BRUCE BOATS
BOAT USER MANUAL

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1 Introduction

This Boat User Manual is designed to assist Group Leaders with their familiarisation of the Boat with special regard to general layout and the operation of equipment and services (please refer to Appendix 12.1 for the relevant boat and also check in Appendix 12.3 for Specific Equipment Locations that differ from one boat to another).

It is recommended that the Boat User Manual is read in conjunction with our Hirer's Guide and Route Planning Guide to best prepare you for your holiday/trip.

This boat has been specially designed for groups like yours and is well maintained by the Bruce Branch's engineers. There are many services on board which will help your group, which are not found on some canal boats; lifts, large wet room and 240v power supply. If you follow the simple checks in the Daily Check Sheet you should have a trouble free holiday/trip.

If you see anything that appears not to be working correctly, please do not attempt to repair it yourself (the systems are complex and require specialist knowledge). Please phone or text the Callout Engineer on 07769 250511.

Please be aware that all of the Bruce Branch boats are fitted with GPS tracking, primarily to know the position and speed of a boat in the event of any incident, accident or complaint from the public.

2 Diesel

The boat will have a more than adequate supply for a week's cruising, so there should be no need for you to fill up with diesel.

3 Electrical Systems

This boat has many electrical services and pieces of equipment to make your trip pleasurable. Most of these require electrical power to run e.g.

- Fridge
- Toilets
- Shower pumps
- Tap water
- Lights
- Lifts
- 240v sockets and charging points
- Heating and hot water
- Cooker
- Bilge pumps and engine management
- Bow thruster
- Navigation lights and horn

To provide all these services the boat has several large energy stores (battery banks). So it is vital that the **engine is run for at least 6 hours every day (cruising or moored)**, to restore the electrical energy in the battery banks.

There is mains power on board for medical equipment, charging phones/laptops, and the hairdryer supplied. **Please do not** use any other mains power equipment without clearing it with the office when booking or dispatcher before departing the wharf.

3.1 Batteries

Batteries do have a finite life. Lights and other equipment should not be left on unnecessarily.

The batteries are charged from the engine and running the engine for 6 hours will fully charge flat batteries. When the engine is running the red charging light should be extinguished.

If the ignition warning light stays on continuously or comes on whilst cruising, this indicates a fault requiring the engine to be switched off. Phone the Callout Engineer as soon as possible.

There are voltmeters (energy level meters), one for each battery bank. See Appendix 12.2 for details and the information they provide.

3.2 Battery Cut-Outs

In an emergency, the batteries may be disconnected by using the isolator cut-outs which are located under the rear deck boards towards the front of the engine compartment.

The isolators may be turned off by rotating each knob through 90 degrees, but they **must not** be turned off when the engine is running as this could damage the alternators.

3.3 Control Panel

There is an electrical control panel situated in the electrical cupboard (see Appendix 12.1 for the location). The switches are clearly marked and are operated by a simple on/off pressing. They should general be left on, but they can be used if you wish to turn all the cabin lights off, e.g. when leaving the boat to visit the area.

3.4 Refrigerator

A standard domestic refrigerator is provided, which takes its power from the batteries, so please don't leave the door open for long periods of time.

3.5 Mobile Phone, Tablet and Laptop Charging

The boat has 240v sockets, which a phone, tablet or laptop can be plugged into. All the sockets also have USB outlets for phone and tablet charging.

3.6 Charging for Electric Wheelchairs and Other Items

A 240-volt AC supply is provided for the charging of wheelchairs. Sockets are beneath the stern bottom bunk on the port and starboard above window level in the front cabin. It is advisable to bring an extension lead with you. A 240v hairdryer is provided.

Please do not plug any other mains power equipment in without asking the Callout Engineer.

3.7 Electrical Personal Transfer Hoist

The Bruce Branch has an electrical personal transfer hoist for use within the boat. This must be reserved when you make your holiday booking. You will need to bring your own sling, as this is not provided. On taking over the boat the hoist that has been reserved will be on board and will be demonstrated to you. Instructions will be supplied with the hoist.

3.8 Emergency Beacon

The boat has a flashing amber light to be used only in an emergency. It is stored in the central cabin. Should you need to call an ambulance you should inform emergency control that you will place a flashing amber light on the roof of your boat to identify it to the ambulance or helicopter crew. You should place the magnetic light on the roof of the boat and plug the connecting lead into the socket (see Appendix 12.1 for the location). Try not to moor the boat where it is obstructed by trees.

3.9 Deck lights

The boat has deck lights to help you move around the decks after dark. Please turn them off once your crew are safely inside the cabin.

