



# TERRA FIRMA

4100

## Safety Manual

*Version 3 dated 9<sup>th</sup> November 2004*

### **Introduction**

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## Introduction

Terra Firma was designed by Ian Murray and built by Tony Highett in Melbourne and completed in 1995. It successfully won the Winter Series in Melbourne then went on to win the 1995 Sydney to Hobart yacht race on handicap, racing under IMS. Terra Firma was purchased by Stewart Niemann in mid 1997 and campaigned in most regattas through to 2000.

It was then purchased by the current owners in September 2002 and immediately underwent a full refurbishment incl removal of the rigging, the keel and rudder. The boat was stripped of all deck fittings and then painted including the hull. Post repainting the long task of correctly fitting all the deck hardware commenced, finally the new graphics applied and the reworked rudder and keel were refitted. In winter 2004, the yacht was further modified for optimal IRC ratings. The modifications included a swept back two spreader rig with non overlapping headsails (based on a Farr40 design), wheel steering, modified keel, optional masthead spinnaker capability and a host of minor updates and repairs.

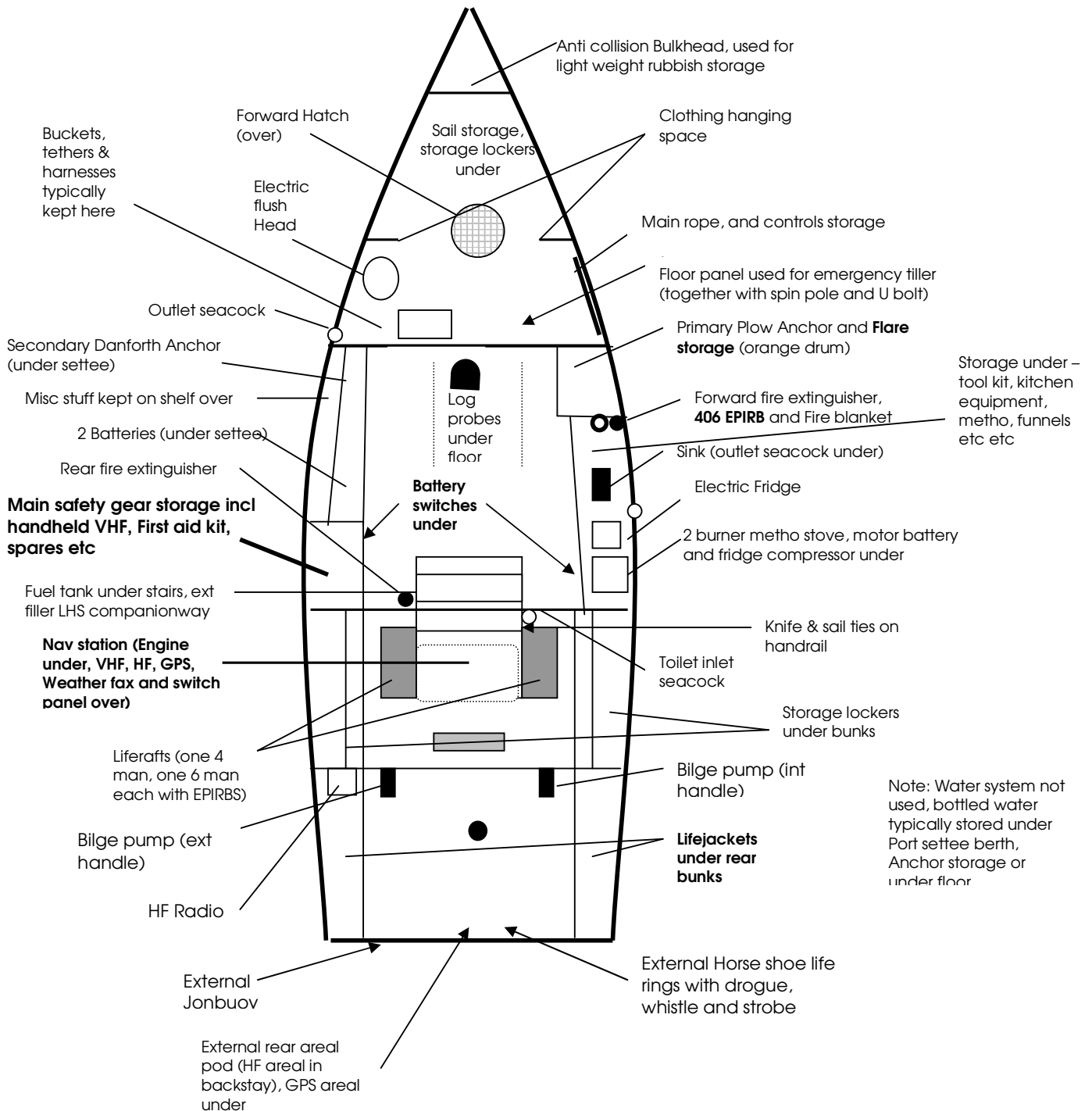
Many improvements have been made as well as regular servicing & updating to engine, electronics and safety equipment. The sail inventory is regularly checked and repaired. Storage of all gear is in a custom built tandem trailer. The boat has since competed in a number of off shore races incl Sydney to Gold Coast, Melbourne to Stanley and Sydney to Hobart.

