NAVY REMOTE CONTROL USER MANUAL

Nov, 2018 Version 1.0

Acknowledgement

Thanks for choosing ePropulsion products, your trust and support in our company are sincerely appreciated. We are dedicated to providing high-performance electric outboards, as well as thrusters, reliable lithium batteries and accessories.

Welcome to visit www.epropulsion.com and contact us if you have any concerns.

Using This Manual

Before use of the product, please read this user manual thoroughly to understand the correct and safe operations. By using this product, you hereby agree that you have fully read and understood all contents of this manual. ePropulsion accepts no liability for any damage or injury caused by operations that contradict this manual.

Due to ongoing optimization of our products, ePropulsion reserves the rights of constantly adjusting the contents described in the manual. ePropulsion also reserves the intellectual property rights and industrial property rights including copyrights, patents, logos and designs, etc.

This manual is subject to update without prior notice, please visit our website www.epropulsion.com for the latest version. If you find any discrepancy between your products and this manual, or should you have any doubts concerning the product or the manual, please visit www.epropulsion.com.

ePropulsion reserves the rights of final interpretation of this manual.

This manual is multilingual, in case of any discrepancy in the interpretation of different language versions, the English version shall prevail.

Symbols

The following symbols will help to acquire some key information.

⚠ Important instructions or warnings

💡 Useful information or tips

Product Identification

Below picture indicates the serial numbers of NAVY Remote Control. Please note the position of the serial numbers and record them for access to warranty service and other after-sale services.

Figure 0-1

Table of Contents ────────────

1 Product Overview

The NAVY Remote Control is used for starting and stopping the NAVY outboard motor, adjusting the speed of the motor, configuring the battery parameters, displaying the system information and messages, etc. The Remote Control is powered by either solar power or the built-in lithium battery. Remote Control wirelessly or wiredly communicates with the outboard control system built in the main outboard motor. While using the Remote Control, it requires an additional steering wheel to help steer.

1.1 In the Package

When you receive a set of NAVY Remote Control, unpack its package and check if all the items below are included in the package. If there is any loss or transport damage, please contact your dealer immediately.

Items	Qty./Unit	Figure
NAVY Remote Control	1 set	
Fixing Guide	1 piece	
User Manual, Warranty Card & Invitation Card	1 set	
Kill Switch	2 pieces	
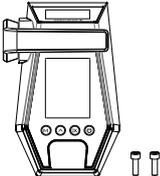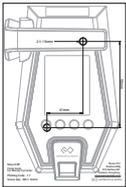
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1.2 Parts and Diagrams

Throttle Handle

Display Panel

Buttons

Kill Switch

Solar Panel
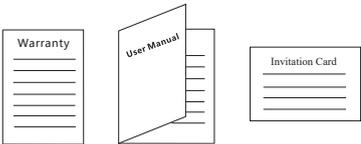
Communication Port
（Bottom）
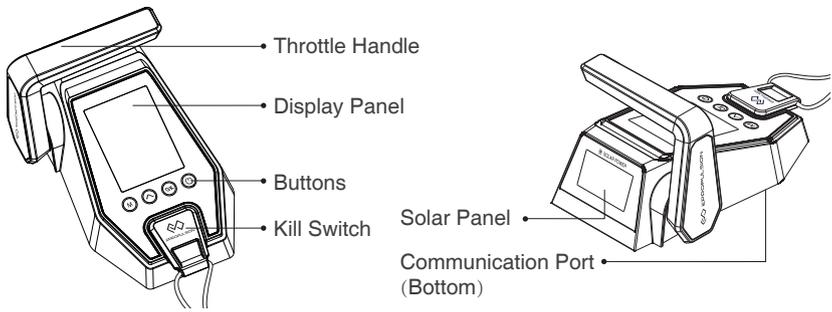
Figure 1-1

1.3 Specification

NAVY Remote Control	
Communication	Wireless / Wired
Communication Distance	≤10 m
Weight	0.65 kg / 1.43 lbs.
Dimension (L x W x H)	193 mm x 130 mm x 112 mm / 7.6" x 5.1" x 4.4"