4 Water System

The water is held in a tank under the fore deck, which has a capacity of some 40 gallons. The water in the wash basin taps should not be regarded as drinking water without boiling it first. However, the kitchen sink cold water tap is purified through a filter and therefore drinkable. Water is fed to the taps by a pressurised system; when you turn on a tap you will hear the water pump under the foredeck cut in to maintain pressure and it will cut out after the tap is turned off.

You will find you use a surprisingly large amount of water so the tank should be refilled each day. Keep an eye on the water gauge located in the galley area near the ceiling. Do not allow the tank to become empty and definitely refill the tank if the gauge registers less than ¼ full. Water points are located at intervals along the canal and are shown in the various cruising guides, but they are often busy (or don't work) so filling up can take much longer than the 40 mins to fill a tank that is nearly empty.

The water filler cap is located on the foredeck. Flush out the hose before inserting it into the filler pipe. Keep a watch whilst filling and be sure to turn off as soon as you are full. Once full, the water will overflow and flood the foredeck. Make sure you collect all the fittings when you disconnect the hose.

If you run out of water, the pump will continue to run. You should switch the pump off using the circuit breaker switch on the electrical control panel so that the pump is not damaged. Refill the tank at the next water point and switch the pump back on after re-filling for about 20 minutes. It will run for some time to re-establish pressure throughout the system.

Hot water is provided from a cylinder of 22-gallon capacity which is heated either by the engine or from an oil fired boiler. The water will be hot. TAKE CARE

PLEASE NOTE: If you completely run out of water then the hot water cylinder may also be empty and you should turn on the hot tap whilst filling with water until the tap starts to flow. This will ensure that the hot water cylinder is full before you stop filling the tank.

4.1 Shower

The shower can consume large amounts of water so it should be used sparingly. When it is first turned on, turn it to cool. Then gradually increase the temperature until it is correct.

Water is automatically pumped out from the shower tray whenever the shower is turned on and the pump will continue to run for approximately 2 mins after the shower is turned off.

A manual override switch is provided if it is required to pump any remaining water from the shower tray. See Appendix 12.3 for the location.

4.2 Toilets

The toilets are of the pump out type, whereby the waste is stored in large holding tanks. These tanks will have been emptied prior to your departure and given sensible use, they should last for the week. Each holding tank has a gauge above the window in that toilet.

If you do fill up these tanks you will have to have them pumped out at a boatyard at your own expense or by using the card-operated pump out machines located along the canal.

Fresh water from the water tank is used to flush the toilets. Generally, the toilets are flushed by depressing the lever or button on the bowl. After releasing the lever make sure it returns to the original position and the flow of water has stopped - if these levers do stick open you will end up filling the holding tank with clean water and emptying the fresh water tank!

Rebecca's wet-room is fitted with a macerator toilet that should be left empty of water. It is operated via a control panel mounted on the wall beside the toilet. There are 3 buttons:
'Before Use' – The bowl is automatically filled to the correct level
'After Use' – The bowl is automatically flushed and cleaned out
'Short Use' – Function for the evacuation of liquid waste only

Important: boat toilets are not disposal units and can only cope with human waste and soft toilet paper. On no account should anything such as sanitary towels, nappies, nappy liners, wet wipes, J cloths, kitchen towel etc. be put down the toilets, as these will cause a blockage. There is a sanitary bin provided for these articles.

Toilet brushes are provided to clean soiled toilet pans, but don't push them into or against the opening flaps. If you do, the seals can be damaged and the toilet may become unusable.

5 Gas system

The cooker runs on Calor gas (propane) and it requires good ventilation to function properly. A number of ventilators are built into the boat and for your safety these must not be blocked.

A smoke alarm is fitted, usually in the rear cabin, but check Appendix 12.3 for the location. Smoking or the use of candles is NOT permitted inside the boat, and you should take care in the proximity of the gas cylinders, located in the locker at the stern.

A gas alarm is fitted, usually in the kitchen area, but see Appendix 12.3 for the location. If the alarm sounds:

a) If gas has leaked in attempting to light the cooker, turn off the hob/grill or oven. Evacuate everyone onto the foredeck or stern deck. DO NOT MAKE ANY NAKED LIGHTS OR SPARKS BY, FOR INSTANCE, TURNING LIGHTS ON OR OFF. Open all the windows and doors and do not re-enter the boat until the alarm has stopped sounding for 10 minutes.
b) If the hob/grill/oven had not been left on without being alight, evacuate the boat quickly and turn the gas bottles, in the stern locker (clockwise) firmly off. DO NOT MAKE ANY NAKED LIGHTS OF SPARKS BY FOR INSTANCE, TURNING LIGHTS ON OR OFF. Leave doors and windows open. Call the Bruce Engineer on the emergency number. Do not re-enter until the alarm has stopped sounding for 20 minutes and do not switch the gas supply back on.