Following the 1998 Sydney to Hobart yacht race that resulted in loss of life and serious damage to many boats, the AYF has introduced the Sea Safety & Survival Course (SSSC). It is a requirement for Sydney to Hobart yachts that at least 50% of crew members have passed the course. While it is recognised that the Skipper carries the responsible for the yacht, it is each crew's responsibility to ensure that they are adequately prepared and capable for the event. Safety will be taken very seriously and will be reflected in the way that the vessel is setup, prepared, crewed and sailed. This plan takes into account the syllabus and recommendations of the AYF Sea Safety & Survival Course 2001-2002 and it is presented in sections broadly as developed by the Ocean Racing Club of Victoria.

***Sailing is a potentially dangerous sport, the safety of the crew is of primary importance.***

# Section 1 Yacht and equipment preparation

## 1. Storage of Equipment – Boat location Diagram



## **2. General information on safety equipment carried**

The vessel is fitted to Category 1 AYF Safety standards, refer Appendix A for inventory. Equipment is regularly checked with annual renewal of safety certificates plus inspection before each major offshore event.

## **3. Lifebuoys, Jonbuoy and floating lights**

Two horseshoe lifebuoys are located on the rear of the cockpit floor connected to a self starting floating light, whistle and a sea drogue. Typically the Jonbuoy is located on the port side pushpit.

All crew must carry their own personal strobe light, supplied and maintained by the boat. Spare batteries are carried and batteries are changed annually regardless. All crew are encouraged to carry their own personal waterproof torch, whistle and knife at all times.

## **4. Navigation lights**

The boat carries the required navigational lights. These are a white stern light and a dual color bow light. Spare globes are carried with a complete emergency bow Bi-light. Spare batteries kept in the safety gear storage locker. If required this is taped to the pulpit above the permanent bow light. The spare stern light will be one of the torches tapped to the stern

## **5. PFD's: Type, number, attachments, use.**

Ten zip front PFD type 1 jackets fitted with waste & crotch straps are carried on the boat at all times, they are numbered and kept inside under the two rear bunks. All are designed for adults weighing more than 60 kg, whistles are attached to each. Any children who come on board will require a suitably sized PFD1 fitted to them and worn at all times in accordance with regulations.

Crew are required to have their own floatation aids off shore including a self inflatable PFD (often incorporated into harness), semi buoyancy jackets such as a zip-in Musto buoyancy vest or Stormy Seas vest which has a building harness and inflating buoyancy. These do not change the requirement to wear an approved PFD type 1 when instructed to do so by the Skipper or when considered appropriate by individual crew.

## **6. Heaving line and man overboard sling**

A lightweight white poly heaving line with a rubber ring is stored in the safety gear locker. A man overboard sling (rope with foam cover) is stored in the rope storage in the bow.

## **7. Harnesses, tethers, jackstays and strong points.**

10 harnesses with 10 long (2 metre) tethers and 3 short (1metre) tethers are carried and will be used when instructed by the skipper or when considered appropriate by individual crew. In Ocean races, there is generally a safety policy to wear harness and tethers at night, novice crew should consider wearing harnesses during the day time too. Crew are encouraged to purchase their own approved inflatable PFD 1 with harness included.

Spectra strap jackstays are fitted to strong points fore and aft on each side of the deck. There are also two strong points at the companionway entrance which can be accessed from inside the cabin. There is also a strong point at the rear of the cockpit behind the tiller to access aft.

