides huge mechanical advantage. Using just the halyard on a normal winch is extremely hard work.
3. A **storm jib** can be used by attaching the luff along the deck and the clew to a halyard. The victim is then rolled up the side of the yacht. Trying to sink the sail below the victim can be tricky. There are more sophisticated commercial versions of the storm jib recovery system available, such as www.mobmat.com

4. With an unconscious casualty in the water it is well worthwhile **launching the dinghy** into the water, or in the absence of this, the liferaft. This will give the rescuer a stable platform from which to work and enable swift recovery of the MOB out of the water.
5. **Rescue sling** devices are widely available in most chandleries. These are basically a helicopter lifting style strop attached to a long line, which in turn is attached to the yacht. By circling the MOB he can grab the sling and be brought alongside the yacht. The strop then provides an ideal lifting device if attached to a halyard. However as with the system above, it will be extremely hard work to lift a wet heavy man with just the halyard and it's still worth considering a block and tackle in addition to the rescue sling, to make life easier.
6. A **MOB module** acts almost like a personal mini-liferaft with a MOB pole, light and lifting points for hoisting the casualty back onboard. These are normally mounted on the stern rails and are activated by pulling a lever on the casing, inflating the module so it floats clear of the yacht. This device does require a fully conscious casualty able to get into the module, and must be serviced regularly.

Grab Bags

The WCC Safety Equipment Regulations require every boat to have a grab bag (abandon ship bag) for every liferaft onboard, containing items to help improve rescue, make your time in the liferaft more comfortable, and to help once you are rescued.

If your liferaft contents require upgrading with extra rations or equipment to meet the ISO 9650 Pack 1 over 24 hours or SOLAS A content lists (see table on page 18) then you will need a grab bag for this equipment too.

It is extremely important to have a good grab bag. What you pack in it will to a large extent depend upon what type of liferaft you have and what it already contains.

The grab bag should be:

- brightly coloured, waterproof and able to float
- marked with the boat's name
- fitted with lanyard to attach to raft
- duplicated to number of rafts carried: 2 rafts = 2 grab bags

Store the grab bag where it is easily accessible, and make the location known to all crew. Keep another empty bag nearby for 'last minute' grabs.

What to Include

In order to choose the correct items in your grab bag it is a good idea to place them into one of the four survival priorities categories:

1. Location
2. Protection
3. Food and Water
4. Medical

Clearly location items must be top of the list as quick location and rescue will mean not having to rely on the equipment in the other categories so much, or even at all.

Note – Items in blue may already be in the raft pack. Check the liferaft contents table and check quantities as you may still need to add more.

1. Location

406 EPIRB / SART / waterproof handheld VHF / waterproof handheld GPS / waterproof flashlight strobe light / cyalume sticks / extra flares / radar reflector / signals card / signal mirror (heliograph) / fog horn

2. Protection

Sun cream / heat (or chill) packs / inflatable cushion / fold down bucket / moist hygiene wipes / diving mask / gaffer tape / second sea anchor / thermal protective aids (TPAs) / decent bailer / liferaft repair kit / sponges

3. Food and Water

Extra water (only fill bottles to 80%) / fishing kit / extra food rations (non thirst provoking) / graduated drinking cups / child's no-spill drinking cup / collapsible water container for collecting water

4. Medical

Prescription medicine / sunburn cream / inflatable splints / enema kit / anti-emetics / first aid kit / extra sea sick pills and bags

'Last Minute' Grabs

These are items that you will probably need on board the boat, and so aren't convenient to keep permanently stored in the grab bag. They can be 'last minute grabs' that you collect as you abandon the boat. It is a good idea to keep laminated copies of passports and ship's papers permanently in the grab bag. These may include:

passports / ship's papers / credit cards and money / binoculars / sat phone / mobile (cell) phone / wet-weather gear / lifejackets (if not worn) / immersion suits / man overboard danbuoy / SSB receiver / spare clothing / sextant and tables / spare clothing / sunglasses / charts / compass / lighter / multi purpose tool / pack of cards / towels / waterproof notebook and pencils

World Cruising Club Safety Equipment Requirements

2014

The WCC safety equipment requirements have been drawn up to ensure the minimum level of safety for yachts participating in World Cruising Club Events. The International Sailing Federation (ISAF) Offshore Special Regulations have been used as a guideline to compile these regulations. See www.sailing.org/sailors/special-regs.php

These safety equipment requirements do not override any greater safety requirement demanded by the yacht's national or flag country, maritime authorities or appropriate regulatory bodies.

Yacht owners considering taking fare paying guests or crew should consider the implication in relation to their national or flag regulations as required by the appropriate proper authorities.

For rallies with a racing division only:

Divisions II (Racing) and VIII (Invitation Racing) are run under ISAF Offshore Special Regulations for Category 1 and these Safety Equipment Requirements.

For World ARC yachts:

Equipment or service dates should not expire within the first six months of the start of the Rally. Your safety equipmemt inspector will be able to advise you about where to renew these items subsequently.

Please visit the Members Area where you will find this information in French, German, Italian, Spanish, and Russian.