Carbon Monoxide Alarm. Carbon monoxide cannot be seen, smelt or tasted and can be fatal. Carbon Monoxide alarms are fitted in the cabins (see Appendix 12.3 for the locations). Should the alarm sound, all passengers should evacuate the boat onto the foredeck and stern deck and all the windows and doors should be opened to ventilate the boat. The gas bottles in the gas locked should be turned off and the Bruch Branch Engineer should be informed. No gas appliance should be used until checked by the Bruce Branch Engineer. You may re-enter the boat when the alarm has stopped.

5.1 Gas Cylinders

You have one cylinder in use and one as a spare located in the gas locker. These should be sufficient for a week's cruise.

If the cylinder you are using runs out, it is very easy to change over. Ensure the cooker, i.e. all rings, the grill and the oven, is turned off BEFORE changing the gas supply.

In the gas locker there are two gas cylinders. One will be turned on and the other turned off. Turn off the empty cylinder (the light one) and then turn on the full cylinder (the heavy one). The two cylinders should never both be turned on at the same time, or both the cylinders will be drained at once.

Please relocate the FULL, IN USE and EMPTY labels accordingly

5.2 Gas Cooker

All the hob burners, the grill and the oven are fitted with a flame failure device. The cooker may have a glass lid with a safety cut out. The lid must be fully open for the cooker to work.

To light the hob burners:
Turn the control knob to the large flame symbol. Whilst depressing the gas knob, press and release the ignition button. Once the flame has lit, keep the knob depressed for a few seconds then release. If the flame goes out repeat.

To light the grill or oven:
Open the grill or oven door and turn the gas control knob to the start/ignition position. Depress the gas control knob and press the ignition button. Keep the gas control knob pressed for about 5 seconds. If the flame goes out when the knob is released, repeat the same, but depress the knob for longer. Set the gas control for the temperature required.

NOTES

1. Please do not cook with the blind drawn down adjacent to the cooker as the blind will quickly become stained.
2. Do not fry chips: apart from the increased risk of fire, the oil will make the boat smell. Please use oven chips instead.

6 Central Heating and Hot Water

Heating and hot water is provided by the engine hot water and a diesel fired boiler. There are radiators through out the boat and heated towel rails in the toilets / shower rooms.

To provide hot water, the engine will need to run for about 30 minutes or the boiler to run for about 20 minutes. The boiler is the same one that provides central heating. Once you have used all the hot water (by several showers for instance) you must wait for more water to be heated either by the engine or by the boiler.

To provide hot water only and not central heating, all radiators need to be turned off. This is done by turning the radiator valves to the * position.

Central heating is activated by a push button usually located by the boiler (check Appendix 12.3 for the location). The heating will work for two hours from the last push of the button.

Hot water is provided from a tank, which is heated from the engine and from the boiler, when the heating is on.

a) Turn the radiator thermostats from the * position to position 1-5
b) Switch on heating. Allow at least 15 minutes for anything to happen

7 Wheelchair Lifts

All the boats have a hydraulic lift at the stern and a smaller one at the bow (except Hannah). They have been specially designed to help wheelchairs and disabled users to access the cabin from the decks and must only be operated under the supervision of two people: one on the deck and one in the cabin. The Safe Working Load for the lifts is 300 kg.

7.1 Normal Operation of Lift

Please use with care and diligence. Incorrect operation or carelessness can result in an injury.

1. Ensure the wheelchair/disabled user faces into the cabin when going up or down
2. Ensure rear hatch (or front door for the bow lift) is fully open
3. Ensure the brakes of the wheelchair are properly applied
4. Ensure rear deck doors are shut (except for lift access)
5. Ensure fingers and toes are not in a position to be injured

To go up:

Press “UP” button and flap at front of lift will be raised before/while the lift goes up. When lift is at deck level it will stop automatically.

To go down:

Ensure that the handles of the wheelchair will clear the rear deck as the lift descends. Press “DOWN” button and lift will go down; when lift is down the flap will be lowered. When finished using the lift, return it to the down position (except Rebecca’s bow lift which needs to be set to stow position and retracted “in” under the bow deck).

7.2 Manual Operation of Lift

The lifts are very reliable and are inspected frequently, but in the event of the lift failing to operate electrically, it may be operated manually. If necessary call the Callout Engineer.

a) Remove the stairs for stern lift (or nearest cupboard for bow lift)
b) Locate the manual hydraulic pump and handle

To go up:

The lift can be operated manually with the handle.

a) On Rachel only, turn silver lever clockwise (quarter turn)
b) Pump using handle and lift will go up

To go down:

The pumps are generally fitted with a bleed screw or black knob to release pressure. The bleed screw is open/closed using the slotted end of the handle.

a) Locate the bleed screw (On Rachel there is a black knob and on Rebecca’s bow pump there is a silver lever instead)
b) Turn it slowly anti-clockwise and lift will go down

For automatic operation of the lift, return bleed screws (or black knob) and silver levers to original positions:

a) Turn bleed screw (or black knob) clockwise
b) Turn silver lever (if fitted) anti-clockwise

After manual operation, immediately replace stairs and report failure to Callout Engineer.

