



OCEAN SAFETY®

Ocean ISO Liferaft

Owner's Manual & Operating Handbook

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Introduction

This manual has been compiled as a guide to the general transport, storage, stowage, maintenance, servicing and usage of your liferaft. Keep this manual in a safe place on board, it is recommended that it is accessible to all on board and the content be read and thoroughly understood before any action is taken with the liferaft. Whilst the information provided is extensive it may not be complete as regulations do vary from country to country. Therefore it is advisable to obtain further guidance from your local authority regarding additional equipment to be carried or regulations to be met.

The stowage position, access to and ease of operation of the liferaft are important factors, as are the actions to be taken if you should have to resort to using the liferaft. Further, good maintenance applied to the liferaft ensures that in the event that it has to be used, it will quickly provide the emergency safe haven required. The information contained in this manual is intended for the majority of installations, if in doubt contact your dealer for more specific advice about your own installation.

Transport, Stowage, Maintenance, Storage and Servicing advice

Before handling the liferaft, an understanding of the inflation system is recommended.

Inside the container or valise and attached to the liferaft as part of the inflation system is a pressurised gas cylinder, which needs to be handled with care.

The gas stored in the cylinder is a mixture of Carbon dioxide (CO₂) and Nitrogen (N₂). On activation of the valve fitted to the cylinder, the gas is released into the chambers of the liferaft, providing its shape and buoyancy. The inflation is initiated by pulling sharply on the painter line.

- o **WARNING:** Caution should be exercised when handling and transporting the liferaft not to inflate it accidentally.

Safety guidelines for transportation to avoid accidental inflation of the liferaft

- o **WARNING:** At all times ensure that the painter line does not become snagged. If the painter line is allowed to be pulled to the end of its length (For length of painter line refer to the data label on the container or valise), the cylinder valve will be activated and the liferaft caused to inflate.
- o **WARNING:** Ensure that the container or valise is not subjected to violent shocks or allowed to roll.
- o **WARNING:** If the liferaft is transported by car, it must be stowed in the boot of the car. Under no circumstances should it be transported in the main passenger compartment of the car.

Stowage guidelines

When selecting the position of the liferaft onboard a vessel, there are a number of points that require consideration.

Warning: There are two bands positioned around the container and a wide rubber seal around its periphery. **These are an integral part of the container and must not be removed.**

1. Firstly the liferaft must be positioned so it can easily be accessed and deployed in an emergency situation. Nothing must be stored on top of the liferaft.
2. Any strapping down of the liferaft to the desired location must be easy to remove, with no locking system requiring a key. Where possible any securing arrangement should incorporate a hydrostatic release unit (HRU). The liferaft should be positioned clear of any overhangs, rigging or any other object that may hinder deployment (especially if the liferaft is fitted with a HRU).
3. The liferaft must not be positioned where it or its painter line are likely to become a trip hazard.
4. The liferaft has been satisfactorily drop tested to a height of **6m**. The stowage point must not be above this height from the waterline.
5. On smaller vessels, the liferaft should be viewed as a fixed magnetic material and therefore should be positioned away from the ship's compass and other equipment which might be effected.
6. At no time should the liferaft be used as a seat or be stood on.
7. The liferaft must not be stowed in close proximity to any form of heat source.
8. Stowages/ cradles for the liferaft must be the correct size for the container/valise and secured to a solid part of the vessel.
9. The container may be mounted on its side, end or preferably flat. Care must be taken not to block the drain holes in the bottom, side or end. Containers stored on end must have the painter line exit hole uppermost. Containers stowed on their side must be orientated with the cylinder close to the deck. i.e. Painter exit at deck level.
10. If connected to a HRU (advisable) then only withdraw sufficient painter line to reach and tie off to the link on the HRU.
11. For further advice or clarification refer to your Ocean Safety Liferaft dealer.

Preventive Maintenance – On Board.

Containers and Valises must be kept clean.

- a. Cleaning must only be carried out using a solution of soap and water.
- b. Rinse off soap and water solution using clean fresh water.
- c. Rub down with a dry cloth.

Monthly Maintenance

- o Ensure that the container is strapped firmly onto its cradle.
- o Inspect the container for damage, cracks, chafing or weaknesses.
- o Inspect the securing straps for cuts, abrasion or other damage to the webbing or stitching.
- o Ensure that the painter line is not showing signs of abrasion and that it is still attached to the strong point on the deck. Preferably through a Hydrostatic Release Unit. (HRU)
- o Ensure that the HRU is within its operational life – Refer to the HRU instruction leaflet.

