

EPWR FOIL

USER MANUAL



PWR-FOIL, A BRAND BUILT ON PASSION

When Redwood Paddle, my brand of inflatable and rigid stand up paddles, surfboards and accessories, turned 10, I started to long for a way to ride everywhere and in all circumstances....;) I started dreaming of flying over the water!

PWR-Foil saw the light of day in 2016. The desire to fly no matter the weather conditions was too present, too strong to put aside... The idea for an electric foil began to take shape. At the time, in 2016, no such thing as an efoil existed. The notion itself seemed a bit crazy!

As a passionate person, I am curious and persistent, and I love to tinker.

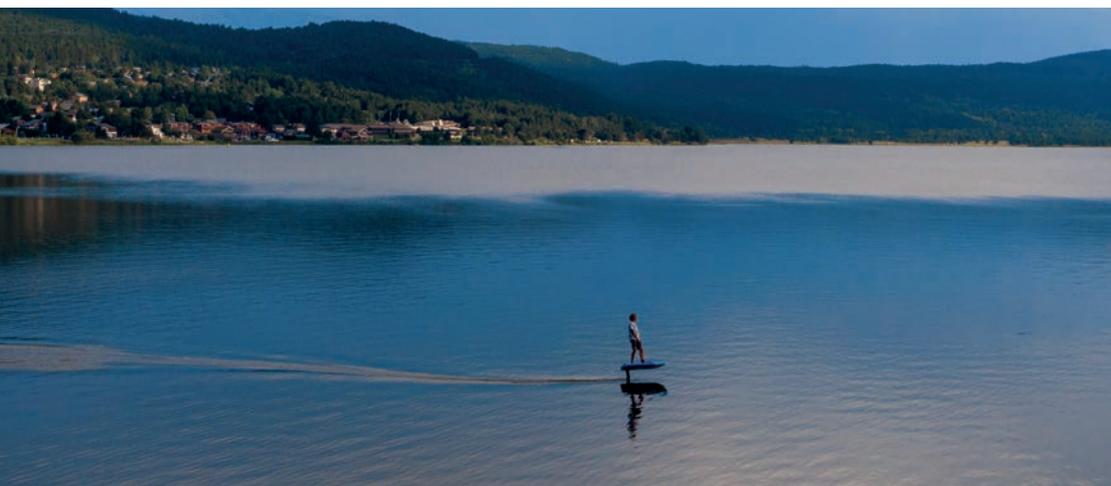
A team of like-minded enthusiasts was assembled, each person an expert in his or her field. In 2018, we unveiled a prototype at the Nautic Paris expo. In 2019, we began taking our first orders, and by 2020, PWR-Foil efoils were flying at the four corners of the globe.

I personally love efoiling. It's addictive! I never let more than three days pass without heading out to the water. I do this as much for fun as to continue making improvements. The very first time I flew longer than 5 minutes... simply wow! I got home with a smile on my face and the feeling of having touched the stars ;)

I wish you the same feeling! The same exhilarating rush of adrenaline with every flight!

Until I have the pleasure of meeting each of you and going out for a great session together, I hope you will have as much pleasure flying as we have had developing these gorgeous toys.

Chris DeFrance .



SUMMARY

SAFETY AND PRECAUTIONS p.7

- 1 - Rules and Recommendations p.8
- 2 - Warnings p.9
- 3 - Proper Use p.10

ASSEMBLING YOUR PWR-FOIL p.15

- 1 - Contents p.16
- 2 - Charging the Battery p.20
- 3 - Wing-Fuselage-Stabilizer Assembly p.22
- 4 - Mounting the Wing-Fuselage-Stabilizer
to the Efoil System p.24
- 5 - Filling the Coolant Reservoir p.26
- 6 - Board and Efoil System Assembly p.28
- 7 - Connecting the Battery to the Efoil p.30
- 8 - Remote Control p.32
 - *Getting Started* p.33
 - *Acceleration Modes* p.34
 - *Changing Acceleration Modes* p.35
 - *Pairing & Calibration* p.36
- 9 - Magnetic Cut-off p.37
- 10 - Optional: Mounting Propeller Without Guard p.38