The requirements are in two sections:

Section One - Mandatory Safety Equipment Requirements

This equipment must be carried and all items will be sighted during the safety equipment inspection prior to the start. Failure to comply may lead to disqualification from the Rally.

Section Two - Recommended Safety Equipment

Whilst equipment in this section is not mandatory the organisers strongly suggest that all the recommendations in this section are complied with. The Safety Equipment Officer will be available to discuss points made in this section during his inspection.

General Requirements

It is the entire sole and inescapable responsibility of each skipper to ensure that all necessary safety precautions whatsoever are taken in respect of himself the crew and the yacht.

All safety equipment that requires regular servicing must be in date, at the start of the Rally, and remain in date for the duration of the Rally. (The Test Certificate for the liferaft will be inspected during the Safety Equipment Inspection).

All safety equipment carried must:

i. be of type, size and capacity commensurate with the size of yacht and crew

ii. function correctly

iii. be easily accessible

Each crew member must be fully conversant with the operation of all safety equipment carried and know its stowage positions.

Section One - Mandatory Safety Equipment Requirements

Liferaft

A purpose made, self inflating, liferaft of sufficient places to carry all the crew shall be either:

i. An "ISO Standard 9650" Type 1 Group A with service Pack 1 (>24 hours), or equivalent made up of service Pack 2 (<24 hours) and a grab bag, or ☐

ii. An "ISAF" model in compliance with ISAF Offshore Special Regulations Appendix A Part II (2006-2007), plus food and water equivalent to (i) above, or ☐

iii. A SOLAS model (LSA Code 1997 Chapter IV) containing a SOLAS A pack ☐

If not fitted externally with a hydrostatic release, each raft shall be capable of being at the lifelines ready to launch within 15 seconds. ☐

Each liferaft shall have a valid inspection certificate from the manufacturer or approved servicing agent, valid for the period of the Rally. The certificate, or a copy, shall be carried on the yacht. ☐

VHF

A VHF radio transceiver having a rated output power of 25W and capable of working on all standard international channels must be fitted. ☐

An external cockpit extension speaker should also be fitted to the set. ☐

The radio shall have a masthead antenna, and ☐

An emergency antenna shall also be carried. ☐

Long Range Communications Equipment

An SSB radio (with pactor modem) or satellite communications system capable of sending and receiving email messages whilst at sea. ☐

World ARC yachts must be equipped with an SSB.

This paragraph does not apply to ARC Portugal, ARC Baltic, ARC DelMarVa or Malts Cruise.

EPIRB (Emergency Position Indicating Radio Beacon)

A floating, water or manually activated SOLAS approved EPIRB transmitting on 406MHz and 121.5MHz, correctly registered with the appropriate home authority. ☐

(Personal locator beacons PLBs carried do not replace the requirement for a yacht's EPIRB)

Passive Radar Reflector

Permanently mounted in, or capable of being hoisted to, a position at least 5m (15') above deck. (Where fitted, a Radar Target Enhancer does not replace the requirement for a passive radar reflector) ☐

All radar reflectors must have a documented RCS (radar cross-section) of not less than 10m^2. Smaller cylindrical reflectors do not meet this RCS requirement. ☐

AIS (Automatic Identification System)

An **AIS receiver** shall be fitted as a minimum. ☐

A Class A transponder is recommended.

Continued over

Flares

Shall be SOLAS compliant, and not older than the stamped expiry date for the end date of the event. Flares to be stowed in a watertight container, with protective gloves and goggles, with as a minimum:

- 6 red parachute flares ☐
- 4 red hand held flares ☐
- 2 orange smoke ☐

Lifebuoys

Within reach of the helmsman for instant use:

1. One lifebuoy with a drogue, or a lifesling (without a drogue), with a self igniting light and whistle attached, and ☐
2. One lifebuoy, or a MOB Module, equipped with a whistle, drogue, a self igniting light and a pole and flag (a danbuoy) see diagram on page 22 ☐

At least one lifebuoy or lifesling should have permanent (eg foam) buoyancy. Every inflatable lifebuoy and danbuoy shall be tested at intervals in accordance with its manufacturer's instructions. ☐

Each lifebuoy shall have the yacht's name painted on them and must be fitted with marine grade retro-reflective material. ☐

Bilge pumps

One manual bilge pump securely fitted, operable from on deck with companionways and hatches shut. (It is recommended that a second manual bilge pump, operable from below decks, is also fitted). ☐

Unless permanently fitted, bilge pump handles shall be provided with a lanyard, securely attached, and catch, or similar device, to prevent accidental loss. ☐

Navigation lights

Navigation lights must be fitted so that the yacht shall, at all times, comply with the International Regulations for Preventing Collision at Sea. Two independent sets of navigation lights are required. Battery-operated handheld torches/flashlights are not accepable

- For example, the primary set (bow and stern lights) ☐
- For example, the secondary set (masthead tricolour) ☐
- Spare bulbs of correct wattage shall also be carried for non-LED navigation lights ☐

High powered search light

A watertight high-intensity heavy duty searchlight powered by the ships' batteries, instantly available in the cockpit for use on deck. The searchlight shall be capable of continuous use. If rechargeable, the searchlight shall be capable of operating whilst being charged. ☐

