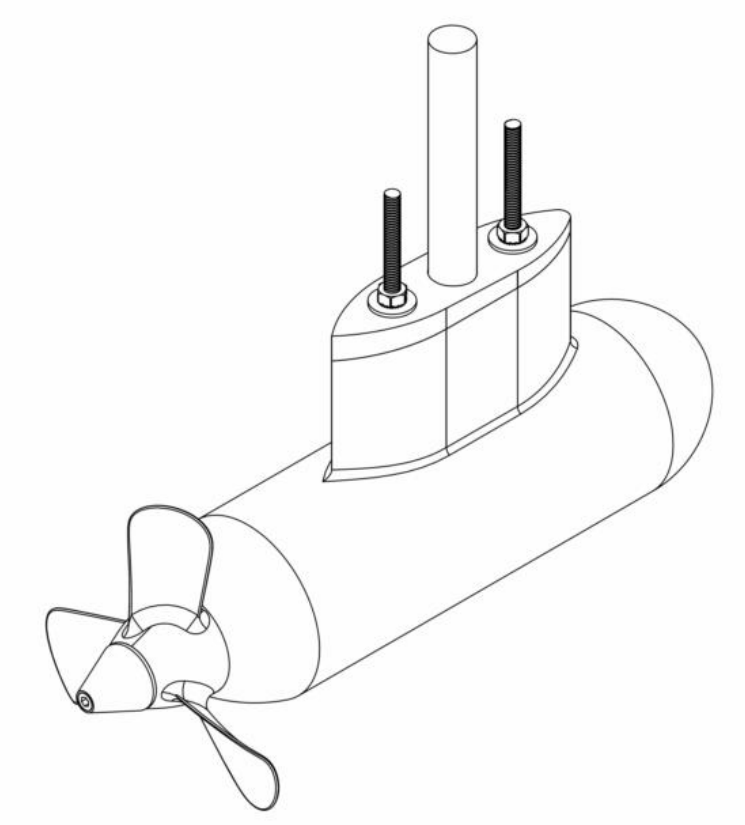
USER MANUAL

OUTBOARD MOTOR Trend

(with removable Li-Ion battery)



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GENERAL INFORMATION

USE OF THIS MANUAL

 This manual contains important safety and operating instructions for the safe and effective operation, maintenance and possible correction of minor malfunctions of the OUTBOARD MOTOR Trend. It is therefore obligatory that every person who works on or with the OUTBOARD MOTOR Trend is completely familiar with the contents of this manual, and that he/she carefully follows the instructions and important safety instructions contained herein. Installation and maintenance of the OUTBOARD MOTOR Trend systems may only be performed by qualified and authorized personnel, in accordance with regulations and in compliance with the mentioned safety measures. Keep this manual in a safe place!

VALIDITY OF THIS MANUAL

All of the specifications, provisions and instructions contained in this manual apply solely to standard versions of OUTBOARD MOTOR Trend with removable Li-Ion battery delivered by Aquamot.

GUARANTEE SPECIFICATION

Aquamot guarantees that this unit has been built according to the legally applicable standards and specifications. Should work take place, which is not in accordance with the guidelines, instructions and specifications contained in this user manual, then damage may occur and/or the unit may no longer meet its specifications. All of these matters may mean that the guarantee becomes void. The guarantee is limited to the costs of repair and/or replacement of the product. Costs for installation labor or shipping of the defective parts are not covered by this guarantee. During production and before delivery, all equipment is tested and inspected. The standard warranty period is two years after purchase.

See EC Declaration of Conformity.

LIABILITY

Aquamot can accept no liability for:

- Consequential damage due to use of the OUTBOARD MOTOR AC
- Possible errors in the manuals and their consequences.

SAFETY GUIDELINES AND MEASURES

USE FOR INTENDED PURPOSE

The OUTBOARD MOTOR Trend may only be used for ship propulsion and according to the installation, operation and maintenance instructions of this manual.

GENERAL SAFETY AND INSTALLATION PRECAUTIONS

- Read this manual thoroughly before installing and/or using the electric components.
- Follow the assembly instructions carefully.
- Only work with the controller when the drive is switched off. It is important to switch off the power supply of the electric drive with the key switch/kill switch. Remove the key and keep it with you so that nobody else can turn it back on.
- Be aware of your speed. The speed is often underestimated because of the lack of sound.
- Be alert to your surroundings; silent sail means that others can hardly hear you.
- The motor has non-shielded rotating parts. Be sure that loose clothing cannot get caught in the shaft or coupling. Avoid contact with rotating parts.
- Make sure that when building the motor, the wiring is properly insulated. A short circuit can cause fire.

