

CE

REACH RoHS



**aqua-marina.nl**  
*electric outboards and portable boats*

# ELECTRIC OUTBOARD MOTOR

## X-Series

Owner's Manual

Please read and retain this manual before using this electric motor

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## GENERAL INFORMATION

Thank you for purchasing our product and we wish that you enjoy it.

Aqua-Marina trolling motors are designed and developed by professional engineers and have been continually developed over a number of years. There is a wide range of Aqua-Marina outboard motors, from 40lbs through to 100lbs to suit every customer's requirements and application.

Please read and retain this manual before using this electrical motor. This manual contains information that describes the procedure for safe operation and daily maintenance of your electrical motor. Safe operation will prevent personal injury and product damage.

## SPECIFICATIONS

PRODUCT	THRUST IN LBS	THRUST IN KG	INPUT	INPUT POWER	MAX SPEED*
AM-40X	40	18.1	12V, 34A	408W	3.6 KM/H
AM-62X	62	28.2	12V, 58A	696W	4.8KM/H
AM-68X	68	30.9	12V, 64A	768W	5.4KM/H
AM-86X	86	37.2	24V, 48A	1152W	7.5 KM/H
AM-100X	100	43.3	24V, 58A	1392W	9.8KM/H

\* Since speed depends on many factors, such as loading, water condition, hull type and wind speed etc., it would be difficult to give an accurate speed rating, we give the speed for reference purposes: boat size 2.3m, Loading 90kg, Quiet water.

## WIRING AND BATTERY RECOMMENDATIONS

### Battery Type

Recommended battery(s): 12-volt Marine / Deep Cycle battery, battery should have at least 50-ampere hour rating or higher. To extend running time either a larger capacity or an additional battery can be used. See section on battery connection method. **NOTE: 86lbs model and 100lbs model requires a 24-volt battery**

### Circuit Breaker / Protection Switch

It is recommended to install a 40 amp (AM-40X), 50 amp (AM-86X or AM-100X), 60 amp (AM-62-X) or 70 amp (AM-68X) circuit breaker / protecting switch in the electric outboard motor leads within 1.8m (72 Inches) of the battery(s).

### Cable Size

If extending the standard battery cable supplied with the product, Aqua-Marina recommends the use of 10mm<sup>2</sup> wires (8-gauge wire, AWG).

## **WARNING**

Batteries contain sulphuric acid, which can cause severe burns. Avoid contact with skin, eyes and clothing. The battery also produces hydrogen and oxygen gases when being charged. This potentially explosive mixture escapes through the fill vent cell caps and may form an explosive atmosphere around the battery for several hours after it has been charged. Electrical arcing or flames can ignite the gas and cause an explosion, which may shatter the battery and could cause blindness or other serious injury.

## **WARNING**

Be sure all switches are in the OFF position before connecting to battery or batteries. Electrical arcing near the battery could ignite hydrogen gas and cause the battery to explode.

### **SAFETY INFORMATION**

**Do not allow children to operate the electric outboard motor!**

Do not modify the unit in any way or add accessories not intended for this product.

Never fully submerge the unit, if unit is accidentally submersed disconnect battery and leave to dry.

## **WARNING**

Always disconnect power from the motor when replacing propeller, removing debris around the propeller, charging batteries, transporting boat or when the motor is not in

To prevent accidental damage of the fiberglass shaft, do not over tighten the mounting bracket.

Only use this product between the temperatures of -20C to +45C (-4F to +113F).

User(s) should always wear approved Life Jackets.

### **FIRST TIME RUNNING**

1. Place Electric Outboard onto the back of the vessel in the Stow away position.
2. Loosely tighten Transom Mounting Screws till they grip the Transom Mount.
3. Press the Tilt Lever and slowly let the motor enter the water.

4. Use the Depth Adjuster Collar to adjust the height of motor (Recommend running depth between 150mm and 300mm below the waterline).
5. When you are satisfied that the motor is at a safe depth and isn't too close or in danger of hitting the bottom of the lake, river or other water ways you may proceed to tighten the Transom Mounting Screws.
6. Once this is done it should be safe to connect the battery to the motor. Ensure that the twist grip is in the neutral position and that the nuts are tight on the terminals to prevent a poor connection.
7. Select the desired speed and direction using twist grip on the tiller arm.
8. Do not go from full forward speed to full reverse speed without letting the propeller stop turning first or motor damage may occur.