There is an approved climbing harness for climbing the rig with strop and safety clip. The climbing harness must only be used by experienced crew who have been shown the safe way to connect and climb the rig. Halyards must be tied using a bowline as well as clipped. They must be secured around the harness straps, not through the material ring.

## **8. Flares**

Flares are carried in accordance with regulations at all times, they are kept in an orange waterproof drum in the starboard zip front anchor locker. The contents of the flare barrel includes:

- |                     |                                  |
|---------------------|----------------------------------|
| Six red parachute   | Distress flares                  |
| Two white parachute | Collision or illumination flares |

Two white hand held	Signalling flares
Four red hand held	Night time within sight
Four orange hand held	Day time within sight

There are flares in the liferafts and it is recommended that all crew consider carrying a pack of miniflares with them. Crew who have attended the off shore sea safety course are trained in the use of flares and should use them where required. **Flares are only activated upon the Skippers orders.**

### 9. Medical

The main medical kit includes a full range of dressings and medications and has a stock and use list attached to the exterior lid. There is a secondary first aid kit for day to day use so as the main first aid kit can be left unused and fully stocked. Any crew member using anything out of the main kit must inform the Skipper. The use of the secondary first aid kit does not preclude the use of the main kit in an emergency situation. The vessel usually carries two Level 2 first aiders in off shore races who have extra training in medications. Crew should inform the designated first aid officer(s) of allergies and medication taken prior to departure.

Details of any injury or accident must be entered in the boat log, maintained by the Navigator and kept at the Nav station with the navigation equipment.

### 10. Epirbs

The main Epirb is a 406Mhz unit which includes a verified boat identification as part of the emergency signal. It is mounted to the starboard bulkhead in the galley and is to be the primary EPIRB used in case of emergency. Any 121.5/243 Mhz unit, either personal or as part of liferaft equipment must be considered secondary. Most EPIRB's need to be placed in the water when activated in order to have a ground plane. Secure the EPIRB onto the boat or raft before deploying it. A test button is also located on top of the EPIRB, it must be used strictly in accordance with instructions. **EPIRBS are only activated upon the Skippers orders**

### 11. Torches

Three waterproof flashlights are kept in various locations around the boat, typically at night one will be on deck in a rope bag, one will be on the shelf above the port settee berth and one kept in the safety gear locker. Spare batteries for torches are kept in the safety gear locker, batteries are changed annually regardless of use.

### 12. Emergency Signalling Equipment

The Emergency signalling equipment is located in the safety gear locker and includes:

- Flares, Handheld strobes & EPIRB's as previously noted
- Handheld VHF
- Gas operated fog horn (need to assemble)
- An orange V sheet
- Radar deflector

### 13. Tools and spares

Tools & spares are located in the Tools locker under the kitchen storage lockers on the starboard side. Spare parts for the engine such as a pump impeller, filters, globes, sail repair kit etc are kept in the safety gear storage locker on the port side. The battery key for connecting the motor and house battery (parallel key) is kept in the toolbox. There are wooden penetration plugs at all seacock locations if required.

### 14. Instrumentation and computer

Instrumentation is available for engine temperature and oil pressure near the engine controls. Fuel level is gauged using the sight gauge on the right hand side of the tank, after sight taps are opened. Note these taps must remain closed at all times. GPS and B&G both have the capability to display voltage, battery switches are on the port and starboard vertical panels just above floor level. The main switch gear is located above the Nav station, all are labelled.

The boat computer is connected via a CDMA phone (with external aerial) for receiving visual weather reports and for communication via email. The boat computer can also connect to the B&G for real time monitoring of performance, wind and other navigational information. There is a weatherfax which automatically receives Bass Strait weather text based forecasts, the HF radio is required to be turned on for this to work.

### **15. Liferafts**

There are two liferafts secured to the port and starboard rear floor panels using spectra ties. One is a 6 man liferaft, one a 4 man. Liferafts must only be deployed on the authority of the skipper.

### **16. Grab bag**

Typically located with the safety gear it is used for carrying emergency equipment if required. It is boat policy not to pack the grab bag since losing it would result in losing all safety gear.

### **17. Fire Extinguishers**

(2 powder type) & fire blanket are carried on the boat. One extinguisher and the fire blanket are located on the starboard galley bulkhead, the second is located next to the companionway on the port side.