2 Displaying

GPS Status Indicator

Battery Level Indicator

Travelled Distance/
Time or Remaining
Distance/Time

Throttle Reset Indicator

RESET

Overheat Alert

Kill Switch Status Indicator

Battery Level/Voltage

Current Speed

Distance/Time

Throttle Power
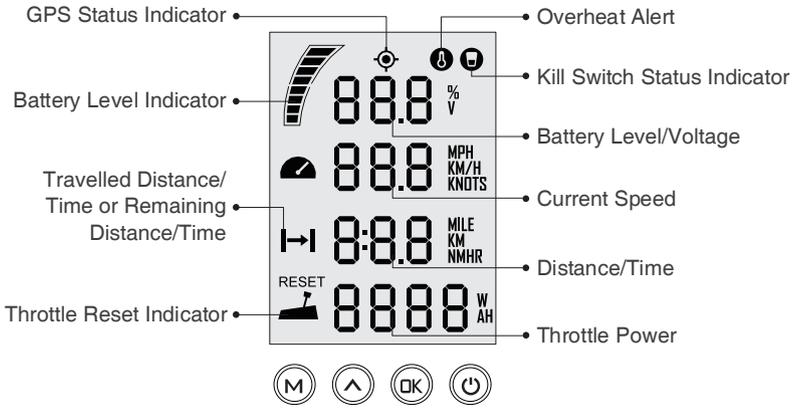
Figure 2-1

Buttons	Functions
⏻ "Power"	1. In power-off state, press and hold the power button to power on the Remote Control. 2. In power-on state, press and hold the power button to power off the Remote Control.
OK "OK"	1. On setting pages, press " OK " button to save the current settings and switch to the next item. 2. On setting pages, press and hold " OK " button, and the system will save your settings, the display will exit from setting page and return to the home page. 3. In power-on state, when home page displays or all the characters display on the page, press " OK " button and hold **5s** to enter the Remote Control pairing page.

Buttons	Functions
∧ "Up"	1. On any setting page, press " ∧ " button to view options for current setting. 2. In power-on state, when home page displays, press " ∧ " button and hold **10s** to enter the throttle calibration page. 3. On home page, press " ∧ " button to switch the travelling distance or time displaying icon between " →∣ " and " ∣→ ". <table><tr><td>48.0 v 🔋 20.0 KM/H ∣→ 07.5 KM ⚡ 3000 w Main page 1</td><td>press "Up" button →</td><td>48.0 v 🔋 20.0 KM/H →∣ 12.5 KM ⚡ 3000 w Main page 2</td></tr></table>
M "Menu"	1. In power-on state, press and hold " M " button to enter the preference setting page. 00.0 v 🔋 - - - MPH →∣ - - - MILE Preference setting page 2. On preference setting page, press and hold " M " button to enter the battery setting page. 48.1 v L 1 0000 AH Battery setting page 3. On any page, press " M " button to return home page.
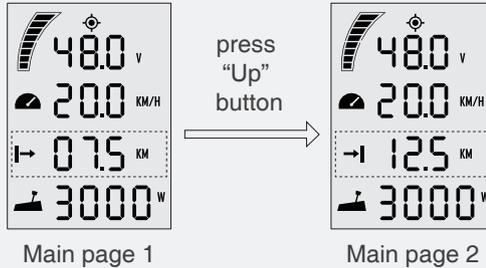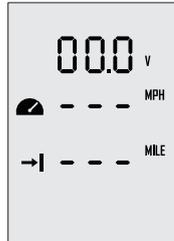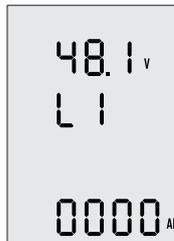
⚠️ If users enter the page without setting any parameters, the current parameters displayed on the page will be saved as user parameters by default.

💡 If " 5Y5 ᴵᴺ ᴵᴿ " shows on start-up, it indicates system initialization.

