

ALPO AND MAX boats

# OWNER 'S MANUAL

MANUFACTURER

Alpo Pro Boats Oy

Kirvestie 2, 26510 Rauma

tel +358 40 518 0072

## PREFACE

The purpose of this manual is to help you use your boat safely and comfortably. The manual contains details of the boat and its installed or associated equipment and systems, as well as information on operating and maintaining the boat. We urge you to read the manual carefully and familiarize yourself with your boat before using it.

Of course, the owner's manual is not a course for sailor skills or boating safety. If this is your first boat, or you obtained a different type of the boat which you are not yet familiar with, then please make sure, for your own convenience and safety, that you gain experience in handling and operating this boat before beginning to use it. The boat dealer, boat clubs or national motorboat and sailing associations are happy to provide information on local boating schools or recommend qualified teachers.

Make sure that the expected wind and wave conditions match the design category of your boat, and that you and your crew are able to control your boat in those conditions.

This owner's manual is not a detailed service or troubleshooting guide. In the event of any problem, contact the boat manufacturer or the manufacturer's representative. Always use qualified and trained personnel for maintenance, repairs and alterations. Changes that may affect the boat's safety features should be evaluated, implemented, and documented by qualified personnel. The boat manufacturer cannot be held responsible for changes that it has not approved in writing.

Some countries require a driver's license or permit to drive a boat. In those countries, special provisions may also apply.

Always keep your boat in good condition and take into account the boat's age as well as its wear and tear caused by heavy use or misuse. Any boat, regardless of its durability, can be significantly damaged if not used properly. The damaged boat is not suitable for safe boating. Always adjust the speed and direction of the boat to the surf conditions.

The boat should be equipped with appropriate safety equipment (life jackets, safety harnesses, etc.) depending on the boat type, weather conditions, etc. In some countries, this equipment is mandatory. The crew must be familiar with the use of all safety equipment and emergency maneuvering (rescue, towing, etc.). Sailing schools and clubs hold regular rescue drills.

Everyone on the boat's deck should wear a suitable buoyancy aid, such as a life jacket or boating vest. Please note that in some countries, in accordance with national regulations, the law requires the use of a buoyancy aid at all times while in the boat.

**KEEP THIS MANUAL IN A SAFE PLACE AND GIVE IT TO THE NEXT OWNER IF YOU SELL THE BOAT.**

## Contents

1 GENERAL.....	6
2 DEFINITIONS.....	6
3 WARRANTY.....	6
4 BEFORE USE.....	7
4.1 Registration.....	7
4.2. Insurance.....	7
4.3. Training.....	7
5 BOAT CHARACTERISTICS AND OPERATION.....	7
5.1. General.....	7
5.2 Basic boat information.....	8
5.3 Maximum number of people recommended.....	8
5.4. Load.....	9
5.5 Engine and propeller.....	9
5.6. Severity of water ingress and its prevention.....	10
5.6.1 Boat chassis and deck openings.....	10
5.6.2 Stability and buoyancy.....	10
5.7. Prevention of fire or explosion.....	10
5.7.1 Engines.....	10
5.7.2 Fire protection.....	11
5.8. Electrical system.....	12
5.9. Steering features.....	12
5.9.1 Running the boat at high speed.....	12
5.9.2 Starting the engine.....	13
5.9.3 Visibility from the driving position.....	13
5.10. All other relevant recommendations and instructions should also be used.....	14
5.10.1 Preventing a person from falling overboard and helping him/her re-entering the boat. .	14
5.10.2 Danger from moving machine parts.....	14
5.10.3 Attaching loose accessories.....	14
5.10.4 Consideration of the environment.....	15
5.10.5 Anchoring, mooring and towing.....	15
5.10.6 Boat trailer.....	16
6 MAINTENANCE AND WINTER STORAGE.....	17
6.1 Measures required before winter docking.....	17