### **18. Marine Radios**

An HF radio with call sign VKV2339 is mounted on the port side of the Nav station bulkhead, it is tuned via preset channels (unique to our radio). A VHF radio is mounted on the starboard side of the Nav station bulkhead. For radio frequencies refer "Cheat sheet" appendix B. A waterproof hand held VHF radio is kept in the Safety gear locker along with emergency HF aerial. The emergency VHF aerial is located on the underside of the rear companionway with the bilge pump hoses. An emergency HF aerial is kept with the safety gear.

The HF radio uses a backstay antenna, the VHF an antenna on the rear pod. There is also a weather fax received which requires the HF radio to work. It is simply turned on at appropriate times, it has been preset for Bass Strait.

### **19. GPS & Positioning**

There is a GPS mounted on the Nav station bulkhead, pressing the "Pos" button will give latitude and longitude. There is an emergency handheld GPS. This GPS is typically kept on deck in a rope bag as it is used for on deck navigation. On all trips a position must be entered into the log or onto a chart at least every two hours, preferably hourly.

In an emergency situation include the latitude and longitude in any mayday call.

### **20. Pumps**

There are two lever operated pumps with flexible inlet hoses, the pumps are permanently located, the hoses coiled up under the rear companionway. The pump levers are kept next to the pumps, one is internal on the starboard side behind the nav station, one external on the port side near the rear quarter berth.

### **21. Stove and cooking fuel**

The two burner stove with grill operates on metho which is typically stored in the locker under the fridge along with a small funnel. Avoid using matches where possible, note that used matches often clog bilge pumps. If matches are used dispose of them properly, do not just throw behind stove.

***Do not attempt to refill the tank when the stove is on or is still hot as it is likely that some spillage will occur and a fire will result.***

### **22. Sails**

Sails are stored in the forepeak (apart from the mainsail), refer to inventory for full details.

A full race inventory typically includes:

Mains - 2 reef (no reef for inshore), Trisail

Headsails - #1 Light, #1 Medium, #1 Heavy, #3, #4, #5, Blast reacher, Storm Jib

Spinnakers - 0.5 runner, 0.9 runner, 1.5 runner, 0.5 VMG, 0.9 Assymetric, Masthead

A cruise inventory typically includes:

Main - 2 reef delivery, Trisail

Headsails - Old #1, #3, #4, Blast reacher, Storm Jib

Spinnakers - 0.9 runner, 1.5 runner

As a guide the first reef should be considered at 25 knots, second reef 35 knots depending on Sea state, Number of crew and experience and headsail used.

### 23. Engine

A Yanmar 3cyl turbo diesel 27 Hp. Spare fuel is carried in 20 litre “Jerry’s” with a large funnel kept hanging in the starboard anchor locker. Care must be taken not to get any fuel on sails, they should be kept separate. Access to the water filter and water inlet control valve can be gained by removing the Nav station table and engine surrounds if required. There is an emergency waste gate control to stop the engine should the kill switch not work, this is a small rope on the starboard side of the compartment. There are spare filters and impellor kept in the Safety gear locker.

### 24. Water

Water is carried in typically 2 litre or 1.5 litre bottles. They are stored in the starboard anchor locker, under the settee berth and/or under the floor panels. An allowance of 2.5 litres per person per day should be used, more if cooking is included. There is a salt water intake for the head located on the starboard side of the engine cover, it is readily accessible.

***The salt water intake must be kept closed when the boat is unattended as it is below the water line.***

### 25. Emergency Steering

The emergency steering utilises the starboard bow floor panel, the spinnaker pole and a U bolt kept in the Safety gear locker. The spinnaker pole is secured to the aft of the boat using the backstay chain plates and a suitable rope. If possible, the spinnaker pole should be filled with water with the sealed end in the water. This will greatly enhance the ability to keep the end of the pole with the floor panel in the water to enable steerage.

### 26. Anchors

The primary anchors are; a Plow type fitted with 10m of heavy duty chain and 50 m of rope and is located in the starboard anchor locker next to the galley. The other anchor is Danforth anchor is fitted with 2m of chain and 40m of rope, it is located in under the port settee berth. The anchor is secured using a snap shackle hung from the bow strop and led back to primary winches.

### 27. Head

The toilet outlet seacock is located on the left hand side of the head with water supply located next to the engine on the starboard side. There is a water intake adjusting valve in the cupboard under the sink in the bow. The electric flush button is also on the side of this cupboard, it is wired into the stereo circuit.

