SMARTWAVE BOATS

36 Cryers Rd, East Tamaki
Auckland
2013
New Zealand

Owner's Manual

Smart Wave 4800

Please keep this manual in a secure place and hand it over to the new owner when you sell the craft.

If this is your first craft, or you are changing to a type of craft you are not familiar with, for your own comfort and safety, ensure that you obtain handling and operating experience before assuming command of the craft. Any boat dealer or national sailing federation or yacht club will be pleased to advise you of local sea schools, or competent instructors.

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1 WELCOME

Congratulations on becoming the new owner of a: Smart Wave 4800

Make sure you receive a full explanation of all systems from the person transferring ownership to you.

1.1 Boating Experience

If this is your first craft, or you are changing to a type of craft you are not familiar with, for your own comfort and safety, ensure that you obtain handling and operating experience before assuming command of the craft.

Any boat dealer or national sailing federation or yacht club will be pleased to advise you of local sea schools, or competent instructors

Regardless of the craft's seaworthiness and its certified design category, protection from freak sea and wind conditions cannot be guaranteed. Beware of offshore winds and currents. The ability, experience and fitness of the crew, therefore, should be taken into consideration before making any voyage.

1.2 Responsibility

It is the boat owner/operator's responsibility to:

1 Know the limitations of your boat;

2 Follow the rules of the road;

3 Keep a sharp lookout for people and objects in the water;

4 Ensure that the anticipated wind and sea conditions will correspond to the design category of your boat and that you and your crew are able to handle the boat in these conditions;

5 Never sail when the operator is under the influence of drugs or alcohol;

6 Be aware of the crew/passenger's safety at all times;

7 Ensure all crew receive suitable training, particularly with regards to location and operation of safety equipment;

8 Reduce speed when there is limited visibility, rough water, people in the water nearby, boats, or structures;

9 Ensure the craft is properly maintained at all time;

10 Have the craft inspected by qualified personnel at regular intervals and whenever a cause for concern is raised; and

11 Ensure compliance with all legislation in place in the area of operation. These may include requirements for the carriage of life saving equipment, licensing of the helmsman and respect for the environment.

2 ABOUT THIS MANUAL

This manual has been compiled to help you to operate your craft with safety and pleasure. It contains details of the craft; the equipment supplied or fitted its systems and information on their operation. Please read it carefully and familiarise yourself with the craft before using it. Ensure that everyone who will operate the vessel reads this manual before setting out.
This manual complies with the EU Recreational Craft Directive (RCD) and should not be perceived as an exhaustive guide to the vessel. A manual is not a replacement for experience and common sense!

2.1 Original Equipment Manufacturer (OEM) Manuals

This manual includes important fundamentals regarding equipment supplied by other manufacturers. More detailed information regarding such equipment can be found in manuals provided by the OEM.

A list of these manuals is given here:

Engine
Steering gear
Batteries
Instruments

2.2 Safety Labels

The craft and this manual show symbols which advise the owner/operator and crew of imperative safety precautions to follow when operating and/or servicing equipment. The following symbols may be found on your craft. They should be respected at all times.

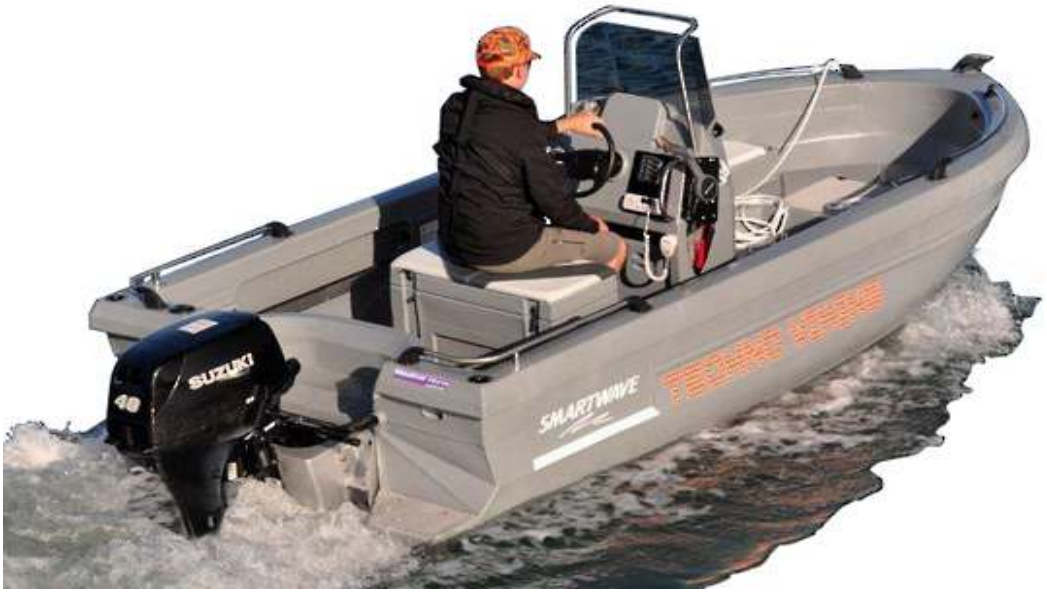
	Hazard - usually followed by text description (see following section)
	Electrical Hazard
	Fire Hazard
	Location of fire extinguisher

