OCEAN GEM
NZ 2037
YACHT OPERATIONS
AND SAFETY MANUAL

SECTION 1 YACHT PREPARATION

1. INTRODUCTION

Ocean Gem is a Beneteau Moorings 445 designed by Bruce Farr and built in South Carolina, USA in 1992. Ocean Gem was sold new in New Zealand and spent the first 8 years of her life as a charter yacht named ‘Baami’ based in the Bay of Islands. In 2000 Baami was purchased by a Gulf Harbour based family, who sailed her around coastal New Zealand waters and then up to the Pacific Islands for a 6 month offshore cruise in 2007. In March 2011 Baami was purchased by David Hows and renamed ‘Ocean Gem’. After 2 years cruising Upper North Island waters when on holiday, David relocated Ocean Gem to Southport in Queensland, Australia in November 2013.

Since 2012 Ocean Gem has competed in more that 400 races, regattas and ocean passages including the Sydney Hobart Race, Hamilton Island Race Week, the Solo Trans-Tasman Race and completed multiple Tasman Sea crossings.

Ocean Gem has developed a Safety Policy that is included in this Safety and Operations Manual. It is recognised that the skipper and crew are all responsible for the welfare of each other and this duty will be taken very seriously and will be reflected in the way that the vessel is setup, prepared, crewed and sailed. Following the 1998 Sydney to Hobart Yacht race that resulted in loss of life and serious damage to many boats, the safety standards on yachts heading offshore have been increased significantly.

A minimum number of crew must have passed Marine First Aid, Sea Safety and Survival and Radio Operations courses. It is recognised that sailing is a potentially dangerous sport and the safety of the crew and the integrity of the vessel are of primary importance.

2. SAFETY POLICY

Everyone who sails on the boat has a responsibility for the safety of other crew members and the vessel. Care should be taken to ensure that everyone can enjoy the event and return to port safely. This care extends to all crew members who must ensure that they conduct themselves in a safe and responsible way at all times, that they wear the designated safety gear, train themselves in the requirements for sea safety and survival, and know the layout, safety rules and operation of the boat. Our aim is to take all reasonably practicable measures to control risks against injury

3. TRAINING POLICY

I recommend that all crew attend an approved Sea Safety and Survival Course before completing a Cat 1 or Cat 2 Ocean race or passage. Onboard training will be conducted for all crew and these sessions are mandatory.

4. SAFETY HARNESS AND PFD POLICY

It is the policy of this vessel that safety harnesses will be worn and connected after dark and at all times when the wind strength exceeds 15 knots of true wind (to windward this is coincident with changing to a #3 headsail).

5. GENERAL INFORMATION

Ocean Gem is regularly audited by registered Australian Sailing National Equipment Safety Auditors and Yachting New Zealand Safety Inspectors to ensure we are compliant to the safety standards required for offshore sailing. Our safety audits are performed at least once annually and we are usually audited to Category 1 (Trans-Tasman / Sydney to Hobart) or Category 2 (Coastal Ocean Passage) standards each year depending on the events we have planned.

These rigid safety standards ensure that yachts and crews are well prepared and trained to handle extreme conditions confidently. Many of our crew have undergone sea safety and survival, marine first aid, radar, offshore skipper, radio communications and diesel engine maintenance training courses as part of the Category 1 & 2 crew training requirements.

Key safety equipment includes an Ocean Master RFD life raft sized to match the crew number on any given passage or race, an RFD inflatable Jon buoy, dual sets of navigation lights with a separate emergency set, a ICOM HF transceiver with a backup antenna in case of dismasting. A mast head VHF antenna is fitted and two ICOM VHF radios are carried, one of which is rated as waterproof and the other, a DSC compatible VHF is fixed to the nav station. A 121.5/406 MHZ EPIRB is also fitted.

We also carry two satellite phones on board, one is a hand-held iSat Pro and the other is through an iPhone App which connects to the Iridium Go hardware above the nav station.

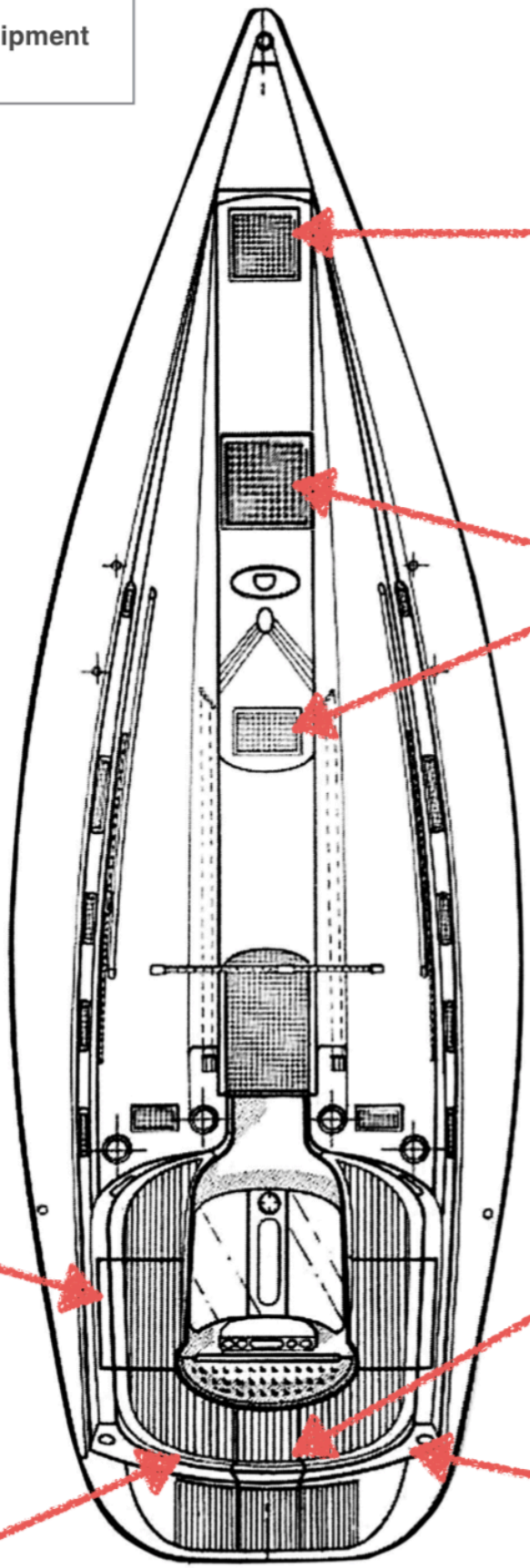
We carry an inventory of up to 12 cruising, racing and heavy weather sails made from dacron, carbon and nylon. A third reef is fitted to the carbon mainsail which reduces the area to the same size as the trisail. The storm jib is fitted with hanks that attach to a removable inner forestay and its sheets are attached to the sail. A 50hp Yanmar diesel engine pushes the vessel along at 6-6.5 knots at around 2250rpm.

6. EQUIPMENT CARRIED ON VESSEL

Ocean Gem Safety Equipment

Crew gear list
1 - David
2 - Alex
3 - Karl
4 - Lena
5 - Tim

6 - Rick
7 - Eli
8 - Ant
9 - Scotty
10 - Kris



Sail locker

Emergency exits

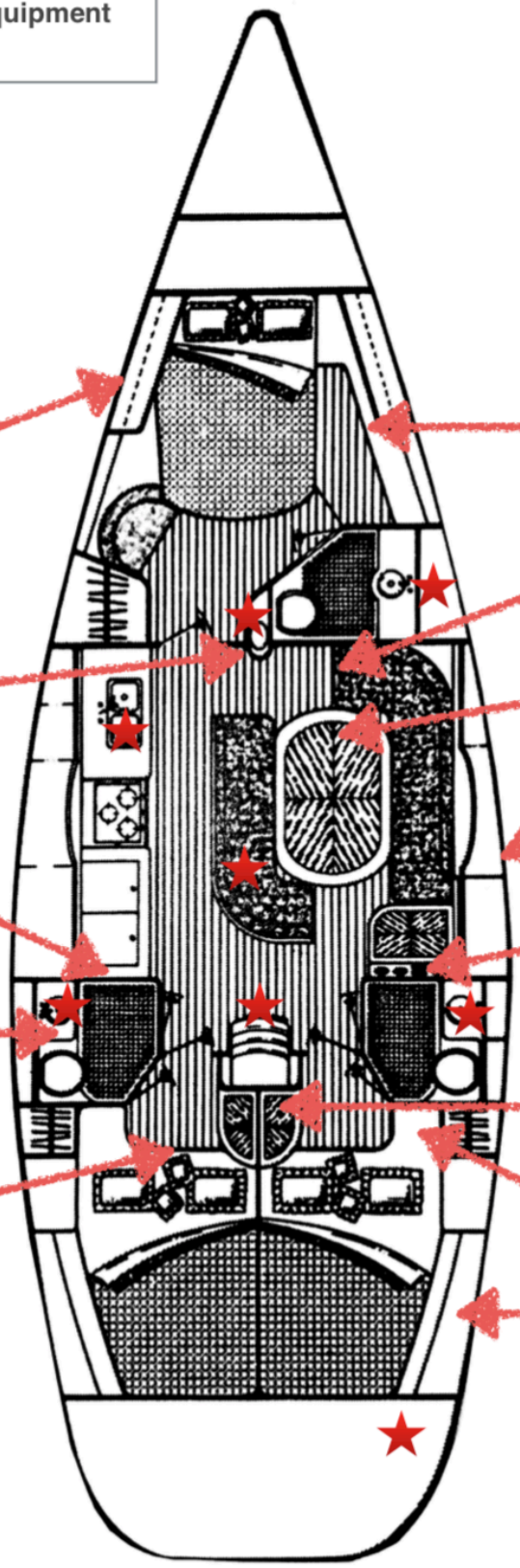
Buckets
Tool box
Bilge pump handle
Throw rope
Life raft

Manual bilge pump

Emergency tiller handle
Dan buoy

Life sling
Life buoy

Ocean Gem Safety Equipment



Manual bilge pump handle on shelf

Fire extinguisher Manual bilge pump

Fire extinguisher

Emergency water, PFD's

Fuel shutoff, Battery shutoff

Water inlet Seacocks

Sail repair kit Paper charts

Grab bag

Storm sails Flares, Drogue, Anchors

Fire blanket

Fire extinguisher EPIRB, Torches, VHF, Sat phone

First aid kits

Life Jackets

Portable Bilge pump - long handle

6.1 Anchors

• Both anchors are CQR anchors and should be used for all anchoring situations.
• The primary is fitted with 10 metres of heavy duty chain / 50 metres rope or 50 metres of heavy duty chain (depending on race or passage plan).
• The secondary CQR is fitted with 2 metres of chain and 40 metres of rope.
• Both anchors are stored in either the anchor well and/or the forward sail locker accessible from the cabin top in front of the mast.
• The forward sail locker also contains the remote control for the anchor winless.

6.2 Batteries

• 1 sealed gel battery is used for the engine and located under the bed in the aft port cabin.
• 6 sealed gel batteries are used for house batteries and located under the bed in the aft port cabin.
• 1 sealed gel battery is used for the anchor winless and bow thruster and located under a false floor in the forward sail locker accessible from the cabin top in front of the mast.
• The rate of battery charge and current voltage is displayed on the B&G chart plotters at the helm or nav station by going to the main menu (top right button) > Instruments.
• Both the engine and house batteries can be connected together by inserting the red key hanging on a string into the black socket labeled ‘parallel’ at the front of the bed base in the aft port cabin.
• Turning the key 90 degrees will enable the engine to start off the house batteries and yacht instruments and systems to run off the engine battery.
• The house batteries are at minimum charge when the lower of either 50% (255 amps) or 12.2 volts is displayed on the chart plotter. Batteries should be charged before levels fall any lower as long term damage to the batteries can occur.
• The house batteries are at maximum charge when the lower of either 100% (510 amps) or 14.4 volts is displayed (while being charged) on the chart plotter.

• Batteries are charged from;
1. Engine operation - when engine is running, charging via both alternators in the engine bay occurs automatically.
2. Solar - when the rays from the sun are strong enough they are charged automatically.
3. Shore power - when the red inverter/charger at the front of the bed base in the aft port cabin is in the vertical position and the shore power lead is connect to the socket on port side of transom and the other end to the marina charging pedestal.

6.3 Dan-Buoy

• The starboard side has a Jonbuoy mounted on the pushpit that includes a light, whistle, sea drogue and inflatable lifebuoy and flag pole.