***Both inlet and outlet seacocks must be open before use. The head cannot be used in a pen, Port Philip bay or Sydney harbour.***

Crew are strongly advised not to stand up to urinate over the side, particularly when rough, there is a pee bottle kept on the bow port side storage rail.

### 28. Towing

The vessel must be towed by securing a tow rope to the base of the mast or to a primary winch as well as a guide at the bow via a snap shackle secured to the jib tack clips. If towing another vessel the tow rope should be secured to a backstay winch in a manner which does not foul or damage the pushpit, backstay blocks or rear pod.

### 29. Batteries

Sealed gel batteries are used for both house and engine, there are two for house and they are independently charged. House batteries should be charged when voltage drops below 11.8V, there is a parallel key if problems are experienced with charging or batteries on either circuit.

## Section 2 Crew Preparation and Boat Management

### 1. The Safety Policy – Who is responsible?

Everyone who sails on the boat has a responsibility for the safety of themselves, 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 ensuring all crew 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 objective is to take all reasonably practicable measures to control risks against injury*

### 2. Hazard Identification and control strategies:

#### 2.1 MOB procedure

The procedure used has been modified from that developed by Teki Dalton and published in Australian Sailing. (It should not be necessary if we stay harnessed to the boat)

*For the purposes of the following crew #1 is the person who first observes a MOB situation, crew #2 is closest to lifebuoy/Jonbuoy.*

**Crew #1.** Raise the verbal MOB alarm, immediately switch on and throw a waterproof torch after the MOB. Watch continuously where the MOB fell or the light, do not take eyes off MOB or light regardless of other activity.

**Crew #2.** Throw the nearest lifebuoy or Jonbuoy, support Crew #1 in the short term and relay to skipper/helm. Look out for flares or other signalling.

**Crew #3.** Raise “all hands” at stations and instruct nearest person to activate MOB button on GPS. Act as relay between navigator and helm.

**Navigator.** Notes the Lat. and Long. on the chart or log. Navigator confers with skipper regarding radio call to authorities when skipper free to talk. Navigator assesses tidal movements, boat speed etc to determine bearing to estimated position.

**Helm.** As soon as practicable, give order to change direction of boat to minimise the distance travelled away from MOB. Bring boat into a state that can be fully controlled to ensure MOB retrieval. Ensure engine not started and nobody jumps in water. Consider quickest and safest turning manoeuvres. Ensure that the boat is under full control at all times. It is the Skipper’s call as to the configuration of the boat, motoring or minimum sail, when retrieval is made.

**Skipper, if not already, takes over and runs the operation.**

**Crew.** Continue to control the boat with the Navigator and Observer giving best estimated position of MOB. Prepare for pickup, organising MOB sling and Halyard if required.

**Navigator.** Determine search pattern if initial search unsuccessful.

**Helm.** Approach MOB to windward and then to leeward and throw the heaving line and if necessary the second lifebuoy. 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 Terra Firma is through the transom, however different sea states may require different methods or a combination of many.

**First Aid officer.** Keep horizontal in case of hypothermia, assess condition and apply immediate first aid if required. If crew member seems OK, ensure they remain dry and warm and observe for some time.

**Navigator.** If previously alerted authorities, advise them of situation. Log a complete account and have Skipper initial/sign.



## 2.2 Fire procedure

The boat carries Dry Powder extinguishers that are suitable for use on most types of fire as they starve the fire of oxygen. The fire can also be extinguished by using a fire blanket to starve it of oxygen. Cooling the fire is effective although water must not be used on electrical, oil or diesel fires (water is effective against metho fires). Dry powder extinguishers give off carbon dioxide which will collect in the lower reaches of the vessel and could affect breathing, ventilation is essential.

*For the purposes of the following crew #1 is the person who first observes a fire situation. Crew #2 is the next closest etc etc.*

**Crew #1.** Raise the verbal fire alarm, immediately assess danger situation and trigger evacuation if required. Immediately grab a Fire Extinguisher and use a short blast to control fire, fire blanket, water or co-ordinate a controlled burn. Note fires often flare up so do not empty extinguisher, use minimum amounts.

**Crew #2.** If an evacuation is required, verbally alarm crew and ensure boat is fully evacuated, organising a muster on deck.

**Crew #3.** If an evacuation situation and if safe, fill grab bag with priority safety equipment (handheld VHF, GPS, 406 EPIRB and flares).

**Crew #4.** If an evacuation situation, if safe, move lifejackets and life rafts on deck. Do not deploy the liferaft/s unless ordered to by the Skipper.