Storing the liferaft – Off the vessel

- o If the liferaft is to be stored for any length of time.
 - o Choose a site that is clean, dry and away from direct sunlight and where the temperature is between 10°C and 30°C.
 - o Ensure that rodents cannot access the liferaft. (Rodents can and will eat the fabrics used to manufacture the liferaft)
 - o Storage must be away from potential contamination from oils, fuel and other chemicals.
- o If the liferaft is to be stored for more than 3 months it is advisable to have it serviced at an Ocean Safety approved facility prior to reinstalling it back on board.

Servicing of the Liferaft.

- o This **Ocean ISO** Liferaft must be serviced at an Ocean Safety Approved Service Facility.
- o The service data is shown on the labelling of the Liferaft Valise or Container.
- o The Approved Service Facility will complete the Liferaft Service Record Card shown in this manual.
- o The Approved Liferaft Service Facility will issue a certificate of re-inspection which should be kept safely on board.
- o No product liability can be accepted by Ocean Safety for Liferrafts serviced at an un-authorised Service Facility.



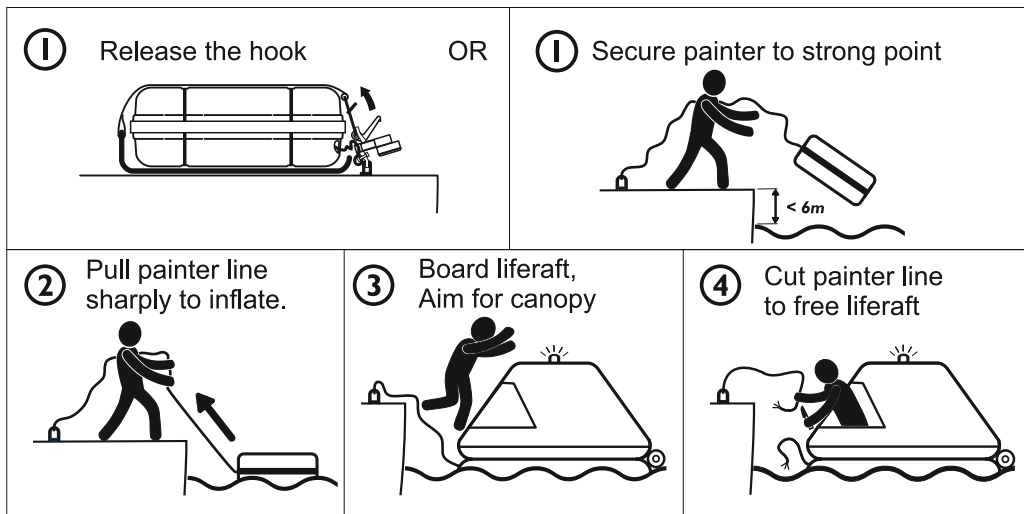
Operating Instructions

Launching the liferaft

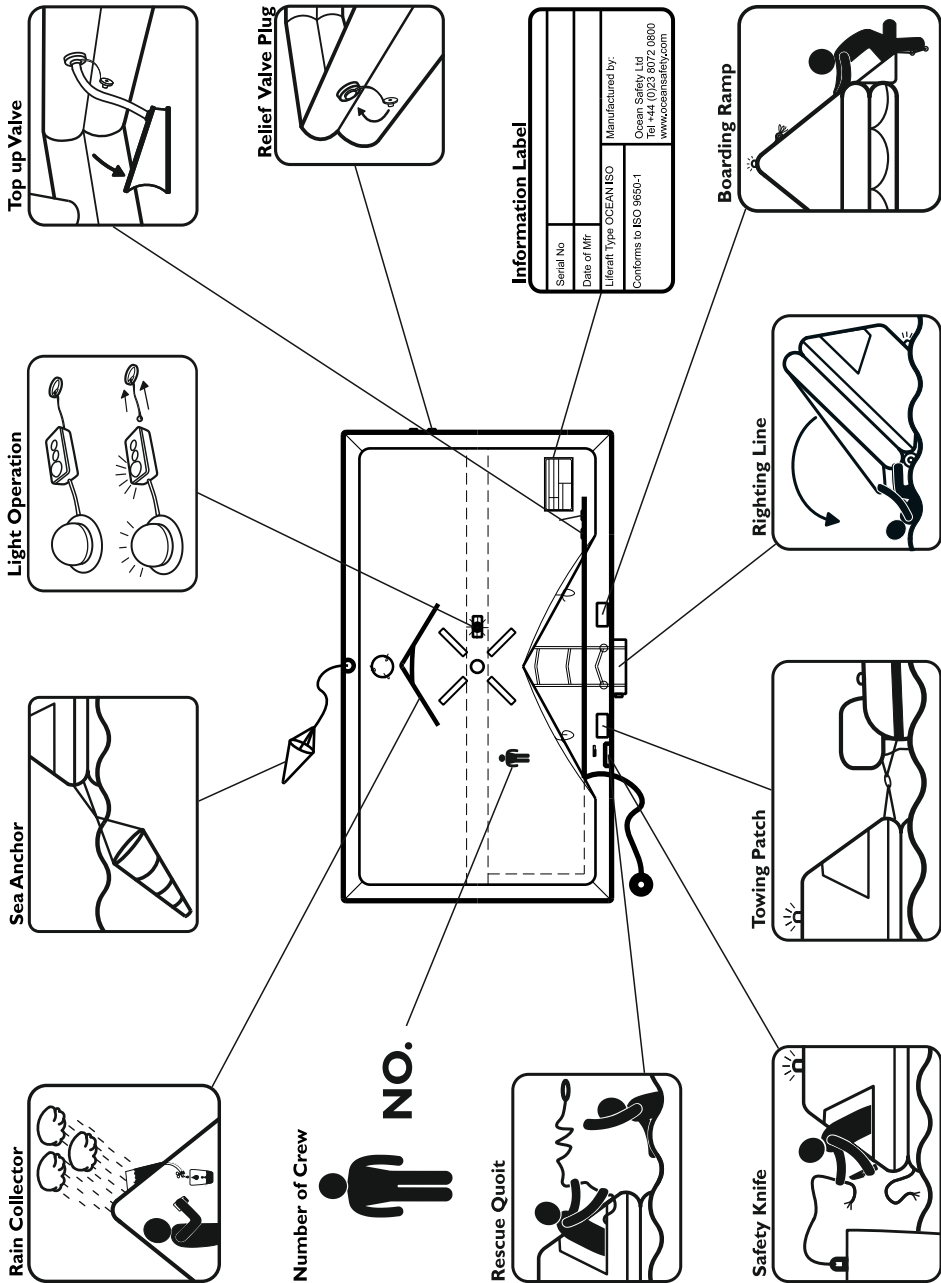
In preparation for an emergency, ensure that all persons onboard the vessel are aware of the location and operation of the liferaft. Make a MAYDAY call. Ensure that everybody on board is wearing a lifejacket and that it is correctly fitted. Remember to locate a 'Grab Bag' and fill with the necessary survival equipment, take sea sickness tablets if time permits.

To deploy the liferaft, follow these simple instructions:

1. Release any strapping securing the liferaft to the stowage point.
WARNING. Do not open the container or the valise manually. The container and the valise are designed to open automatically when the liferaft is in the water and the painter line is pulled.
 Or, if not already fitted to a HRU – pull out sufficient painter line and secure it to a strong point on the deck.
 NB: It is not necessary to pull out all the painter line as it will deploy as the container/valise descends to the water.
2. Throw the container/valise overboard.
3. To inflate the liferaft, pull firmly on the painter line to its full extension and the liferaft will inflate.
 - A. During the inflation of the liferaft it is normal for there to be a hissing sound as the gas enters the chambers and the excess is exhausted through the relief valves. It is also normal to see the excess gas venting from the relief valves.
4. To avoid entering the water and aid boarding, secure the liferaft close to the vessel.