- Spare bulbs for search light ☐

Lifejacket/combined harness

There shall be a lifejacket/combined harness provided for each member of the crew. ☐

For USA-flagged yachts the inflatable lifejacket/harness should be USGC Type 1 approved; alternatively where Type 1 inherently buoyant PFDs are carried, an offshore inflatable lifejacket/harness (preferably USGC Type II approved) must also be carried. ☐

Each lifejacket shall have:

i. A whistle ☐

ii. A light ☐

iii. Be marked with the yacht name (or lifejacket owner's name) ☐

iv. Retro-reflective tape ☐

v. A crotch (or thigh) strap ☐

vi. A sprayhood/face shield ☐

vii. A safety line not more than 2m (6'6") long with a snap hook at each end. (It is recommended that a second snap hook should be placed at the middle point of the line) ☐

Spare re-arming kits and gas bottles appropriate for each make of lifejacket onboard shall also be carried ☐

Clipping points

Attached to through-bolted or welded deck plates, or similar, in positions close to the helm, and to enable crew to clip on before coming on deck, and unclip after going below. ☐

Heavy equipment

All heavy equipment (ie anchor, batteries, gas bottles and stoves) shall be firmly secured to prevent damage from possible knockdown or capsize. ☐

The following equipment shall also be fitted/carried:

Emergency grab bag (for suggested contents, see Appendix 1) ☐

A recognised secondary or alternative method of navigation ☐

Securely fitted taut double lifelines/guardrails around the entire deck ☐

Jackstays/jacklines along port and starboard side decks ☐

Fire extinguishers (at least two) ☐

Fire blanket (secured near the galley) ☐

Companionway washboards to be capable of being secured shut and with lanyards (to prevent accidental loss with the main hatch open). ☐

Continued over

- [ ] Bungs or softwood plugs – securely attached/stowed adjacent to each fitting to enable any through hull fitting (below and above waterline) to be closed off
- [ ] Throwing line (floating) 15–25m (50–75') length, readily accessible to cockpit
- [ ] A watertight high powered torch/flash light with spare batteries and bulbs
- [ ] Emergency tiller or secondary steering device
- [ ] Hacksaw and spare blades, bolt croppers or a suitable method for cutting-away rigging
- [ ] First aid kit and manual
- [ ] Fog horn
- [ ] Buckets (at least two) of stout construction and fitted with lanyards; capacity to be at least 2 gallons (9 litres)
- [ ] Echo sounder and boat speed/distance log

Section Two - Recommended Safety Equipment

It is highly recommended that the following equipment be carried:

- [ ] Dinghy and oars
- [ ] Handheld VHF transceiver
- [ ] Charts and pilots for the route taken by the Rally
- [ ] Sextant and tables
- [ ] Storm jib
- [ ] Storm trisail or 3rd reef in mainsail
- [ ] A second manual bilge pump operable from below deck
- [ ] White parachute flares (to provide illumination for Search and Rescue)
- [ ] Mast step. The heel of a keel-stepped mast should be securely fastened to the maststep or adjoining structure
- [ ] Drogue or Sea Anchor. A drogue (for deployment over the stern), or alternatively a sea anchor, or parachute anchor (for deployment over the bow), is strongly recommended as a means to reduce the risk of capsize in heavy breaking seas
- [ ] It is highly recommended that each person on board carries a knife at all times whilst at sea

Appendix 1 - Recommended Grab Bag Contents

A yacht is to have a grab bag for each liferaft with the following recommended contents, which need not be additional to the items required by the Safety Equipment Requirements.

The grab bag offers a suitable place to stow items where they will be quickly found and readily carried to the liferaft.

A grab bag should have inherent flotation, be marked with the name of the yacht, and have a lanyard and clip.

Recommended Grab Bag Contents:

- second liferaft sea anchor and line
- two safety can openers (if food/water rations carried are in cans)
- waterproof hand-held VHF transceiver
- watertight flashlight with spare batteries and bulb
- EPIRB
- first aid kit, including sunscreen and medical supplies for pre-existing medical conditions
- graduated plastic drinking vessel for rationing water
- two Cyalume-type sticks or two watertight floating lamps
- one daylight signalling mirror and one signalling whistle
- two red parachute flares and two red hand flares, compliant with SOLAS
- additional high energy food
- additional drinking water in a dedicated and sealed container, or a hand operated desalinator, plus containers for water
- string, polythene bags, seasickness tablets

Appendix 2 - Recommended Crew Training

It is recommended that the skipper and at least one crew member should have undertaken training within the five years before the start of the rally in both theoretical and practical sessions in the following subjects.

ISAF recommends that all crew members do likewise.

Recommended Training Subjects:

- care and maintenance of safety equipment
- liferafts
- storm sails
- fire precautions and fire fighting
- damage control and repair
- heavy weather – crew routines, boat handling, drogues
- man overboard prevention and recovery
- giving assistance to other craft
- hypothermia
- first aid
- search and rescue systems
- using communications equipment (VHF, GMDSS, satcoms etc.)
- weather forecasting