**Crew #5.** If an evacuation situation, if safe, and if instructed to do so by Skipper put out a mayday call.

## 2.3 Abandon ship procedure and Muster

In the event that it is necessary to abandon ship the **Skipper will be responsible for the instruction.** The safest place for the crew is usually to remain with the boat until it is obvious that it must be abandoned. **Do not attempt to abandon the boat to take refuge in a liferaft whilst it is still afloat and in no immediate danger of sinking. Only the Skipper, or acting Skipper, is to give this order.**

Precautions should be taken to ensure a quick departure if the conditions or the damage to the boat warrant this action.

<b>Skipper:</b>	Co-ordinate the work below, ensure all on deck are safe and gear is checked. Determine time to place Mayday, activate EPIRB's, deploy liferafts, if flares are to be activated and abandon ship. Number off all crew, particularly after roll, knock down or liferaft deployment.
<b>Crew 1:</b>	Ensure all crew are wearing full life jackets, are carrying strobes and personal EPIRB's.
<b>Crew #2:</b>	Deploy the 406 EPIRB if not already done so. Secure well to boat initially and then to liferaft when departing.
<b>Crew #3:</b>	Prepare grab bag with priority 1 safety equipment (handheld VHF, GPS, V sheet and flares).
<b>Crew #4&amp;5:</b>	In spare gear bags grab priority 2 safety equipment (First aid kit, radar deflector, torches) as well as energy food and water.
<b>Navigator:</b>	Place a Mayday call and determine position.
<b>Crew #6&amp;7:</b>	Deploy the liferafts and secure to the boat.

## 2.4 Safety harness policy

It is the policy of the boat that harnesses and tethers will be used when instructed by the Skipper. Consideration should be given to wearing harnesses and tethers through dangerous navigation and known rough waters. Such places are rips and The Heads.

## 2.5 Training policy

All crew sailing off shore are advised to attend the AYF Sea Safety and Survival Course. Those who have not attended the AYF Sea Safety and Survival Course should take direction in terms of safety from those who have in absence of formal direction from the Skipper or acting Skipper.

## 2.6 Rig loss

Do not start the engine until instructed by the Skipper. The Skipper is to control deck operations and assign key people to their positions. Number off or count the crew on deck to ensure no-one is overboard. Check if the hull has been breached. Report damage to Skipper. The order may be to keep the rig and secure on deck. If the order, by the Skipper, is to remove the rig, then save what maybe required for a Jury rig and then stays maybe cut (hacksaw nick and snap) or remove pins and send rig off. Cut halyards, controls and wiring. Check and secure all ropes, start engine. Fit the emergency antennas and test radios. Consider a jury rig.

## 2.7 Broach

A broach is caused by various conditions including wave state, poor steering and/or wind shifts. All operations are controlled and assigned by the Skipper or acting Skipper. Immediately ease spinnaker sheet, main sheet and boom vang. Do not release the Guy / Brace.

## 2.8 Run aground

Crew check for water ingress, navigator and Skipper assess severity of hit, sea bed conditions, tide and state of boat and crew. For low severity groundings, heel boat to windward and attempt to sail off. For medium severity aground, drop sails, deploy crew to end of boom and attempt to motor off. For high severity aground consider tide movements and risk to crew, action accordingly including radio call for assistance and potential safety gear deployment and/or abandon ship. Skipper to control.

## 3. Crew Clothing

A three layer clothing system is recommended, particularly when cold with thermals, a middle layer and wet weather gear on top. Good quality boots should be worn with thermal socks in colder weather as well as some sort of head protection such as a thermal beanie. Polar fleece is a particularly good material for the middle layer, beanie and gloves when very cold. Due to wind chill it is recommended all crew have suitable protective clothing and footwear appropriate for the conditions. In summer protection against the sun should be considered including hats and sunscreen. The boat provides sunscreen if required.

A PFD 1 inflatable vest with integrated harness is also strongly recommended. Hanging room is provided for all wet weather gear, all clothing must be stored when not in use.

## 4. Crew capabilities, experience and medical status

A minimum number of experienced crew are required and in general only two persons without ocean sailing experience will sail on the boat during ocean races. The fitness and medical status of crew members will be taken into account, any issues should be raised with the Skipper. Generally a ocean racing crew is made up of 3 capable of helming, 4 capable of all crew positions and 3 capable of one or two positions. Cruising this can be reduced to 2 helm, 1 to 2 capable crew and some novices.