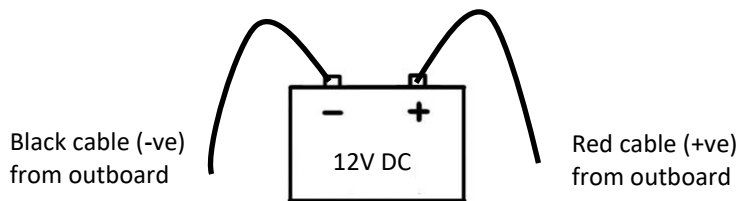
## MOTOR USAGE

The motors package does not include batteries; please choose a battery with 12V (24V for 86LBS or 100LBS motor) output to fit this motor, the recommended type of battery is Marine / Deep Cycle battery, as they will last much longer and designed for this application.

### Battery Connection Method (12 Volt only)

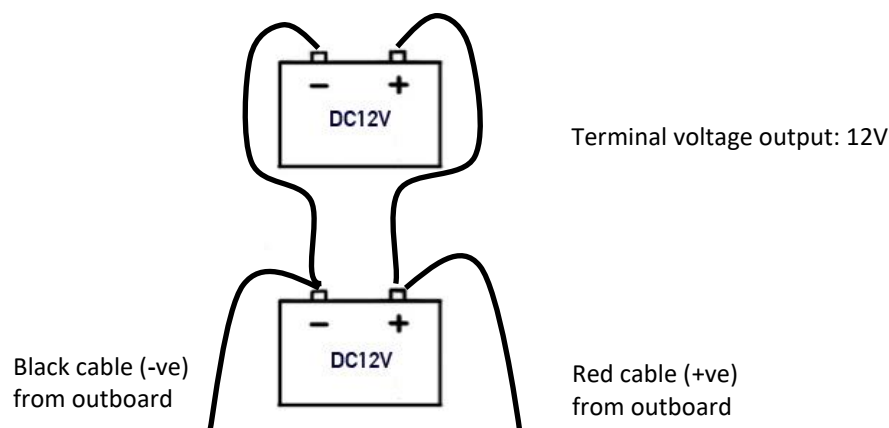
#### Connection with one battery (12V DC)

The red wire should connect to positive; the black wire should connect to negative.  
(It is recommended to install a Circuit Breaker / Protecting Switch in line with positive lead.)



#### Connection with two batteries in parallel (12V DC)

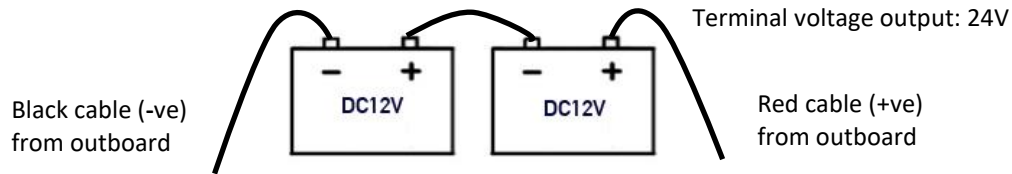
The red wire should connect to positive; the black wire should connect to negative.  
(It is recommended to install a Circuit Breaker / Protecting Switch in line with positive lead.)



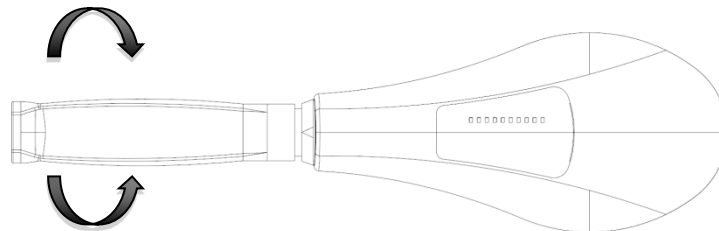
## Battery Connection Method (24 Volt only)

### Connection with two batteries in series (12V DC)

The red wire should connect to positive; the black wire should connect to negative.  
 (It is recommended to install a Circuit Breaker / Protecting Switch in line with positive lead.)



## How to Control the Motor



## **WARNING**

Remember always disconnect from the battery(s) once the motor leaves water as a rotating propeller can cause personal injury.