WARNING REGARDING LIFE SUPPORT APPLICATIONS

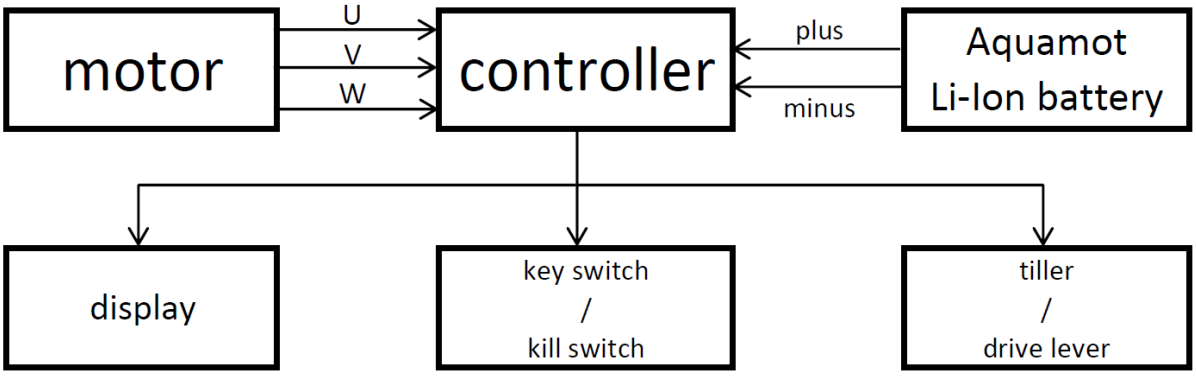
The OUTBOARD MOTOR AC is not intended for use in any medical equipment that is intended for use as a component of any life support system, unless a specific written agreement pertaining to such intended use is executed between the manufacturer and Aquamot. Such agreement will require the equipment manufacturer either to contract additional reliability testing of the OUTBOARD MOTOR AC and/or to commit to undertake such testing as a part of the manufacturing process. In addition, the manufacturer must agree to indemnify and not hold Aquamot responsible for any claims arising from the use of the OUTBOARD MOTOR Trend in life support equipment.

WARNING REGARDING THE USE OF BATTERIES

The Aquamot Trend motor with removable Li-Ion battery, have only operate with the original Aquamot Li-Ion battery.
Play attention to the following when working with batteries:

- Someone should be within hearing distance or close enough to come to your aid when you work near a Li-Ion battery.
- NEVER smoke or allow a spark or flame in the vicinity of a battery or engine.
- Do not short circuit batteries, as this may result in an explosion and fire hazard! Take extra care to reduce the risk of dropping a metal tool onto a battery. It might spark or short-circuit the battery or other electrical part and it may cause an explosion.
- Remove personal metal items such as rings, bracelets, necklaces and watches when working with a battery. A battery can produce a short-circuit current that is high enough to weld a ring or anything like it, to metal, causing a severe burn.
- NEVER charge a frozen battery.
- Excessive battery discharge and/or high charging voltages can cause serious damage to batteries. Do only use the original Aquamot Li-Ion battery charger.
- Be sure that the area around the battery is well ventilated while the battery is being charged.
- Batteries are heavy! It may become a projectile if it is involved in an accident! Ensure adequate and secure mounting and always use suitable handling equipment for transportation.

HOW IT WORKS



MOTOR AND MOTOR SYSTEM

The main parts of the system are the battery and controller, supplying the motor with energy, and the motor with propeller providing the thrust for the propulsion. The system is operated by the lever/tiller that gives speed and direction information to the controller so it can give the right amount of power to the motor. Information about the battery capacity is shown on the display. Furthermore, there is a fuse for protection for powering on and off. The motor controller is the key element in the system. It manages operation and protection.

COMPONENTS

The OUTBOARD MOTOR Trend with **tiller control** comes with the following components:

- Submerged AC motor with 3-blade propeller and suspension (Display, kill switch and tiller on the head of the motor)
- Rip line for the kill switch
- Aquamot Li-Ion battery with 640Wh
- Aquamot Li-Ion battery charger

The OUTBOARD MOTOR Trend with **remote control** comes with the following components:

- Submerged AC motor with 3-blade propeller and suspension
- Motor controller with battery slot and control cable
- Drive lever
- Key switch
- Display with battery status
- Aquamot Li-Ion battery with 640Wh
- Aquamot Li-Ion battery charger

Please check the contents of the box before you start with the installation. If any of the items is missing, please contact your supplier.

