

January, 1998

# Safety Manual

## Contents

1.	General Information	2
2.	Sun Smart Policy	5
3.	First Aid, Accidents & Emergency Procedure Plan	7
4.	Personal Flotation Devices (PFD)	12
5.	Sailing Dinghies	15
6.	Access Dinghy Sailing Systems Safety Recommendations	16

# 1. General

## **Mission Statement**

To facilitate consultation and co-operation between branches in initiating, developing and implementing measures designed to ensure safety at all sailing events.

## **Introduction**

Safety by definition of the Concise Oxford Dictionary means “Being safe, freedom from all danger or risks”.

It is intended that all members of Sailability and associated organisations have an important advisory role. Their active involvement in assessing, helping design and implement safety standards will be encouraged.

An organisation with an active ongoing participation based safety programme will have reduced the risk of accident situations occurring.

# Safety Policy Statement

## RESPONSIBILITIES

Responsibility is a duty which is shared by all involved in any on-water activity.

It is the duty of all staff, instructors, carers and volunteers to be vigilant and aware of all circumstances that may affect the safety of both themselves and others.

It is the duty of all persons involved to notify the Supervisor of any situation or circumstance that concerns them, or that they feel may affect the safety of any person. This must be done as soon as possible, and then confirmed in writing.

### **Duty of Care –vs- Dignity of Risk**

**Duty of Care** refers to “the obligation to take responsible care to avoid injury to a person whom it can be reasonably foreseen, might be injured by an act or omission”. In addition to having fun, volunteers should be alert to potential hazardous situation.

**Dignity of Risk** refers to the ability of a person to decide to take a “Safe” risk. Dignity of Risk is acknowledging a person can make their own choices, ie although a decision may look risky to you as the volunteer, the person making the choice knows exactly what they are doing.

## PEOPLE WITH SPECIAL NEEDS

Communication with sailors is of primary importance. “*Ask the Sailor*” Do they have special problems that could affect either their own safety, or the safety of others?

Attention should be given to any person who may have special needs and not be personally aware of the dangers of hypothermia and heat exhaustion. Certain sailors may have no sensory feeling of "cold" or “hot”, or be unaware of the meaning of that feeling. Similarly, some sailors find it difficult to judge their stamina accurately. All persons with responsibility must be alert to these potential dangers.

Some sailors have little or no sensation in various areas of the body. To protect feet and legs from bruising, pressure spots or scrapes, it is important that sailors have their feet and legs protected eg. Wear shoes and/or socks.

For further information on symptoms, instruction techniques and implications for sailing, refer to Sailability’s Disability Awareness Manual.

# Occupational Health & Safety

Occupational Health and Safety is a shared responsibility of all Sailability members and volunteers. Everyone should be familiar with the Sailability Safety Manual and ensure these guidelines are followed.

## **OBJECTIVES**

1. To create a safe and healthy place in which to conduct Sailability events.
2. To establish and maintain policy, procedures and a program which will support the development, implementation and maintenance of a safe and healthy venue.
3. To demonstrate Sailability's commitment to the health and safety of all participants and volunteers.

## **PRINCIPLES**

1. It is the right of all participants and volunteers to have a safe and healthy venue to conduct Sailability events.
2. Health and safety is an individual and a shared responsibility.
3. Good management principles and practices operating normally within the workplace constitute a sound basis from which a successful Occupational Health and Safety program can develop.
4. A safe and healthy venue promotes a more secure, productive environment.

Volunteers need to be provided with adequate training to perform assigned tasks.  
Refer Volunteer Manual – Training Section.

Before performing any task the following questions should be considered:

- \* Is this task safe for my own well being and that of the sailor ?
- \* Is there a safer way to perform the task ?
- \* Do I need assistance to perform the task ?

## 2. Sun Smart Policy

The Cancer Council recommends the following guidelines be considered when holding any outdoor activity. As all Sailability events occur in direct sunlight it is imperative for administrators at all levels of our organisation be aware of, and actively address the following issues.