	Read the Owners Manual
	Fuel fill point: letter 'D denotes suitability for 'diesel fuel
	Sling position for safe lifting of the vessel
	Dedicated discharge opening for extinguisher

2.3 Explanation of Hazard Warnings

 Danger	Denotes an extreme intrinsic hazard exists which would result in high probability of death or irreparable injury if proper precautions are not taken.
 Warning	Denotes a hazard exists which can result in injury or death if proper precautions are not taken.
 Caution	Denotes a reminder of safety practices or directs attention to unsafe practices which could result in personal injury or damage to the craft or components.
 Information	Denotes useful or important facts or suggestions that can greatly enhance safety and efficiency of operations.
 Caution	Do not remove or obstruct any safety label. Replace any label which becomes illegible.

3 GENERAL ARRANGEMENT



3.1 Boat Identification & CE Marking Classification

Type of Boat	**Smart Wave 4800** Production Series				
Manufacturer's Craft Identification Number	NZ-SMW00000B818				
Name of Boat Manufacturer	Galloway International Ltd.				
RCD Design Category		A	B	C	D
Maximum recommended number of people	adults			5	

1 RCD = EU Recreational Craft Directive (2013/53/EU)

2 See table in section

3 For maximum weight limit see: 3.2.3

3.1.1 RCD Design Category Explanation

This vessel carries the CE marking (shown here) to indicate that it complies with the EU Recreational Craft Directive. It has been assigned the Design Category explained below:

A watercraft given design category C is considered to be designed to operate in typical steady winds of Beaufort force 6 or less and the associated significant waves heights of up to 2 m. Typically such conditions might be encountered on exposed inland waters, in estuaries, and in coastal waters in moderate weather conditions. Depending on atmospheric conditions, winds can gust to about 18 m/s.

3.2 Principal Dimensions

3.2.1 Hull Size

Length of Hull	L_H	4.924	(m)
Length on waterline	L_{WL}	4.138	(m)
Length - max. overall	L_{MAX}	4.924	(m)
Beam of hull	B_H	2.160	(m)
Beam on waterline	B_{WL}	1.754	(m)
Beam - maximum	B_{MAX}	2.160	(m)
Deadrise Angle	β	22.000	(deg)
Freeboard fwd	F_F	0.600	(m)
Freeboard amidships	F_M	0.600	(m)
Freeboard aft	F_A	0.600	(m)
Maximum draft	T	0.600	(m)

3.2.2 Maximum Recommended Power

Power measurement to EN ISO 8665 Marine propulsion engines and systems - Power measurements and declarations

Horsepower	60	(hp) (metric)
Kilowatts	44	(kW)

3.2.3 Weights

All weights in kilograms (kg)

A 'maximum load' has been used for assessing stability and buoyancy, comprising:

Maximum Recommended Load (ISO 14946)		425 kg
Essential safety equipment & liferaft		15 kg
Maximum Number of Persons	375	
Baggage & other carry on weights	50	
Heaviest allowable outboard motor	110	
Max Load as on Builder's Plate		535 kg
The boat in the 'empty craft condition' has a mass of		300 kg
Unladen weight (lightcraft) without engine		332 kg
Weight Fully Laden		867 kg

4 SYSTEMS DESCRIPTIONS

4.1 Bilge Pumps

Information This boat is not fitted with any bilge pumps.