8 Engine and Controls

The boat is fitted with a Beta Marine water-cooled diesel engine that should require no maintenance by the hirer apart from the daily checks.

In the event of a problem, or if you have concerns, then please call the Callout Engineer.

8.1 To start engine

- Push in the small square knob on side of throttle/gear change lever to find neutral – this disengages the gears and push the lever to ¼ setting.
- Insert the ignition key into the ignition switch and start the engine
- Ensure that the red ignition lights have gone out. If they are still glowing when the engine is running the batteries are not being charged, increase the throttle.
- Check that the low oil pressure warning light has extinguished and that the audible warning has stopped
- Return throttle lever to vertical (neutral) this allows the square knob to pop itself out to re-engage gear
- When running, keep an eye on the water temperature gauge and oil pressure warning lights (these will be accompanied by an audible warning). If either of these lights come on, or the audible warning goes off when you are cruising, or the temperature gauge reads in excess of 90°C, moor up as quickly and possible and shut the engine down immediately. Call the Bruce Branch Engineer

8.2 To stop the engine

Turn the ignition key to the off position. If this does not stop the engine push the black STOP button on the control panel.

Never turn the battery isolator switches off went the engine is running

8.3 Control Lever

The single lever control operates both throttle and gear change. Forward gear may be selected by pushing the lever forwards and continuing to push for more throttle, and similarly for reverse. Except in an emergency, it is important to **pause** in neutral for a few moments to allow the propeller to stop turning before engaging the other gear.

8.4 Headlight and side navigation lights

The headlight is provided solely for use when navigating tunnels. It is most effective if the beam is directed towards the tunnel roof and also oncoming boaters will not be dazzled.
It is turned on and off at the engine control panel.

9 Bow thruster

This has been fitted to assist only with manoeuvres such as winding the boat, reversing etc. There are limits on its use. Do not use it:

° For more than 4 minutes in an hour, To prevent overheating;

° Close to the bank: it is easily broken by sucking in weeds, pebbles, sticks etc.

9.1 To operate the bow thruster

- Ensure that the ignition is switched on
- Press the on button (always remember to press the off button after its use)
- Press the right – hand side of the rocker switch when the bow is required to turn to the right (starboard)
- Press the left-hand side of the rocker switch when the bow is required to turn to the left (port)

10 Keys and locking up procedures

10.1 Keys and Combination Padlock

On the float key ring there are three keys:

1) Ignition key and keys to all other padlocks and cupbaords on the boat

2) BW key (CRT, used for opening swing bridges, sanitation stations etc.)

Combination padlock number for the rear door is the last four digits of the boat's registration (it is worth taking a torch out with you if leaving in the evening to use to see these numbers upon your return)

10.2 Locking Up Procedure (when leaving the boat)

When locking up the boat, the following procedure should be followed:

1) Ensure that the tiller arm extension and all poles, planks, chairs and lifebelts are brought inside the boat (the wheelchair ramps can remain on the roof provided they are secured by the chain and padlock)

2) Front double doors: close together and bolt

3) Saloon roof hatch: slide hatch closed and secure the bolts closed from within

4) Hatch over wheelchair lift: side to close and bolt from within

5) Doors to wheelchair lift; close and bolt from within

6) Control panel: lock lid with padlock

7) Instrumental panel: lock lid with padlock

8) Hatch over stairs and rear door: close doors, bolt at base, close hatch and padlock flap onto doors

Notes: After unlocking any padlock, please prevent loss by locking the padlock onto the hasp

10.3 Locking Up Procedure (for internal security)

Close all hatches and close all interior door bolts

Notes: To safeguard the means of escape while the boat is occupied, do not allow any doors to the foredeck or the stern deck to be obstructed or for the doors to be padlocked.

11 A Final Word

We rely on you, our customers, to maintain and return our boat in a clean and tidy condition. We only have two hours to prepare her for the next group

Please help us by carrying out the daily checks, and remember if you have any problems whatsoever with any of the equipment on board, do please phone the Callout Engineer straight away. He will offer help and advice.