### SUITABLE CLOTHING

- One of the most effective ways to limit UV radiation to the skin is by wearing protective clothing.
- Ensure that T-shirts are of the collared design. Consider longer sleeves (elbow length is a good compromise).
- The closeness of the weave is particularly important, not the weight of the fabric. A simple way to get some indication of protection or to compare fabrics is to hold them up to the light. The less light coming through or the harder it is to see through, the better the protection.
- Be aware that darker colours tend to absorb more heat than lighter colours and can be less comfortable in hot weather.

### HATS

Hats should be part of your Sailability uniform. Different styles of hats provide varying levels of protection from the sun.

- **Baseball caps** offer little protection to the ears, neck and cheeks.
- **Broad Brimmed Hats** protect the face, ears and back of the neck. They should have a minimum brim width of 8 – 10 cm for adults, 6 cm for children. The underside of the brim should be a dark colour to reduce the amount of UV radiation reflected on to the face.
- **Legionnaire Caps** protect the ears and neck, but leave much of the face, especially the cheeks exposed. They should have a front peak of a minimum of 6cm and a one-piece back-flap. They should not have velcro, clips or press studs for raising the flap.



## **SUNGLASSES**

Sailors (including children) should be encouraged to wear sunglasses at all times. UV protection does not necessarily relate to the cost of the sunglasses. For maximum protection choose sunglasses that:

- meet Australian Standard 1067
- offer 99% protection from UV rays
- are close fitting, wrap-around style

## **SUNSCREEN**

At all Sailability events, sunscreen should be available to volunteers and members.

Sunscreen will assist in blocking damaging UV rays to exposed skin. Sunscreen should be used as an adjunct to the natural protection of wearing a hat, sunglasses, collared shirts with long sleeves and using shade where available and keeping out of direct sunlight as much as possible.

### **Choosing a sunscreen**

- Choose a sunscreen with a Sun Protection Factor (SPF) number of 15+.
- Labelled “broad spectrum”.
- Water resistant

### **Applying sunscreen**

Sunscreen should be applied according to the manufacturer’s instructions.

- Apply liberally at least 15 minutes before going out in the sun.
- Apply to clean, dry skin.
- Reapply regularly.

## **SHADE**

Be aware - even if adequate shade is available at your venue, UV rays will reflect off nearby water, concrete, sand and grass.

As well as the publicised risks caused to the skin by over-exposure to the sun, many people with disabilities have medical conditions affected by heat and sunlight. Every precaution possible should be taken to ensure that all participants have adequate protection from the sun.

Make maximum use of natural shade. If none is available at your venue, the Sailability committee should seriously consider alternative options. eg

- A portable shade cabana can be purchased for several hundred dollars and will provide some shade.
- Permanent shade structures, although more expensive, are more appropriate. Investigate making an application through your Local Council to obtain government capital works funding.

## **3. Accidents**

The Supervisor of any Sailability event must ensure that first aid equipment is on hand and complete, and that its location is accessible and known to all persons.

The Supervisor should ensure that a trained first-aid person with a valid certificate is available at an event.

If an accident occurs full details should be entered, as soon as possible, on the Accident Form (Refer page 9) and sent to the Branch committee. It is the duty of all persons to ensure that any accident is reported.

All Sailability venues should formulate an Emergency Procedure Plan (EPP). Refer page 10.

### **First Aid**

It is recommended a First Aid Officer be appointed at each Sailability event. This Officer should hold current First Aid qualification from a recognised organisation eg St. Johns Ambulance Association or The Red Cross Society.

All members of Sailability are encouraged to obtain current CPR certificates.

### **General Duties of a First Aid Officer**

1. Disperse and control items from the First Aid Kits / Cabinets.
2. Ensure supplies are adequate.
3. Treat minor wounds and injuries with applicable dressings, stop bleeding and treat burns.
4. Deal with fits and fainting.
5. Resuscitation
6. Hypothermia
7. Recording accident/injury details and advising the Supervisor.
8. Arranging further assistance if necessary.