MOTOR CONTROLLER AND AC MOTOR

The motor controller is specifically designed for controlling the speed of the sensorless Asynchronous AC OUTBOARD MOTOR. This controller-motor combination is specifically designed for electric propulsion in boats. The controller is equipped with a number of specific features that are important for electric propulsion in boats.
The motor is placed below the hull, submerged in the water. It uses the latest asynchronous technology which results in high efficiency and a high power output to volume / weight ratio. If you switch on and off and immediately on the controller it can be a failure in the system due to an intermediate circuit charging. So please recycle the power for solve this problem.

DISPLAY, LEVER/TILLER AND KEY SWITCH/KILL SWITCH

The display gives information of the battery status. The system can be cycled on and off with the key switch/ kill switch. At a motor with remote control these components will be connected to the motor controller with a separate control cable. All these cables are for Plug & Play. That means that you cannot change the plugs.

OPERATION

SWITCHING ON AND OFF

The system with remote control is switched on and off by the key switch. The key switch has two positions: “ON” and “OFF”. The system starts through turning the key in clockwise direction. The system is switched off by turning the motor switch key anticlockwise.
The system with tiller control is switched on and off by the kill switch. This works with the supplied rip line.

DISAPLY INDICATION

The display shows the actual battery status in percent. This percent area reaches from 0% to 100%. 100% means that the battery is full charged.
0% is a programmed value from the motor controller. At this value the motor reduce its power and at a certain point the controller switches off the motor to protect the Li Ion battery from deep cycle.

USE OF THE LEAVER / TILLER

The desired power and speed can be adjusted in forward and backward direction with the leaver/ tiller, by turning it over the full stroke. This happens without intermediate steps.

USE OF THE Li-Ion BATTERY

The Aquamot Li-Ion battery may only be used with the Aquamot Trend 1.1 and 1.6. The battery has to snap into the provided battery slot.
The battery slot is by the tiller controlled system on the head of the motor. By the system with remote control the battery slot is on the motor controller.

DEPARTURE

Before departure, always check the system for correct functioning.
Follow these steps:
1. Make sure that the motor system is switched off.
2. Put the leaver / tiller in the neutral position.
3. Turn the system on with the key switch/ kill switch.
4. Check the battery condition before driving.

ARRIVAL

Follow these steps after arrival:
1. Put the leaver/ tiller in the neutral position.
2. Check the battery condition.

3. Cycle off the system with the key switch/ kill switch.
4. If it is necessary remove the battery from the battery slot and charge it until the next use.

INSTALLATION

During installation and commissioning of the OUTBOARD MOTOR AC, the safety instructions above must be followed.

MOTOR

An OUTBOARD MOTOR AC electric drive system is quiet and has little vibration when installed correctly. In order to achieve this, pay close attention to the placement of the motor.

The motor must be installed by qualified personnel. Below are some support guidelines for installation. First two preparatory actions need to be taken:

1. The motor has to be fixed by the stern know screws and additionally it has to be fixed by the external screws at the suspension. The mono cable steering system (if needed) have to be mounted correctly to get the same steering lock angle in both directions.
2. The whole motor has to be streamed for having the ideal efficiency.
3. The motor shaft has to be mounted at right angles to the waterline. Therefore use the tilt able suspension.
4. The min. immersion depth is roughly 20cm not for having the ideal efficiency.

ANODE PROTECTION

When two different metals are physically or electrically connected underwater, a current will flow between these two metals. The electrons that make up that current are supplied by one of the metals giving up bits of itself, in the form of metal ions. This is called galvanic corrosion and it destroys underwater metals.
The most common galvanic corrosion is present in case of a bronze or aluminum propeller on a stainless steel shaft, but other metal (motor) housings are also at risk. The best way to prevent galvanic corrosion is to add a third metal into the circuit, one that is potentially more reactive than the other two metals. This piece of metal is called a sacrificial anode.
With the OUTBOARD MOTOR AC system, one sacrificial anode is included to protect the propeller. This is a magnesium anode and is to be placed on the shaft.