Icons	Functions	
(battery level indicator icon)	Battery level indicator	Indicating approximate battery level. The solid blocks stand for remaining battery.
88.8 %⁄ᵥ	Battery level/ voltage	Indicating accurate current battery level percentage/battery voltage, is configurable in preference setting page. For example: 100 %: indicates current battery level. 48.0 ᵥ: indicates current battery voltage.
◉	GPS status indicator	◉ Hidden: no satellite signal is received or GPS does not work. ◉ Blink: GPS is connecting to satellites. ◉ Shown constantly: GPS is in use.
🌡	Over-heat alert	🌡 Hidden: system temperature is in normal range. 🌡 Blink: system temperature is a little high and the maximum input power of motor has been lowered than 3kW. 🌡 Shown constantly: system is over temperature and the outboard will stop working. The outboard motor can't be started until the system temperature drops to a certain level.

Icons	Functions
🔘	Kill switch status indicator 🔘 Hidden: kill switch is present and is working well. 🔘 Shown constantly: the kill switch is detached.
🕐 **888** MPH KM/H. KNOTS	Current speed Displaying real time cruising speed. Set units (KM/H, MPH or KNOTS) in preference setting page.
8:8.8 MILE KM NMHR	Distance/time display Displaying real time travel distance/time. Set units (MILE, KM (kilometer) and NM (nautical mile)) in preference setting page. The time unit is HR (hour).
⊢→⊣	Travelled distance/time or remaining distance/time →⊦: Remaining distance or time that outboard can travel. Set units (MILE, KM (kilometer) and NM (nautical mile)) in preference setting page. ⊦→: Travelled distance or time.
RESET ◢**8888**'	Throttle Power Displaying real time input power to the system. A blinking "**RESET**" indicating the throttle should be reset to zero position.

3 Charging

The NAVY Remote Control has a built-in lithium battery for power supply. The battery will be charged automatically under normal use: get charged by solar power or wired connection.

3.1 Charging by solar power

When the solar panel receives enough sunshine, it will generate electricity to charge the built-in lithium battery. While charging the battery by solar power, it's suggested to face the solar panel of the Remote Control toward sunlight to get better charging effect.

Solar Panel
(Face the Sun)
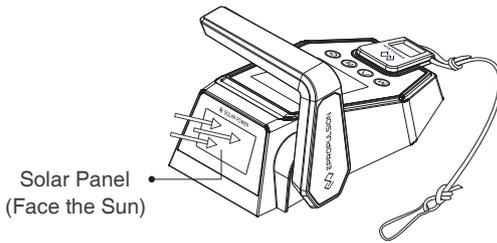
Figure 3-1

💡 It's recommended to charge the Remote Control by solar power.

3.2 Charging by wired connection

If the Remote Control can't get enough solar power for a long time, the battery level will run out. In this case, a warning message with an error code E60 (Figure 3-2) will display on the LCD panel to remind you to charge the Remote Control.

Figure 3-2

Please follow the below steps to charge the Remote Control by wired connection.

First, connect the Remote Control to the outboard motor by a communication cable first (Figure 3-3);
Then, connect the outboard motor to the battery.

Communication Cable

* The communication cable needs to be purchased separately.
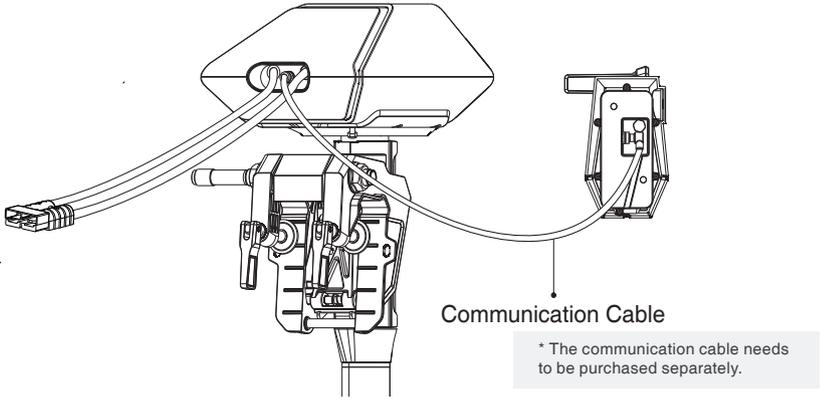
Figure 3-3

⚠ During long-term storage, ensure to charge the Remote Control battery every 6 months to avoid over-discharge.

💡 After long-term storage, charge the Remote Control before use.