## 5. Crew briefing

Crew positions:	Each crew member will have a primary crew position. On long ocean races each crew will also be nominated to a secondary crew position. Crew will have a nominated number which will correlate to a life jacket, harness and off watch time.
Safety briefing:	To be carried out as specified on the crew briefing sheet. Briefing to include reefing of sails, setting of storm sails, MOB, Emergency steering, fire etc.
Weather & sea:	Always discussed. In the event that conditions do not look suitable for a boat of the size and capability of Terra Firma then a crew meeting shall be held prior to the start to discuss the matter. Regardless the Skipper is in absolute authority of the boat.
Watch change briefing:	Navigation details, wind strength, sea conditions, sails, barometer movements, fuel, battery charge, halyards in use, refer to Appendices.

## 6. Key safety positions

First aid	At least two for off-shore race, one when cruising
Radio operators	At least two for off-shore race, one when cruising
Navigator	At least one for off-shore race, usually two
Sea safety trained	Min 50% of crew for off shore race, at least one when cruising

## 7. In the water and life raft

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.

Communication – use flares sparingly, mirror, torches, strobes, handheld VHF radio, 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.

## Appendix A

### Category 1 safety check list

Last updated 9/11/04

Boat item	Number Required	Where	Notes	Status
<b>Hull</b>				
secure all anchors - 10m chain & 50m warp	2	Boat	One danforth (40S) + one CQR (15)	Ropes need replacing soon
secure all batteries - gel	3	Boat		OK
certificate on board issued by ABS	1	Boat	Need to get from Steve	OK
<b>Internal</b>				
Mast step secure	Note	Boat	Need bolts	OK
Seacocks have wooden plugs - toilet inlet & outlet and sink	3	Boat		OK
Life lines	Note	Boat	316 SS 4mm(5/32 in) 600mm from deck	OK
Stanchions	Note	Boat	Max distance apart is 2.15m	OK
Bilge pumps	2	Boat	handles tied to pocket, 1 inside, 1 outside	OK
Bucket with lanyard	2	Boat		OK
Compass - independent of two bulkhead compass (non electric)	1	Boat	incl binoculars & handheld GPS	OK
Navigation spare lights - Bow (red/green) & stern (white)	1	Boat		OK
Nav. spare globes - Bow & stern	1	Boat	Include spare windex globe & strobes	OK
Fire Extinguishers - 5BE	2	Boat	Just renewed Oct04	OK
Water tanks with pump outlet	2	Boat	Use portable instead	OK
<b>Motor</b>				
Shut off valves to all fuel escape points	Note	Boat	valves on spirit level - side of fuel tank	OK
<b>Radio</b>				
Restricted Operators Certificate of Proficiency in Radio Telephony	2	NB	currently NB, WG, PB, MV, CB, Eddie	OK
Emergency antenna where an arial depends upon the mast	1	Boat	HF & VHF	OK
HF radio	1	Boat		OK
VHF boat radio	1	Boat		Areal suss
Hand Held waterproof VHF	1	Boat		OK
Weather receiver	1	Boat		OK
Radio check and certificate	1	NB		OK
<b>Sailing gear</b>				
Storm sail and trisail (sheets permanently attached)	2	Boat	Painted orange	OK
Climbing Harness	1	Boat		OK
Bosuns chair	1	Boat		OK
Jack stays - Spectra	2	Syd office		OK
Torches - waterproof	2	Boat		OK
GPS	1	Boat		OK
GPS waterproof hand held	1	Boat	Use Chris Byrne's	OK
Barometer	1	Boat	B&G	OK
Log - other than GPS	1	Boat	B&G	OK
Depth sounder	1	Boat	B&G	OK
Books - Int. Regs. for the preventions of collisions at sea	1	Boat		OK
Books - AYF Racing Rules of Sailing	1	Boat		OK
Charts	See log	NB		OK
Emergency tiller - spinnker pole attached to forward floor board with U bolt	1	Boat		OK
Sharp knife	1	Boat	Companionway	OK
<b>Medical</b>				
Publications - Ship Captain's Medical Guide (21st Ed)	1	Boat		OK
Cat 1 medical kit	1	Trailer	Not to be used	OK
Current Senior First Aid Certificate - level 2 (2 people)	2	NB	NB & Eddie	OK
Day to day Medical kit	1	Boat	Just refreshed, keep spare	OK
<b>Distress</b>				
EPIRB 406	1	Boat	In galley	OK
EBIRB certificates	2	NB	Just renewed	OK
EPIRB 121.5	2	Liferaft	In both liferafts	OK
Flare barrel waterproof	1	Boat		OK
Red parachute	6	Boat		OK
White parachute	2	Boat		OK
White hand smoke flare	2	Boat		OK
Orange hand smoke flare	4	Boat		OK
Red hand smoke flare	4	Boat		OK
Foghorn	1	Boat		OK
Radar deflector	1	Trailer		OK
Fire blanket	1	Boat		OK
Grab Bag	1	Boat		OK
Lifebuoys	2	Boat	Named, drouge, whistle, self lighting light	OK