### **On/Off Speed Control**

Rotate handle clockwise to obtain any of the 5 forward speeds. Rotate handle anticlockwise for any of the 3 reverse speeds. To stop the motor from running, position the handle following the arrow marker and position on level 0.

### **Battery Level Indicator**

There are 10 LED lights on the top cover, seven of them are green and the rest are red. When seven (7) green LED's are out, the meter is indicating that the input voltage is less than 9.5V (normal voltage draw, 12V). It is advised to disconnect the motor from the battery to prevent damage to the battery and recharge.

### **Adjusting Motor Depth**

Position the depth adjustment collar so the propeller blades will be submerged 150mm - 300mm (6inches - 12inches) below the water's surface.

### **Raising the Motor**

It is recommended to disconnect the battery before carrying out this procedure to prevent accidental running of the motor. To raise the motor out of the water push and hold the tilt lever and with the other hand push down on the end of the handle to bring the motor up and out of the water. Then release the tilt lever to lock in place.

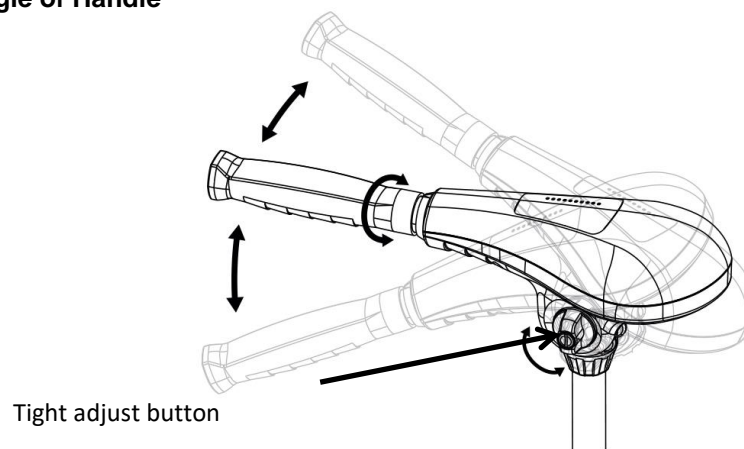
### Lowering the Motor

It is recommended to disconnect the battery before carrying out this procedure to prevent accidental running of the motor. Press the tilt lever whilst with the other hand; hold onto the end of the handle to steady the motor into the water. Once motor is lowered release the tilt lever to lock into position.

## CAUTION

Remember to wash the motor by using fresh water after being used in salt water as it can greatly reduce the possibility of corrosion.

### Adjust the Angle of Handle



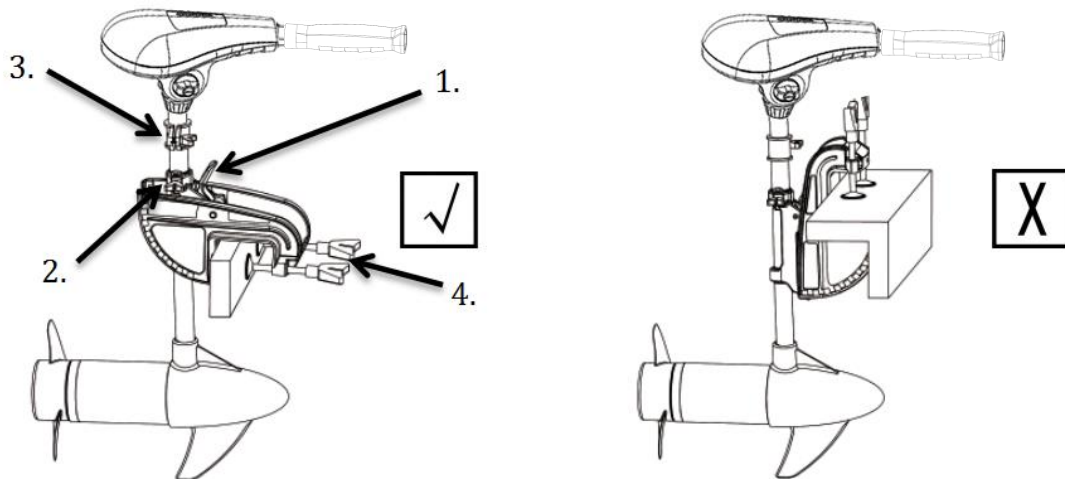
Aqua-Marina X-series motor is able to adjust the angle of handle to make comfortable for user's control. Please follow these steps to make adjustment.