Ocean ISO Liferaft pictograms - 4, 6 & 8 Person



Ocean ISO Liferaft pictograms - 10 & 12 Person

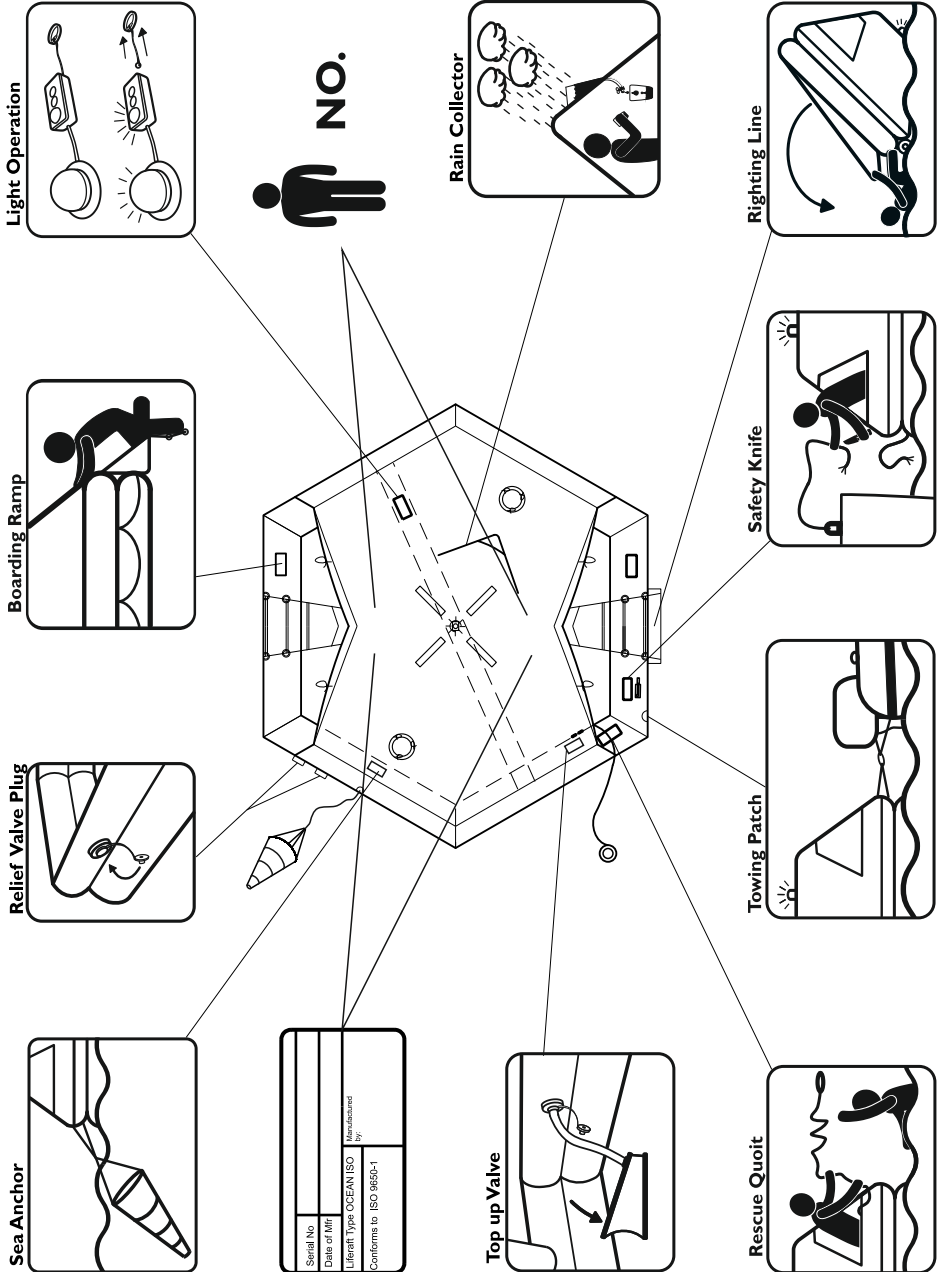


Table 1: Equipment contained in manufacturer's supplied Equipment Bag

Equipment	< 24hr (LESS THAN)	SOLAS B	> 24hr(GREATER THAN)
Pair of Buoyant Paddles	1	1	1
Sponge	2	2	2
Portable Buoyant Bailer	1	1	1
Whistle	1	1	1
Floating Knife	1	1	1
Internal & External Light	1	1	1
Quoit & Line	1	1	1
Sea Anchor (Drogue) attached to Liferaft	1	1	1
Owners Manual	1	1	1
Waterproof Torch with spare Batteries & Bulb	2	2	2
Signalling Mirror	1	1	1
Anti Seasickness Tablets	6 Per Person	6 Per Person	6 Per Person
Seasickness Bags	1 Per Person	1 Per Person	1 Per Person
Red Hand Flares	3	3	6
Red Parachute Flares	2	2	2
Repair Kit / Clam Seals	1	1	1
Inflation Pump & Fittings	1	1	1
Drinking Water	0.5L Per Person	0.5L Per Person	1.5L Per Person
First Aid Kit - Cat. C	0	1	0
Orange Smoke	0	1	0
SOLAS No. 2 Card	0	1	0
Radar Reflector	0	1	0
Additional Sea Anchor (Drogue)	0	1	0
Thermal Protective Aid	0	2	2
Food Rations	0	0	1000kj Per Person
First Aid Kit - ISAF	0	0	1

Grab Bag Options

An Ocean ISO Liferaft may be supplied with the internal emergency pack to meet the requirements of ISO 9650, greater than 24 hour pack or less than 24 hour pack. The liferaft may also be supplied with a SOLAS B compliant pack.