FINALLY IN THE WATER! p.40

- 1 - Introduction p.42
- 2 - First Flights p.43
- 3 - Progressing p.46
- 4 - Fine Tuning p.47
- 5 - Turns p.47

BOOKLET FOR YOUR EFOIL p.48

- 1 - Technical Specifications p.50
- 2 - Maintenance p.51
- 3 - Winterization p.52
- 4 - Servicing p.52
- 5 - Maintenance Booklet p.53

SAFETY AND PRECAUTIONS

1 -	Rules and Recommendations	p.8
2 -	Warnings	p.9
3 -	Proper Use	p.10

Flying with your PWR-Foil is safe and easy as long as you follow the proper rules and practices laid out in this manual. Improper use can lead to injury and equipment failure.

It is imperative you learn to ride and care for your PWR-Foil by following each step of the instructions in this manual. You may also refer to the video tutorials available at www.pwrfoil.com.

All rules and safety precautions can be changed at the sole discretion of the manufacturer. For all information relating to new recommendations and product changes, please visit www.pwrfoil.com.



1. RULES AND RECOMMENDATIONS

BUREAU OF MARITIME AFFAIRS - DIVISION 240 - Article 240-2.11 Regulations concerning windsurfing, kitesurfing, and motor-driven boards.

- Windsurfers, kitesurfers, and motor-driven boards may sail only during daylight hours.
- They may sail no more than 2 miles from a shelter. Kitesurfers must display on the sail or an affixed part in characters at least one centimeter tall their identifying information, consisting of either their name (or company name), telephone number, email or any combination thereof.
- When sailing beyond 300 meters from a shelter, they must carry basic safety equipment at all times, including:
 - a flotation aid with a minimum capacity of 50 N or a neoprene wet suit or dry suit providing at minimum protection of the torso and abdomen, positive buoyancy and thermal protection;
 - a personal safety light device, which must be waterproof and have a battery life of at least 6 hours.

ADDITIONAL RECOMMENDATIONS

- Always check local regulations: Depending on the region and country, the body of water may be regulated and a permit or fee may be required to operate the PWR-Foil. Please check with the relevant authorities in your country.
- I can swim. I use a leash. I always use an approved safety helmet.
- You must always keep a safe distance from others on the water, including boats, swimmers, surfers, paddle boarders, etc., and respect marine life. The PWR-Foil is not intended for use in surf or breaking waves. Users who venture into these areas do so at their own risk.
- I consult the weather forecast for the entire day: waves, offshore wind which pushes away from the coast, I don't go out in stormy weather.
- I notify someone of my departure. I sail with at least one other person.
- Learn about the area before getting in the water (tides, currents, river difficulty level, depth, etc.).
- Do not use after having imbibed alcohol or ingested psychotropic drugs or any medication with the potential to alter your personality.
- Be careful not to overestimate your physical and technical abilities.

2. WARNINGS

- Negligent behavior and errors in handling this product expose you and others around you to an elevated risk of injury or death and/or damage to your PWR-Foil or other equipment.
- Use common sense and basic safety precautions when using a PWR-Foil. Rudimentary mechanical skills are also required.
- It is strictly forbidden to use a PWR-Foil with incompatible components or to make any modifications using components other than those exclusively sold by PWR-Foil.
- A PWR-Foil should not be ridden or handled by children under the age of 16. It is not a toy.
- A PWR-Foil is an electrically powered watercraft that requires careful and responsible piloting.
- Like any other electric vehicle, it must be regularly maintained and serviced once a year to keep it in perfect working order and avoid breakage. Your efoil must be serviced 12 months after the date of receipt. Contact PWR-Foil for details and instructions on how to do this. The PWR-Foil Limited Warranty is voided if the servicing schedule is not respected.
- It is important to ensure that the water is at least 1.5 meters deep - never fly in shallow water / in rocky areas / in bad sea conditions.
- It is strictly forbidden to tow any other watercraft or person (surfboard - paddleboard - jet-ski - boat - swimmer - water-skier, etc.). This action would be tantamount to grossly exceeding the maximum authorized load, potentially overloading the motor and electronics and seriously damaging your PWR-Foil. Any ensuring repairs will not be covered by the warranty.