1. Loosen the button so that the handle can move upwards and downwards freely.
2. Keep the handle to the adequate angle that is suitable to control.
3. Tighten the button to finish the adjustment.

## CAUTION

The angle adjustment range is  $\pm 30^\circ$ , do **NOT** exceed this limit; force to rotate the handle will cause the motor damage.

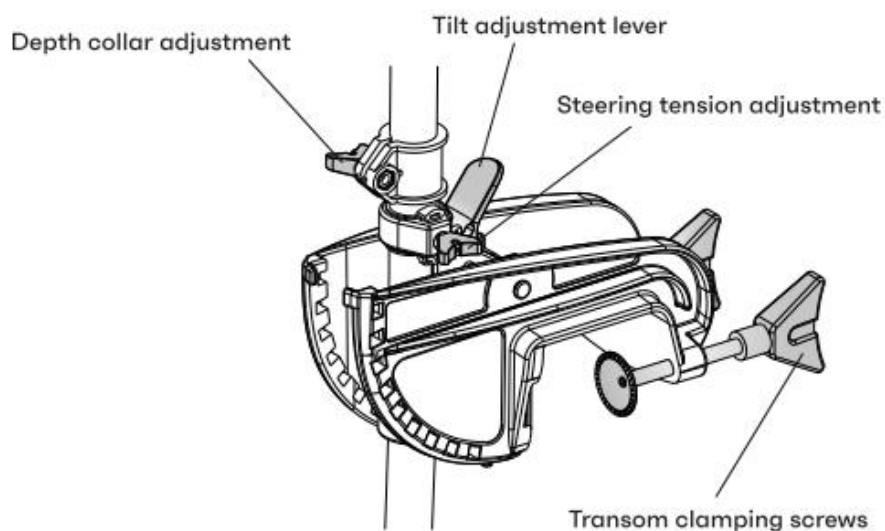
## TRANSOM MOUNT INSTALLATION



### CAUTION

Before the installation, Make sure the area between column and bracket is clear.

- 1. Tilt Position Lever** - This lever allows the user to adjust the tilt (angle) of the motor. Push tilt position lever, adjust tilt of motor, release lever.
- 2. Steering Tension Adjustment** -To adjust the steering resistance, simply tighten or loosen the tension knob located on front of the mount.
- 3. Depth Adjustment Collar** -The depth of the motor can be adjusted up and down by loosening the depth collar tension knob located on the column directly above the mount. The column can be adjusted and the motor can be positioned at the desired depth by retightening the tension knob.
- 4. Transom Screws** -The transom clamp screws allow for easy motor removal and installation. Mount your motor on the transom then tighten the transom clamp screws securely.





## CAUTION

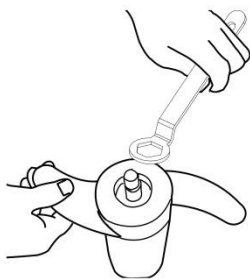
The motor can only be used in water deeper than 0.7m.

### HOW TO REPLACE THE PROPELLER

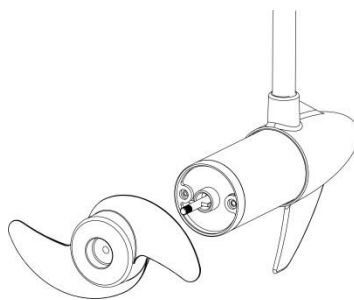
## CAUTION

Make sure that the motor has been disconnected from batteries.

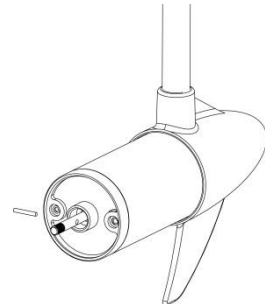
Hold the propeller blade and loosen the propeller nut using the prop spanner supplied or a set of needle nose pliers. Remove the propeller nut. Pull the propeller straight off. If prop is stuck, grasp one blade with one hand and tap on the backside of the opposite blade lightly with a rubber mallet, until the propeller comes off. If the propeller pin is bent, replace it. Align the new propeller with the propeller pin. Reinstall the propeller nut and tighten firmly by hand, tighten with spanner another 1/4 turn.