For the greater than 24 hour pack and SOLAS B compliant pack there is an option to have the additional equipment stowed in a grab bag.

Table 2: Equipment stowed in Optional Grab Bag for upgrade

Due to the mandatory requirements of ISO 9650, the Ocean ISO less than 24 hour emergency pack must remain inside the liferaft. The additional equipment required to upgrade each pack may be stowed externally in a grab bag. Table 2 below details the additional equipment that may be stowed in a grab bag to meet the emergency pack requirements of the higher specifications.

Equipment	SOLAS B	> 24hr (GREATER THAN)
Red Hand Flares	-	3
Drinking Water	-	1.0L Per Person
First Aid Kit - Cat. C	1	-
Orange Smoke	1	-
SOLAS No. 2 Card	1	-
Radar Reflector	1	-
Additional Sea Anchor (Drogue)	1	-
Thermal Protective Aid	2	2
Food Rations	-	1000kJ Per Person
First Aid Kit - ISAF	-	1

In addition to the above mandatory items it is advisable to pack in the grab bag:

- Navigation Equipment.
- Communications Equipment.
- Sunglasses.
- Extra Food and Water.
- Fishing Equipment.

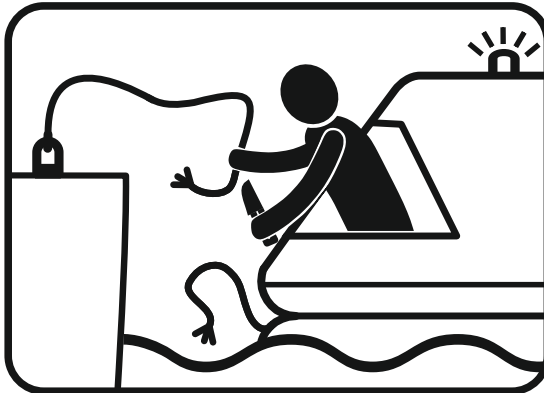
Note:

If a grab bag is used to meet the emergency pack requirement of ISO 9650 Part 1 >24h pack or SOLAS B requirements, the grab bag must be supplied by the owner to the service station at time of service to be re-certified at the higher specification. Failure to do so will result in the liferaft being classified at the lower specification (ISO 9650 Part 1 <24h pack).

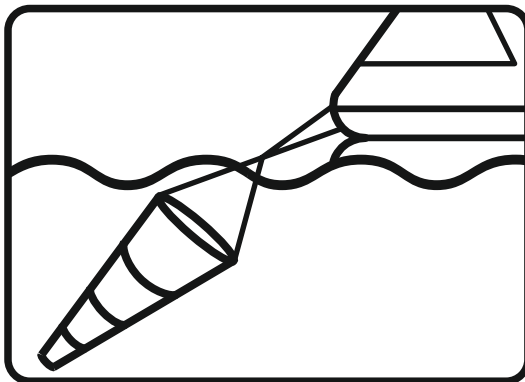
Immediate action

Immediate action to be taken on entering the liferaft

1. Locate the paddles, emergency pack and the drogue inside the liferaft.
2. Cut the painter line with the liferaft's knife (located on the right hand side of the canopy opening) and paddle clear of the evacuated vessel.

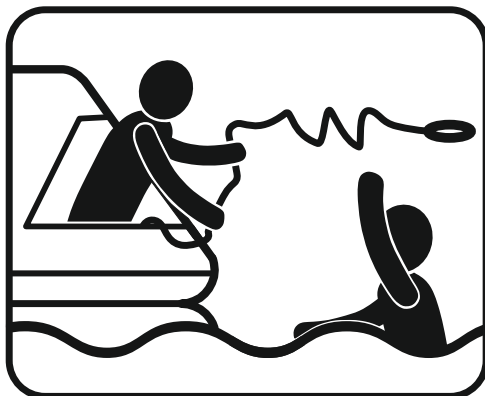


3. Manoeuvre the liferaft away from the vessel using the Paddles provided.
4. Deploy the drogue.



5. Ensure that the liferaft is in good condition, bail water out of the liferaft and check that the side walls and arch are firm to the touch and there are no obvious leaks.