# First Aid Kit

## For Various Degrees of Pain

Mild Pain	Paracetamol (Panadol)	20
Moderate Pain	Codine (8mg) and Panadeine	20

## For Wounds and Limbs

Crepe bandages 75 mm x 1.5 m	2
Crepe bandages 100 mm x 1.5 m	1
Triangular bandage	1
Band-aids	20
Adhesive tape (waterproof) 20 mm x 2.5 mm	1
Cotton wool combined pieces	10
Steristrips (for wound closure)	10
Antiseptic skin solution	1

## For Eyes

Normal saline (for washing) 500 mm	1
Sterile eye patches	5
Eye bath	1
Visine	1

## For Burns

Burn cream (eg Paxyl) tube	1
----------------------------	---

## Sunscreen

Greater than spf 15 50 mg	1
---------------------------	---

## For Seasickness

Hyoscine patches	1
Seasickness wrist bands	1

## Instruments

Scissors (stainless steel)	1
Thermometer (clinical)	1
Safety pins (assorted sizes)	10
Protective Gloves (pairs)	3

## First Aid Book

Authorized manual of the St. John Ambulance Association in Australia (current edition) or Advanced First Air Afloat or the authorized manual of The Red Cross Society.

# ACCIDENT / INJURY REPORT

## DESCRIPTION OF CIRCUMSTANCES

Date of accident \_\_\_\_\_

Place where accident occurred \_\_\_\_\_

Supervisors name \_\_\_\_\_

Injured persons name, address and phone number \_\_\_\_\_

Describe how accident occurred \_\_\_\_\_

Describe any injury incurred \_\_\_\_\_

Name & address of doctor if consulted \_\_\_\_\_

Name, address & phone no. of Witness \_\_\_\_\_

Was any property/equipment damaged ? \_\_\_\_\_

Did the accident involve injury to any other people ? \_\_\_\_\_

If so what is/are their name/s and address/s \_\_\_\_\_

Were any Safety Directions or requirements being infringed ? \_\_\_\_\_

If so, give details. \_\_\_\_\_

Corrective action taken/recommended \_\_\_\_\_

Signed

Date

Supervisor

Date

# Emergency Procedure Plan (EPP)

Each venue should be assessed and an Emergency Procedure Plan formulated. All participants, especially Supervisors and volunteers should be well drilled in emergency procedures. Details of the EPP should be incorporated in all volunteer training courses (refer to Sailability Volunteer Training Manual).

## **POINTS TO CONSIDER WHEN DESIGNING EPP**

- Location of nearest telephone (if no phone available, a mobile phone should be on site)
- Location of fire extinguishers
- Visual and audible signals calling all craft back to shore in case of emergency
- Vehicular access to Sailability event site at all times for emergency services
- Location of First Aid Kit
- Radio communication between safety boat and shore
- Designated shore marshalling area at times of emergency
- Several people trained to be “Safety Officer of the Day” ensuring correct procedures are implemented at each Sailability event.
- A Register names of all sailors on the water at any given time
- Be aware of specific medical conditions which may require attention eg epilepsy, diabetes, heart condition etc. (Refer to Sailability’s Disability Awareness Manual)
- All persons should be aware of “Universal Precautions” Guidelines with relation to protection when working with possibly infectious body fluid (Refer to Sailability’s Volunteer Training Manual)

## **IMPLEMENTATION OF EPP**

The Supervisor (or Safety Officer of the Day) has the responsibility of activating the EPP and allocating various tasks to responsible personnel.