Step 1



Step 2



Step 3

## CAUTION

Do not strike bent prop pin with hammer to remove pin. Damage to motor armature may occur that would not be covered by warranty.

### DAILY MAINTAINANCE

1. After every use, check the propeller for any foreign objects like water plants etc. If there are such objects, remove them and clean the propeller.
2. Grease the rotation axis with a non aerosol lubricant. Never use aerosol lubricants, because they can damage the motor.
3. Check for a stable connection between motor and battery. Also check regularly the cables and replace them, if needed.

4. Check also regularly if the cable contacts are corroded.
5. Always wash the motor with fresh water after you have used it in salt water.
6. Regularly check if screws, bolts and other parts are in good condition.
7. Load the battery after every use and take care for any notes from the manufacturer of the battery; especially for safety data sheets.
8. If the temperature falls below 0°C, the motor must be stored in a dry place, where the temperature stays constantly more than 0°C.
9. Connect the cables correctly and take care for right polarization. During repairing/storing/maintenance and other situations where the motor is not in use, keep the motor disconnected from the battery.

## TROUBLE SHOOTING

### Loss Of Power / Losing Strength

- The propeller could be damaged. Replace it.
- The propeller could be dirtied. Remove any dirt or grass and wash it.
- The propeller hits too much the underground or water plants. Use the motor in deeper water or rise it.
- The contacts of the cables or the battery are corroded.
- The battery has only low voltage. Please reload it.
- The battery is defect. Please replace it.
- Your cable has insufficient quality - use only cables with 10mm<sup>2</sup> and more. Cable-extensions must be also 10mm<sup>2</sup> and more.
- The cables could be bucky.
- The cables are not connected properly.
- The motor magnet is damaged. You will hear noisy sounds from inside.

### Motor Makes Excessive Noise Or Vibrates Strongly

- The propeller could be dirtied. Remove any dirt and wash it.
- The propeller hits too much the underground or water plants. Use the motor in deeper water or rise it.
- The propeller is not mounted properly. Remove it and mount it accurately and straight again.
- Check if the propeller is running smoothly.

### Motor Fails To Run or goes out completely

- If working with a circuit breaker: check if the circuit breaker cut the connection. If it had done it, check that the reason for it will be eliminated (mostly the reason is an entangled fishing line).
- Corroded contacts of the battery or corroded cables prevent the voltage to get high enough to operate.
- Bad and unstable connection between motor and cables. Check for proper and stable connection.
- Your battery is empty. Reload it.
- Your battery is defect. Replace it.

### Motor Loses One Or More Speeds

- In the control box there is a gear switch - either some cables got loose. If not the gear switch could be defect.
- The carbon brush holder is melted. This can happen if the ampere runs over a critical level. Especially if the propeller gets entangled by a fishing line, the ampere raises to critical levels if you do not react immediately.
- Note: Using a circuit breaker can ensure a longer life of your motor as the motor will be shut down in situations that are dangerous for the carbon brush holder and other parts.

**Please Notice:**

During the usage of the electric outboard motor, the propeller is possible to get stuck by the weeds, fishing lines and fishing webs, or sometimes due to the variance of the water depth, the propeller is covered by the silt. If those situations stated above happen, please disconnect the battery in time and clean up the propeller. (Please DO NOT rise steps and increase the thrust of electric outboard motor to solve the problem, or it may cause permanent damages to the electric outboard motor.)

The characteristics between the electric outboard motor and gasoline outboard motor are different, if the propeller of the motor gets stuck, the gasoline outboard motor will only shut down and not cause any permanent damage to the motor itself, however, the electric outboard will draw extremely large current due to the motor stall and generate large amount of heat to damage important components in the motor such as switch, rotor and other connecting parts or even cause serious battery explosions.