6.4 Drinking Water

• The main water supply is stored in 3 x 270 litre tanks. Two tanks are located under the floor in the galley/saloon area and a third underneath the bed in the forward cabin.
• Two electric pumps (Water pump 2 is primary and Water pump 1 is the spare) deliver water to the taps / sinks on demand.
• Only one tank feeds the pump at a time. The controls for the 3 tanks are under the centre couch seat in the salon area and the tap that faces vertical is the tank currently being used.
• The water tank levels are displayed on the B&G chart plotters at the helm or nav station by going to the main menu (top right button) > Instruments.
• The water pumps are turned on and off at the B&G chart plotters at the helm or nav station by going to the main menu (top right button) > C-Zone, > Control Monitor > Pumps > (select water pump 1 or water pump 2) > on / off.
• When C-Zone is set to sailing mode on main C-Zone menu, water pump 2 is turned to on automatically each time.

• If bubble/air start coming out of the water taps when turned on, it's a sign they tank level may be low. If this occurs switch the pump over to a different tank, by turning new tank tap to vertical and current (empty) tank tap to horizontal.
• A water maker located at the based of the mast (when turned to on) makes 45 litres per hour and feeds the water into the forward tank. This draws 30 amps when operating so water maker should ideally be used when engine is also running to preserve batteries.
• 2 x 10 litre emergency water containers are also stored on the floor in the port cabin head. These should be moved to the liferaft if deployed.

6.5 Emergency Position Indicating Radio Beacon (EPIRB)

• The EPIRB is stored on a wall bracket above the nav station and there is a diagram on the wall with instructions on how to remove and deploy it.
• The EPIRB is a 121.5/406 Mhz unit and must be placed in the water when activated in order to have a ground plane.
• Tie the EPIRB very securely onto the boat or raft before deploying it. A test button is also located on top of the EPIRB.
• In the event that rescue may be a long time in coming it is wise to activate the EPIRB at set intervals to preserve power.
• Any PLB's should only be activated (if all crew are in the same location) one at a time and after the EPIRB battery and each subsequent PLB battery has run flat.

6.6 Emergency Steering

• In case of steering cable failure the following options should be used;
1. Auto-pilot - This is connected directly to the rudder pedestal and can be used to steer the yacht to a compass heading or wind angle. Care should be taken to minimise the load on the auto-pilot (to 1-5) on a consistent basis to avoid overloading it and causing it to fail. Reduce sail and/or engine speeds and manage to sea state
2. Manual tiller - This is stored in the aft starboard locker (where auto-pilot is also located). Fold the seat where the helmsman sits into the down position, remove the circular grey cap with a winch handle and insert the tiller into the socket below. There are much larger loads when steering by tiller and sail/engine settings should be adjusted to reduce loads. Sheets or bungy can also be lashed to the tiller to help manage it.

• In the case of complete loss of rudder, the spinnaker pole, U Bolts stored in a plastic bin on the forward end of the shelf above the saloon and floor/bed boards can be used to create a temporary rudder. Refer to Section 19 for a description of the system to be used.

6.7 Emergency Signalling

• Emergency signalling equipment is stored in a plastic bin on the forward end of the shelf above the saloon and includes a gas operated fog horn (need to assemble), a V sheet, emergency navigation lights and another torch.

6.8 Engine

• A 50hp Yanmar diesel engine pushes the vessel along at 6-6.5 knots at around 2250rpm.
• It's a shaft drive engine with a self feathering prop. To feather the prop the yacht must be doing a a minimum boat speed of 5 knots, with the engine left in gear after the engine is shut off.
• The engine service manual is stored on the shelf above the saloon.
• The fuel tank holds 200 litres and we carry up to 300 additional litres in jerry cans depending on the forecast and nature of the race/passage.
• Diesel bug preventer must be added to each new tank of diesel (no exceptions) and this is stored in the starboard cockpit locker. Failure to do this will block up fuel filters with diesel bug and eventually cause the engine to cease operating.
• Access to the water inlet control valve is through the circular hatch at the base of the companionway.

• Access to the water inlet filter is on the port side at the front of the engine bay at knee level, when the companionway stairs are removed.
• At 1,600 rpm approximately 2 litres of fuel per hour is used. at 2,250 (full cruising speed) approximately 3 litres of fuel per hour is used.
• The engine should not be operated above 2,350rpm unless in an emergency and only for short periods of time.
• The rpm is displayed on a gauge below chart plotter in the front of the helm console.
• The rpm is also displayed in bottom right hand corner of B&G chartplotter when display is set to chart from main menu (top right button).
• 200 litres of fuel, if managed economically (with a low wind speed or tail wind direction and flat sea state) should provide a range of 400nm. If combined with sailing the range will increase.
• If motoring into head winds and head seas, the range will reduce substantially.
• It's recommended that you do not motor to a TWA of less than 40 degrees in head winds above 10 knots as speed and nautical mile range will reduce substantially when going upwind.

6.9 Engine Spares

• Spare parts that include fuel filters, alternator belts, oil filters and impellers are stored in the foot locker in the port cabin.
• Always consult the engine service manual when doing engine maintenance. The engine service manual is stored on the shelf above the saloon.
• Spare oil is stored in the starboard cockpit storage locker.

6.10 Fire Extinguishers

• Fire Extinguishers (3 powder type) and a fire blanket are carried on the boat.
• One extinguisher is located above the freezer, one is located at the base of the mast and one is located at the base of the nav station.
• There is a fire extinguisher access port to the engine bay below the third companionway stair. Remove the cover and spray the extinguisher into the access port. This reduces the risk of being burnt if there is a fire in the engine pay.
• White air in/outlet plugs are stored in the wardrobe in the starboard cabin. These can be use to block airflow to and from engine bay.
• Two inflow points are located in cockpit on both walls at entrance to companionway.
• Two outflow points are located on the stern of the boat and accessible from the transom step.

6.11 Fire Blanket

• A fire blanket is located on the aft end of the shelf above the saloon.

6.12 Flares

• The flare storage container is grey with a red screw top lid.
• This is located in the most forward storage locker beneath the saloon adjacent to the mast.
• A range of flares, v-sheets and sea dye and a mirror is stored in this container and list of flares include;
1. Four Rockets - Use for out of sight signal up to 8nm range in daylight and 25nm at night.
2. Two red hand - Use at night time within sight and 8nm range in daylight.
3. Two orange hand - Use during daytime and within site.
4. Two white hand - Use as a warning signal

It is recommended that all crew carry a pack of mini-flares with them at all times.

6.13 Flashlights

• Two waterproof flashlights are kept on the shelf above the winch handle locker, below the nav station.

• Two waterproof flashlights are stored in a plastic bin on the forward end, of the shelf above the saloon.
• The large dolphins flashlight is kept in the cockpit at night in the event of an emergency.
• Three rechargeable (red/white) headlamps are stored on a shelf in the aft starboard cabin.
• A deck flood downlight can be turned on at the B&G chart plotters at the helm or nav station by going to the main menu (top right button) > C-Zone, > Control Monitor > Lighting > Deck Flood Light > on / off.

6.14 Grab Bag

• This is located in the most forward storage locker beneath the saloon adjacent to the mast.
• When prepared for abandoning ship it contains spare flares, a handheld GPS, spare medications, first aid kits, a waterproof hand held VHF radio, emergency personal gear, a second V sheet with a signalling mirror, a dolphin torch, a knife, a hand held satellite phone, emergency food and water, a cup, life raft instructions, life raft patches and glow sticks.
• 2 x 10 litre emergency water containers are also stored on the floor in the port cabin head. These should be moved to the liferaft if deployed.

6.15 Heaving Line

A lightweight orange poly heaving line is stored in the port cockpit locker and is accessed from the cockpit.

6.16 HF Marine Radio

• An ICOM IC MZ10 NZ HF radio is fitted to Ocean Gem.
• The operating instructions are contained in a manual in the nav station desk.
• The HF radio uses a backstay antenna that is fed inside the backstay to the top of the mast.
• A list of distress and weather stations is on at the wall above the desk at the nav station.
• An emergency antenna is stored in the forepeak on the port side on the shelf and screws into a fitting on the starboard side of the transom.
• Never hold the backstay that contains the HF aerial when it is in use and you could receive a run or electric shock.

6.17 Instrumentation

• Instrumentation is available at both the helm and downstairs at the nav station.
• This includes a chart plotter, GPS, electronic control of all electrical switching onboard, radar, wind, fuel, water, battery, depth and speed instruments.
• Iridium Go is also used in conjunction with the iPad and iPhone to make Sat phone calls, send emails, send SMS's and download weather grid file data and routing information.
• A fixed compass is mounted on the centre console in the cockpit and a hand held compass is stored in the desk in the nav station.
• A battery operated GPS is also stored on the shelf on starboard side of nav station.

6.18 Jack Lines & Strong Points

• Safety webbing jack-lines are fitted to strong points fore and aft on each side of the cabin top and run all the way from the stern to the bow.
• There are also two cockpit jack-lines; one on each side of the cockpit which can be accessed from inside the cabin, so that crew can clip on before stepping through the companion way into the cockpit when coming up on deck.

6.19 Lifebuoy

• One horseshoe lifebuoy is located on the port side of the pushpit and connected to a self starting light is fitted with a whistle.

6.20 Life Raft

• This is an Ocean Master RFD life raft sized to match the crew number on any given passage or race.
• It is located in the port locker in the cockpit under the seat.
• The attachment line is secured to a D fitting inside the locker at the rear. If it is intended to be deployed from an alternative part of the yacht, it should be untied and retied at a suitable location.
• The raft contains water, food and a number of other emergency items as listed in the contents and instruction pack stored in the grab bag.

6.21 LPG Stove

• The gas stove is powered by LPG.
• The cook top is operated by;
1. Turning on the relevant gas bottle (in aft starboard cockpit locker),
2. Turning gas detector (attached to front of freezer cabinet) to on, so that a red and green light both display,
3. Pushing in and turning the relevant element knob on front right side of stove to the desired setting and then;
4. Lighting with a match or gas lighter.

• The stove is operated by;
1. Turning on the relevant gas bottle (in aft starboard cockpit locker),
2. Turning gas detector (attached to front of freezer cabinet) to on, so that a red and green light both display,
3. Pushing in and turning in the oven knob to the pilot setting,
4. Opening oven door and pressing red ignition button repeatedly until pilot flame lights. A match or gas lighter can also be used if auto-ignition is not successful.
5. Once pilot flame is going, turn the oven knob to the desired heat setting.

• Always turn the gas bottle off when not in use.
• LPG is highly explosive, never leave control knobs set to on for more than 10 seconds if gas will not light. Open window and ventilate area for 1 minute then try again.

6.22 Medical Kit

• The main medical kit (yellow) is stored on the shelf in the aft starboard cabin and include a full range of drugs and medications that can only be administered by trained first aid crew under instructions from a doctor (via radio or sat phone).
• A stock record is inside the yellow coloured kit and this must be filled in when anything is consumed from the kit.
• The vessel usually carries at least two marine qualified first aiders who have extra training in medications.
• Inside the yellow coloured kit is a medical log that must be filled in and witnessed after any injury or illness is sustained by anyone whilst sailing on the boat along with details of medication given.
• Two other first aid kits are stored on a shelf in the aft starboard cabin and contain some basic items such as bandaids and weak analgesics.
• The phone number for the Australian RCC is stored in the hand held Sat phone and this can be calls to get medical advice from a doctor prior to administration of medication.
• A summary of crew medical conditions should be entered in section 11.1 of this manual prior to departure.

6.23 Navigation Lights

• The bow has red and green navigation lights fitted to the pulpit with a white stern light fitted below the pushpit.
• These are turned on and off at the B&G chart plotters at the helm or nav station by going to the main menu (top right button) > C-Zone, > Control Monitor > Lighting > Navigation Lights (select relevant option) > on / off.

• Backup navigation lights are also carried in a plastic bin on the forward end of the shelf above the saloon.
• Batteries are carried in the storage locker under the same shelf.
• A torch can also be used as a back up option if required.

6.24 Personal Floatation Devices (PFD's)

• 9 x 150n PFD jackets, fitted with crotch straps are are stored in the aft port cabin in the head on separate hangers.
• These are manually inflated with gas by pulling on the toggle on the bottom right side of the front of the jacket when worn.
• These are all numbered and you should select a PFD, adjust the waist strap to fit you firmly and then use the same PFD for the entire passage/race.
• They are designed for adults weighing more than 60 kg.
• Whistles and lights are attached to each and there is a mouthpiece you can use on the left shoulder to add more air for greater buoyancy.