### **ON-WATER EMERGENCY**

1. Safety boat personnel to immediately alert shore personnel by radio of emergency.
2. The Signal to “return immediately to shore” should be sounded (and displayed).
3. Safety boat to aid persons requiring emergency assistance.
4. Safety boat to continue to assist others return to shore.
5. Continue with the following procedures

### **MEDICAL EMERGENCIES - FIRE EMERGENCIES - ACCIDENTS**

The Supervisor (or Safety Officer of the Day) should assess the situation, taking into consideration:

Injuries sustained  
Possible danger to others  
Further help required – fire brigade, ambulance, police etc.  
Damage to equipment  
Assess fire situations

The Supervisor (or Safety Officer) allocates the following tasks to responsible personnel:

**Marshall** – responsible for assembling all people not involved in the emergency to the pre-arranged marshalling area and ensuring all participants’ location is known.

**First Aid Officer** – Assist any persons requiring assistance

#### **Assistant 1**

**Contact Emergency Services** – with concise description of location & type of emergency

#### **Assistant 2**

**Ensure clear access to site**

#### **Assistant 3**

**Direct Emergency Services to site** – to go to the closest road and give directions to Emergency Services of location of emergency site.

## 4. Personal Flotation Devices

There are many types and variety of buoyancy aids available, manufactured to different sets of standards. These include appliances for use by commercial vessels required by law to meet SOLAS or USL Code standards. The Australian Standards for Personal Flotation Devices (PFDs) are appropriate for recreational boating activities

The PFD is a personal item of safety equipment, designed specifically to assist in preserving a person's life when in the water. Simply owning and carrying a PFD is no guarantee of safety, unless you know how to use it. You and your passengers should always practice putting the equipment on before you leave the shore. Non-swimmers and children should wear one at all times whilst on, or near, water. It is extremely difficult to don a PFD in the water. PFD's should also be stowed in a location where they can be accessible and quickly distributed. PFD's are subject to normal wear and tear. Each one should be checked regularly and if in doubt about its serviceability it should be replaced. If they become wet from salt water they should be hosed down with fresh water and allowed to dry. The addition of talcum powder will also assist in reducing the possibility of mildew forming.

### Selecting a PFD

A PFD provides buoyancy to help you float with your head above the water.

- **PFD Type 1** complying with the requirements of AS 1512 provides a high level of buoyancy and is designed to maintain the wearer in a safe floating position. They are required for use in pleasure vessels which may venture beyond sheltered waters. PFD Type 1 were previously referred to as "lifejackets".
- **PFD Type 2** complying with the requirements of AS 1499 provides sufficient buoyancy to assist the wearer to maintain his or her head above the water but not as much as a PFD Type 1. A PFD Type 2 is generally recommended for use by dinghy sailors, board sailors, water skiers and other people who are at risk of short term immersion in sheltered waters. PFD Type 2 were previously know as "buoyancy vests".
- **PFD Type 3** complying with the requirements of AS 2260, provides a similar amount of buoyancy to that of a PFD Type 2, but PFD Type 3 are permitted to carry a wider range of colours. PFD Type 3 includes buoyant wetsuits and PFDs in fashion colours. PFD Type 3 are generally recommended for use by water skiers. PFD Type 3 were previously known as "buoyancy garments".

A PFD which bears the applicable Standards Mark has been manufactured to comply with the appropriate Australian Standard.

## **A Word of Caution**

A PFD will help you to float in the water, but it cannot guarantee your safety and ultimate rescue. Points to be remembered:

1. PFD's are manufactured in a range of sizes to suit people of different body masses and builds;
2. The effectiveness of a PFD is considerably reduced in rough or breaking seas and surf;
3. In the event of a swamping or capsize remain with your vessel as this will be more easily found by rescue services;
4. The chilling effect of submersion in cold water for an extended period (hypothermia) saps the body's reserves of strength and can ultimately be fatal;
5. Wear your PFD in a seaway, if this is not practicable, store it in a readily accessible place. When taking others aboard your vessel ensure that there are sufficient PFDs for everybody and that all know how to find their PFD and how to put it on.