6. Look for and pick up other survivors. Throw quoit to survivors to aid recovery to the liferaft.



7. Close entrances in the canopy.
8. Read this manual located inside the liferaft. During hours of darkness, use the internal liferaft light or a light stick as a source of illumination.

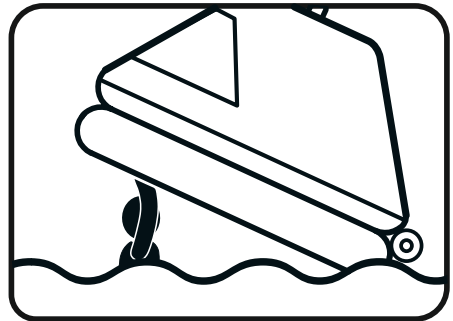
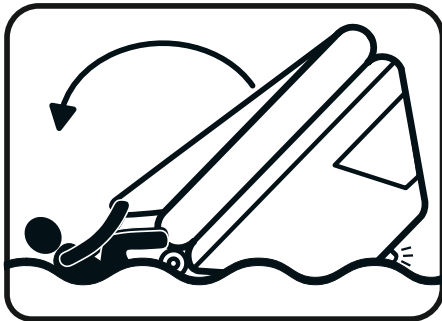
Immediate action to be taken once inside the liferaft

1. Inspect the tubes of the liferaft including the arch. If necessary top up the pressure using the pump provided.
2. Distribute the weight in the liferaft evenly. Everyone should sit with their back to the buoyancy tubes, feet towards the centre.
3. As soon as possible issue one dose of sea sickness tablets to all occupants of the liferaft and make sure they are taken immediately.
4. To recover survivors from the water, use the rescue quoit and line to haul in conscious persons.
5. Elect a leader to take control of all procedures inside the liferaft while awaiting rescue.
6. Check that the drogue is correctly deployed by pulling on the line. If the drogue has opened correctly you will feel resistance.
7. If there are other liferafts in the area, stay close together. Tether liferafts together if possible.
8. Take the radar reflector (if included) from the equipment bag and fit as instructed by the manufacturer.
9. If beaching the liferaft, use the paddles provided to steer clear of any sharp objects or rocks. If possible, pick a beach with a gentle gradient. Pull the liferaft well clear of the rising water line and leave.
10. Ensure that the external light is turned off in the hours of daylight to preserve battery power.

Righting the liferaft

It is possible that the liferaft could inflate upside down. The correct righting procedure should then be followed.

1. Turn the liferaft canopy into the wind.
2. Locate the pictogram. This is the correct position for righting.
3. Hold the righting strap firmly.
4. Whilst retaining a firm grip on the righting strap, pull the liferaft over to a boardable position. Keep a firm grip on the righting strap throughout the procedure. Failure to do so could result in the liferaft righting on top of you, or given high winds, the liferaft may travel rapidly down wind after righting.



Maintenance once in the liferaft and survival guidelines

General maintenance of liferaft

At all times ensure that the floor of the liferaft is as dry as possible. Use the bailer and sponges provided in the equipment bag to bail excess water out of the liferaft. Puncturing the liferaft can have serious effects on its life span. Ensure that no sharp objects are allowed to be brought into the liferaft that are not essential. Those that are required must be stowed safely.

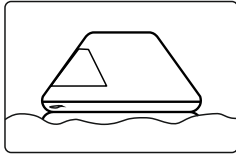
Maintenance of the liferaft: topping up pressure.

When entering the liferaft the tubes and arch should be firm to touch. Over time the gas will permeate through the material of the liferaft. The result of this will be the loss of pressure and the feeling of the tubes and arch becoming softer. Maintain the pressure in the tubes of the liferaft by using the pump provided in the equipment bag.

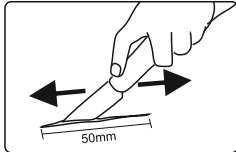
Locate the pump fitting into the top up valves located near the entrance to the liferaft. Use the pump to top up the chambers. Ensure that the relief valves are not blocked when this is done. Once this has been completed, remove the pump and replace the sealing cap securely.

Small repairs to the buoyancy tube material.