💡 The communication cable is not included in this package. Please purchase one from your dealer if you choose this charging method.

💡 It's recommended to switch off the Remote Control while connecting the communication cable. When the Remote Control is switched on while charging, as the outboard main part and Remote Control are in communication, the working outboard motor will stop once the communication cable disconnects.

4 Power Adjusting

4.1 Power Adjusting for Remote Control

The Remote Control is mainly used to adjust the input power of the outboard motor. When the battery is well connected and switched on, power on the Remote Control to start the outboard, then slowly push the throttle forward position to increase the throttle power. The maximum forward/backward power is different for different outboard motors. The default maximum forward/backward power is shown below.
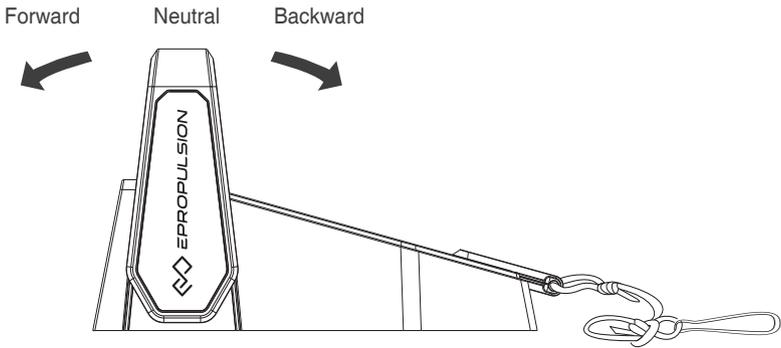
Figure 4-1

Outboard motor	Forward power	Backward power
NAVY 3.0	3 kW	3 kW
NAVY 6.0	6 kW	4 kW

💡 Before power on the Remote Control, please reset the throttle to neutral position.

💡 If you find a blinking "**RESET**" on the display panel, you are reminded to reset the throttle to neutral position.

💡 If you turn the throttle from the forward position to the backward position directly, the motor will first stop shortly, then start turning to the reverse direction.

4.2 Adjusting Maximum Forward/Backward Power

Users can set the maximum forward/backward throttle power on their own. Make sure the battery is powered off before adjusting.

Step 1: Turn on the Remote Control. The home page displays.

Step 2: Long press (**5s**) "M" button and "∧" button simultaneously to enter the maximum forward/backward power setting page.

Long Press "M"and "∧" button simultaneously.

FOr: forward
bAC: backward
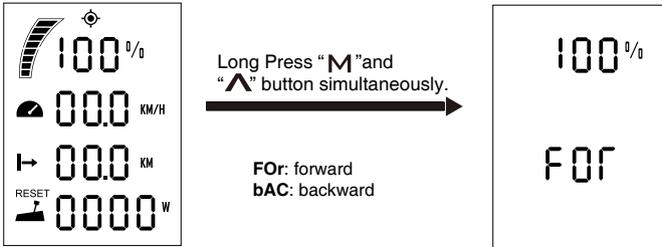
Figure 4-2

Step 3: If the parameter is flickering, you can press "∧" button to change the parameter. If you do not want to change the flickering parameter, press " OK " button to switch to the next parameter.

> If you want to set the maximum backward power to 4kW, you can switch to bAC and set the percentage to 67%, eg. 4kW / 6kW ≈ 67%.

Step 4: Long press the " OK " button until it returns to the home page. The setting is finished.

4.3 Recalibration

The throttle position sensor should be recalibrated if the below error code displays.

Figure 4-3

Recalibration process	LCD Displaying
Step1: Long press " ∧ " button for **10s** until "**CAL FO**" displays.	CAL FO
Step2: Push the throttle to the maximum forward power position, then press " ∧ " button. "**CAL ST**" will display and "**CAL**" will be blinking.	CAL ST
Step3: Pull the throttle to the middle (zero) position where you can hear a click sound, then press " ∧ " button, "**CAL bA**" will display and "**CAL**" will be blinking.	CAL bA

Step4: Pull the throttle to the maximum backward power position, then press " ∧ " button. "**CAL FO**" will display and calibration is completed. A blinking "**RESET**" will display to remind you to reset the throttle to zero position.	CAL FO RESET
Step5: Push the throttle to zero position and press the " M " button and return to the main page.	CAL FO
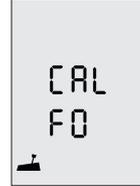
💡 Carry out the throttle calibration procedures strictly as the above sequence.