It is recommended that a bailer/bucket is carried aboard for emergency bailing purposes. Ensure the bucket is protected against accidental loss.

Warning	Never use flammable solvents (i.e. kerosene) for bilge cleaning, however oily it becomes.

4.2 Electrical System

ALWAYS……

- Check battery and charging system condition before going to sea
- Disconnect and remove the battery when the craft is in winter storage (cold weather areas) or long term storage

NEVER……..

- Work on the electrical installation while the system is energised;
- Modify the craft's electrical system or relevant drawings: installation, alterations and maintenance should be performed by a competent marine electrical technician;
- Alter or modify the rated current amperage of overcurrent protective devices;
- Install or replace electrical appliances or devices with components exceeding the rated current amperage of the circuit;
- Leave the craft unattended with the electrical system energised, except automatic bilge-pump, fire protection and alarm circuits.

Danger	Petrol vapour can explode. Only fit ignition protected, marine parts to replace such items as starters, distributors, alternators, generators, etc.
Warning	Do not use jump leads in the petrol engine/tank space or carry out any activity that could create sparks.
Warning	Protective terminal covers, such as rubber boots on electrical connections, must be in place at all times except when servicing equipment.

4.2.1 DC System

Description

The direct current (DC) electrical system derives its power from the series of batteries listed below. The batteries supply the components listed in tables below which show the settings of the overload protection breakers/fuses.

Refer to the wiring diagrams at the back of the manual for further details.

The DC system consists of the following circuits:

Battery Bank	Voltage	Rating	Battery Location	Disconnect Switch
Start Battery	12V	80	Aft cockpit in battery Box	Outside battery box

The battery selector switch is located at: Battery Box

Main DC Panel Board Location: Helm Console

Removal of Batteries

To remove the battery cables:

1 Turn off all items drawing power from the battery.

2 Turn the battery switch to the OFF position

3 Remove the negative cable first, then the positive cable. To replace the cables, first replace the positive cable, then the negative.

 Caution	Ensure that the battery space is well ventilated at all times.
 Caution	When charging and (dis)connecting a battery ensure that no water or metal objects can contact the terminals.

Battery Disconnection

Battery selector switch location: Battery Box
Disconnect switch location(s): See table of batteries on previous page.

Information Batteries should be disconnected when not in use and especially while the boat is unattended.
Essential service such as electric bilge pumps are wired directly to the batteries and will run even if the battery disconnect switch is open.

 Caution	Do not disconnect all batteries while the engine is running; alternator and wiring damage could occur.

Battery Maintenance

1. Check the fluid levels in the cells (if appropriate for the battery type) approximately every 4 weeks, and weekly in summer and hot zones.
2. The fluid level must be between the lower and upper markings.
3. Replenish only with distilled water. Do not use metal funnel.
4. Coat battery terminal clamps with silicone grease.
5. Keep batteries clean and dry.
6. The life of some battery types is shortened if drained to zero charge. It is recommended that a battery not be discharged more than 50 percent. If the battery does become run down, recharge it as soon as possible.
7. Running the engine to recharge the battery may not be effective. The alternator only creates charging power at higher engine speeds, idling for long periods will not generate enough power to recharge the battery.
8. If you need to charge a battery, use only a battery charger designed to charge automotive/marine batteries. Use charger only when batteries are disconnected from the boat's electrical circuit. Follow the charger instructions.
9. If your boat will not be used for several weeks remove the batteries from the boat and connect them to a charger.

4.3 Fuel System

The craft has: Portable

Petrol fuel system

The following components are supplied by the fuel system:

Item	Number	Location
Engine	1	Outboard / Transom

Warning	Do not smoke or use open flame when filling with fuel, when working on the fuel system and when in the engine room.
Danger	Never use a flame to check for leaks
Warning	Inspect fuel lines at least annually. Replace if deterioration or openings are found.
Caution	All components that burn fuel require an air supply. Ensure all air intakes are clear before fuel burning components are running.
Warning	If leakage is detected, have the system repaired before further use. System repairs should be made by a competent person.