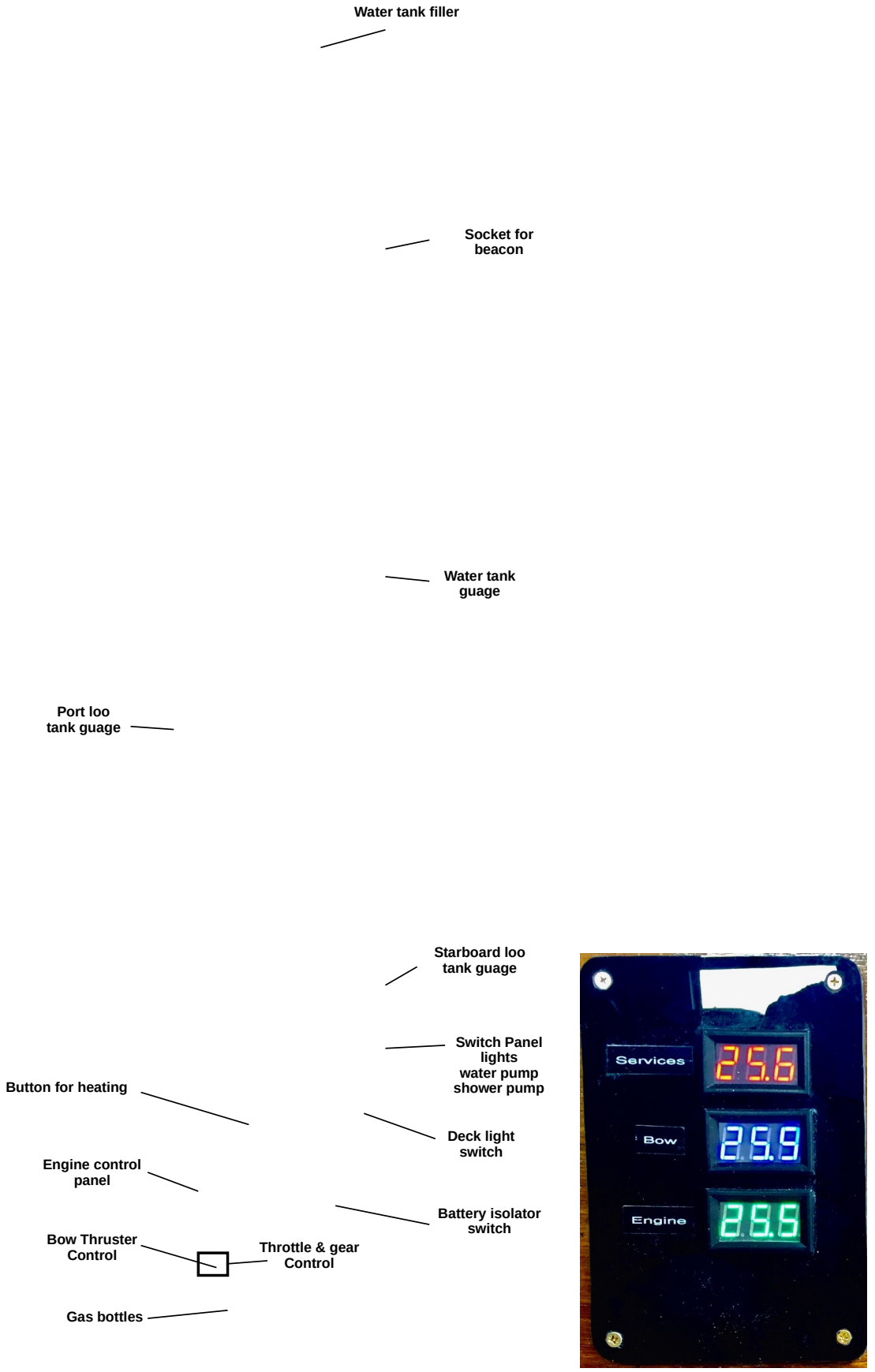
Please do not be tempted to try and fix anything yourself: such attempts inevitably mean more work for our engineer. Our boat is regularly serviced and maintained, and unauthorised tampering, however well-meaning, is quickly noticed. If you have any comments about the functioning of the boat or its equipment, please inform the Bruce Branch's representative on your return.

Having read and absorbed all of the foregoing, Bruce Boats hopes you have a great holiday!