6.2. Washing and cleaning .....	17
6.3. Winter storage and maintenance .....	17
6.4. Measures required before launch.....	18
7 REPAIRS .....	19
APPENDICES .....	19
DECLARATION OF CONFORMITY .....	19
TECHNICAL DATA / TECHNICAL SPECIFICATIONS .....	19
TANK CHARTS .....	19
WIRING DIAGRAMS .....	19
EU-TYPE EXAMINATION CERTIFICATES .....	19
SEATING.....	19
SELF-DRAINING BOATS.....	19
BOAT ATTACHMENTS .....	19
ANODE PLACEMENT .....	19
WARRANTY TERMS.....	19
LOAD CALCULATION .....	19
LIST OF EQUIPMENT .....	19
MAIN CHART.....	19
EARTHING CHART .....	19
LIST OF INSTRUCTIONS FOR MAINTENANCE AND OPERATION OF THE BOAT EQUIPMENT TO BE SUPPLIED WITH A BOAT .....	19

## **BEFORE YOU START A BOAT JOURNEY**

Please refer to this owner's manual.

Before you start your boat journey, please always check at least the following:

### **Weather forecast**

Take into account wind, waves and visibility. Are the design category, size and equipment of your boat, as well as the skills of the boat crew, sufficient for the water area you are heading to?

### **Load**

Do not overload the boat. Distribute and tie the load properly. To prevent damage to the boat's stability, do not place heavy objects too high.

### **Crew and passengers**

Make sure that there is a life jacket for everyone on the boat. Agree on each person's travel responsibilities

### **Fuel**

Check the adequacy of the fuel and that the tank ventilation inlet is open, in order to prevent the tank from being damaged or the engine from stopping. Also consider the necessary reserve in case of bad weather, etc.

### **Engine and accessories**

Check the operation and condition of the steering, electrical equipment and battery, and carry out daily inspections in accordance with the engine manual. Check the boat's seaworthiness in extreme conditions, such as: fuel is not leaking from the fuel tank and there are no water leaks into the boat; this shall include check of the safety equipment, etc. Make sure that the amount of bilge water is kept to a minimum.

### **Ventilation**

Check that the vents in the cabin and fuel compartment are open

### **Fastening of goods**

Check that all items are well fastened, so that they remain in place even in severe wind and harsh seas.

### **Nautical chart**

Unless you are on a well familiar route, take with you nautical charts covering a sufficiently wide area!

### **Starting maneuvers**

Agree with the crew who exactly will remove which rope, etc. Check that the attachment or other ropes do not enter the propeller during departure, arrival or travel.

**Refer to the separate engine manufacturer's manual for additional engine instructions**

## 1 GENERAL

The owner's manual will help you to get to know the various features of your new boat, as well as how to care and maintain it. In addition, the separate manuals for the equipment installed on the boat are included and referenced in several sections. Of course, you can supplement the above manuals with manuals for equipment purchased later. Empty space is reserved for your own notes at the end of each manual.

## 2 DEFINITIONS

The warnings and cautions in this manual are defined as follows:

DANGER!
This warning indicates that there is a serious risk of death or permanent injury if appropriate precautions are not taken.

CAUTION!
This indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

NOTE!
Indicates a safe operation procedure or draws attention to a hazardous operation that could result in injury or damage to the boat or its components.

The above manuals use the International System of Quantities and Units (SI). In some cases, other units have been added in parentheses. The exception to this is wind speed, which is presented in the Recreational Craft Directive in units measured on the Beaufort scale.

## 3 WARRANTY

The boat has a manufacturer's warranty. For private use, the manufacturer's warranty is 4 years. For business use, the warranty is 2 years

Each equipment installed on the boat has a warranty issued by the respective equipment manufacturer.

Separate warranty books and supplier contact information for these devices are attached. For other warranty issues, please contact the boat manufacturer.

## 4 BEFORE USE

### 4.1 Registration

According to the Water Transport Act, a motorized watercraft with an engine power of at least 15 kilowatts (20hp) as declared by the engine manufacturer, and a motorized or sailing watercraft with a hull length of at least 5.5 meters as declared by the boat manufacturer, must be registered. You can get more detailed instructions on registration from traficom ([www.traficom.fi](http://www.traficom.fi)). The driver of a boat, which is due to registration, is required to be at least 15 years old. When registering a boat, the following information must be available: the deed of sale, the manufacturer's declaration of conformity, and the engine's certificate of conformity.