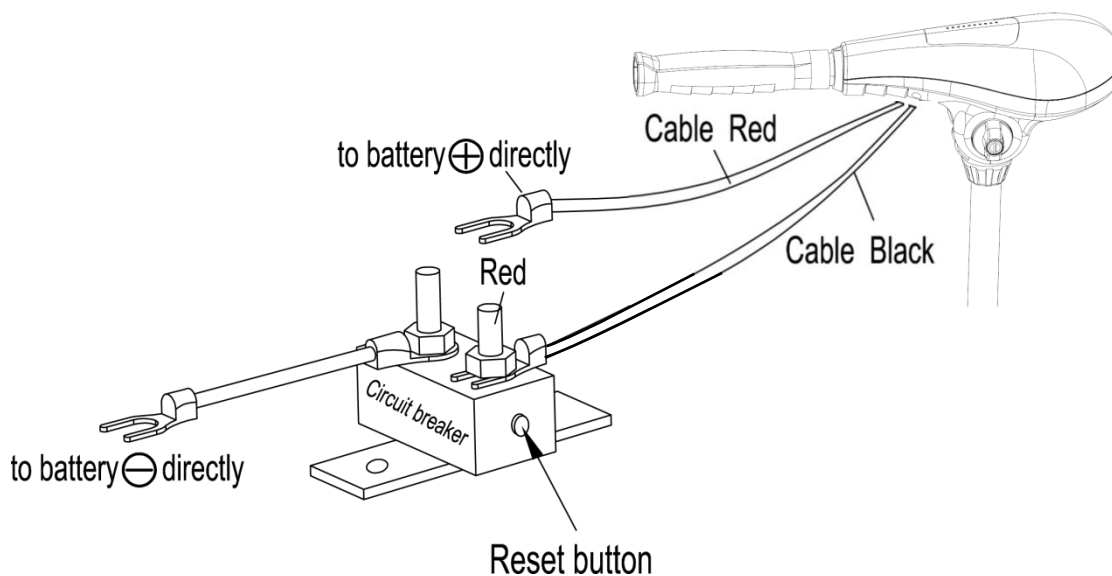
In some muddy water areas, user is hardly to recognize that motor is stuck and shut down the power. To prevent these situations occur, it is strongly recommended to use circuit breaker to protect the electric outboard motor. If the current draw of the electric outboard motor exceeds the limit of normal usage, the circuit breaker will cut off the power automatically to prevent any possible damage to the electric outboard motor. The circuit breaker has the reset button and is therefore reusable.

To prevent the rotor coil damage from exceeding current, it is highly suggested to circuit breaker to protect electric outboard motor.

**FUNCTION OF THE CIRCUIT BREAKER**

During the usage of the electric outboard motor, when the propeller is stuck by the weeds, small stones, fishing lines or so forth, the circuit breaker will cut off the power automatically to prevent the damage of the electrical parts.

If the circuit breaker cuts off the power please disconnect the battery first, then check and clean any obstacles. At last, press the reset button on the circuit breaker and reconnect the battery, the electric outboard motor is able to continue the work.



## WARRANTY

### Duration of Coverage

This Limited Warranty provides coverage for two (2) years from the date the product is first manufactured from factory. Therefore the ultimate purchaser may have limited warranty coverage period for less than two (2) years due to the time of transferring, sale and storage. The only reference for duration of warranty coverage is the serial number, which is imprinted on the surface of motor's transom mount. The repair or replacement of parts, or the performance of service under this warranty, does not extend the life of this warranty beyond its original expiry date.

### Conditions That Must Be Met In Order To Obtain Warranty Coverage

Warranty coverage is only available from an authorized dealer to distribute the product in the country in which the sale occurred. Routine maintenance out-lined in the Operation and Maintenance section must be performed in order to maintain warranty coverage. If the retail customer performs maintenance, Meteor reserves the right to make future warranty coverage possible only with proof of proper maintenance.

### How to Obtain Warranty Coverage

Delivering the product to an authorized dealer for inspection should make warranty claims; proof of purchase will be required to receive warranty.

The dealer will then arrange for the inspection and any necessary repair. The purchaser in that case shall pay for all related transport charges and/or travel time. If the service provided is not covered by the warranty, purchaser shall pay for all related labor and material, and any other expenses associated with that service.