💡 When recalibrating a Remote Control, please pull/push the throttle.

5 Use of Kill Switch

- Locate the kill switch to the right place on the Remote Control and tie its lanyard to your wrist or life jacket.

- Stop the outboard in emergency by detaching the kill switch.

- To run the motor again, first attach the kill switch then start the motor.
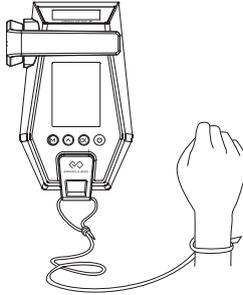
Figure 5-1

⚠ The kill switch generates magnetic field. Keep it 50cm / 20inches away from medical implants like pacemakers and magnetic cards (e.g. credit card) as well as other magnetic media.

⚠ The magnetic field of the kill switch may interfere with some electronic instruments. Keep it away from these electronic instruments.

6 Pairing Remote Control to the Outboard ——

There are three pairing methods. Please choose one proper method and follow the procedures.

a. Pairing Wirelessly

Step1: Switch off both NAVY outboard and Remote Control.
Hold the remote within 0.5m to the head part of the outboard.

Step2: Press and hold the " ⏻ " button on the Remote to switch on.

Step3: Press " ☐K " button and hold **5s** to enter the pairing setting page (Figure 6-1). On this page, you can find blinking " Add " (address) and " SEr " (set), and a countdown timer " 060 " (60s).

```
Add
SEr
060
AUrO
```

Figure 6-1

Step4: Switch on NAVY power. Wait for them to get paired in a few seconds.

Step5: After pairing, the LCD screen will display as Figure 6-2 for 5s, then returning to home page automatically.

```
Add
SEr
SUC
AUrO
```

Figure 6-2

💡 If pairing fails within 60s, go back to **Step3** and try again.

b. Pairing by Communication Cable with a 48V Battery

Step1: Switch off both NAVY outboard and Remote Control.

Step2: Connect NAVY outboard and Remote Control with a communication cable. Please refer to Figure 6-3.

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Step3: Switch on both NAVY outboard and Remote Control and wait for them to get paired.

Step4: Pairing succeeds until home page displays. Then disconnect the communication cable.
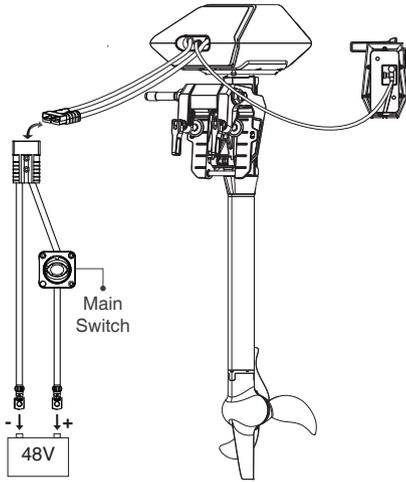
Figure 6-3

c. Pairing by Communication Cable with a NAVY Battery

Step1: First connect the main switch cables to the NAVY Battery.

Step2: Connect the main switch cables with the power cables from the outboard.

Step3: Connect NAVY 6.0 outboard motor to the NAVY Battery with the communication cable.

Step4: Connect the NAVY remote control to the NAVY Battery with the communication cable.

🔆 If " $\begin{smallmatrix} SYS \\ IN\ IT \end{smallmatrix}$ " shows on start-up, it indicates system initialization.