## **PFDs and Children**

A properly designed PFD of the correct size will keep a child's mouth and nose clear of the water. A child should be taught how to put on a device and should be allowed to try it out in the water. It is important that the child feels comfortable and knows what the PFD is for and how it functions.

Further information on PFDs and Australian Standards may be obtained by contacting the appropriate Standards Australia office.

## **Non-Approved Jackets**

Some lifejackets carry approval ratings from overseas countries as life jackets or personal flotation devices etc. The regulations requiring leisure craft to carry Australian approved jackets is an attempt to protect the public from many inferior products.

## Choosing a PFD

When choosing a PFD, look for the following features:

- Fit and comfort – to work properly, the PFD must fit correctly and securely.
- Two highly desirable features on any jacket, and especially on those for children, are an adjustable crotch strap and a lifting or towing strop.
- Flotation – the buoyancy capacity should be adequate for the sailor's body weight. PFDs are manufactured to suit four body mass ranges:

10 – 20 kg

15 – 30 kg

25 – 40 kg

35 kg and over

- Style – an attractive style will encourage people to wear PFDs.
- A kapok filled Mae West style PFD is very cumbersome to wear.

Other PFD's styled more along the lines of a vest are not only more convenient to wear routinely but can keep the occupant warmer both in and out of the water. They are often chosen for activities where occasional immersion is expected.

The ultimate solution from the wearer convenience viewpoint is offered by some of the inflatable PFD's. Although they can be inflated orally, more are inflated manually by pulling a toggle which releases gas stored in a small disposable cylinder. Good quality inflatables are highly reliable and offer the minimum hindrance to the wearer before inflation, both in and out of the water. Inflatables also offer far more versatility in the water than other PFD's.

Inflatables are specifically prohibited under Australian Standard, as far as children's PFD's are concerned. Obviously a small child cannot be relied upon to operate a manual inflation PFD.

Compared with some overseas standards Australian Standard PFD's are not as buoyant and they are not, in fact designed to be used in rough water.

## PFD Skills

All water users should experience the wearing of PFDs and develop the skills required for:

- Putting on a PFD on land or in water
- Sharing a PFD as a flotation support
- Getting in and out of water and into a rubber raft or dinghy while wearing a PFD.

# 5. Sailing Dinghies

## GENERAL

- A suitably qualified person should be nominated to authorise on-water activities, taking into account the actual and forecast weather conditions. Refer to Sailability's Volunteer Manual – Training Section for task allocation procedure, job descriptions, training etc.
- Personal Flotation Devices (PFD) must be worn by all persons when afloat. PFD Type 1 or 2 complying with the Australian Standard are recommended. Refer Section 4.
- The sailing area should be clearly defined and known to all afloat. The safety boat should be able to view the entire sailing area at all times.
- There should be a simple signal for all boats to return to shore, which is known by all afloat.
- The safety of sailors and volunteers must be considered at all time. If weather conditions alter, sails are to be reefed accordingly, or if necessary activities cancelled should conditions prove unsafe.

## SAFETY BOAT

- When dinghies are sailed a safety boat **must** be on the water at all times, with at least two crew on board, one of whom holds a suitable boat licence (TL3 qualification). Generally a safety boat should not provide cover for more than eight dinghies, but prevailing conditions must be taken into account.
- Safety boats should carry a first aid kit and **MUST** be equipped with radio communication to the shore.
- In all planing powerboats, a kill cord should be fitted and used.
- All persons in the safety boat must wear an approved buoyancy aid.
- All safety boat personnel should be instructed on how to reef sails.
- If an Access Dinghy needs to be towed, it is safer and easier to tie the dinghy close alongside and remove the rudder blade so that the dinghy cannot be “steered” in the wrong direction.

## 6. Access Dinghy Safety Recommendations

Access Dinghies are designed with a hull form and other features which combine to give considerable stability. There needs to be a set of rules which we must follow to continue our excellent safety record and prevent any accidents. The stability of Access 2.3 and 303 Dinghies is reliant upon the following factors.