### 4.2. Insurance

Boat insurance can cover damage caused by the water, as well as transportation- or docking related damage. To cover potential damage inflicted to your boat during its lifting, you need to arrange a separate insurance. Insurance also has an indirect effect on safety on the waters: in the event of a serious accident, you can focus primarily on rescuing people. More detailed information on the different types of insurance is provided by insurance companies.

### 4.3. Training

No one is a blacksmith at birth, and navigating the waters is no exception. There is a lot of literature on boating navigation courses organized by the Finnish Navigation Association and civic and labor colleges. Information on boating schools is provided by the Finnish Sailing and Boating Association. All of them provide a good foundation for your skills, but security in handling, navigating, mooring and anchoring your boat will only be achieved after a long period of practical training. The Finnish Sailing and Boating Association also provides information on local boat clubs and their activities.

## 5 BOAT CHARACTERISTICS AND OPERATION

### 5.1. General

The purpose of the owner's manual is to inform the users about features of their new boat and instruct them how to use the boat properly.

## 5.2 Basic boat information

The basic data, main dimensions and capacities of your boat can be found in the table of Appendix 2 (Technical Specifications).

Design category means:

**Design category B:** Boats of this category are designed for use in conditions where the wind force is up to 8 Beaufort (approx. 21 m/s) and the significant wave height is not exceeding 4 meters.

**Design category C:** Boats of category C are designed for use in conditions where the wind force is up to 6 Beaufort (approx. 14 m/s) and the significant wave height is not exceeding 2 meters. Such conditions can be encountered in open lakes, estuaries and coastal waters under reasonable weather conditions.

**Design category D:** Boats of category D are designed for use in conditions where the wind force is up to 4 Beaufort (approx. 8 m/s) and the significant wave height is usually up to 0.3 m (occasional maximum wave height can reach 0.5 m). Such conditions can be encountered in sheltered inland and coastal waters in good weather.

### NOTE!

The significant wave height is the average height of the highest one-third of all waves measured, which is equivalent to the estimate that would be made by an experienced observer at sea. Some individual waves may be twice as high.

Manufacturer's plate:

Some of the above information is given on the manufacturer's plate attached to the boat near the steering console. Additional explanations are provided in the relevant sections of this manual.

## 5.3 Maximum number of people recommended

The maximum number of people recommended for a boat is indicated in the table of Appendix 2 (Technical Specifications). The seats intended for them are marked in gray circles in Figure 1 (Appendix).

### CAUTION!

Do not exceed the maximum number of people recommended for your boat. Regardless of the number of people on board, the total weight of people and equipment must never exceed the maximum recommended load (see section "Load"). Always use the seats in the boat or be in a sitting position otherwise.



## 5.4. Load

The maximum recommended load for your boat is indicated in the table of Appendix (Technical Specifications). The following weights must be taken into account:

- a) The maximum weight per person in the boat is 85 kg.
- b) weight of liquids (water, fuel.) in portable tanks
- c) cargo weight

The recommended load contains only the above-mentioned components.

Some Alpo and MAX boats have a type inspection certificate with two different options, in which case two different load options are calculated for the boat. One option is a smaller number of people and a larger cargo capacity. Another option is a large number of people without any cargo.

### CAUTION!

When loading the boat, never exceed the maximum allowable load. Always load the boat carefully and distribute the load properly, so that the boat is optimally balanced (more or less flat keel). Avoid placing heavy loads high up. Secure the load thoroughly. If the load is liquid, the containers should be full and closed with lids. Do not install any heavy accessories or equipment that will change the center of gravity of the boat.

If you are loading a vehicle into a boat, the loading is always case-specific where no universal advice can be given. It is recommended that, if possible, loading and unloading be done by lifting. **When you load / unload a vehicle by driving to / from the boat's bow using a ramp, it is always done at your own risk. Particular attention must be paid to the stability of the boat and changes in the center of gravity.**

### DANGER!

When loading Alpo or MAX boat or pushing heavy equipment through the bow ramp, make sure that the boat does not sink down or move away from the loading point. Loading must not be complete if the boat has to be pushed towards the loading point by its own engines. Make sure the boat is surely stick during loading.

## 5.5 Engine and propeller

The maximum recommended engine power for the boat is indicated in the technical specification (Appendix). Follow the engine manufacturer's instructions for selecting a boat propeller.