🔆 After pairing Remote Control to the Outboard, it can switch between wireless and wired communication automatically.
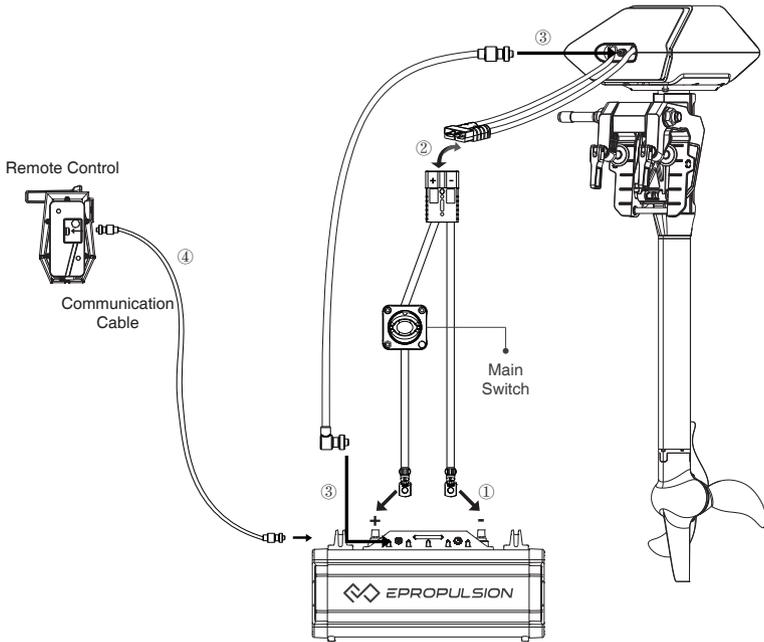
Figure 6-4

If the outboard is replaced with a new one, the original wireless link will break and wireless communication failure will occur. The main page of the LCD panel on the Remote Control will display as below. In this case, users should conduct pairing again.
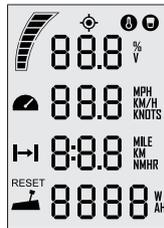
Figure 6-5

However, if the outboard motor is not replaced, but the LCD panel still displays like this, you should check and:

1) Make sure the Remote Control is not far from the outboard motor;

2) Make sure all the equipment involved is normally powered on.

If the Remote Control displays like Figure 6-5 after check, it indicates an error has occurred. Please contact your dealer for repair.

7 Warning Messages

When the outboard motor is running in abnormal conditions or out of order, a warning message with an error code will display on the LCD screen. Figure 7-1 is an example. Please find more error codes and corresponding solutions in the below table.

Figure 7-1

Codes	Causes	Solutions
E01	Battery voltage is over the operating range.	Replace a battery based on suggested operation specifications.
E02	Propeller may be blocked, causing motor overcurrent	Please refer to the solution to E10.
	Loosen power cable connector leads to overcurrent	Check if the power cable connector is loosened.
E06	The battery voltage level is too low.	Operate the outboard at low power. Please charge the battery as soon as possible.
E10	Motor stall, which may be caused by blocked propeller	Turn off power, then clean up the things winding around the propeller. Test if the propeller can be rotated by hand before operation.

Code	Cause	Solution
E11	The temperature of motor is too high.	Stop operating the outboard and wait until the temperature falls within the normal operating temperature range.
E12	The temperature of circuit board is too high.	Stop operating the outboard and wait until the temperature falls within the normal operating temperature range.
E15	Failure was found in the circuit board temperature sensors.	Try to turn off the main switch and wait for 10 seconds then turn on the switch again.
E16	Calibration Abnormality of Current Sensor	Please contact the dealer for help.
E22	MCU Communication Abnormality	Please restart to see if the error disappears, if not, please contact your dear for help.
E25	The remote is not paired to the outboard	Pair the remote to the outboard.
E30	Throttle position sensor failure, should recalibrate the throttle position sensor.	Please refer to section *4.3 Recalibration* to recalibrate the throttle position sensor.
E40	System running failure	Please restart the Remote Control and the outboard.
E55	NAVY Battery is running out of power	Charge NAVY Battery
E56	Communication Error between NAVY outboard and NAVY battery	Check if the communication cable between NAVY outboard and NAVY battery is well connected, if yes, please restart the system.