- **SEATING** - Because the placement of sailor's weight affects stability it is important that people remain seated low in the boat. We therefore, have to look at using quick release velcro straps to hold them in place, provided the keel is locked fully down.
- **CENTREBOARDS** - It is most important that the keel be fully down when sailing. The hole 1/3 down the keel is there purely to facilitate sailing off a beach, *and under no circumstances should people with disabilities be allowed to sail around with the keel held in this position.* There is provision to lock the keel fully down so as even in a "knock down" it remains in place. It is imperative that the locking pin be inserted whenever the boat is used. Invariably people sailing the electric boat need to be strapped into it. Never strap someone into a boat unless the centreboard locking pin is inserted through the c/b handle.
- **REEFING** - Being a displacement type hull extra sail area in strong winds does not mean more speed, all it does is bury the boat in the water and make it more difficult to handle. In a breeze it is always better to reef to suit the stronger gusts.

If an Access Dinghy needs to be towed, it is safer and easier to tie the dinghy close alongside and remove the rudder blade so that the dinghy cannot be "steered" in the wrong direction.

A pontoon system which will take care of the off the beach keel handling and transferring problems has been designed.

People with disabilities need the keel down and because many are unable to raise and lower the keel to improve sailing performance and also unable to adjust the size of the sail by reefing it is discriminatory to allow abler bods to make these adjustments during a race.

# How to Rig an Access Dinghy

- **STEPPING THE MAST**

1. With the reefing line knot positioned as far as it will go on the port (left) side.
2. Loosen the knob under the console on the reefing drum
3. Carefully step the mast making sure the foot is firmly in the step.
4. With the sail full tighten the knob to lock the reefing drum onto the mast.

- **FITTING THE BOOM** - The boom should be kept tidy with no loose ends trailing.

1. Untie and sort out the two ropes.
2. Position the boat facing into the wind.
3. Push the rowlock at the front end of the boom onto the bobbin.
4. Take the outhaul which runs along the boom and shackle it onto the corner of the sail (called the clew).
5. Pull the sail out to the boom end by pulling the outhaul tail and cleat it at the front end of the boom.
6. Now sort out the other rope, (called the sheet), and shackle it onto the rope traveller which runs across at the stern of the boat.
7. The other end of the sheet passes through the sheave on the forward end of the console. Feed it through so you can work it from the seat.
8. Tie a figure of 8 knot to act as a stopper knot at the end of the sheet..

- **REEFING** : shortening sail area

1. Pull on the port reefing line to reduce sail area
2. Pull the Starboard line to increase sail area.
3. Never pull on both at once.
4. You can put one complete turn of sail around the mast without adjusting the outhaul.
5. To reef further the outhaul needs to be released to allow the sail to travel forward along the boom.
6. Conversely, when unreefing, you need to pull on the outhaul.
7. The idea is not to flatten the sail along the boom as it should have enough slack to form a gentle curve.

- **THE STEERING**

1. Make sure the steering lines pass under the joystick correctly.
2. Fit the rudder making sure the rope traveller is above the tiller.
3. Remove the spring clip and pass the clevis pin up through the hole at the end of the tiller.  
Re-insert the clip.
4. Fit the alloy joystick extension.

- **LAUNCHING**

1. Pass the bow line(called a painter) through the guide ring at the bow and fasten it around the mast with a bowline. (a knot which is always easy to untie)
2. Use the short alloy tube to pin the centreboard up when moving the boat around onshore.
3. Pin the centreboard in the half way position if you need to move the boat around in shallow water.
4. DO NOT ALLOW ANYONE TO SAIL WITHOUT THE CENTREBOARD FULLY DOWN OR THEY MAY CAPSIZE..
5. Use the long alloy pin to lock the centreboard down whenever the boat is in use.
6. NEVER USE SEAT BELTS OR HARNESSSES UNLESS THE CENTREBOARD IS LOCKED DOWN.