## 5.6. Severity of water ingress and its prevention

### 5.6.1 Boat chassis and deck openings

There are drainage openings in the open space for draining rainwater. Keep the drain holes open in all situations.

The self-emptying locations of the boat are shown in Appendix 7.

### 5.6.2 Stability and buoyancy

Remember that the stability of your boat will be reduced by any weight added high up. Any changes in the placement of the load (e.g., adding a fishing tower, radar or rolling mast, machine replacement, etc.) can significantly affect the stability, balance, and performance of your boat. Contact your boat manufacturer if you are planning such changes.

The amount of water in the bilge should be kept to a minimum.

The draft of your boat should be monitored. If there are changes in the position of the boat in an unloaded state, it is recommended to check the pontoons for leaks. The boat must be lifted up and the stern bilge drain plugs opened. If pontoons are leaking, they should be repaired by a professional aluminum welder. The water tightness of pontoons is checked at atmospheric pressure during the manufacturing process.

Be aware that stability can be impaired when towing or lifting heavy objects with the use of davits or a boom.

#### DANGER!

ALPO and MAX boats are equipped with pontoons. Pontoons are air tanks that must not be punctured

## 5.7. Prevention of fire or explosion

### 5.7.1 Engines

Before refueling, switch off the engine and, of course, extinguish cigarettes. Do not use switches or devices that can cause sparks.

Depending on the boat, either fixed or loose tanks are used for fuel. The recommended tank size for the boat can be found in the technical specifications (Appendix).

When refueling at a service station, do not use a plastic funnel which prevent static discharge between the refill gun and the refill fitting. After filling the tank (see tank capacity in chapter 2), check that no fuel has leaked into the bilge. Clean up spilled fuel immediately.

There is space reserved for an extra loose tank under the rear bench seat of the open space. Do not store spare canisters in unventilated or detached areas, or any equipment containing petrol in areas not intended for it.

Do not store any loose items in the engine compartment that could touch hot machine parts or damage fuel pipes or hoses, when moving. Check the fuel hoses for wear annually.

### 5.7.2 Fire protection

This boat is not usually equipped with a hand fire extinguisher, but it is recommended to purchase one. Hand fire extinguishers should be serviced annually. Fire extinguishers older than ten years will not be approved without a new pressure vessel test. If hand fire extinguishers are replaced, equipment with at least similar extinguishing capability must be provided. Be sure to refill or replace the built-in extinguishing system if the extinguishing agent needs replenishment or the operating time of the extinguishing system has expired. When replacing system components, only use similar components with the same technical fire-fighting capability.

The owner / operator of the boat must ensure that the boat has at least one fire hose in an easily accessible place, with a rope attached for security.

Make sure that fire extinguishers are easily accessible even when the boat is loaded. Inform all crew members of the location and operation of fire-fighting equipment, the locations of fixed fire-extinguishing system openings, and the location of emergency routes and exits.

Keep the bilge clean and check regularly for fuel and gas fumes or fuel leaks.

#### NOTE!

**Never:**

- change any boat system (especially electrical and/or fuel system) or allow an unqualified person to make changes to any boat system.
- fill any fuel tank while the engine is running or smoking while handling fuel.

## 5.8. Electrical system

The boat has a very simple electrical system. The wiring harness is attached to the battery with nuts. Turn the key to turn on the power. The engine light illuminates when you first start the engine.

When leaving the boat for an extended period of time, turn off the main switch. Also turn off the power when performing electrical installations.

When removing or attaching batteries, be careful not to touch at the same time: either both terminals of the battery, or a battery terminal and the body of the metal boat with a metal object. Always remove the negative terminal of the battery first.

Only charge batteries with a battery charger installed on the boat or with that of equivalent capacity. Charging with excessive current can cause an explosion.

**NOTE! Never turn off the main switch while the engine is running**

### NOTE!

Do not use a metal boat hull as a conductor.

Do not modify the boat's electrical system or related drawings. Modifications and maintenance should only be performed by a qualified marine electrician.