6.25 Personal Locator Beacon (PLB)

• Personal locator beacons are carried onboard for all crew.
• The brands used are Kannad Safe Solo and ACR ResQLink.
• The instructions for operating these are contained on the top of each device. When activated they transmit your GPS location to the rescue coordination centres in Australia and New Zealand.
• To operate effectively the need to be activated and have the aerial in a direct line of sight to sky (e.g. not below sea surface).
• These will transmit for at least 24 hours. If in a group, only activate one PLB at a time maximise battery length and transmission time.
• All PLB's and our race/passage plans, routes and dates are logged with AMSA in advance of each race/passage, so they know when we are expected to be at sea.

6.26 Sails

We carry a range of sails on board and these are stored in the centre of the saloon, in the forepeak and in the forward sail locker and include the following:
• 1 x carbon mainsail stored on the boom with 3 reefs down to 35% of sail area.
• 1 x spare dacron mainsail stored under bed base in forward cabin with 2 reefing points.
• 2 x carbon genoas for 1-15 knots of true wind speed (TWS).
• 1 x carbon jib for 15-25/30 knots of true wind speed (TWS).
• 1 x dacron jib for 25/30-40 knots of true wind speed (TWS).
• 1 x storm jib for 35/40 knots+ of true wind speed (TWS).
• 1 x code 0 for 5-15 knots of of true wind at an apparent wind angle (AWA) of 60-100 degrees (higher wind, higher angle).
• 1 x gennaker for 10-25 knots of true wind at an apparent wind angle (AWA) of 70-130 degrees (higher wind, higher angle).
• 1 x S1 Spinnaker for up to 20 knots of true wind at a true wind angle (TWA) of 120-170 degrees (higher wind, higher angle).
• 1 x S2 Spinnaker for 15-30 knots of true wind at a true wind angle (TWA) of 100-170 degrees (higher wind, higher angle).

The following is a guide to our sail settings by wind strength;

Beaufort scale	Wind strength	Foresail size	Mainsail size	Tactics
1 to 3 - Light to gentle breeze	1-10 knots	100%	100%	Work the traveller
4 - Moderate breeze	11-16 knots	75%	100%	Work the traveller
5 - Fresh breeze	17-21 knots	65%	1 reef	Reef if going to windward

6 - Strong breeze	22-27 knots	65%	2 reefs	Sail off to accommodate sea state
7 - Near gale	28-33 knots	50%	3 reefs	Sail off to accommodate sea state
8 - Gale	34-40 knots	Storm Jib	3 reefs	Consider changing to trysail/ bearing away
9 - Severe gale	41-47 knots	Storm Jib	Trysail	Sail to sea state
10 - Storm	48-55 knots	Storm Jib	Drogue	Sail downwind to reduce load on boat/rig
11 - Violent storm	56-63 knots	Storm Jib	Drogue	Sail downwind/remove sail if over powered
12 - Hurricane	64 knots +	NIL	Drogue	Minimise hull speed/preserve crew energy

6.27 Sea Sickness

Everyone has different tolerance levels for seasickness and everyone will be sick at some point if the contributing factors line up;
• Do's – Stay warm, stay hydrated, maintain sleep levels, stay up on deck, keep your eyes on the horizon and avoiding reading your phone or books or looking down. If you are not feeling great, get others to bring up food, drinks and clothing for you.
• Don'ts – Avoid alcohol, caffeine, fatty foods and late nights in the 24 hours before going offshore.
• Be proactive – Check the forecast and take seasickness pills in advance of rough weather. Its like insurance, it does not work if you wait until you feel sick, to take it.
• Watch out for your mates – If you see other crew members going downhill, do your best to make sure they are warm, dry, fed and hydrated. Discuss any concerns with the skipper, as it's always best to take precautions before someone's condition deteriorates.
• Sailing through rough weather has a big impact on your stomach muscles, as you use them to brace your body constantly to stay upright. Stretched stomach muscles can often cause discomfort and can be confused with the onset of seasickness, when in fact it's just strained stomach muscles. Doing sit-ups for 4-6 weeks prior to a big passage race can help prevent this.
• We have a range of medications and natural remedies onboard to help avoid or overcome seasickness.

6.28 Storage

• Refer to the equipment plan at start of section 6 for details of storage locations.
• There are additional lockers and locations on Ocean Gem and you should familiarise yourself with these locations and their contents.

6.29 Tethers

• There are 9 safety tethers carried onboard.
• Some are single 2-metre only and some are doubles with 1-metre and 2-metre tether options.
• You should leave your tether attached to your PFD, when stored below so that if you need to get up on deck quickly, your tether is at hand.

6.30 Toilet

• We have 2 hand operated toilets onboard, one (main toilet) in the aft end of the saloon area and one (spare) in the port cabin head.
• Onboard hygiene is important for maintaining wellness and avoiding sea sickness and toilet operation and cleanliness contributes to this.
• Always use the toilet downstairs and do not stand up and pee over the side. Many sailors have been lost at sea and drowned doing this.

• The toilet is shared by males and females, so guys respect your fellow crew. If the sea state does not enable you to execute your delivery (aim) cleanly, then sit down on the toilet seat.
• If you make a mess, clean it up, the tap on the basin is on a long hose that can be used to wash inside or around the outside of the toilet seat or bowl.
• To pump out water on the floor, press and hold down the black button immediately behind the mixer tap on the hand basin.
• Keep the window open when ever possible for fresh air and circulation.
• Minimise the toilet paper you use to avoid blocking the toilet bowl.
• Do not use the toilet when tied up in a marina or anchored in less than 5 metres or water and closer than 500 metres to the coast.
• Instructions for operating the toilet are on the pump handle base.
• All seacocks for the toilet and basin are in the vanity cupboard.

6.31 Tools

• A large range of tools, hacksaw, battery powered and manual rigging and cable cutters are located in tool boxes stored in storage lockers on the starboard side of the saloon.
• A range of glues and a handsaw are located in the foot locker in the starboard cabin.
• A range of crimping tools, electrical joiners and fuses are located in the foot locker in the port cabin.

6.32 Towing

• The vessel is fitted with very strong bollards fore and aft.
• If a towing bridle is used a shackle pin must be put through the tow rope, not the bridle.
• Tow ropes must be protected from chafing.

6.33 VHF Hand Held Radios.

• A mast head VHF antenna is fitted and two ICOM VHF radios are carried, one of which is rated as waterproof and the other, a DSC compatible VHF is fixed to the nav station.
• The vessel usually carries at least two marine radio operators who are trained in radio operation.
• Radio distress calling instructions are listed on the wall above the nav station desk.

SECTION 2 RISK & HAZARD MANAGEMENT

7. RISK MITIGATION & CONTROL STRATEGIES

The Safety Policy – Who is responsible?

Everyone who sails on the boat has a responsibility for the safety of other crew members and the vessel. Care should be taken to ensure that everyone can enjoy the event and return to port safely. This care extends to all crew members who must ensure that they conduct themselves in a safe and responsible way at all times, that they wear the designated safety gear, train themselves in the requirements for Sea Safety and Survival, and know the layout, safety rules and operation of the boat. Our aim is to take all reasonably practicable measures to control risks against injury

7.1 Abandon Ship Procedure

- In the event that it is necessary to abandon ship the skipper will be responsible for the instruction.
- The safest place to be is often the yacht until it is obvious that it must be abandoned and we will not attempt to abandon the yacht to take refuge in a liferaft, whilst it is still afloat and in no immediate danger of sinking.

- Precautions should be taken to ensure a quick departure if the conditions or the damage to the boat warrant this action.
- The Skipper will immediately ensure all crew are accounted for and have checked their safety gear.
- The 2IC with ensure the grab bag, required contents, emergency water containers and flare container is close at hand in preparation.
- In the event that the boat is rolled, the Skipper (or 2IC in skippers absence) will immediately carry out a roll call.

Abandon Ship Checklist

- A laminated copy is kept in grab bag and in nav station.

Item	Description	Done
Abandon ship	Last resort if hull certain to sink	
Pre-abandonment	• Make Mayday calls on VHF and Sat-phone. • Drink as much water as possible. • Make every attempt to minimise damage to hull and avoid abandonment. • Run all bilge pumps.	
Life raft deployment	• Remove from locker and attach hydrostatic line to strong point on leeward side if safe. • Throw raft into water clear of hull. • Pull line with sharp tug to inflate raft. • Use winch to bring closer to boat. • If raft inflates upside down, clip tether to painter, enter water and use righting strap to turn correct way up. • Grab all abandon ship items and load directly into raft or attach to painter to avoid losing them. • Enter from hull into raft or if entering from water, attach tether to painter then pull yourself along painter and climb into raft. • Only cut tether, connecting raft to vessel when it's certain vessel will sink. Knife is located at life raft entrance. • Deploy life raft drogue. • Activate EPIRB, tie to raft and locate in water. • Try Mayday call on VHF channel 16. • Set up watch system for ships. Only fire flares if ships visible. • Ration food and water. Nothing in first 24 hours.	

Abandon ship items	Grab bag which contains; • Water maker, Fishing gear • Reflector and heat blanket • Flares, water bottle, portable bucket • 2 weeks additional food for 4 people • Spare batteries • Rope, Gloves, Duct tape, Sponge • Add these items; • Phones, wallets, passports. • Waterproof VHF • Sat phone • Bottled water • EPIRB • iPad • Blankets • Knives • First aid kit/Medicines case • Sunglasses/sun block • Paper towels/normal towels • Torches • Plastic bags • Charts	
Buddy system	Buddy up, support each other.	

7.2 Aground

- Skipper will assess situation and decide whether yacht is at risk of being holed or sinking.
- First step is usually to turn rudder in direction deeper water, start motor, have all crew help heel yacht to minimise keel depth, back wind sail if it helps and endeavour to move in the direction of deeper water.
- If yacht has hit rocks, then a full damage assessment needs to be undertaken to check hull, rudder and keel damage.
- If the assessment is that loss yacht is likely, make a Mayday call on HF/VHF radio and/or contact the local coast guard or RCC on using the satellite phone instead.
- All crew to put on lifejackets
- Deploy and activate EPIRB.
- Calculate the tide effect and heel the boat.
- Deploy the liferaft if the direction the wind and or current will take it is not into greater danger e.g. rocks/reef.
- Take the grab bag, water and the flare container

7.3 Boarding the liferaft

- Attach your harness tether to the painter, ease yourself into the water and pull yourself along it and make an unassisted entry into raft (if first) or an assisted entry if crew are already on board.
- Take extra water containers and pee bottles.

7.4. Boat Handling

- There’s no room for hero’s and risk takers when it comes to offshore passage making.
- In fact there are only 3 priorities
    - Keeping our crew safe.
    - Keeping our yacht safe.
    - Working together as a team and giving it 100%.

Offshore racing and passage are very different to bay/day racing. Managing the yacht conservatively to avoid damage and minimise over stressing of sails, hardware and the hull is very important. Great crew members are assets, but poor crew members can become liabilities that

can put the welfare of the yacht and team at risk. When we are sailing offshore, we have to be self-sufficient. Help is usually several hours away and getting rescued can be dangerous in itself, so it's better not to put yourself in that position.

With round-the-cans racing, there is often stress and urgency to execute in seconds, as every metre counts. With offshore sailing, what becomes more important is planning ahead, preparing well, minimising risk and making sure safety is our number one priority. With stronger breezes, bigger seas, night sailing and the risk of losing someone overboard; taking time to execute methodically and safely becomes the overriding priority. Taking risks and heroic behaviour is a last resort if all else fails. Getting our yacht and crew to our destination without injury or damage is always our biggest achievement. Results come second.

With offshore passages, changes in wind, weather and sea state create all sorts of challenges. Another risk is damage or loss of equipment due to things working themselves loose and coming undone or chafe causing lines, sails and sheets to wear through and fail. Good management requires us to constantly check that all fittings and shackles are tight and to look for areas at risk of chafe that we can adjust and fine tune.

Keeping updated with weather forecasts and adjusting sails proactively also helps minimise damage. Leaving it too late to reef or reduce sail only puts the yacht and crew at risk. As you walk around the yacht above and below deck, keep your eyes, ears and nose open. If you smell something strange (smoke or toilets), see something that's out of place (chafing), hear water sloshing in the bilge or a knocking noise then check it out. If something does not seem right – it probably isn't, so don't ignore it.

7.5 Broaching, Crash Gybing & Pooping

Broaching

Broaching is a series of conditions that can result in a loss of control and a near toppling-over by a boat. A sailboat broaches when its heading suddenly changes towards the wind due to wind/sail interactions for which the rudder cannot compensate. This happens when the aerodynamic force on the rig greatly exceeds the hydrodynamic force on the hull, due to a sudden increase in wind strength or turbulent sea conditions. In small boats and dinghies, broaching can lead to a death roll or pitchpole. In larger boats broaching can lay the mast horizontal, putting both rig and crew at risk. It can be particularly dangerous when racing other boats at close quarters.