4.4 Steering System

Information The boat's steering system has the following components:

Steering Hardware: Wheel
Turning device: Drive unit
Mechanism: Direct link/Flexible cable

The craft is fitted with the following steering position(s):

Helm Centre console

Caution	Refer to the system manufacturer's documentation for information pertaining to the steering gear.
Caution	All components of the steering system must undergo periodic inspection & maintenance to ensure safe operating conditions. Refer to the maintenance section of this manual for further details.
Warning	Failure of the steering system will cause loss of control of your boat. Any change in steering such as looseness, tightness, binding, etc., must be checked immediately by a qualified person.
Caution	A kill-chord is provided at the helm so that the engine will cut-out when pulled. The helmsman should connect him/herself to the kill-chord when the engine is running.

4.5 Hydraulic System

The craft is fitted with the following hydraulic systems:

Component	Location	Controls	Control Location
Engine trim	Transom	Rocker switch	Throttle lever

The hydraulic system can be powered by the following sources:

Description	Location	Power Source
Engine trim ram	Within drive unit	Supplied off engine harness

5 PRE-LAUNCH OBSERVATIONS

5.1 Recommended Safety Equipment

 Caution	The sea can be unpredictable. Be prepared by carrying the following equipment, as a minimum, at all times.

1 Life jacket or buoyancy aid for each person
2 Appropriate weatherproof clothing
3 Compass
4 Charts
5 Anchor and line
6 At least 2 warps - see section 6.4
7 First aid kit including compress and thermal blanket
8 Bucket
9 Distress flares
10 VHF radio
11 Binoculars
12 Knife in protective sheath
13 Drinking water

5.2 Risk of Loss of Stability

The stability and buoyancy of this boat has been assessed on the basis of the weights specified in section: 3.2.3

Warning	The boat should never carry more than the manufacturer's recommended load. The load should be suitably distributed, bearing in mind that stability is most significantly reduced by any weight added high up in the boat
Caution	Stability can also be adversely affected by sloshing fluid. Bilge water should be kept to a minimum

Information This boat has been assessed as being capable of supporting the crew even when swamped.

Warning	Loose equipment can cause damage to the craft and affect stability. Ensure all loose equipment is properly stowed before setting out.
Caution	The stability of this boat is significantly reduced at speeds above displacement speed.
Caution	Stability may be reduced when towing or lifting heavy weights using a davit or boom.
Caution	Compartments marked as being air tanks should not be punctured.
Caution	Breaking waves are a serious stability hazard

5.6 Risk of Flooding

Caution	The following openings are marked "WATERTIGHT OPENING - KEEP SHUT WHEN UNDER WAY" and care should be taken to observe this warning:

1. Drain plug cockpit

Caution	In rough weather, hatches, lockers and companionway/doorways should be closed to minimise the risk of water ingress.
Caution	Ensure all limber holes are clear

5.7 Risk of Fire

Information Always keep the bilges clean and check for fuel regularly

Information	NEVER • obstruct portable extinguishers in lockers • obstruct safety controls (shut off valves, switches) • modify craft's systems, especially fuel. • fill any fuel tank whilst machinery is running • smoke while handling fuel or gas • use gas lights in craft

5.8 Risk of Falling Overboard

Information

The working deck is the area of the boat that is safe for use at all times. Areas outside the specified working deck should only be used whilst leaving or arriving at a mooring or whilst the boat is not underway.

On this boat, the working deck area is defined as:

Cockpit

For maximum weight limit see: 3.2.3

For crew area limits, see section: 5.2

 Warning	Most slips and falls occur during boarding and disembarking. Be aware that wet decks can be slippery. Wear slip resistant footwear at all times.

6 NAVIGATION & OPERATION

6.1 Use of Engines

The craft is fitted with the following motive power:

Engine 4 stroke spark-ignition

Outboard engine will be delivered by the owner, but the DOC is only valid if the brand is with CE mark according RCD II - 2013/53/EU Emission

Information Before starting the engine:

- Check the bilge water level.
- Ensure that ventilation openings are clear to prevent overheating
- Ensure there is sufficient fuel for the anticipated journey - including a margin for contingencies.