Code	Cause	Solution
E57	NAVY battery overcurrent	1. Ensure the paralleled NAVY batteries have similar voltage with pressure difference within 2V. 2. Ensure the power cable and battery are firmly connected to avoid poor contact. 3. Restart the battery when the error occurs and keep the parallel state for 30 minutes to wait for the batteries to self-balance the voltage. 4. If the error occurs, users can also continue operating after restarting the battery, but do not operate at full power state. The operating power is suggested to be lower than two thirds of full power. Please fully charge the battery after use.
E60	The Remote Control is running out of power.	Please connect the Remote Control to the outboard by a communication cable. Please refer to section *3.2 Charged by Wired Connection*
All characters display	The motor has no power.	Connect the battery to the outboard and then turn on the main switch.
	Device addresses mismatch.	Please refer to section 6 *Pairing Remote Control to the Outboard Motor* and pair the Remote Control with the outboard motor again.

⚠ If the problem persists, please consult your ePropulsion authorized dealer for assistance.

8 Warranty

The ePropulsion limited warranty is provided for the first end purchaser of an ePropulsion product. Consumers are entitled to a free repair or replacement of defective parts or parts which do not conform with the sales contract. This warranty operates in addition to your statutory rights under your local consumer law.

8.1 Warranty Policies

ePropulsion warrants its products to be free of defects in material and workmanship for a limited period since the date of purchase. Once a fault is discovered, the user has the right to make a warranty claim under the ePropulsion warranty policy.

Product	Warranty Expiration Date
NAVY Remote Control	**Two years** after the date of purchase.
Repaired/Replaced Parts	**Three months** since the date of maintenance. Notes: 1. If the three-month period overlaps with the original warranty period, the warranty against these replaced or repaired parts still expires two years after the date of purchase. 2. If the three-month period exceeds the original warranty period, the warranty of the repaired or replaced parts expires by end of the third month since date of maintenance.

☀ In order to validate the warranty, users are required to fill in the Warranty Card in the package in advance.

☀ Keep the product label in an intact state and record the serial number on the label. Never tear the label off the product. An ePropulsion product without the original product label will not be applicable to warranty services provided by ePropulsion.

☀ The warranty is valid only when the information is correct and complete.

💡 Free warranty is only validated upon the presentation of legal serial number, Warranty Card, and evidence of purchase from an authorized ePropulsion dealer.

💡 Valid date of purchase should be established by the first-hand purchaser with original sales slip.

💡 Free warranty is not transferable and will not be reissued.

8.2 Out of Warranty

Make sure the product is properly packed during delivery, the original ePropulsion package is recommended. If the product got further damaged due to improper packing during delivery, the furtherly damaged part will be deemed as out of warranty coverage.

In addition, faults or damages caused by the following reasons are also excluded from warranty scope within the covered period:

- Any improper operation contradicts the user manual.
- Accident, misuse, wishful abuse, physical damage overcharging or unauthorized repair.
- Dropping, improper care or storage.

💡 You should be noted that minor faults like normal wear and tear that pose no influence on the intended function of the product are also not covered by the warranty.

💡 Consumables are out of warranty scope.

8.3 Warranty Claim Procedures

If you find your product defective, you can make a claim to your dealer following below procedures:

1. Fill in Warranty Card correctly and completely in advance. Then make your warranty claim by sending it to your authorized ePropulsion service partner together with valid proof of purchase. Usually these documents are required when making a warranty claim: the Warranty Card, ex-factory serial number, and evidence of purchase.
2. Send the defective product to your authorized ePropulsion service point after getting the confirmation. Note that the label should be kept intact. You can also deliver the product to your authorized ePropulsion dealer

after getting confirmation.

3. The defective components or parts will be either repaired or replaced according to the diagnosis made by the ePropulsion authorized service partner.

4. If your warranty claim is accepted, the equipment will be repaired or replaced free of charge. Note that any delivery cost incurred in the process is at your charge.

5. After careful examination and confirmation by ePropulsion authorized dealer, the defective or faulty components will be repaired or replaced with brand new ones against the actual condition.

6. In case your warranty claim is rejected, an estimated repair charge with round trip delivery cost will be sent for confirmation. ePropulsion authorized service point will conduct maintenance accordingly only after your confirmation.

💡 If warranty expires, you can still enjoy maintenance services from authorized ePropulsion service partners with minimum maintenance charge.

Thanks for reading this user manual.
If you have any concerns or find any problems while reading,
please don't hesitate to contact us. We are delighted to offer
service for you.