## 5.9. Steering features

### 5.9.1 Running the boat at high speed

The maximum engine power of this boat is marked in the technical specification (Appendix). **Do not use the boat if it has a higher engine power than indicated on the manufacturer's plate.**

When sailing with a catamaran, the following matters must be taken into account:

- Catamaran does not tilt like v-shaped boat when turning, but it exerts a large force on everything on boat in the opposite direction.
- Take into account the high acceleration of the boat, and inform your fellow passengers before making any sudden steering movements.

The outboard motor is normally designed to be mounted on the lowest level of the transom.

### CAUTION!

Carefully adjust the engine rig corner at high speeds to change the behavior of the boat. Do not keep the bow of the boat too low in the water when driving, because it will increase fuel consumption and reduce the boat's speed.

Do not drive at high speeds when the engine brake torque is at a negative value (bow down). In the latter case, the boat may tilt to the side and become unstable when turning.

**CAUTION!**

Sea waves impair the boat's maneuverability and may tilt the boat. Take this into account by reducing the speed when the wave increases in height.

Learn the rules of the sea (for example, by reading “Water Transport Regulations” published by Edita and follow their instructions, as well as complying with the requirements of COLREGs (The International Regulations for Preventing Collisions at Sea). Navigate carefully and use new or updated nautical charts.

Always adapt your speed to the surrounding conditions and environment. Please take note of:

- swell waves (also ask your passengers for their opinion on comfortable speed);
- your boat's stern waves (the waves are highest when catamaran is at “slide rising speed” and lowest “at the rate of subsidence”, i.e. at the speed of 6 knots). Follow the ban on wave exposure. Reduce speed and stern waves for courtesy and safety reasons - both for yourself and others.
- Check visibility (islands, fog, rain, navigating the boat against the sun)
- Check knowledge of your route (time required for navigation)
- Take into account the route congestion (other navigators, noise and stern waves on the shores)
- Consider time required for stopping and evasive actions

### 5.9.2 Starting the engine

Before starting the engine, make sure that the gear is in neutral. In a catamaran boat, the rapid start of the boat and the turns, in which large opposing forces are applied to everything on board, must be taken into account. This fact may surprise the driver and passengers.

Attach the emergency stop cord to your hand or foot as soon as you have removed the anchor ropes. Read the engine manual for more detailed instructions. It is very important especially when you are in the boat alone: it will let you stop the boat if you suddenly fall into the water or sway in the boat. However, be sure to remove the rope from your hand before landing maneuvers.

### 5.9.3 Visibility from the driving position

Navigating the boat in beautiful and calm weather can be easy and pleasant, as long as before that you carried out an adequate reconnaissance, which is also required by COLREGs rules. Always make sure you have the best possible visibility from the steering position:

- You should position the boat passengers, cargo, etc. in such a way that the field of vision is not reduced.
- Please remember to look back as well, especially when your boat is on the shipping lane.

In the event of darkness and limited visibility (e.g. in the fog), use appropriate navigation lights. Turn off other lights if they, or their reflections, interfere with visibility.

## 5.10. All other relevant recommendations and instructions should also be used.

### 5.10.1 Preventing a person from falling overboard and helping him/her re-entering the boat.

In calm weather, it is easy for a person who fell into the water to get on the ladder. The ladder can also be pulled down from the water. The ladder is attached to the side of the boat.

#### NOTE!

In boats where the handrails are detachable, it is always a good idea to check that the handrails are securely fastened (locked).

#### DANGER!

A rotating propeller is life-threatening for a person who has fallen into the water or was swimming close to the boat. Use the emergency stop switch and turn off the engine when a swimmer or water skier gets on the boat.

### 5.10.2 Danger from moving machine parts

The moving parts of the machine are protected by various guards (see separate engine manual), and a net guard is attached to the propeller shaft to prevent accidental contact with it. If you remove these guards during maintenance, for example, then always carefully put them back in place before leaving.

### 5.10.3 Attaching loose accessories

Before setting off, make sure that all heavy equipment, such, for example, as anchors, are securely in their place.

#### 5.10.4 Consideration of the environment

The Finnish archipelago and lakes are unique, and preserving their nature is a matter of honor for everyone, including boaters. So you must avoid:

- fuel or oil spills
- discharges of toilet waste water
- dumping of debris and waste into any body of water or leaving it on the shore
- release of detergents or solvents into the water
- loud noise in the waters and ports
- the generation of stern waves, especially in narrow and shallow waters

The toilet waste water must not be discharged into the Baltic Sea waters close to its coastal areas. Therefore, you will need to use suction emptying stations to empty waste water tanks.