Take care not to damage fuel lines and check regularly that they are in good condition

Avoid placing flammable materials on or near hot parts.

	Danger	If a fuel leak or fumes are detected, do not start the engine. Ensure all crew leave the boat and have a qualified person repair the fault as soon as possible.
	Warning	Controls installed with the motor must have a start-in-gear protection device. It is the owner's responsibility to ensure this is so, should the engine or its controls be repaired/replaced.
	Caution	So as to avoid high-speed moving parts, never run a motor with the cover removed.

6.2 Handling Characteristics

Information This craft is primarily intended to be supported by a combination of buoyancy and planing forces

Information	Maximum engine power:	44 kW	60 hp
Information	Maximum speed:	30 knots	56 km/h

Information Periodic inspection of the propeller for excessive wear or damage is recommended in order to maintain peak performance and to maximise the longevity of the engine.

Information Ensure all crew are informed about the craft's behaviour.

Information	Before conducting any rapid acceleration or high-speed manoeuvres, passengers must be warned to sit and hold-on.
Information	The helmsman may have to take sharp avoiding action at any time. Passengers should, therefore, be seated and holding-on when underway.

 Warning	Manoeuvrability at hight speed is limited. Sudden turns may cause loss of control. Reduce speed before making sharp turns in either direction. Max. speed recommended for making sharp turns: 18 knots
 Caution	Seaways are infinitely variable and all craft can meet conditions that will challenge the boats handling characteristics and/or the helmsman's ability. Proceed with a margin for error at all times. Avoid making sharp turns at speed, particularly in a short seaway.
 Caution	It is strongly recommended that helmsmen receive adequate training in boat handling before setting to sea for the first time.
 Caution	Be aware that factors such as altitude, temperature, load, and bottom growth may affect performance.

6.3 Visibility from the Main Steering Position

Information Operator vision from the helm can be obstructed by high trim angles of the craft and other factors caused by one or more of the following conditions:

- Propulsion engine trim angles
- Loading and load distribution
- Speed
- Rapid acceleration
- Transition from displacement to planing mode
- Sea conditions
- Rain and spray
- Darkness and fog
- Persons or movable gear in operator's field of vision

The international regulations for preventing collisions at sea (COLREG's) and the rules of the road require that a proper lookout be maintained at all times and observance of right of way. Make certain no other vessels are in the path before proceeding.

6.4 Anchoring, Mooring & Towing

Information — It is the owners / operators responsibility to ensure that the mooring lines, towing lines, anchor chains, and anchors are adequate for the vessel's intended use. Owners should also consider what action will be necessary when securing a tow line on board.

Breaking strength of forward strong point: 46.3 kN =4.7 tonnesf = 4715 kg

Caution	The breaking strength of lines / chains should not exceed 80% of the breaking strength of the strong point to which it is attached.
Caution	Always tow or be towed at slow speed. Never exceed the hull speed of a displacement craft when towing or being towed.
Caution	A tow line shall always be made fast in a way that it can be released when under load.

Information — When at anchor, it is damaging to leave the full load of the boat resting on the windlass. It is recommended that the chain be tied onto a local strong point.

6.5 Filling With Fuel

Caution	Never smoke when refuelling, or inspecting or working with the fuel system.

Information — For locations of filler caps, see: 3.2.3

Use the following procedure for filling tanks:

- Remove portable tank(s) from the craft for filling ashore.
- Open the filler cap & start filling the tank.
- Check the contents of the tank by monitoring the tank level indicator
- Don't fill the tank to its maximum: allow for expansion
- Close deck fittings tightly, but don't over-tighten since this will damage the rubber o-rings
- (make an entry in ship's log)

Caution	Fuel is considered chemical waste. Keep an absorbing cloth close by when filling tanks.

Regular inspection and maintenance is an essential activity to ensure the boat's longevity and the crew's safety.

This section includes a generic table which details typical inspection and maintenance intervals. This is not specific to your craft and some sections will not apply.

The necessary frequency of service or maintenance depends upon the environment in which the boat operates. The intervals listed in this section should be viewed as maximums.