### What Is Not Covered

This limited warranty does not cover routine maintenance items, adjustments, normal wear and tear, damage caused by abuse, abnormal use, operation of the product in a manner inconsistent with the recommended operation/duty cycle section of this Manual, neglect, accident, submersion, improper installation (proper installation specification and techniques are set forth in this manual), improper service, use of an accessory or part not manufactured or sold by us, or alteration or removal of parts. Expenses related to haul-out, launch, towing, storage, telephone, rental, inconvenience, slip fees, insurance coverage, loan payments, loss of time, loss of income, or any other types of accidental or consequential damages are not covered by this warranty.

Check the following chart to see what parts are in warranty coverage\*.

Motor Rotor	2 years
Motor Magnet	2 years
Speed Switch	1 year
Carbon Brush Holder	1 year
Telescopic Handle	1 year
10 Points Battery Meter	1 year
Plastic Control Box	1 year
Electrical Wire	1 year
Other Electrical Parts	1 year
Other Metal Parts	1 year

\*Propeller, screw, sticker and rubber band are not covered by the warranty.

## LIABILITY FREE CLAUSE

- Damages that are the result of degeneration.
- Damages that are the result of misuse.
- Especially for the propeller the warranty does not cover damages that are the result of degeneration.
- Damages that are the result of tuning and modifications.
- Damages that are the result of bad assembly/mounting.
- Damages that are the result of moving in shallow water.
- Damages that are the result of an accident.
- Damages that are the result of using „non-original“ spare parts and accessories.
- Insufficient maintenance. Especially corrosion caused by saltwater, when the salt water was not washed with fresh water.
- Inappropriate usage; throwing, storing in places below 0°C
- Usage with more voltage that is allowed.

## DECLARATION OF CONFORMITY FOR RECREATIONAL CRAFT

Propulsion Engine with the requirements of Directive 89/392/EEC as amended by 89/336/EEC.

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Engine type approved according to: Directives 89/392/EEC, 89/336/EE

### Description of Engine(s) and Essential Requirements

**Engine Type:** Outboard Engine      **Fuel Type:** Electric

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This declaration of conformity is issued under the sole responsibility of the manufacturer.

I declare on behalf of the manufacturer that the motor(s) is (are) in conformity with the type(s) for which above mentioned EC, EMC and ROHC type-examination or type approval certificate(s) has (have) been issued and it will meet the requirements of Directive 89/392/EEC, 89/336/EEC as amended when installed in a recreational craft, in accordance with the manufacturer's supplied instructions.