12 Appendices

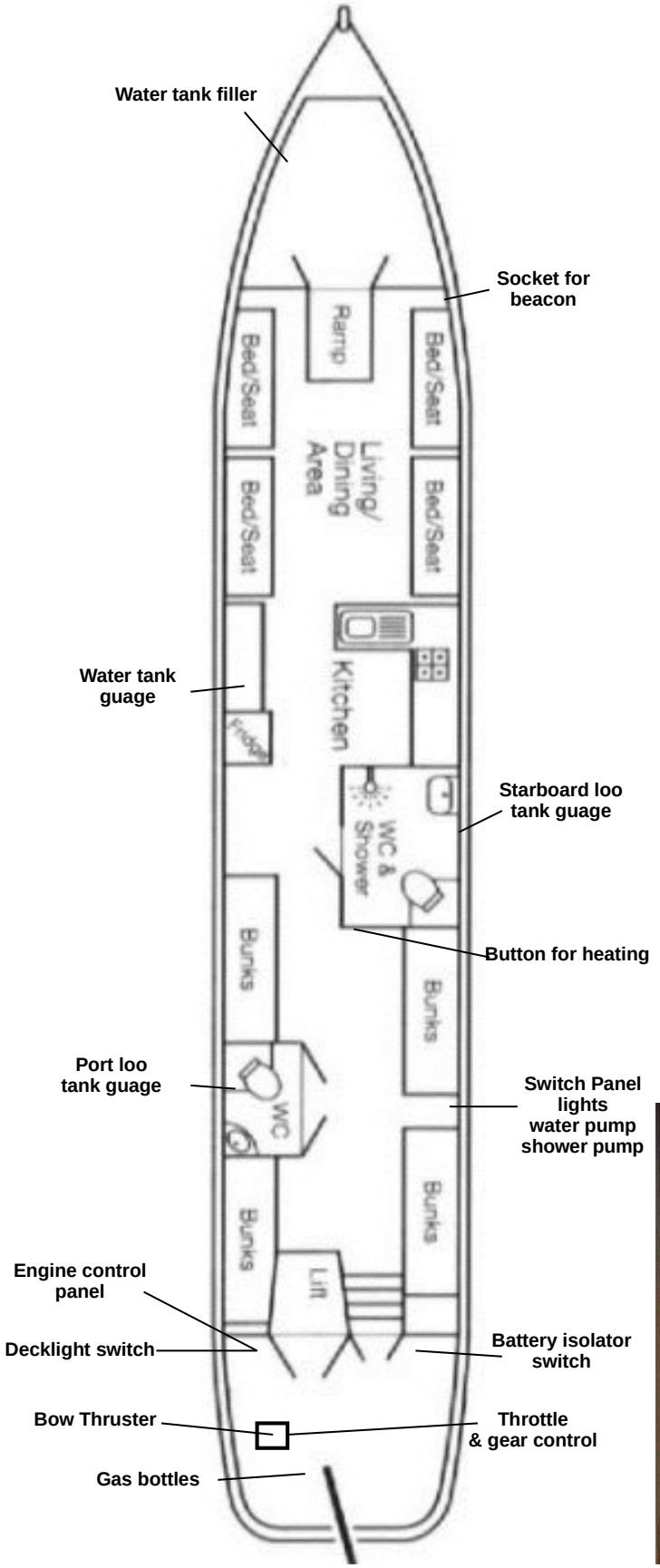
12.1a Diana's layout, key controls and voltmeters