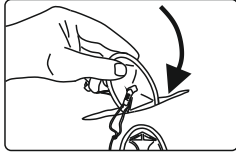
Contained within the emergency pack are means to repair small tears or holes in the buoyancy tubes. The system supplied is a clamping unit that may be fitted whilst the fabric is wet. The clamps are supplied with instruction but familiarisation with the clamps operation is strongly advised before the liferaft is installed onboard a vessel. The clamps installation instructions are detailed below for your reference.



1. The shell puncture seal is an emergency seal for punctures at sea and ashore. The method of sealing allows for it to be used underwater. It is simple to use and is a quick and easy way to make sure you stay afloat.



2. The hole needs to be large enough to accommodate the second half of the seal. The seal requires a minimum of 50mm clearance. If the hole is not large enough, expand the hole until it is large enough for the seal (about 50mm). The maximum hole that can be sealed is 90mm.

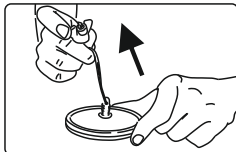


3. Unscrew the wing nut on the seal and pull the halves apart. Place the half into the split.

Make sure the line and the other half are both outside the split.

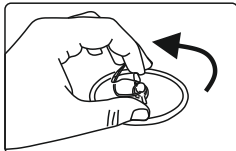


4. Twist the lower half as you place it into the split.



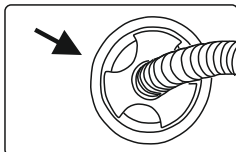
5. Tighten the string on the seal, and allow the first half to fall into place over the second half.

Make sure the thread comes through the hole in the first half.



6. Slide the wingnut over the thread.

Engage the wingnut and tighten. Only hand pressure is needed to keep the seal.



7. Reinflate the tube using the pump included.

We suggest you have a permanent repair installed as soon as possible.

This seal can be taken off and reused in future situations.

Survival guidelines

On board a liferaft one person must take charge. This person's responsibilities include the maintenance of the liferaft and morale of the occupants, which is possibly the most difficult task they undertake. This can be done by organising tasks and other activities.

Responsibilities of the leader

- o Keep the liferaft clean and dry. Use bailer supplied to bail out excess water as and when required.
- o Check that the equipment is securely stowed inside the liferaft.
- o Ensure that there are no unnecessary sharp objects onboard the liferaft. If so dispose of them.
- o Adjust the canopy to ensure good ventilation inside the liferaft.
- o In rough seas or bad weather, move all weight inside the liferaft towards the wind.
- o If necessary deploy the second drogue (if fitted) in rough weather.
- o Delegate tasks such as watches, keeping a diary to pass the time.
- o Conserve the battery life of the internal and external lights by ensuring that they are only activated at night.

Survival instructions

Onboard the liferaft, the conditions will determine the level of danger to the survivors. In hot conditions the main danger is likely to be the heat and dehydration. In cold conditions exposure to the cold may be the biggest danger. An ongoing assessment of conditions must be made and proactive and reactive responses planned to ensure the well being of the survivors.

Dehydration prevention in tropical climates

To prevent the onset of dehydration in tropical conditions, it is preferable to conserve the body's supplies of water, rather than add water. Every effort must be made to conserve energy and stay out of the sun to prevent any type of sunburn or exposure.

Exposure to the cold

Exposure to the cold can be life threatening because of the reduction in the body's temperature. This can be in one localised area such as hands or feet, giving possible frostbite or throughout the body lowering the core temperature causing hypothermia.

Thermal protective aids are included in the < 24 and SOLAS B packs. If a casualty is suffering from the effects of hypothermia, they should be placed inside a TPA.

Where possible another person should also be placed inside the TPA with them. In the case of frostbite, the affected area requires warming, which can be done by placing the area in a warm place, such as under the arm pits. If suffering from frostbite the area must not be rubbed to warm it up, this could cause further injury.

To keep warm inside the liferaft and prevent the possible onset of these conditions:

- o Conserve body heat by huddling together.
- o Ensure the liferaft is kept as dry as possible.
- o Keep clothes as dry as possible. If someone has entered the water then their clothes should be wrung out and put back on. Damp clothes offer better protection than none. Where possible wet clothes should be replaced with dry clothes.
- o Maintain the circulation around the body through massage four to five times a day unless you are suffering from the effects of frostbite or immersion foot.
- o Survivors that are suffering from a low core temperature should be given a hot drink and be placed inside a TPA.
- o Food and exercise increase the body's ability to protect itself against the cold. Where possible these activities should be encouraged.