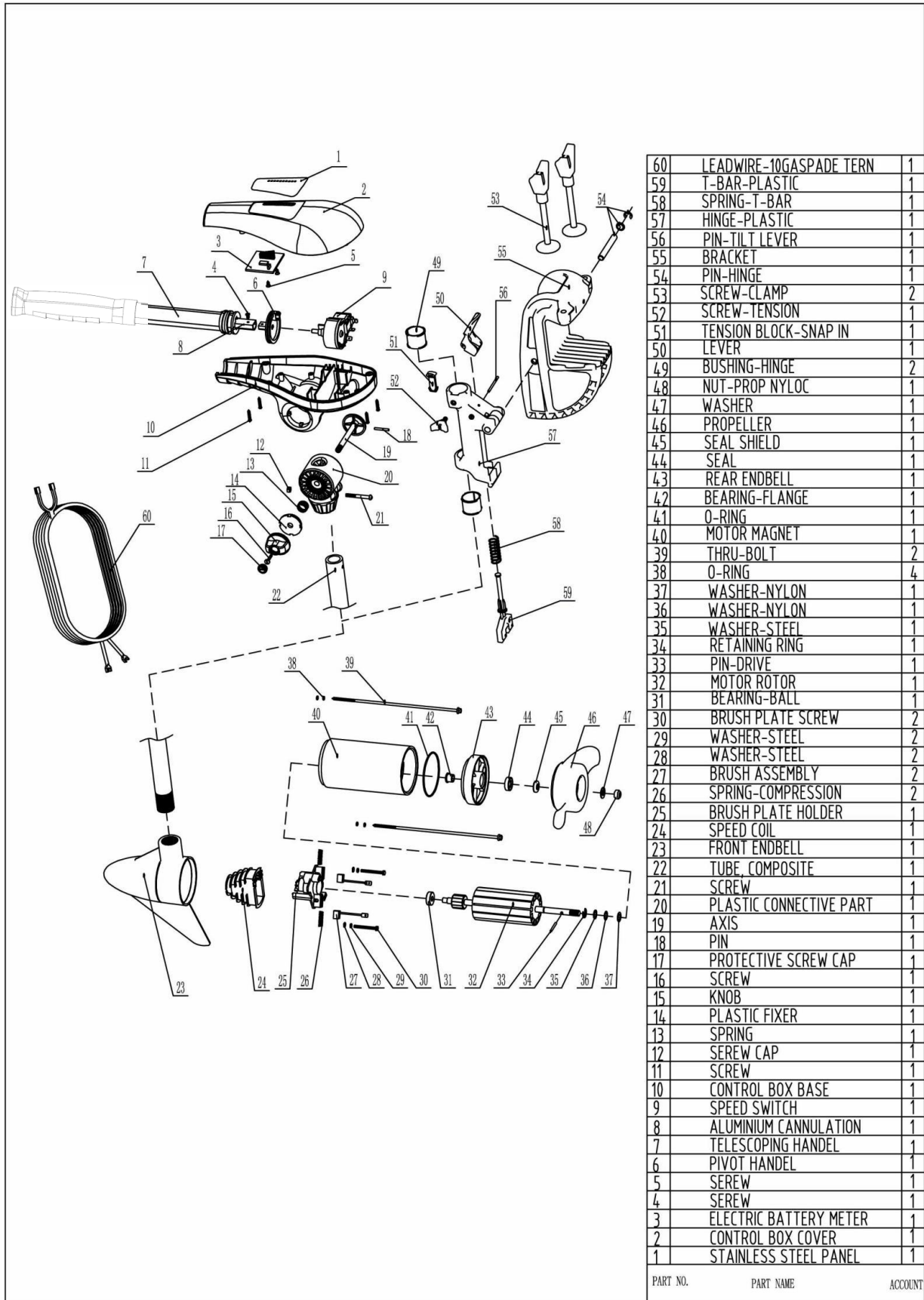
If you need a declaration of conformity your dealer will help you. Every motor has its own serial number, which is imprinted on the surface of motor's transom mount.

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# TECHNICAL DIAGRAM



60	LEADWIRE-10GASPADE TERN	1
59	T-BAR-PLASTIC	1
58	SPRING-T-BAR	1
57	HINGE-PLASTIC	1
56	PIN-TILT LEVER	1
55	BRACKET	1
54	PIN-HINGE	1
53	SCREW-CLAMP	2
52	SCREW-TENSION	1
51	TENSION BLOCK-SNAP IN LEVER	1
50	LEVER	1
49	BUSHING-HINGE	2
48	NUT-PROP NYLOC	1
47	WASHER	1
46	PROPELLER	1
45	SEAL SHIELD	1
44	SEAL	1
43	REAR ENDBELL	1
42	BEARING-FLANGE	1
41	O-RING	1
40	MOTOR MAGNET	1
39	THRU-BOLT	2
38	O-RING	4
37	WASHER-NYLON	1
36	WASHER-NYLON	1
35	WASHER-STEEL	1
34	RETAINING RING	1
33	PIN-DRIVE	1
32	MOTOR ROTOR	1
31	BEARING-BALL	1
30	BRUSH PLATE SCREW	2
29	WASHER-STEEL	2
28	WASHER-STEEL	2
27	BRUSH ASSEMBLY	2
26	SPRING-COMPRESSION	2
25	BRUSH PLATE HOLDER	1
24	SPEED COIL	1
23	FRONT ENDBELL	1
22	TUBE, COMPOSITE	1
21	SCREW	1
20	PLASTIC CONNECTIVE PART	1
19	AXIS	1
18	PIN	1
17	PROTECTIVE SCREW CAP	1
16	SCREW	1
15	KNOB	1
14	PLASTIC FIXER	1
13	SPRING	1
12	SEREW CAP	1
11	SCREW	1
10	CONTROL BOX BASE	1
9	SPEED SWITCH	1
8	ALUMINIUM CANNULATION	1
7	TELESCOPING HANDEL	1
6	PIVOT HANDEL	1
5	SEREW	1
4	SEREW	1
3	ELECTRIC BATTERY METER	1
2	CONTROL BOX COVER	1
1	STAINLESS STEEL PANEL	1
PART NO.	PART NAME	ACCOUNT