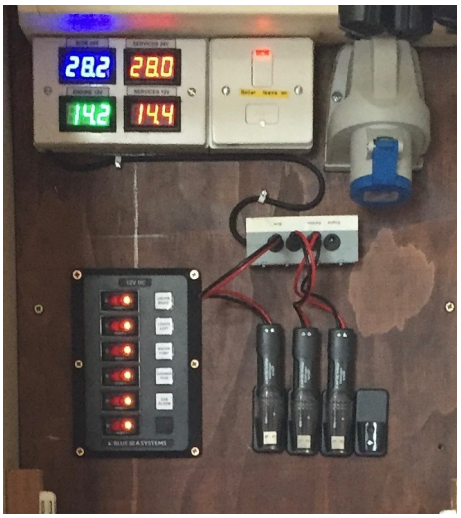
61'9" (18.8m) long x 11'2" (3.4m) wide



12.1b Hannah's layout, key controls and volmeters

61'8" (18.8m) long x 10'9" (3.3m) wide





12.1c Rachel's layout, key controls and voltmeters

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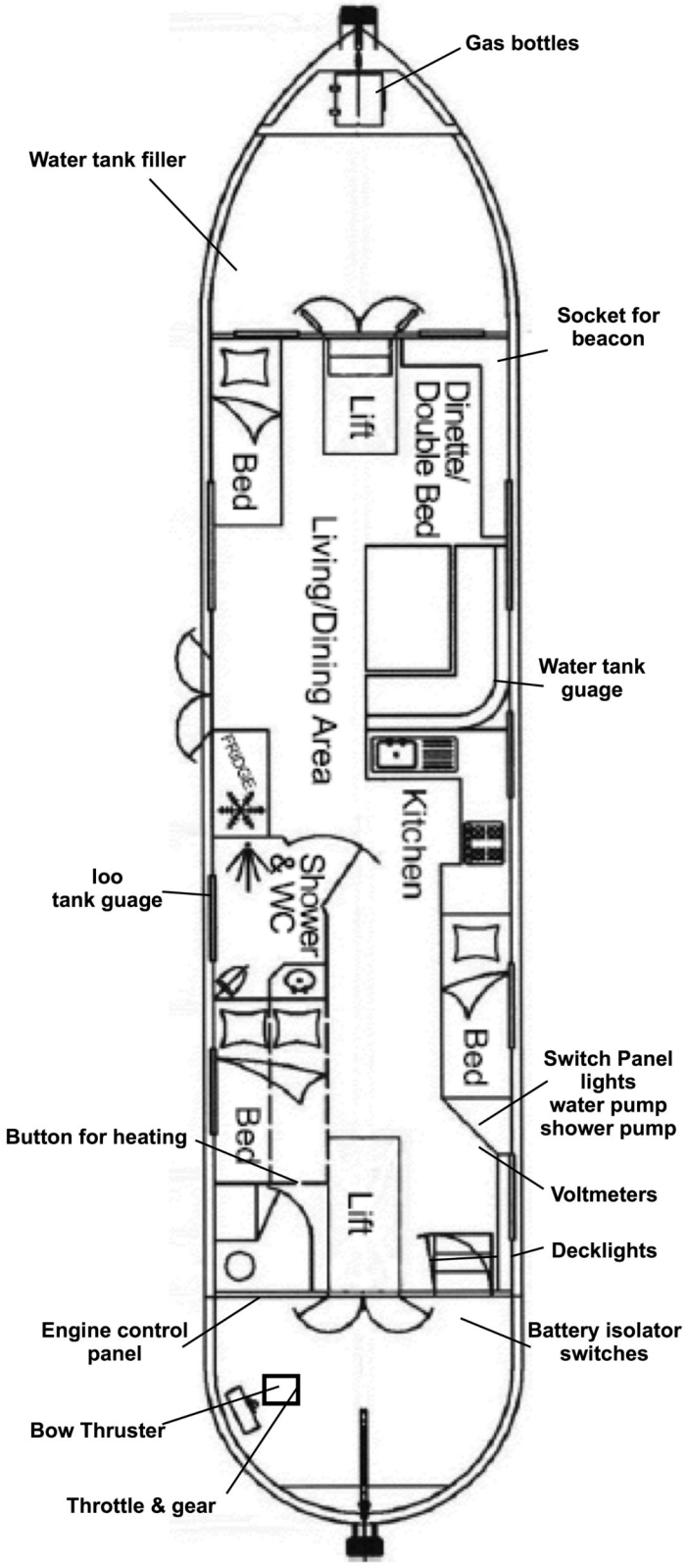
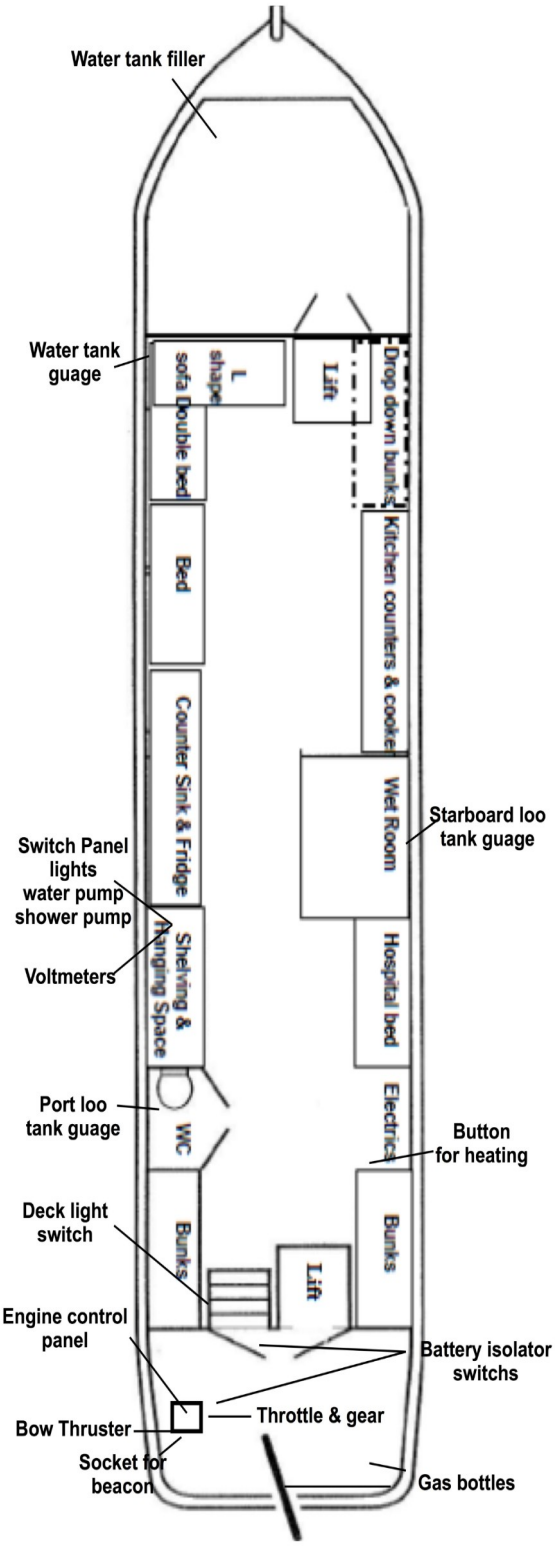