ATTENTION!
To protect the seawater resistant aluminum (AlMg-5) motor housing, a second (set of) sacrificial anode(s) needs to be placed on the boat near the motor housing and needs to be electrically connected to that motor housing. This anode is not provided with the system as the proper choice of anode depends on environment (water) conditions and other material use on the boat.
In general, we recommend magnesium anodes for all water types. Nevertheless it is always recommended to directly consult an expert (Aquamot or your local expert on anode protection) on the specific situation at hand.

CAUTION!
Beware that properly placing a sacrificial anode on your boat to protect the aluminum motor housing is essential and failure to do so might cause severe damage to your system. Damage to the motor caused by galvanic corrosion is not covered by our product warranty.

MOTOR CONTROLLER (remote control)

When mounting the controller, there must be at least 50 mm space above and under it. There must also be sufficient space for the cable connections.
Note the following when installing the motor controller:

- The controller is mounted by the mounting holes in the stainless steel plate.
- Make sure that there is adequate ventilation and do not cover up the suction and blast hole.
- The motor controller must be mounted at a dry, well protected and accessible location in the boat.
- Never install a controller near a so-called wet or open battery.
- Air-intake of the controller must be sufficient.
- Ensure that the intake air opening cannot be blocked.
- The controller must be mounted on a flat surface.

DISPLAY (remote control)

The display is usually mounted on the control console of the boat. The location of the display is not critical, it is important that (rain) water does not remain on the display and can run off. Upright or slightly slanted installation is recommended. This does not apply to an indoor arrangement.

LEAVER (remote control)

The joystick is mounted vertically, for instance, on the control console.
Note:

- The joystick is splash proof only. Therefore, the joystick should not continuously be in contact with water. Position the joystick carefully
- The handle has to be able to rotate freely in both directions
- Choose the location so that the risk of turning the handle in the unwanted direction is minimal.

WIRING (remote control)

The power cables for connecting the motor the motor controller are included. Please only use these cables for installation.

CALIBRATION OF CONTROLLER

The parameters of the controller are predefined by Aquamot and can´t be changed by the customer. For further questions please contact your service partner.

MAINTENANCE

PREVENTIVE MAINTENANCE

Check your whole system regularly on the following points:

- Check the bilge and motor compartment for unwanted moisture or water
- Check the operation of the automatic bilge pump
- Check the system for irregularities, such as abnormal noise, vibration and wear.

LOADING THE BATTERIES

The Aquamot Li-Ion battery may only be charged with the Li-Ion charger from Aquamot otherwise it causes the possible damage of the battery. Information about the charging status will be shown on the LED lamps and the user manual witch is printed directly on the charger.
If it is possible charge the batteries after every use to prevent the danger of damaging the battery through self-discharge.

MAINTENANCE

After approximately 2000 hours of use, the seals and bearings inside the podded motor, need to be replaced. This maintenance can only be done by Aquamot or a certified Aquamot service partner.

Eight years after date of construction the Li-Ion battery should be checked in an Aquamot service center to prevent your safety.

ANODE PROTECTION

The propeller shaft is protected with a sacrificial anode. Check the anode for corrosion on a regular base; at least once every year.
Replace the sacrificial anode when half of the anode has been lost to corrosion.

CAUTION!
Never coat anodes with paint or anything else, for it will lose its function.

TROUBLE SHOOTING

In case of a failure with the motor system, contact your local Aquamot Service Centre.
See www.aquamot.com

EC DECLARATION OF CONFORMITY

We,

Manufacturer: Aquamot GmbH

Address: Heroalstraße 5, 4870 Vöcklamarkt, Austria

Declare under our sole responsibility that the outboard motor with the power of

- **Power: 1100W & 1600W**

are in conformity with the provisions of the following EC directives:

- Electromagnetic Compatibility (EMC) Directive 2014/30/EU EMV
- The following harmonized standards have been applied:
- EMC Emission standard for industrial environments EN 61000-6-4:2007
- EMC Immunity standard for industrial environments EN 61000-6-2:2005

Furthermore we hereby declare that the same products are intended to be incorporated into other machinery, and must not be put into service until the relevant machinery into which it is to be incorporated has been declared in conformity with the essential requirements of the following EC directive:

- Machinery Directive 2006/42/EC

The following harmonized standards have been applied:

- Rotating electrical machines EN 60034-1:2004

Vöcklamarkt, 09-11-2017

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