More succinctly, a broach is "to slew around on a wave front." Another source says it is "extremely dangerous" and likens it to turning broadside and losing control in following seas, so as to present the ship's side to oncoming large waves. In that event, the ship may "trip" on its keel or bow (pitchpole), roll, capsize and turn turtle.

Historically, it has been defined as: "Broach-to. To fly up into the wind. It generally happens when there is considerable sea on, and the ship is carrying a press of canvas with a good deal of after-sail set. When a ship sails with the wind aft, or on the quarter, the wind acts in the direction of the ship's course and the pressure on the sails is very much diminished. If from this position the ship suddenly presents her broadside to the wind, the sails, masts, and rudder will be endangered, and in extreme cases the ship may capsize or be forced down stern foremost. Broaching-to is generally occasioned by the difficulty of steering the ship; by the negligence or incapacity of the helmsman; or by an accident happening to the helm which renders it incapable of governing the ship.

This can cause the boat to enter a Death roll, rolling dangerously and if not controlled may lead to a capsize or pitchpole and turning turtle.

- Reduce sail area, especially the mainsail and move the centre of pressure further forward.
- Keep the boat at right angles to the wave and maintain speed and focusing on highly accurate steering within a 10 degree range.

• Reduce sail area to reduce loads on rudder and make it easier to steer.

Crash (Chinese) Gybes

A “Chinese Gybe” (jibe) also known as a “death roll” is feared by many and we need to know how best to avoid them.

The scenario:
• You’re sailing dead downwind in windy conditions, and suddenly the boat starts rolling back and forth with increasing amplitude to the point where the boat actually broaches to windward.
• As the boat is broaching to windward it is also turning sharply to leeward causing it to gybe uncontrolled – “crash gybe”.
• This is quite common on dinghies and also on larger keel boats, especially when using spinnaker.

• What’s the cause?

• In order for the death roll to start you normally have a combination of all or most of the below:
- Sailing dead downwind or very close to it.
- Mainsail hasn’t got enough vang on, causing it to twist a lot, hence creating a sideway force.
- Spinnaker too loosely sheeted and not “strapped down”, allowing it to sway from one side to the other.
- Boat (slightly) over-powered for the wind it’s sailing in
- Often gusty conditions
- Waves can also help trigger the death roll movements

So, what are the steps to take to avoid the rolling to begin?
• Bring on the Vang of the Main very tight, not allowing the twist in the leech. The twist actually causes a resulting force at the top of the sail pointing sideways rather than forward.
Note: This is different from when trying to avoid a broach when sailing on a reach, then you actually release the vang to ease power/pressure from the main.
• If there is a temporary wind gust, temporary set of waves or sail trim hasn’t been adjusted yet the quickest option is to steer up a bit avoiding the dead downwind course.
• The general advice is otherwise to steer to keep the boat under the top of the mast.
• Make sure the crew keeps the weight low, ie no unnecessary standing in the boat. Lowering the centre of gravity makes a huge difference.
•For the Spinnaker we need to bring on the tweekers to maximum, i.e. all the way down to the deck of the boat.
• The spinnaker sheet will also need to be sheeted harder than otherwise (when sailing dead downwind you no longer want the kite to be on the brink of falling in, the normal practice when reaching). You don’t want the spinnaker flying far from the bow of the boat allowing it to shift from one side to the other.
• The Spinnaker pole also needs to be strapped down using the kicker (downhaul) lines to further help control the movement of the kite.
• Let the Spinnaker pole forward a few feet more than you would have in calmer downwind conditions.
• If the above actions didn’t seem to help and the tendency to start rolling is still there, well then maybe it’s time to go for a reef or a smaller Spinnaker or go to white sails only. Death rolls are dangerous and should be avoided at al costs.

If the death roll still happens what to do?

• Firstly hang on to the boat for dear life, keeping your head low and avoiding the crashing boom. It is also very important to stay clear of the main sheet and main traveller!
• Once the boat has gybed and is down on it’s side the crew needs to take action to get it upright again, and the priority is now to get the power out of the Spinnaker to allow the boat to be raised and also to minimise (further) damage to material or crew.
• “Smoke” the halyard, while keeping sheet and brace still on as the safest option which also enables the crew to get the sail in.

Pooping

- Pooping occurs when the stern wave catches up with the boat; either propelling it forward or breaking over the stern (possibly causing swamping).
- Reduce speed (50% of the wave?) and avoid a pitchpole by streaming warps, a drogue or even the anchor tied into a bundle.
- Keep the companionway hatch closed at all times when there is risk of pooping.
- All crew must be tethered to jack-lines when in cockpit.
- We carry a milk create with large heavy shackle that can be streamed behind the boat on lines to create drag and slow the hull speed.
- We also carry a Jordan Series Drogue designed to reduce the hull speed to > 3 knots in large seas and 60+ knot winds.

7.6 Capsize

- Immediately carry out a head count, assess injuries, assess the state of the rig and if the hull is breached,
- Assess the situation and plan to recover including; ability to make port, liferaft, EPIRB, radio, flares, communications and life threatening dangers.

7.7 Emergency Steering

- Refer to section 19 for details

7.8 Fire Procedure

- Fire is one of the most dangerous things that can occur on a yacht.
- The yacht carries 3 Dry Powder extinguishers that are suitable for use on most types of fire.
- The fire can also be extinguished by using a fire blanket to starve it of oxygen.
- Cooling the fire is also effective although water must not be used on electrical, oil, petrol or diesel fires.
- Dry powder extinguishers also give off carbon dioxide which will collect in the lower reaches of the vessel and could affect breathing. Ventilation is essential.
- Remove people from danger and always point the extinguisher at the base of the fire.
- Assess the risk that the fire will engulf the vessel completely and have other crew members make preparation for abandoning ship as a back up plan, while fighting the fire.

7.9 Flooding

- If water appears inside the hull, work quickly to identify the source.
- Taste the water to ascertain whether salt water or fresh water (from rain or water tanks).
- Check all seacock locations in case a pipe has broken or is leaking.
- The floor plan showing where seacocks are is left of the freezer on the wall.
- There are 2 manual and 2 automatic bilge pumps on board. Remove the bilge inspection hatch at base of mast, inside the saloon to check the water levels in bilge and to check automatic bilge pump is operating.
- The primary manual bilge pump at the base of the mast in the saloon can pump out up to 100 litres per minute. The handle is stored on the starboard shelf in the forward cabin.
- There is an additional secondary manual bilge pump behind the helm and the handle is stored in the starboard cockpit locker.
- Buckets are also very efficient for bailing and 4 metal buckets are stored in the port head.
- Block off the hole, if any using whatever fits. There are a range of glues, tools, floor/bed boards and sails that can be used to block a hole from the interior or exterior.
- Stuffing pillows or bedding into a hole can help to slow the flow while a solution is worked out.
- The foot locker in the starboard cabin contains glues and bungs that can help to repair a hole.

7.10 Heavy Weather Preparation

- The key to dealing with heavy weather is preparing early to ensure crew are well rested, fed and hydrated and yacht is set up early for battening down the hatches.
- The following is a checklist to work through;

Item	Done	Item	Done	Item	Done
Secure all deck & cockpit gear		Shut lockers and hatches		Put essentials in plastic containers	
Turn off seacocks to sinks/toilets		Mark fix on chart and secure to table		Update captains log	
Revise route for weather		Check for sea room		Update waypoints in GPS	
Obtain latest weather forecasts		Roster crew – rest strongest first		Eat meal, prep snacks and flasks	
Hydrate with lots of water		Update coastguard/RCC of plans		Take sea sickness pills	
Charge engine batteries		Check bilge empty/pumps working		Check & wear safety gear	
Secure cockpit lockers/ wash board		Secure gear below for knock down		Check anchor locker secure	
Check jackstays and safety tethers		Check cockpit drains are clear		Prepare storm jib and trysail	
Prepare storm drogue		Check grab bag, flares, life raft plans		Secure boom with extra lines	

7.11 HF/VHF Radio calls

- Refer to the prompt cards on the walls above the nav station.
- In an emergency the Sat Phone is our primary means of communication unless the rescue vessel is in the immediate vicinity, when we are then likely to use VHF channel 16.

7.12 Loss of mast:

- Do not start the engine.
- Appoint a watch leader to control deck operations and give the crew clear direction as to their positions.
- Stay clear of any rigging that could cause injury.
- Run out the drogue or anchor, check if the hull has been breached, remove the stays (with a hacksaw or battery operated disk cutters) and halyards.
- Fit the emergency HF antenna to the starboard side of the transom and test the radio
- Clean up the loose ropes and wire and ensure all debris is secured onboard, secure against hull or cut completely free.
- Retain spars if possible for jury rig construction.
- Only when rigging is clear of hull, start the engine to stabilise motion (unless happy under drogue) and consider constructing a jury rig once conditions permit.

7.13 Man Overboard Procedure (MOB) and search patterns

- The procedure should not be necessary if we stay harnessed to the boat.

- **Crew #1**. Switch on and throw a waterproof torch after the MOB. Watch continuously where the MOB fell or the light. Raise the alarm by calling “man overboard”.

- **Crew #2**. Throw the lifebuoy and then the Jon-buoy.
- **Helm** hits the MOB buttons on the B&G chart plotter.
- Do not start the engine. Do not jump into the water.
- **Helm.** Follow the Quickstop method by tacking with a backed headsail or gybing as soon as possible, providing conditions make it safe to do so. Ensure that the boat is under control at all times. Granny turn if it is not safe to gybe.
- **Crew #2.** Clear all ropes and organise others to prepare for a pickup.
- **Helm.** Start the engine and leave in **neutral**.
- **Crew #1.** Watch for mini-flares or strobe light.
- Best **Helmsperson** to take over the helm.
- Appoint **Navigator** to set up a search pattern (concentric, triangular etc..) and to relay bearing to steer. Don't worry about variation corrections but allow for set and drift. Plot the course on the chart plotter on expanded scale.
- Approach MOB to windward and throw the heaving line. Pull in the line and secure the MOB so that they are not going to drift off and they are in a safe situation.
- The best method to retrieve the MOB on Ocean Gem is through the transom in flat seas, however in a lumpy sea this can be dangerous and it is best to bring them aboard at the beam on a halyard, using the retrieval sling stored on the pushpit on the port quarter and to lift them up on a halyard so that they can step aboard without danger of being trapped under the transom.
- Keep horizontal in case of hypothermia. First Aider to attend.

7.14 Medical assistance

- Refer to trained Marine First Aiders listed in section 12.
- Administer drugs under radio-med advice and record in log book in the first aid kit.
- Take care of pre-known conditions and limitations detailed in section 11.1.

7.15 Providing assistance

- There is a duty to render assistance unless it is unnecessary, unreasonable to do so, or we are unable to.
- It is not reasonable to risk injury to our crew or to our boat in the process.
- If we are unable to provide assistance, we should always stand by at a safe distance, until extra support arrives.
- Doing everything possible to help a fellow sailor in distress is always our biggest priority.

7.16 Survival Strategies

Hypothermia

- Maintain warmth by using the HELP position and staying close together. Use the HUDDLE. Keep the head covered.

Raft features

- Limit water consumption (only 0.5 litre per person) and collect rain water if possible.
- Be careful when unpacking the gear bags as they could be lost, tie them on.
- Remain harnessed to the raft.
- Bail out the raft. Right the raft by standing on the gas bottle with feet apart and heaving backwards to leeward of the wind. Remain face up. Be prepared to swim free of ropes and ladders by pushing toward your feet. The door way is on the opposite side to the gas bottle.

Search and rescue

- Watch and listen.
- Do not waste flares, battery power in torches, radios or EPIRBs.
- Use the EPIRB for short regular intervals to save power.

Communication

- Use flares (hand held or rocket), mirror, torches, VHF radio, sat phone, sea dye marker, flags or hand signals.

Assist the rescuers
- Watch for green signal flares from the helicopter.
- Do not attach the winch line to the boat or raft, allow the wire to touch the water to discharge static electricity.
- Note the use of a hypothermic sling which keeps the body horizontal.
- In a helicopter
- Rescue sling
- Surface vessels - signal if a drogue is streaming from the raft.

7.17 Towing

- The fore and aft bollards are strong and can be use for towing.
- A large D shackle is carried in the tool kit to make up a towing bridle.
- Always put the towing rope through the shackle pin – not the bridle through the pin as it will work it loose.
- See diagram in section 19.

SECTION 3 CREW PREPARATION

8. TRAINING POLICY

I recommend that all crew attend an approved Sea Safety and Survival Course before completing a Cat 1 or Cat 2 Ocean race or passage. On boat training will be conducted for all crew and these sessions are mandatory.