In addition, you must observe all other local environmental laws and regulations. Familiarize yourself with the International Convention for the Prevention of Pollution from Ships (MARPOL) and comply with its requirements as much as possible.

Take care of the condition of the exhaust system and do not make any changes to it that may increase the noise in the environment.

#### 5.10.5 Anchoring, mooring and towing

Always secure your boat in a safe place, as the weather conditions may change quickly. The mooring ropes should be equipped with springs to absorb sharp pulls. Use fenders large enough to prevent chafing.

The breaking strength of the mooring, towing and anchor ropes shall not exceed 80% of the strength of the respective anchorage. It is the responsibility of the owner / operator to ensure that the mooring, towing and anchor ropes, anchor chains and anchors are suitable for the intended use of the boat, and that the breaking strength of the ropes and chains does not exceed 80% of the strength of the corresponding anchorage points.

The mooring bollards are mounted on top of the double plate, so that in the event of an overload, the bollard comes off the double plate without damaging the boat deck.

In Appendix 7, you can find the anchor points suitable for your boat, their strengths, as well as the recommended mooring rope thicknesses and anchor weight for normal conditions. The picture shows the attachment of a rope to a boat during its towing, anchoring and mooring to the dock.

When anchoring in a natural harbor, make sure (for example, with the help of a bullet rope) that the water depth is sufficient and LOWER THE ANCHOR FAR ENOUGH FROM THE SHORE.

Reasonable grip is achieved when the rope is 4-5 times longer than the water depth.

**CAUTION!**

Do not attempt to stop the boat by hand or place your hand or foot between the boat and the dock, shore, or another boat. Practise docking in good conditions, use engine power with restraint but determination.

**NOTE!**

When mooring your boat, take into account change of the wind direction, rising or falling water levels, stern waves, etc. Further instructions can be received, for example, from your insurance company.

When mooring to a pier or buoy, make sure that the aluminum hull of the boat does not come into contact with any other metal parts (such as the buoy hook with safety lock or chain). This can cause galvanic corrosion between metals.

When towing another boat, use a sufficiently strong, floating tow rope. Start towing carefully, avoid jerking, do not overload the engine. If you are towing a small dinghy, adjust the length of the towing rope so that the dinghy rides in the stern wave. However, in narrow spaces and high waves, pull the tow close to the transom to reduce twisting. Secure well the equipment in the towed dinghy to prevent it from falling over. In the event of waves in open waters, cover the towed boat so that the splashed water does not fill it.

**NOTE!**

The tow rope must always be attached in such a way that it can be removed when loaded.

**CAUTION!**

Please remember that the tow rope is under extreme tension. If the rope breaks, its broken end may move with a life-threatening speed. Therefore, a rope used for towing must always be thick enough and not attached to another rope for extension of the length.

### 5.10.6 Boat trailer

ALPO and MAX boats need a trailer or other type of transport suitable for a catamaran. When transporting the boat, the sufficient support from the bottom of the boat or under its keel must be ensured. If necessary, ask the manufacturer for more information on transporting and providing a proper support to your boat during transportation.

Before lifting the boat onto the trailer, make sure that the trailer is suitable for your boat, namely: there are enough supports to reduce the point loads, the trailer's load capacity is sufficient for the boat, including its engine and equipment, etc. We recommend a *special trailer* for transporting the boat, which you can order from the manufacturer as an accessory. You can find the maximum permissible total weight of the trailer in the registration certificate of your car.



## 6 MAINTENANCE AND WINTER STORAGE

Refer to the maintenance instructions in the engine manual. Do it yourself or have it done by an authorized service center. Other items that require regular maintenance are:

- system of control and control devices
- fire extinguisher

Perform all maintenance procedures according to the instructions and manuals provided with each device.

### 6.1 Measures required before winter docking

If frost is expected, drain the cooling water from the engine, according to the relevant instructions.

Raise your boat ashore well in advance of freezing conditions. Your boat is not designed for driving or storing on ice.