12.1d Rebecca's layout, key controls and voltmeters

61'0" (18.6m) long x 10'6" (3.2m) wide


Water tank filler
Water tank guage
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Lift
Drop down bunks
Bed
Kitchen counters & cooker
Counter Sink & Fridge
Wet Room
Starboard loo tank guage
Switch Panel lights water pump shower pump
Voltmeters
Shelving & Hanging Space
Hospital bed
Port loo tank guage
WC
Electrics
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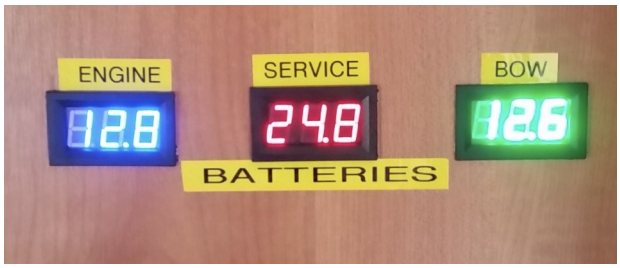
Deck light switch
Bunks
Lift
Bunks
Engine control panel
Battery isolator switchs
Throttle & gear
Bow Thruster
Socket for beacon
Gas bottles


ENGINE
12.8
SERVICE
24.8
BOW
12.6
BATTERIES

12.2 Energy in the batteries

Explanation
The tables show voltages for the twelve and twenty-four volt batteries. Voltage readings show how much electricity you have available, just like the water tank gauge shows how much water is left. With the engine running there is electricity being put in to the batteries, just as water fills a cistern. With the engine off, whatever you use reduces the amount. In both tables, green is fine, amber is time for action and red is dangerous.

How and when to check
Gauges need to be checked both with the engine running - allow at least 5 minutes after starting - and also when it has been switched off for about five minutes. The results need to be judged against Tables 1 and 2. Look at the gauges routinely at the beginning and end of the day and also when you think batteries may be down, e.g. after prolonged bow thruster use or if you haven't been able to run the engine for at least 6 hours in the day or the electrics begin to malfunction.

Table 1: engine running

Meter reading 12v bat.	Meter reading 24v bat.	Safety	Notes
15.0	30.0		Overcharging. Stop engine. Call Engineer
14.8	29.5		
14.5	29.0		High rate charge
14.2	28.5		
14.0	28.0		
13.8	27.5		
13.5	27.0		Float charge
13.2	26.5		

Table 1 shows the extent by which voltage is raised by charging. The red corresponds to overflow. This makes the battery overheat, bringing risks from fumes and fire as well as seriously damaging it.

Table 2: engine NOT running

Meter reading 12v bat.	Meter reading 24v bat.	Safety	Energy in battery
13.0	26.0		100%
12.5	25.0		80%
12.2	24.2		Start engine*
12.0	24.0		30%
11.8	23.6		
11.5	23.0		0 - 5%

Table 2 shows how much energy is left in the battery as voltage drops. Like some water meters energy drops slowly at first and then very rapidly. At a little below 12/24v electric items will cease to function satisfactorily.

*In under a minute the voltage should climb into the green area of Table 1. If doesn't, call the Engineer.

12.3 Specific Equipment Locations

Specific Equipment Locations	Diana	Hannah	Rachel	Rebecca
Shower bilge pump switch	Above toilet	Above toilet	Under sink	Above sink
Heating override button	By boiler	By bookshelf	By boiler	By boiler
Alarm – Gas*	By cooker	By cooker	Rear cabin	By cooker
Alarm – Smoke	Rear cabin	Rear cabin	Rear cabin	Rear cabin
Alarm – Carbon Monoxide	Middle cabin	Middle cabin	Rear cabin	Middle cabin
Alarm – Carbon Monoxide	Front cabin	Front cabin	Front cabin	Front cabin
Emergency beacon socket	Front cabin	Front cabin	Front cabin	Eng controls
Engine header tank	Drying room	Rear steps	Drying room	Engine bay