3. PROPER USE

IN GENERAL

- > Do not leave your equipment out in the sun, either on top of the car or in the car.
- > We strongly recommend that you seek professional help to learn to use your PWR-Foil:
 - From the PWR-Foil team
 - From a rental place with a training staff. A list of clubs is available online at www.pwrfoil.com.



- > We recommend that you watch our explanatory and demonstration videos to learn the correct techniques for taming your PWR-Foil and using it safely in all circumstances. Scan the QR code to view our YouTube channel.



THE HYDROFOIL

The PWR-Foil hydrofoil system includes a mast, a main lift wing (front wing), a stabilizer (rear wing) and a fuselage that connects the mast to the front and rear wings.

- > These elements all possess a sharp leading edge. Great care should be taken when handling the PWR-Foil to avoid bumping into them both in or out of the water.
- > Falling on the foil (mast or wings) can cause serious injury or lead to death.



THE PROPULSION SYSTEM

The PWR-Foil's propulsion system consists of a powerful electric motor and a propeller spinning at a very high rate of rotation.

- > It is imperative that you keep your body, fingers and feet away from the propeller at all times, whether it is in motion or stationary. Failure to do so can lead to serious injury and even death.
- > Never touch the propeller either in or out of the water.
- > It is strictly forbidden to disassemble the propeller while the PWR-Foil battery is connected to it.



THE REMOTE CONTROL

- > The remote control must not be left unattended to charge.
- > During charging, the remote control will display both the charging voltage and the battery voltage. In order to prolong its lifespan, be careful not to exceed 4.0V for the battery.
- > It is absolutely forbidden to leave the remote control charging unattended for several hours on the induction pad. The elevated heat from the induction will deform the outer casing and damage the battery.
- > It is absolutely forbidden to switch on your PWR-Foil if the remote control is not fully charged. You risk the remote control losing the signal to the board while out on the water. Your PWR-Foil will maintain its last speed and you will lose control of the board, possibly causing injury and damaging equipment.
- > It is absolutely forbidden to charge a wet remote control on the induction pad.

THE BATTERY



- The PWR-Foil battery can be used between 0°C and 40°C.
 - Never heat your battery, never expose it to a heat source, never leave it in direct sunlight. Any use above 40°C can cause a fire or an explosion.
 - Never put your battery in a refrigerator, freezer or pressurized container. Any use below 0°C can cause irreversible damage to the battery.
- Never attempt to disassemble a PWR-Foil battery as this may result in a battery leak, fire or explosion. The electrolytes contained in the cells that make up the PWR-Foil battery are extremely corrosive.
- Only use a PWR-Foil battery with your PWR-Foil system. Doing otherwise will void the warranty for both.



- Never charge a PWR-Foil battery that is damaged and/or has been hit or dropped. Since the battery contains a large amount of energy, charging a damaged or compromised battery can result in a fire or even an explosion. It is essential to thoroughly inspect your PWR-Foil battery before use.
Signs of a damaged PWR-Foil battery:
 - loss of retaining screws
 - Deteriorated or torn connector / loose or damaged terminal
 - fractures/cracks/splits on any surface of the case
 - housing is deformed, swollen
 - smell of acid emanating from the battery
 - very high heat > 80°C when charging
- If your PWR-Foil battery shows visible signs of damage and falls into water, the waterproofing may be compromised:
 - Take it out immediately and put it in a safe, open space.
 - It is essential to keep a safe distance until it is completely dry.
 - Never use this PWR-Foil battery again.