8.1 Offshore sailing - what to expect and what's expected of you.

Welcome to offshore sailing, if you enjoy sailing offshore, then ocean passages and big regattas add a whole new dimension. Here are some thoughts on how to make it a great experience for you and your team

1. Attitude – Your attitude has a major impact on your enjoyment and those around you. Having a positive and proactive approach to your fellow team members is really important. You will be working and living in a confined space that can get uncomfortable, but a positive atmosphere has a major impact on everyone on board. If you are not feeling great mentally, try and diagnose what you need; is it time out, a sleep, food, hydration, time out of the sun etc. If you deteriorate physically, your mental state will follow.

2. Personal responsibility – As part of the crew on a racing yacht, you have the responsibility to fulfil your role to the best of your ability and manage your own personal safety, health and well being, so you can enjoy the race and avoid putting yourself and your team at risk.

On an offshore yacht you will experience all sorts of extreme weather and sea conditions and these can have an impact on our ability to sail safely. You are working on a slippery, moving surface with equipment such as halyards, sheets, winches, booms and spinnaker poles that are under heavy load and can cause injury or death, if you end up in the wrong place at the wrong time.

To stay mentally sharp, you need to stay in peak physical condition. This requires managing food intake, energy levels, hydration, sleep, body temperature, sun protection and seasickness. There are lots of variables and the environment changes constantly. Managing these things requires

ongoing diligence. It's also good to keep an eye on your team members around you and check they are staying on track too.

Accidents, injuries and damage to the yacht are usually caused by losing mental focus and making poor decisions and these are often triggered by fatigue and declining energy levels.

3. Teamwork / support / **communication** – One of the most enjoyable parts of ocean sailing is the friendship, support and camaraderie of being part of a great crew. To make a great contribution to our team spirit there are some things you can do that will make a big difference;

• Be positive and enthusiastic. Have a sense of humour.
• Avoid being negative, sarcastic, overly critical or losing your cool.
• Respect our shared spaces by storing your gear tidily and keeping kitchen and bathroom areas clean.
• Don't sulk or give people the silent treatment. If you are happy – say so. If you are not happy, chat to someone about what's bothering you and work out a plan to deal with it proactively.
• Be enthusiastic about the tasks you need to do to keep the yacht and the crew in good shape.
• If you want a hot drink, offer to make one for everyone else. If you are grabbing a snack, check who else wants one. When we all take care of each other, everything is easier.
• Check your crew mates are OK. Often crew will get hungry, dehydrated, cold or seasick and start to go downhill rapidly. When you don't feel great, it's easy to drop your head, not feel like moving and think; "if I just sit here, things will eventually improve". They rarely do, but the mind can start making poor decisions under stress or fatigue. Check on your teammates regularly on a long passage. Managing health and well-being is an ongoing focus and we all have times when we feel great and not so great – and that's when we count on our team mates to help us get back on track.
• Communicate – if you are worried about something, see a potential issue with the yacht, see a crew member who does not look well, have an issue with someone else over something that has happened earlier or has been said. Its always better to speak up and communicate in a pleasant, respectful and constructive manner. The best teams communicate regularly regardless of whether things are going right or wrong.
• Be proactive and take ownership – good sailors think ahead and stay proactive. When you are responsible for specific functions on the yacht; plan ahead, communicate, check, fine tune and plan ahead. If something does not feel right or you think we can make some changes to improve boat operations, teamwork, systems or speed, always speak up and share your thoughts. Continuous improvement is how we get better and better as a team.
• Sometimes you will carry your team and sometimes they will carry you. There are always ups and downs, so just do your best and expect that things won't always go smoothly.

4. Personal comfort - On an offshore yacht you are going to face extreme heat and cold, you will get wet, suffer from wind chill, hurt yourself and find it hard to get comfortable. It's really important to manage your comfort levels, so you balance staying warm, cool and dry to maintain optimum comfort. Sometimes it's easy to put off going below to change your clothing and the end result is usually increased discomfort and wishing you had done it sooner. Being comfortable makes it easier to maintain focus and your contribution to the yachts performance and safe operation.

5. Hydration – Your body is about 60% water. A 5% loss in hydration reduces brain function by 25% and leads to a loss of energy, loss of focus, headaches, sleepiness and seasickness. The most classic example is to avoid drinking water regularly, so that you don't need to go to the toilet in rough weather, which can be time consuming when taking wet weather/safety gear off and there is the worry that 'if I am in the toilet too long, I might get sea sick as well'. You have to maintain your hydration, which usually means 2 litres of fluids a day (more in hot weather) including water, hot drinks and other cold drinks. Dehydration impacts decision making and can lead to accidents that put both crew and the yacht at risk. If your lips/mouth are dry or you are yawning, they are all symptoms of dehydration.

6. Seasickness – Everyone has different tolerance levels for seasickness and everyone will be sick at some point if the contributing factors line up.

• Do's – Stay warm, stay hydrated, maintain sleep levels, stay up on deck, keep your eyes on the horizon and avoiding reading your phone or books or looking down. If you are not feeling great, get others to bring up food, drinks and clothing for you.
• Don'ts – Avoid alcohol, caffeine, fatty foods and late nights in the 24 hours before going offshore.
• Be proactive – Check the forecast and take seasickness pills in advance of rough weather. Its like insurance, it does not work if you wait until you feel sick, to take it.
• Watch out for your mates – If you see other crewmembers going downhill, do your best to make sure they are warm, dry, fed and hydrated. Discuss any concerns with the skipper, as it's always best to take precautions before someone's condition deteriorates.
• Sailing through rough weather has a big impact on your stomach muscles, as you use them to brace your body constantly to stay upright. Stretched stomach muscles can often cause discomfort and can be confused with the onset of seasickness, when in fact it's just strained stomach muscles. Doing sit-ups for 4-6 weeks prior to a big passage race can help prevent this.

7. Sleep – Managing your sleep can be difficult on passages of 3-8 days in length, but it is really important for your wellbeing and ability to contribute to boat management, to manage your sleep proactively. Sleeping below can be hot, noisy and rocky depending on temperature and weather and it's tempting to live on less sleep than you need, but that can cause headaches, seasickness and an inability to concentrate on your tasks on deck.

With overnight races and passages we will have a watch system in place that will see you on watch with others for between 2-4 hours, once or twice between 8pm and 6am. Broken sleep will cause you to feel tired (and grumpy) during the day following, so take advantage of the opportunity to head below and grab a couple of hours sleep, when the opportunity arises during the day. Think of it as topping up your batteries regularly instead of running them completely flat.

8. Your focus and boat performance – Part of the challenge of offshore passages is the ability to maintain a high level of focus and boat performance 100% of the time. As a team it's important to rotate each trimming and helming role regularly to keep people fresh and focused. We should all feel happy to take a break when we start lose concentration and also ask a crew member if they want a break if we start to see them losing focus and affecting sail trim or boat performance. Long passages and races can have sections that are uncomfortable, boring, hot, cold and difficult. Rotating regularly helps break up roles and keep our crew fresh and in good shape.

9. Hero's and risk takers – There are only 3 priorities when it comes to offshore passage racing;
• Keeping our crew safe.
• Keeping our yacht safe.
• Working together as a team and giving it 100%.

Offshore passages and offshore racing is very different to bay/day racing. Managing the yacht conservatively to avoid damage and minimise over stressing of sails, hardware and the hull is very important. Great crew members are assets, but poor crew members can become liabilities that can put the welfare of the yacht and crew at risk. When we are sailing offshore, we have to be self-sufficient. Help is usually several hours (or days) away and getting rescued can be dangerous in itself, so it's better not to put yourself in that position.

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10. Boat management – With offshore passages, changes in wind, weather and sea state create all sorts of challenges. Another risk is damage or loss of equipment due to things working themselves loose and coming undone or chafe causing lines, sails and sheets to wear through and fail. Good management requires us to constantly check that all fittings and shackles are tight and to look for areas at risk of chafe that we can adjust and fine tune.

Keeping updated with weather forecasts and adjusting sails proactively also helps minimise damage. Leaving it too late to reef or reduce sail only puts the yacht and crew at risk. As you walk around the yacht above and below deck, keep your eyes, ears and nose open. If you smell something strange (smoke or toilets), see something that's out of place (chafing), hear water sloshing in the bilge or a knocking noise then check it out. If something does not seem right – it probably isn't, so don't ignore it.

11. Training – Offshore passages are a great opportunity for training. There is a chance to spend time learning each of the crew/helm/navigator roles and also to better understand many of the yachts systems e.g. water, refrigeration, engine, electronics, communication, emergency management etc. Look for opportunities to learn and to teach. It helps make the most of the time on the water and can make some of the monotonous sections of the passage pass faster.

12. Safety – Your personal safety and that of the crew and the yacht is a collective responsibility. Offshore sailing has numerous risks, especially when racing that include; cuts, broken bones, fire, hypothermia, drowning, sinking, concussion and being lost at sea. With every step you take and every move you make, it's important to consider the impact and risks involved. It's always better to take the time to plan, communicate, assess how difficult a task is and err on the side of caution, by getting extra help if you need it.

There is a lot of safety equipment that we invest in and carry on board to maximise safety and eliminate as many risks as possible. You are responsible for your own safety and need to take it seriously. You will be equipped with PFD's, whistles, lights, PLB's (personal locator beacons), knives, safety tethers and need to wear wet weather gear at times. They take time to put on and take off, when going to bed or the bathroom. The entire process of undressing and/or getting dressed again can take 15-30 minutes, especially if the boat is heeling and going to windward over a lumpy sea. Be patient and enjoy the process, most people would kill to go ocean sailing instead of sitting at a desk in an office.

Falling overboard can be traumatic for you and for the crew. Losing someone overboard is our biggest fear and there is no guarantee you will be found and recovered alive despite all the safety equipment and personal locator beacons. Hypothermia sets in quickly in southern waters and in big seas you are at risk of being injured by the hull of the yacht in the recovery process. You will have a safety tether that you can use to attach yourself to the yacht – use it.

Most man overboard situations occur with a knock down, freak wave, sail change or unexpected gybe and therefore will happen before you have time to respond. Use your safety tether after sunset, in rough weather, when leaving the cockpit, when the spinnaker is up and any other time we are not sailing on a millpond or close to outside assistance.

Some tips; if in doubt use your safety tether, when going forward of the cockpit hold on to rails and safety lines, keep your body weight low by crouching when moving in a swell, take your time and use your shorter safety tether when working at the mast or near the bow. Sailors have drowned when using their 2-metre safety tether while working up at the bow and then getting washed overboard and dragged along underwater on the end of their safety tether.

The best thing you can do is stay on-board. If you see another crew member taking short cuts or unnecessary risks – speak up; safety is everyone's responsibility. We never want to have to meet with the police or your loved ones and explain how we lost you overboard.

13. Physical fitness/workload management – We are in the unique position of being amateur club sailors and competing at a state or national level in events that often include professional racing teams. We have a crew that range in age from 16 to 70 something and that brings all sorts of challenges and opportunities. As an offshore passage and racing crew there are many roles to be performed on-board and many ways to make a contribution. From helming to sail trimming, foredeck management, preparing meals, making hot drinks and grabbing snacks, they are important roles with vastly different requirements in both experience and physicality that we can all play.

It's important to play to your strengths in whatever roles you enjoy and manage your physical workload to avoid injury through overload/tiredness. Having a crew of 4-10 means we have the ability to rotate roles and allow for rest and recovery time as well. The is no benefit in overexerting yourself to the point where you bend or break something, that then limits your ability to contribute as an effective crew member.

A lot of the at-risk areas with sailing are; arms, shoulders, stomach muscles and lower back. Helming, winching, trimming sheets, pulling halyards and bracing yourself when going to windward in a lumpy sea and strong breeze is where most of the physical impact takes place. Anything you do increase your strength in these areas is a benefit in offshore sailing.

Always assess how strong and fit you are and manage your workload accordingly. It's smarter to ask for help or take a break, than to push yourself to the point where you suffer an injury. I have the view that a champion team is made up of people with a variety of strengths and experience to draw upon. We are not professional athletes and our goal is to succeed as a team, make a meaningful contribution individually and take satisfaction out of "punching above our weight".

Success to me is measured by 'how we go about our work and how we take care of each other', not how many trophies we win. If we take care of each other, work effectively together, enjoy learning new skills, always give 100% and have some fun along the way, then the results will come.

14. Sun protection – Sun is one of the biggest threats with long periods of time on the water. Excess sun will cause overheating, sunburn, dehydration, fatigue and seasickness. It's important to manage your exposure to the sun each day. Wear clothing that reduces exposure, such as hats, sunglasses and long sleeved shirts. Manage your time in direct sun, by using shade created by the sails or sleeping below to reduce excess exposure. Increased time in the sun and hotter temperatures will increase your water intake requirements. Excess sun combined with dehydration will cause headaches, tiredness and even seasickness. Even on cloudy days 70% of the suns UV gets through. If you get burnt, its sunburn and not wind burn. Use sun-cream proactively, if you get burnt you will have an unpleasant trip and find sleeping difficult as well.