Caution	Modifications that may affect the safety characteristics of the craft should be assessed, executed and documented by competent people.
Caution	Any change in the disposition of the masses aboard may significantly affect the stability, trim and performance of the boat

KEY: **X - Activity required** **Y - Activity required by qualified individual**

		INTERVAL				
Item	**Required Maintenance/Service**	**Before Every Use**	**After First 20 Hours**	**Every 25* Or 50 Hours**	**Every 50* Or 100 Hours**	**Every 6 mnth or Annual**
Miscellaneous						
Battery	Check water level	X	X	X		
Bilge Area	Clean & limber holes free					X
Bilge Blowers	Hose connections tight			X		X
Bilge drain plug	Installed and tight	X				
Zinc anodes	Check and replace	As needed				
Hull	Check for loose, damaged or missing parts	Whenever out of the water and always after striking an object				
Controls						
Steering	Check for proper operation					Y
Throttle	Lubricate. Include all shift linkage and pivot points		X		X	X
Electrical						
Connections	Check for looseness					Y
Engine						
Alarm	Check	X				
Cooling System	Check for leaks with engine running	X				
Crank vent system	Clean		X		X	
Drive belts	Check for wear	X				
Flame Arrestor	Clean		X		X	
Fuel Filter	Replace				X	
Mounts (Fasteners)	Tighten		X			X
Oil and Filter	Replace				X	X
Oil Level	Check	X				
Propeller	Inspect for damage	Always after striking object				
Fuel System						
Connections & Lines	Check for leaks & wear	X	X	X		
Tanks	Check for leaks & tightness of connections	X	X	X		
Exterior						
Topside & Supplies	Check for loose, damaged or missing parts					X

7.1 Maintaining the Electrical System

Warning	Work on electrical wiring can create shock hazards or sparks.
	Always disconnect power sources and shut off battery switch, breakers and/or pull fuses before checking electrical wiring or connectors.
Caution	To prevent arcing or damage to the alternator, always disconnect battery cables before doing any work on the engine's electrical system.
Caution	Power feeds for accessory equipment must not be taken from the voltmeter terminals.

Information	Check all wiring for proper support.
	Check all wiring insulation for signs of fraying or chafing.
	Check all terminals for corrosion - corroded terminals and connectors should be replaced or thoroughly cleaned.
	Tighten all terminals securely and spray them with light marine preservative oil.

7.2 Winter Storage

Your boat and the systems and fittings on board can be damaged if they are not properly prepared for the winter.

You should refer to the advice given in the various handbooks supplied with this manual.

In addition to this you should, for example, consider the following:

- Remove, charge and store the batteries in a warm & dry ventilated place
- Grease the appropriate steering gear components
- Ensure the engine cooling water has the correct proportion of anti-freeze
- Take away any removable delicate on board electrics and electronics
- Check and protect all the systems on the boat
- Remove all water from the craft and protect it from rain
- Ensure deck drains are clear
- Check the sacrificial anodes and replace as necessary

8 ENVIRONMENTAL AWARENESS

The previous sections of this manual provide information on how to protect the boat and its crew from the environment. This section gives information on how the environment may be protected from the boat and its crew.

The environment should be understood as including one's neighbours as well as the world of plants and animals.

In many regions of the world, there are strictly enforced regulations regarding environmental protection. It is the responsibility of the owner/operator to be aware of applicable regulations and to ensure compliance with them.

8.1 Leakage of Petrochemicals

	Warning	Any oil must be treated as chemical waste.

ALWAYS: Investigate the source of any oil leaks as soon as possible.

Dispose of recovered spilt oil correctly.

Have oil-absorbing cloths or rolls on board.

NEVER: Dispose overboard of any oil, paint or other chemical that is potentially harmful to the environment. Sanctions are in place in most parts of the world for those who disregard this rule!

8.2 Black & Grey Water

	Warning	The discharge of effluent into navigable waters is forbidden by law in many areas. If such discharge causes a film or sheen upon or a discoloration of the surface of the water or causes a sludge or emulsion beneath the surface of the water, violators may be subject to a penalty. It is the responsibility of the boat user to ensure that they are aware of local legislation regarding discharge

8.3 Noise

8.4 Wash / Waves

ALWAYS Adapt your speed to the water in which you are navigating. Consider the comfort and safety of other (particularly small) boats around you.

	Warning	Be aware that in some areas speed restrictions are in place to avoid erosion of banks/coastline.