## Appendix B

# Radio basic guide – VHF & HF

### Terra Firma VKV2339, sail number 4100

The following gives a guide for the radios. Restrict your use to appropriate frequencies as noted below. Note the difference between call channels and working channels, move to a working channel ASAP.

Notes:

F = Also used by fishing boats

R = Restricted to safety or authorised organisations

I = Restricted to inshore use

D = Day, N = Night

VHF scan function will scan the Emergency and working channels

2182kHz will not necessarily be monitored by ships or coast stations any more

HF channels shown in brackets – memory numbers which are unique to us, do not refer to them to others

#### VHF radio (one on the right and handheld)

**Used for short range (ships 11Nm, shore 27Nm)**

##### ***Emergency & urgent call channel***

Backup Emergency & general call channel

##### ***Ch 16 (dedicated button)*** Wind warnings

Ch 67

Strong wind

25-33Kts

##### ***Working & call channels (ship to ship)***

***Ch 72F, 77 F***

Gale

34-47Kts

Working & call channel (ship to shore)

Ch 73

Storm

48+Kts

Fishing only working & call channel

Ch 71

BOM Weather forecasts

Ch67 (Times vary, refer schedule)

VHF Repeaters

Ch 21, 22, 80, 81, 82

Fixed wing aircraft

Ch 6

#### HF radio (one on the left)

**Used for long range 2kHz < 55Nm, 4kHz > 55Nm, 6kHz+ longer, esp daytime**

##### ***Emergency frequency & call***

***4125kHz(10)***

Backup Emergency frequencies

2182 (Emerg or 46), 6215(11), 8291(12), 12290(13), 16420(14)  
(try these in ascending order)

##### ***Working & call frequency (ship to ship)***

***2284(23)***

Working & call frequencies (ship to shore)

2524(24)R, 2008(25)I, 2032(26)I, 2436(41)RI

Fishing only working & call frequencies

2112(42), 2164(43), 4535(44)R, 4620(45)R

BOM Weather forecasts

2201(15)N, 4426(16)D, 6507(17)N, 8176(18)DN,

(3mins before half hour, D=Day 7am-6pm, N=Night 6pm-7am)

#### Phone numbers

Australian Search & Rescue (RCC)

1800 641 792

Penta Comstat

02 6559 1888

#### Distress calling procedure

Note a MAYDAY is only for Grave and immediate danger, for moderate safety situations use PAN PAN, for weather and navigation hazards use SECURITE. Tune to an emergency frequency noted above, ensure antennas are not damaged first

Mayday, Mayday, Mayday

This is Terra Firma VKV2339, Terra Firma VKV2339, Terra Firma VKV2339

Mayday Terra Firma VKV2339

Our position is ..... (read Lat/Long from GPS)

(The nature of the emergency)

(Number of crew, injuries, EBIRB activation, life rafts on deck etc)

Over

## Appendix C

### Crew Briefing Sheet

Run through the following as appropriate

- Primary and possibly secondary on deck crew positions
  - Helm(s)
  - Tactics
  - Main sail trimmer(s)
  - Headsail trimmer(s)
  - Spinnaker trimmer(s)
  - Pit
  - Mast
  - Bow
  - Grinders/support crew
- Order of authority transfer (2<sup>nd</sup> and third reserve Skipper)
- Who is/are first aid officer(s)
- Who is/are authorised radio operators
- Who is/are navigator(s)
- Who is/are cook(s)
- Request knowledge of crew medical conditions including swimming capability and any physical restrictions or fears.
- Run through watch system if appropriate
- Location of safety gear for new crew
- Basic do's and don'ts for novices
- Race brief by tactician
- Navigator's brief