## **How to operate the servo assist Access Dinghy**

**The Servo Assist Access Dinghy can be sailed both Manually and controlled by a variety of joysticks and switches.** The basic unit has sheet and helm winches operated by a 4 way joystick, push forward for sail out, back is sail in, steer left is push joystick left and right, push to right. This standard joystick is typically strapped around the chest and moved by hand, but can be up high and worked with the chin.

**There is also the option of a paddle switch** which has very large flaps which activate micro switches. The unit is fully adjustable and mountable in any position, held by suction cups. Many people have difficulty with fine finger control, the paddle switch can be bumped with the wrist or foot giving very precise commands for both winches.

**There is also a 4 way joystick mounted on a small box** which will suit some applications, and a radio control unit which allows the boat to be sailed remotely.

**We advise the most electrically inclined club member to take a close interest in the servo assist boat and to maintain it.** Remove the electrics now to see how it works. All the parts are easily removed and a set of bungs are supplied to seal up all holes. Remove them regularly and spray with water inhibitor. If the electrics are seldom used don't leave them in the boat to corrode.

**Always start off a newcomer with a heavily reefed sail in any sort of breeze,** try it yourself to see why. Be careful in gusty conditions. Always have the rescue boat close by a novice sailing an electric boat. I always assist and instruct from another dinghy sailing nearby. Invariably people have to be strapped into the electric boat. Never strap someone into a boat unless the centreboard locking pin is inserted through the c/b handle. Sail from a pontoon if possible. Encourage able bods and people with a minor disability to also use the electric boat as it is a lot of fun. Don't stigmatise the boats as only for people with a disability. All disabled people have relatives and friends who also want to sail. Use the boats in the club's everyday training program, non sailors love them, you will find club membership will grow.

**The boom** comes fitted with a sheet for manual use. When the Electric sheet winch is used remove the manual sheet from the boom and reeve the servo assist sheet as a two part only through the block on the traveller with the dead end tied off with a bowline at the block at the boom end. Leave the traveller very long, adjust its length so the mast wont be over bent if the sheet is over tensioned. In some cases set the reefed sail on a tight reach and disconnect the sheet winch lead plug if the sailor has difficulty controlling the joystick. They can have a lot of fun steering only. If you want to sail the boat manually while the electrics are fitted, run the sheet nearly right out so there is enough to work by hand, and wind the helm winch drum out to disconnect the dog so the main joystick can also be worked by hand. To reengage the helm winch wind it the drum till you feel it loading, then move the joystick and feel the dog engage, then fully wind in the drum.

**The control box** is very simple with 4 relays controlling the 4 functions. The box is suspended by shock cord under the right arm rest. The battery lead and sheet winch lead run forward and pass through the right lower seat tubes. A simple 2 hole rubber bung acts as the seal.

**The sheet winch** lead is held up under the console with a small block of foam. Remove the sheet winch and check its workings. The 8mm allthread can be turned by screwdriver to adjust tension as the rope wears.

**There are two 12 volt gel batteries.** They will run the boat all day and should be charged after every days use. Ideally charge one at a time. The charger will trickle charge over night. The batteries are lead acid and don't need to be run down. Never run them down. Keep them charged.

**The Helm winch** and joystick leads run aft from the control box. The joystick lead and plug can pass through the seat under the tube to keep them out of any water. The helm winch can be removed through the inspection port, it fits when you hold it correctly. Adjust the steering lines at the joystick and at the fitting at the tiller to centralise the steering when needed. Keep it on the tight side.

The electrics are very simple and robust but not water or fool proof. They will however last for many years if loved and not just ignored. Remove everything and spray it if the boat is flooded. Make sure the control box is suspended properly and not lying vulnerably in the bilge.

Please Phone or Fax Chris on +61 3 9792 5266 if you have any difficulties.