Water

The liferaft is fitted with a rainwater collector in the canopy. This should be used when ever possible to supplement the water rations (if supplied in the equipment pack). Water should be sparingly consumed but often. Water can also be collected from condensation on the inside of the canopy, and dew on the outside of the canopy.

When using the rainwater collector first test the water for signs of salt. If the water tastes salty, then it should not be consumed. If the sample is clear of salt, use the plastic bag to collect further water or any other suitable receptacle. When it is rough, it may not be possible to collect drinkable water, so it is better to think ahead.

At no time should you:

- o Drink alcohol.
- o Drink sea water, even diluted.
- o Drink urine, even diluted.

Food

- o Do not consume any food for the first 24 hours.
- o Avoid the consumption of sweet or salty foods.
- o If food rations are supplied in the equipment pack (> 24 hr pack only) they should be distributed at a rate of one per person every 6 - 8 hours.
- o Fish and/ or sea birds may be caught and eaten.
- o Plankton found on the bottom of the liferaft is also edible.

Rescue

Signals Pyrotechnics

To be rescued, first you must be spotted. To do this use any means necessary. In the equipment bag supplied (depending on the pack type) there are a number of pyrotechnic signals. These can be used to attract attention but must be used sparingly and at the right time. The signals supplied in the equipment bag are as follows:

- o Parachute signal
- o Hand flares
- o Smoke signals (SOLAS B Pack only)

With all the signals, correct use is vital for operational efficiency and safety of the persons onboard the liferaft. The parachute signals and hand flares can be used to attract attention at night time. These signals have limits to an effective range, reliant on correct use, weather and visibility.

As a maximum figure in perfect calm clear conditions, the following applies:
Rocket parachute flares 25 - 35 miles and Hand flares 5 - 10 miles.

The smoke signals must only be used during hours of daylight and the effective range of the signal is dependant on the weather conditions at the time. All signals must be operated as per the manufacturer's instructions. When operating the pyrotechnic signals, great care must be taken not to cause injury to any persons in the liferaft or damage to the fabric of the liferaft. Signals must be operated outside of the liferaft and downwind. At no time should a parachute signal be used in close proximity to a helicopter.

Only use pyrotechnics if you can see a means of rescue by line of sight. Always take into account the maximum range of the signals and weather conditions.

Rescue signals, signal mirror

Unlike pyrotechnics, the signal mirror can be used continually. In addition to this, the mirror can be used at night or day. If there is a means of rescue in sight, do not stop using the signal mirror. Only stop when the rescuer has clearly signalled that they have seen you.

Rescue by helicopter

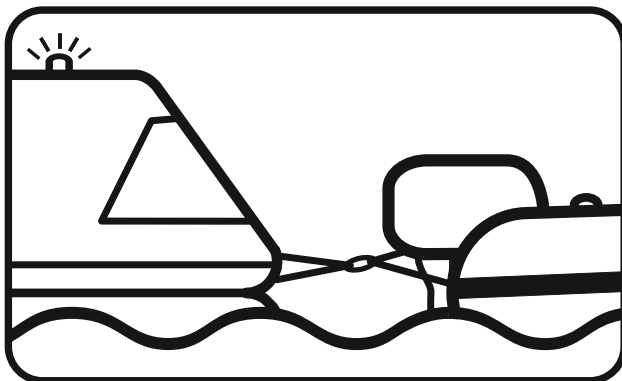
Under no circumstances use a parachute signal in close proximity to a helicopter.

Any rescue involving a helicopter must be performed following the instructions from the crew of the helicopter. In addition to this the following must be observed:

- o Remove any aerial or radar reflector that has been erected.
- o Aid the pilot by indicating the direction of the wind. Do this by the use of a flag, strip of material or smoke signal.
- o All persons onboard the liferaft should assist the recovery of persons from the liferaft by lying still while others are manoeuvring into position. Ensure that the liferaft is balanced at all times.
- o Ensure that no part of the helicopter's lifting equipment can become entangled in the liferaft.
- o At no time should any part of the helicopter's lifting equipment be attached to the liferaft. If a stretcher needs to be used for a casualty then the stretcher must be detached while the injured party is secured.

Towing the liferaft

Where possible this should be avoided. The liferaft has been tested up to a speed of 3 knots and this speed should never be exceeded. If towing is required then use the towing points on the liferaft.





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