15. Summary – enjoy your sailing, you will never wish you spent less time on the ocean!

8.1. Crew Roles

The crew roles onboard vary with the size of the crew and nature of the race or passage. Generally we will allocate people the following roles;

- Skipper - manages overall responsibility for yacht and crew and is usually senior helmsman.
- Navigator - Often the skipper but there may be a dedicated crew member to manage weather forecasting, waypoints, expected sail change updates and providing ETA to authorities.
- Trim / pit - Managing hoisting, trimming and dropping of main, foresails and downwind sails including halyards, sheets and spinnaker pole.
- Mast / foredeck - Manages sail changes, sets up new sails, feeds into foil from bow when hosting, hoists halyards at mast to assist pit, lashes sails to rails when not in use.
- Watch captain - helms yacht on when on watch, monitors heading, wind and performance and watches out for traffic and land. Monitors AIS and radar for traffic and rain squalls.

8.2. Crew Clothing

A three layer clothing system is recommended with thermals, a middle layer and wet weather gear on top. A PFD 1 inflatable vest with integrated harness is also strongly recommended. Hanging room is provided for all gear which must be stored when not in use.

Recommended offshore crew kit checklist – Ocean Gem

Item	Temp 0-20 degrees	Temp 20-35 degrees
20-25 litre dry bag	Y	Y
Wet weather jacket and trousers – usually too hot above 20 degrees. Musto HPX is top of range for colder climates	Y	Optional
Light shower proof jacket	N	Y
Merino thermal/breathable base layer x 1 (thin)	Y	N
Fleece top / track suit pants	Y	Y
Deck shoes	Y	Y
Sea boots / Waterproof gloves	Y	N
Sailing gloves x 1 (plenty onboard) /	Y	Y
Warm hat/ Beanie/neck warmer	Y	Y
Sun hat (wide brimmed is better for sun protection)	Y	Y
Sailing knife	Y	Y
Small pocket torch or (preferably) a head torch (red lens)	Y	Y
T-shirt (1 per day) preferably a quick dry, breathable UV protection type	Y	Y
Shorts (2)	Y	Y
Sunglasses x 2 pair with retaining strap	Y	Y
Underwear as required	Y	Y
Travel or sports towel (minimum size)	Y	Y
Toothbrush / toothpaste / chapstick	Y	Y
Your glasses or contact lenses and solution	Y	Y
Personal prescribed medication and any required sea sickness medication (there are several options onboard)	Y	Y
Wallet or money	Y	Y
Mobile phone and charger	Y	Y
Toiletries etc. Please do not bring massive amounts of lotions and potions, over the counter medication (paracetamol etc.) make up or creams etc. Pack a small wash bag please.	Y	Y
A pillow and sheets/sleeping bag will be provided. It is very warm below at night even in cooler temperatures	Y	Y
Refillable water bottle		

• Pack as light as possible - weight is slow, weight in the wrong part of the boat is slower
• You won't use it all - you don't need extra!
• Cold kills - hypothermia results in poor physical and mental performance and if not treated will kill you. Keep warm.
• No cotton - Polyester shirts are better, they dry quicker, last longer, wicks sweat and keeps the sun off, cotton has no place on a boat
• Layering keeps you warm, modern wet weather gear is highly breathable, but that can also mean loss of body heat. Combat this with a 3-layer approach - thermal base layer, mid-layer for insulation and outer waterproof layer.
• Keep your extremities covered - beanie, gloves and warm socks in cold weather.

The good, the bad and the ugly: Race kit notes from a Clipper round-the-world sailor

Clothes

Too many clothes. And they're too tight. It is really possible to survive with very little. I could probably cull half of my clothes easily. Now with hindsight I'd leave home close-fitting shirts. Work shirts need to be loose enough so that they do not rub arm pits (longer lasting freshness). Warm weather tops must not have sleeves (longer lasting freshness). For a XS sized lady a XL sized t-shirt works great as a haphazard cover-up when venturing to heads straight from the bunk.

Polo shirts are much better than I imagined. Collar offers protection from the chafing life vest. Icebreaker and Musto work wonders with light and breathable materials.

Ban whites. For love of almighty authority figure, white clothes should be banned on board. They get stained with sun cream, bilge water, oil, food and anything that never loses its grip! They're impossible to hand (or machine) wash back to their original glory.

Board shorts or quick drying running shorts are superb. Even better if they have in-built pants. Separate underwear takes ages to dry out when wet (and believe me, one gets wet every time venturing to foredeck), so it's better if everything is straight in the same garment, engineered to dry quickly. These days I'd get multi-coloured or patterned fabric as bleach & wash liquids have ruined my black shorts.

Tops with bust support. Ladies should invest on few hot weather tops with in-built bra / bust support. It's important to keep changing bra (preferably different styles) as skin gets sore where the fabric and seams press all the time. Especially in hot climate bacteria loves sweaty, gunky seams of underwear. My choices are e.g. bamboo tops by BAM and Sweaty Betty.

Seamless bras. I find it important to reduce number of irritating seams and to keep rotating styles so that the skin gets a break from chafe and moisture. Sweaty Betty All Sports Bra is my definite favourite. A few more seams but superb wicking qualities have guaranteed Lowe Alpine DryFlow bra a permanent place in my "run to the hills, sail in the seven seas" kit list.

Storage

Carabiners are the best way to store daily kit efficiently. I used them for hanging dry bags from the webbing edges of the above bunk or D-rings on upper bunks. Nite Izes s-biners are light and rounded, the Best of the Best. I cannot stress enough how good they are. I managed to draw blood with some other makes.

Heavy-duty, submergible dry bags are essential if sailing further and in wet conditions. There can be never enough dry bags I figured, and therefore sampled different makes to both great success and failure. The basic mistake with one particular make & model was to trade durable fabric to lightweight with intent to reduce bulk and weight of my kit. This didn't work out at all: when dry bags are hung from the bunk with carabiners, they move to the beat of the boat and therefore chafe against each other. Very quickly the fabric wears thin and eventually breaks. I've got holes in some bags after only one leg! These thinner bags are not waterproof enough for the wetter legs either, they really need to be submergible. Good ones were Crewsaver Aran transparent dry bag and Overboard bags. Old mountaineering favourite of mine is Mountain Equipment Wet & Dry sacs with a vent for squeezing the air out, they seem to be working fine for the time being. They stop being useful if the vent goes bust, though. I'd love to get hold of Seal Line's EcoSee PVC free transparent bags for eco conscious sailors. Transparent bags are great for organised life on board.

Systematic packing helps to manage gear. I ended up with dry bags for cold and warm legs, separating trousers, mid-layers, thermal tops and bottoms, underwear, socks, accessories etc. Each kind goes to it's own bag. In addition to these I have bags for laundry (stuff that definitely need washing) and items in use (worn few times, but not too dirty for the laundry bag but they would contaminate clean clothes with salt, sun cream etc.) These different 'dirt' categories help me regulate gear and plan ahead washing laundry.

Zip lock bags for double dryness. Thermal layers, underwear, socks etc. clothes can be packed in individual zip lock bags before they go into the dry bag. This ensures that the kit stays dry when a wet hand reaches for dry clothes. I tried and tested this system during squalls that soaked me to the core – I just picked zip lock bags from my dry bags without soaking everything else in it! Works like a dream, but causes some problems when trying to squeeze excess air out of the dry bags. This is small inconvenience compared to the benefits though. I'm reusing all zip lock bags, so there's not much plastic waste either.

Travel clothes line allow drying and storing smaller clothes in bunks. Bungee cord can be suspended to the bunk every possible way. They're great when the clothes are not soaking wet, also it works as a storage for stuff that is needed regularly, e.g. sun hat, sunglasses, head torch.

Wooden clothes pegs are a good choice for the eco-conscious. Below deck I used these with the travel clothes line. Above deck it is best to dry clothes with a sail tie or long piece of rope put through the clothes, this way they do not go overboard if the wind picks up or clothes pegs fall off.

Sturdy coat hanger for stowing the foulies in the wet locker. Flimsy plastic coat hangers have already broken during level trainings & Leg 1, so the sturdy ones are very much sought after.

Cleanliness

I devised a **washing machine** to manage larger quantities of laundry on board. Take a big, thick heavy duty dry bag, add dirty clothes, add sea water, add eco friendly travel soap. Close the bag securely, massage as long as necessary. If it's very dirty laundry, leave it to soak, then change the sea water and soap. Massage again. Rinse with sea water until soap will be gone, then last rinse with fresh water to remove salt. This works fine, however nothing beats real washing machines on shore.

Tea tree essential oil refreshes musty boots, shoes and clothes. Mel never travels without her tea tree and lavender essential oils, and no wonder! It is great to repel wet dog smell with natural aromas. Drops of essential oil can be also placed on the pillow cover for sweeter dreams when off-watch. (Thanks for the tips, Mel!)

Personal wet wipe stash in the bunk allows quick wash before wearing all the layers and going back to duty. Especially during bouncy beat I found this as the only foolproof way to wash myself regularly, as it can be done horizontally in the privacy of the bunk. Everybody likes fresh and clean crew members! I cut my wet wipes in half as they tend to be too large for a boat bath. These half-size wet wipes last forever, and do not create unnecessary waste. My wet wipes are 100% biodegradable. Most wet wipes are made of synthetic materials that need to be disposed of with plastic waste.

Small brush with handle is a great help when reaching for back with wet wipes. Also it works wonders exfoliating dead skin when getting sunburnt. My choice is from Boots, a foot brush with pumice.

Sleeping bag silk liner is a must. It keeps the sleeping bag clean in cold legs, and doubles as a blanket in warm legs. It is best coupled with the next item.

Sheet with elastic. We occupy different bunks on each leg, so it was a great idea to bring my own sheet that can be easily washed and moved from bunk to bunk as the race progresses. The mattresses are not very breathable, so a sheet gives some comfort especially during warmer legs.

Cosmetics

I brought on board **far too many potions and lotions**. There's absolutely no need for toner, hair conditioner or body lotions and moisturisers on board. Lack of proper scrub and constant use of sun creams means that there is a questionable layer of gunk on skin all the time during hot legs.

Moisturisers just make clothes dirtier quicker. During cold legs we'll hardly remove layers at all, so again moisturisers are totally unnecessary.

50 ml of shampoo lasts forever. One hair wash a week keeps shampoo consumption really small. The same with shower gel.

Antibacterial dry wash gel combined with wet wipes cuts the grease.

Dry stick deodorant works much better than their liquid counterparts. Low bulk, no drying time, no escaping aerosols that render the whole product useless. See next.

Aerosol sun sprays are nonsense in hot climate. In principle they are a great idea, however they cannot be stored in hot climate. When we entered tropics, couple of these spray bottles ended up in the bin while the actual product was still unused, thanks to the aerosol that forced its way out because of the temperatures. Sun cream or pump sprays are foolproof, next time I'll stock only those.

Facial moisturiser with SPF 20 works day and night. The trouble with sun protection is that a watch systems roll from dark to light and vice versa, therefore I've opted for one product that I use day and night.

Mind boggling toothpaste consumption. Bedtime routines such as brushing teeth helps getting sleep during off watch. When I went to bed 4 times a day, I also always brushed my teeth. The last week of Leg 1 I spent massaging the poor empty toothpaste tube in hopes of teasing the last dollop out.

Clean feet, happy crew. I brought deodorising & cleansing foot spray for maintaining social relations intact during the hot leg across the Equator. It was very enjoyable for everyone, I suppose, at least nobody complained about my feet!

Accessories

Hair bands are essential for long hair. Ponytail is the best sailing style for practicality's sake. I treasured my pony bands like crown jewels, it pays to know where they are when scrambling from the bunk in the middle of the night for the graveyard watch.

Toothbrush case – priceless! I kept my toothbrush and toothpaste in the companionway pockets next to heads. Cannot be done without a toothbrush case.

Silicone earplugs are priceless when it gets noisy. In the end I didn't use them after few weeks, one gets used to boat sounds pretty quickly. Best ones are BioEars.
Head torches break easily. Next time joining the boat I'll bring a spare as they tend to give up the ghost in humid and wet conditions. Several of our crew lost their torches irreparably to salt water corrosion, including myself. (If you are putting together a shopping list, please get a head torch with red light! Nothing is more irritating than white light shone into your eyes in the darkness of the night. It very frustratingly smashes night vision completely.)