Before frost comes, you should usually do the following:

- change oil in the engine
- wash the boat
- empty the boat of bilge water and any cargo. However, leave the safety equipment, such as the fire extinguisher, in the boat.

### 6.2. Washing and cleaning

Keep the boat clean and tidy. It increases comfort and safety, as well as the resale value of the boat. For the lid and sides of the boat, general washing is usually sufficient. If you apply detergents, make sure that they are suitable for washing aluminum boats. Wash the bottom of the boat immediately after lifting it. Algae, mucus and mussels are much easier washed out before they get dry.

Before sanding the bottom of the boat, make sure that toxic paint has not been applied to the bottom of the boat. Otherwise, while removing that paint, you must use the personal protective equipment (PPE).

### 6.3. Winter storage and maintenance

Perform winter maintenance on the engine and other equipment, in accordance with the instructions and manuals developed for each particular equipment. If your boat is stored outdoors in winter or in damp areas, the ropes should be washed with fresh water, while worn ropes must be replaced.

Drain the tank, etc., and leave the bushing valves half open.

Electronic instruments are also best protected against both oxidation and stealing by removing and taking them to dry indoor premises for the winter season. Remove the batteries, take them to a

warm and dry place and charge them at least twice during the winter. Spray the electrical system connectors with a suitable moisture and corrosion inhibitor.

Check the condition of the hull and ensure that the boat is evenly supported, so that there are no point loads. Remove the plugs from the air tank to allow condensation to drain.

The boat may not need to be covered for storage, but it is recommended. If you cover the boat during storage, be aware that the cover or its mooring ropes must not be in direct contact with the surface of the boat. As they move, they rub against the aluminum surface of the boat, leaving black marks that are difficult to remove.

#### 6.4. Measures required before launch

The attachment of vegetation to the bottom of the boat in the sea should be prevented with a toxic paint. Contamination of the boat's bottom and especially the propeller increases fuel consumption. However, if the boat is kept in an estuary or the Gulf of Bothnia, or it is lifted out of the water at least about every week, no toxic paint is usually needed. When painting, follow the paint manufacturer's instructions carefully. If you are sanding an old toxic paint, remember that the sanding dust or sludge generated during this process, are toxic. No antifouling is needed in the lake area, and we do not recommend its use.

#### NOTE!

Do not paint the zinc anodes on the piston rods of the hydraulic cylinders. Do not use copper-based paints on aluminum parts. Follow the paint manufacturer's instructions.

To prevent galvanic corrosion, the ALPO and MAX boats are equipped with zinc anodes. The anodes should be replaced, at the latest, when more than half of the material is worn out. The anodes placement is shown in Appendix.

Perform the required maintenance of the engine according to a separate manual. Be sure to open the cooling water valve. Check the function of the electrical equipment and remove oxidation from the connections of fuses, etc. Check that the plugs for your inflatable floats are in place.

## 7 REPAIRS

In the event of damage to the engine or other equipment, contact the supplier (in the first instance). Major damage, which requires professional repair work, should be reported to the manufacturer or to one of the authorized boat docks.

### NOTE!

Some retrofits and alterations, if done incorrectly, could damage the boat's structures or become a safety hazard. Contact the manufacturer or one of the authorized shipyards before making or commissioning new earthings, hatches, etc. No attachments should be made to the air pontoon that could puncture its wall.

### NOTE!

Before servicing electrical equipment, do not forget to disconnect power from that equipment. If you need to replace electrical equipment, make sure that the new equipment is suitable for the boat's voltage.

## APPENDICES

DECLARATION OF CONFORMITY

TECHNICAL DATA / TECHNICAL SPECIFICATIONS

TANK CHARTS

WIRING DIAGRAMS

EU-TYPE EXAMINATION CERTIFICATES

SEATING

SELF-DRAINING BOATS

BOAT ATTACHMENTS

ANODE PLACEMENT

WARRANTY TERMS

LOAD CALCULATION

LIST OF EQUIPMENT

MAIN CHART

EARTHING CHART

LIST OF INSTRUCTIONS FOR MAINTENANCE AND OPERATION OF THE BOAT

EQUIPMENT TO BE SUPPLIED WITH A BOAT