Silica gel pouches have kept my electronics intact at least during leg 1, no trouble with humidity. I will definitely pack more for the remaining race.

Water bottle, preferably cycling style with a mouthpiece. Wide rimmed water bottles spill the liquid all over the face in rocking boat. Bottle allows tracking the water consumption and therefore is essential in battle against dehydration.

8.3. Crew Capabilities, experience and medical status

A minimum number of experienced crew are required and in general only less than 50% of crew without ocean sailing experience will sail on the boat at any one time. The fitness and medical status of crew members will be taken into account.

8.4. Crew Briefing

Crew positions:	Each crew member will have a nominated primary crew position (and secondary position in some cases and this will be allocated based on combined experience of crew a nature of passage or race.
Safety briefing:	To be carried out as specified in section 20 'pre-departure safety briefing checklist'. Laminated copies are stored in the nav station desk.
Watch briefing:	To be carried out at the change over of each watch and to include dangers, items to monitor, wind, weather and sea conditions, last rig check, bilge water levels.
Weather to start:	In the event that conditions do not look suitable for a boat of the size and capability of Ocean Gem then a crew meeting shall be held prior to the start to discuss the matter and to decide whether to start.
Sea conditions:	Average wave heights may be up to 80% higher than forecast and wind strengths may be up to 40% higher. In storm force and above (48 knots plus) it is necessary to steer the boat into the waves at an angle (60 degrees may be best) and to keep the speed under control. Waves breaking over the boat may wash safety gear away so secure these items. Refer to the 'heavy weather preparation' checklist in section 7.1
Safety conditions:	All crew must be on deck, wearing safety harnesses and be clipped on at night, in #3 Sail conditions (15 knots and above) and in sea states exceeding 2 metres.
Emergency Steering:	Refer to section 18 for set up and operating details.
First aid officers:	At least two. Refer to section 12.
Radio operators:	At least two. Refer to section 13.

8.5. Watch Check List

A watch check list shall be followed and shall include: Navigation details, wind strength, sails carried, barometer movements, bilge water level and keel bolts, battery charge, hatch leaks and rigging checks.

8.6. Voyage Plan

A voyage plan will be completed prior to the day of departure and then updated at least twice daily based on updated weather forecasts.

9. Emergency Drills

Emergency drills:	These will be carried out before the race for all crew. To include reefing of sails, setting of storm sails, MOB, Emergency steering, safety policy.

SECTION 4 MEDICAL REQUIREMENTS

10. FIRST AID KIT STOCK RECORD

Use	Item	Stock	Used	Left	Exp date
	Yellow Box				
To treat very serious allergic reactions to insect stings/bites, foods, drugs, or other substances	Adrenaline Injection	5 x 1ml	0	5 x 1ml	3/19
Used to treat fungal infections of the skin such as athlete's foot, jock itch, ringworm, and seborrhea (dry, flaking skin).	Anti fungal Cream	1 x 50g	0	1 x 50g	4/21
Used to treat certain infections of the lungs, skin, bones and joints, kidney and bladder, prostate, bowel.	C-Flox 500 – ciprofloxacin	14 x 500mg	0	14 x 500mg	3/21
Used to treat an eye infection called bacterial conjunctivitis, which is a bacterial infection involving the mucous membrane of the surface of the eye.	Chlorsig eye-oint	2 x 4g	0	2 x 4g	4/21
Electrolyte Powder contributes to the maintenance of endurance performance during prolonged endurance exercise.	Electrolyte powders - Hydralyte	10	0	10	8/17
Is a narcotic, like morphine, heroin and codeine. It should be used to relieve moderate or severe pain, such as after surgery or an injury.	Endone – oxycodone	20 x 5mg	0	20 x 5mg	8/19
Used to prevent infection in severe burns. Other types of wounds, such as pressure sores and leg ulcers, may also benefit from the application of Flamazine cream.	Flamazine	1 tube x 50g	0	1 tube x 50g	10/19
Is an anti-diarrhoeal drug which is used to reduce diarrhoea and firm up stools. It works by slowing down the passage of food through the gut and allowing more water to be taken up by the body from food as it passes through the bowel.	Gastro Stop	12 x 2mg	0	12 x 2mg	12/16
Is an antibiotic. It belongs to a class of antibiotics known as first-generation cephalosporins, which doctors use to treat a range of bacterial infections. A doctor may prescribe cephalexin to treat infections of the skin, middle ear, upper respiratory tract, and urinary tract.	Ibilex 500 - cephalexin	20 x 500mg	0	20 x 500mg	2/21
General	Medical log book	1		1	N/A
It is used most commonly for relief of severe pain. It may also be used just before or during an operation to help the anaesthetic work better.	Morphine Sulfate injections	5 x 10mg	0	5 x 10mg	3/20
Injections	Needles - single use	100	0	100	11/19

Is a nitrate that dilates (widens) blood vessels, making it easier for blood to flow through them and easier for the heart to pump, used to treat or prevent attacks of chest pain (angina).	Nitrolingual Pump spray	1 x 400mg	0	1 x 400mg	2/19
Used to treat allergy symptoms such as itching, runny nose, sneezing, itchy or watery eyes, hives, and itchy skin rashes. Also prevents motion sickness and treats nausea and vomiting or pain after surgery. It is also used as a sedative or sleep aid.	Phenergan	100 x 25mg	1	99	1/20
Used to relieve moderate to severe pain and fever. Prodeine Forte contains paracetamol and codeine. Paracetamol and codeine work together to stop the pain messages from getting through to the brain. Paracetamol also acts in the brain to reduce fever.	Prodeine Forte	40 x 500mg	0	40 x 500mg	5/20
Is a depressant drug which means it slows down the messages travelling between the brain and the body. Oxycodone is most commonly prescribed by doctors to relieve moderate to severe pain.	Proladone - oxycodone	12 x 30mg	0	12 x 30mg	4/20
Injections	Syringes	20	0	20	8/19
Small container					
Surgical tape or medical tape is a type of pressure-sensitive adhesive tape used in medicine and first aid to hold a bandage or other dressing onto a wound.	Bandage tape	1	0	1	N/A
Suitable for keeping gauze in place, stemming bleeding, and providing light compression. The heavy weight crepe bandage is suitable for use as support for sprains and strains in joints and muscles. It also works as a moderate compression bandage for knee swelling, ankle swelling, and other relevant injuries.	Crepe bandages	5	0	5	N/A
When used with a dressing, the dressing is applied directly on a wound, and a bandage used to hold the dressing in place. Other bandages are used without dressings, such as elastic bandages that are used to reduce swelling or provide support to a sprained ankle.	Elastic gauze bandage	1	0	1	N/A
Hyperthermia	Emergency foil blankets	2	0	2	N/A

Used as a dressing retention, the bandages conform to the shape of the applied area and provide relief and light compression. Durable and lightweight with a high level of stretch, conforming bandages are ideal for various wound care applications including sprain support and dressing retention.	Net conforming bandage	1	0	1	N/A
Used as an arm sling or as a pad to control bleeding. It may also be used to support or immobilise an injury to a bone or joint or as improvised padding over a painful injury.	Triangular bandages	2	0	2	N/A
A dressing is used by a doctor, caregiver and/or patient to help a wound heal and prevent further issues like infection or complications. Dressings are designed to be in direct contact with the wound, which is different from a bandage that holds the dressing in place.	Wound dressing large bandage				
Large container					
Used to treat fungal infections of the skin such as athlete's foot, jock itch, ringworm, and seborrhea (dry, flaking skin).	Anti-fungal cream	1	0	1	4/20
Antiseptic wipes kill germs and sanitise skin or whatever surface to which they are applied. Antiseptic wipes can be used to clean wounds, help perform a sterile catheter procedure, and prepare skin for surgery.	Antiseptic wipes	5	0	5	N/A
Used for the treatment of pain and reduction of fever and also has anti-inflammatory properties.	Aspro clear	24	0	24	4/20
A brand of adhesive bandage with a gauze pad in the centre, used to cover minor abrasions and cuts.	Band-Aids large	11	2	9	10/20
	Band-Aids assorted	20	4	16	2/22
	Band-Aids aqua block	40	5	35	10/20
Surgical tape or medical tape is a type of pressure-sensitive adhesive tape used in medicine and first aid to hold a bandage or other dressing onto a wound.	Bandage tape	10m	0	10m	N/A
Used to treat minor wounds (e.g., cuts, scrapes, burns) and to help prevent or treat mild skin infections. Minor skin infections and wounds usually heal without treatment, but some minor skin wounds may heal faster when an antibiotic is applied to the affected area.	Betadine	100ml	10ml	90ml	11/18
The overall aims of any burn wound dressing, irrespective of the size and depth of the burn, include: preventing infection. promoting moist wound healing.	Burnaid dressings	2 sml 2 lge	0	2 2	4/20 03/19

Helps to effectively treat cold or flu. The day tablet relieves cold & flu symptoms while the night tablet helps you rest.	Codral - Cold and flu tablets	24	22	2	N/A
Digging out foreign matter from wounds e.g. splinters	Double ended needle stick	1	0	1	N/A
They are thumb forceps used for holding dressing materials such as cotton and gauze during surgical procedures, changing dressings, or packing wounds.	Dressing forceps	1	0	1	1/21
Used in emergencies to reduce heat loss in a person's body caused by thermal radiation, water evaporation and convection.	Emergency foil blanket	2	0	2	N/A
An aid to help flush / wipe out foreign bodies from the eye. The eye bath can be used to apply solution if dirt gets into your eyes. The solution will help dislodge and remove the dirt.	Eye bath - reclens	3 x 50ml	0	3	1/14
Used to protect injured eyes and eye wounds from dirt, grit and any bacteria that may cause irritation or infection.	Eye pad dressing	3	0	3	N/A
Used for wound dressing, padding, protection, blood spill, applying antiseptic and much more. It is especially useful for dressing wounds where other fabrics might stick to the burn or laceration.	Gauze swabs	9	0	9	N/A
Used to treat symptoms caused by too much stomach acid such as heartburn, upset stomach, or indigestion. It is an antacid that works by lowering the amount of acid in the stomach.	Gaviscon	24	0	24	11/19
General protection and hygeine	Gloves - medical	100	40	60	N/A
Is a soothing and low-adherent and allows the wound to drain freely into an absorbent secondary dressing. Jelonet is a sterile paraffin tulle gras dressing made from open weave gauze. The gauze has interlocking threads which minimise fraying when the dressing is cut to shape.	Jelonet	5	0	5	1/15
Are low-allergy wound closure strips, that offer secure adhesion and reduce the risk of scarring. Leukostrips hold the wound edges together and stretches with the wound to ensure minimal scarring. Leukostrips are used for cuts and surgical wounds.	Leukostrips	10x3	0	10x3	N/A
Used for the management of a wide variety of light to moderately exuding wounds including clean sutured wounds, abrasions, lacerations and minor burns.	Low adherent pads	7	0	7	N/A
General	Measuring cup	2	0	2	N/A
Provides healing, soothing relief to bug bites, minor burns and scrapes.	Melagel – soothing gel	6gm	3gm	3gm	N/A

Used to relieve pain (and discomfort) associated with: headache, migraine headache, toothache, muscular aches and pains, neuralgia, arthritis, rheumatics, menstruation/period pain, sore throat, osteoarthritis and symptoms of cold and flu.	Parapane - Paracetamol	100	0	100	05/20
Holds, supports and immobilises the sprained, broken or surgically operated arm in the flexion position while it recuperates.	Pouch arm sling	1	0	1	N/A
Is a device used to safely deliver rescue breaths during a cardiac arrest or respiratory arrest.	Resuscitation face shields	3	0	3	8/23
General	Safety pins	6	0	6	N/A
Is a prescription intravenous medication used to replenish fluids with dehydration and other medical conditions that require additional fluids.	Saline capsules				
Use on cuts, scratches, blisters, grazes, windburn, sunburn, nappy rash, insect bites, cracked and itchy skin.	Savlon - antiseptic cream	50g	0	50g	01/19
General	Scissors	1	0	1	N/A
They allow for fast and easy skin cleansing. Medi-Swab# are made in a 2 ply non-woven material impregnated with 70% Isopropyl Alcohol BP.	Skin cleaning swabs - mediswab	10	0	10	5/21
Can be used to close small wounds. They are applied across the laceration in a manner which pulls the skin on either side of the wound together.	Skin closure strips				
Creates a moist wound environment that aids healing and minimises the risk of scarring. The gel is suitable for minor burns, sunburn, softening dry or hard tissue in wounds, soothing and hydrating chickenpox sores.	Solosite - Soothing, hydrating, healing gel	50g	0	50g	01/19
For bone fractures and breaks	Splints	1 sml 1 lge	0	1 sml 1 lge	N/A
Manufactured for painless, clean and safe removal of particles. These disposable and sterile splinter probes are hygienically clean. Easy-to-open blister packaging protects probe giving convenient grip during the removal of splinters.	Splinter probes	5	0	5	N/A
Temperature, fever	Thermometer	1	0	1	N/A
Used to help a wound heal and prevent further issues like infection or complications. Dressings are designed to be in direct contact with the wound, which is different from a bandage that holds the dressing in place.	Wound dressings	3 sml 2 lge	0	3 sml 2 lge	N/A

11. **CREW MEDICAL INFORMATION SHEET**

11.1. Crew Medical Conditions

Crew name	**Condition**	**Instruction**
David Hows	NIL	N/A

12. FIRST AID OFFICERS

Name	**Level**	**Certificate**
David Hows	HLTAID003	Marine First Aid

SECTION 5 GENERAL INFORMATION

13. RADIO OPERATORS

Name	**Licence #**
David Hows	OMC063163

14. RACE/PASSAGE DETAILS

Race / Passage:	

Start:	
Finish:	
Return:	
Cost	
Crew list	

15. CREW LIST & WATCH ALLOCATION

- The crew list is detailed above in section 13.
- The watch allocation will be organised on day 1 of the race/passage based on weather conditions, navigation hazards, prior experience and training goals.

16. WATCH SYSTEM

- The watch system is divided into 2 parts 9am-9pm and 9pm-9am although this can vary based on daily changes.
- During the day, we'll run a floating system that enables flexibility between being on watch and resting based on hours on duty the prior night, crew wellbeing and weather conditions.
- At night we'll aim to run a 3 hours on / 3 hours off system the first night to buddy up the Skipper and 2IC with one lesser experienced crew member each. By night two the goal is to move to a 2 hours on / 6 hours off, solo watch system, with the Skipper and/or crew being mustered on deck for reefing and any sail changes.

17. DECK LOG

Time	**Compass heading (note all changes)**	**Wind direction** **Wind Knots**	**Baro-meter**	**Sea state: Flat, Mod. Rough V. Rough**	**Mainsail Full #1,2,3 reef Trisail**	**Headsail #1,2,3,4 None**	**Rig & deck gear check**	**Bilge level and keel bolts**

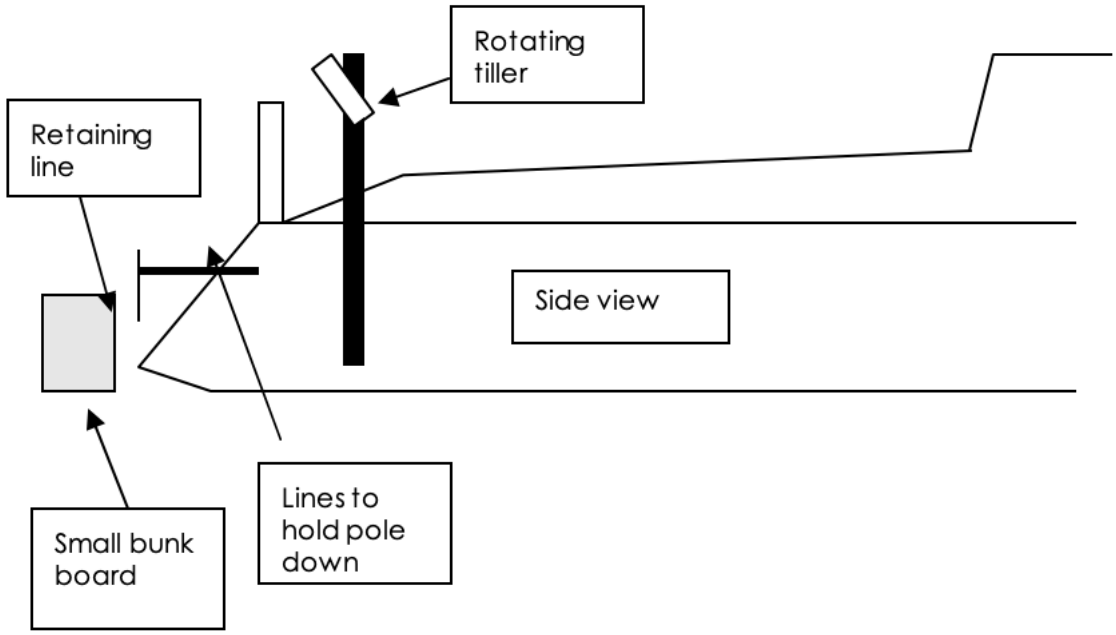
18. NAVIGATION LOG

Time	Compass heading (note all changes)	Boat Speed	Wind dir. Wind Knots	Baro-meter	Sea state: Flat, Mod. Rough V. Rough	Main Full #1,2,3 reef, Trisail	Head #1,2,3, Storm None	Latitude Longitude	Current Speed / Direction

19. EMERGENCY STEERING & TOWING

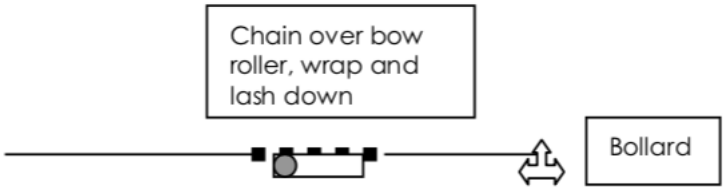
Emergency Steering

- Install the mounting for the spinnaker pole across the transom opening between the pushpit.
- Bolt the bunk board to the pole with “U” bolts. Make them tight.
- Tie a line around the pole with a rolling hitch 25 cm above the bunk board and tie a restraining line to the beak at the bottom end to stop it riding up.
- Tie the line very tight to the rear bollards to keep the pole in the water and as vertical as possible without it hitting the boat.
- Wrap a towel around the pole in the guide to pack the space.
- Lash a piece at right angles to the pole at the top end to make turning the pole easier.
- Turn the pole to steer.
- Test the system to ensure that it works.
- Keep speed above 4 knots.



Towing

1. Tie tow rope to short piece of chain stored in Tool locker.
2. Wrap chain to protect bow fitting and tie a warp to the bollard or use a bridle.



20. PRE-

DEPARTURE SYSTEM CHECKLIST

Task	Who	Done

Engines		
Check/fill outboard fuel / spare tank		
Check outboards operational		
Check engine oil & coolant levels		
Turn engine seacock on		
Electronics		
Check water maker levels/operational		
Check anchor operational		
Check Lectrasan operational		
Check 2 x VHF operational		
Check external lights operational		
Check chart plotter and radar operational		
Check/wash water maker and fried/freezer filters		
Check battery condition / Charging with motor		
Check shower pump operational		
Check inverter operational		
Clean speedo propeller under floor		
Operational		
Fill port/starboard water tanks		
Spray slide glide on mainsail mast track		
Check/replenish first aid kit		
Remove excess gear and store		
Remove locks off engines / storage lockers		
Shake contents of fire extinguishers		
Apply grease to steering cable		
Fill up diesel tank		
Book marinas en-route		
Check existing food supplies on hand / discard old		
Check enough life jackets for all crew		
Spray CRC all moving parts		
Check and tighten all bolts and screws		
Check and replace worn sheets / ropes		

Check life preservers and dan buoys ready to deploy		
Display NZ flag on transom		
Cleaning		
Clean / olive oil toilets		
Vacuum boat interior		
Wash down decks		
Polish stainless steel		
Polish interior timber		
Brush bottom of hull		
Safety		
Man overboard drill (under power / sail)		
Coastguard Mayday drill (VHF / mobile)		
Fire extinguisher location and use / fire blanket		
Location of lifejackets / flares / life raft		
Electric / manual bilge pump use		
Manual tiller handle		
Engaging / disengaging auto pilot		
Furling headsail / packing away mainsail		
Set up Danbuoy		
Other items		

21. PRE-DEPARTURE SAFETY BRIEFING CHECKLIST

Item	Description	Done
Safety		
Lifejackets	Storage location, lights, whistle, inflation, when and how to put on and inflate. Adjust straps so firm. Who can't swim?	
Safety Tethers	When and where to clip, length of tether, on from sundown to sun rise and in heavy seas where MOB hard to see	
Flares	Location, types and how to operate	
Life raft	Location, deploy to leeward, how to deploy, boarding from boat/water	
Grab bag	Location of grab bag, VHF, Sat-phone (see grab bag list)	
On board hazards	Boom, winches, cleats, ropes, boat movement, stairs, falling over, fingers, toes, ribs, dangers of fending off, toilets	
First aid kit	Location of kit, qualified first aiders to access drugs, logging use of supplies, calling for medical advice. Avoid accidents.	
Medicines	Access to drugs. Storing personal medication and taking when required.	
Sea sickness	Sea-sickness pills. Contributors: sleep, alcohol, caffeine, fatty foods, anxiety. Keep warm, hydrated, fed, eyes on horizon. Take the helm. Rest, close eyes, sleep.	
Hydration	Body needs 2 litres per day in normal conditions, 1 ltr digestion, 1 ltr for hydration. Increase fluids in hot weather. 5% dehydration = 25% loss of brain power.	
Food intake	Maintain regular snacks and meals. Carry snacks in pockets. Hunger will lower body heat and bring on sea sickness in rough/cold weather.	
Sun protection	Hydration, hat, sunscreen, shade	
Clothing	Layer up and down to manage heat. Stay dry, keep head warm	
Look out	Look out for land, water obstacles and other boats every 10-20 minutes. Call distance of obstacles and direction using clock hands	
Operations		
Anchoring procedure	DOWN: Boat into wind, speed zero, dropping anchor, rope bridle, use of bow thruster, chain counter, hand signals. UP: Removing bridle, raising anchor, last 5m, tidying away, hand signals.	
GPS	Reading off a position	
Toilets	Standard operation, seated at all times. Use of lectra san in port only.	
Water pump	On/off switch, using hot and cold water, switching tanks over	
Bilge pumps	2 x auto and 1 x manual. Checking bilge, leave on at switch board, no rubbish in bilges.	
Water maker	On/off, flush cycle	
Shower	Shower process, shower pump operation, window open.	
Underway	Close hatches, windows, 1 hand for you, sit down, stay in cockpit	

Engine	Engine checks, oil level, coolant level, filters, belts, fluid leaks, oil pressure, water outflow, batteries charging. Staring and stopping.	
Fuel/Gas	Location of fuel and bottle taps. Gas off at night. Stove operation.	
Refrigeration	Fridge/freezer on/off. Cold at top, rotate, use containers. Check strainer	
Washing machine	Operation, how much to load, when to use, washing ball.	
Main hatch	Process to close and lock staying/going.	
Lighting	Cabin and saloon lights, night lights: Nav, anchor, steaming, down lights	
Sailing		
Furling Genoa	How to furl and unfurl. Reefing. 2 speed winches, fingers clear.	
Mainsail	Raising main, lazy jacks, reefing lines, putting reefs in main, lowering main, lazy jacks.	
Gennaker	Launching and retrieving	
Storm sail	Setting	
Trysail	Setting	
Storm drogue	Setting	
Electronics	Use of AIS, chart plotter, instruments, radar, auto pilot,	
Bow thruster	Operation	
RIB	Location of outboards and fuel	
Emergency		
MOB	**Call MOB**: Spotter, life rings, dan buoy, MOB button, throw torch, furl genoa, check water free of lines and start motor. Check compass track and use reciprocal track back. **Recovery**: Approach with bow to wind on windward side. Use Halyard to lift if abeam. Boat hook. Line in water – watch prop **Man in water**: Use whistle/torch, board on leeward side if rough or aft if water flat. Knees up to chest, breath slowly, don't panic.	
VHF & SSB radio	Mayday call and DSC procedures	
Sat phone	Making a call. Emergency numbers.	
Hull damage/Bilge pumps	Check fresh/salt water. Make MAYDAY call, get boat level, head downwind or tack to opposite side. Primary, secondary and manual pumps. Use of engine sea intake/sock and buckets. Locate hole, check sea cocks, use plugs. If bigger damage, plug damage with cushions, bedding, floor boards, life jackets, reduce inflow, temporary repair – floor boards, screws, glue, plugs – look around. Assess inflows – prepare life raft and grab bags.	
Dismasting	Get below to avoid crushing. Location of hack saw, disc grinder. Protect hull, salvage mast if safe.	
EPIRB	Location and operation	
PLB's	Operation	

Fire/Fire extinguishers	Where, what type and how to use them. Allocate 2 to fight fire, others to make MAYDAY call and prepare life raft and grab bag. Turn fuel off and block engine air intakes.	
Emergency muster	6 short and 1 long blow of your whistle.	
Knives	Location of knives	
Tools & repairs	Location of tools and spares	