- It is strictly forbidden to dispose of a PWR-Foil battery improperly. Before disposing of a PWR-Foil battery, it must be completely discharged and disposed of in an appropriate disposal bin for recycling. It is imperative to check and follow up-to-date regulations in the country where the battery is being disposed of. Every battery is stamped with a specific identifier allowing it to be tracked.



- If a PWR-Foil battery catches fire, the fire must be extinguished using a powder extinguisher.
- Always place the PWR-Foil battery indoors in a well-ventilated area and on a surface with improved heat dissipation (e.g. a concrete floor), never on a wooden workbench or shelf. It is imperative to keep at least 50cm between each element: battery and charger and between multiple batteries and chargers, if you own several. Do not place any objects or chargers on the battery.
- The charger must be used at a standard voltage of 220/240V on an outlet that can handle the 1500W power of the charger. If you have 2 chargers, it is imperative that they be plugged in to separate outlets (never simultaneously on a power strip). Never disassemble the charger, it could cause a fatal electric shock.
It is strictly forbidden to:
 - Place a charger on a battery and charge the battery,
 - Cover the charger when it is in operation,
 - Charge the PWR-Foil battery in a humid environment, or in an overly hot environment, or near flammable or explosive materials,
 - Leave the charger plugged in when no battery is charging.
- It is imperative to monitor the PWR-Foil battery while it is charging (to be present during charging) and watch for any anomalies, such as:
 - overheating
 - smoke
 - abnormal smell
 - error message
 - faulty display
 - abnormal charging cycle
 - battery not charged
 - or anything else.

If any anomalies are detected, unplug the charger and notify PWR-Foil immediately. Do not charge your battery with this charger again. We will arrange for a replacement.



- Do not charge your PWR-Foil battery immediately after use. Wait around 15-20 minutes, especially if the case feels hot to the touch. The same applies after charging: wait 15-20 minutes before using the battery.

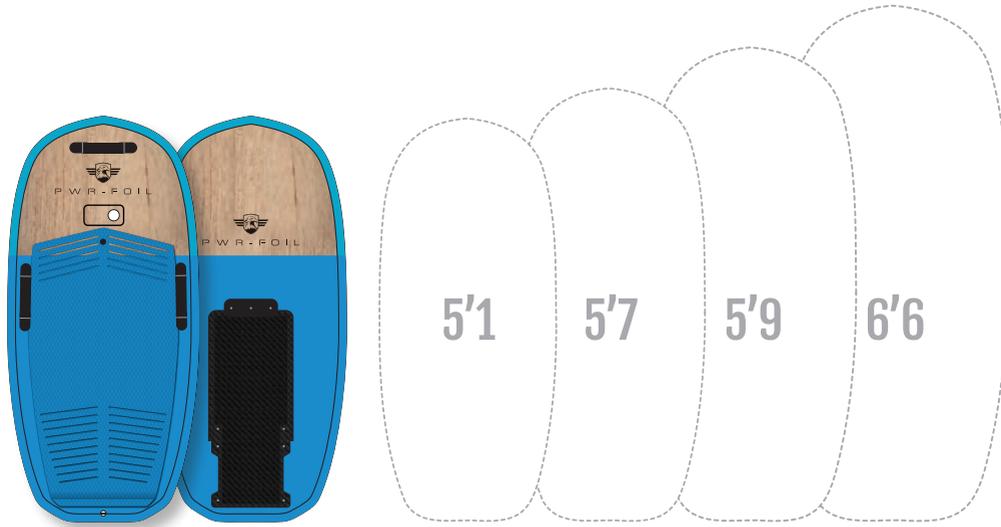


ASSEMBLE YOUR PWR-FOIL

1 -	Contents	p.16
2 -	Charging the Battery	p.20
3 -	Wing-Fuselage-Stabilizer Assembly	p.22
4 -	Mounting the Wing-Fuselage-Stabilizer to the Efoil System	p.24
5 -	Filling the Coolant Reservoir	p.26
6 -	Board and Efoil System Assembly	p.28
7 -	Connecting the Battery to the Efoil	p.30
8 -	Remote Control	p.32
	- <i>Getting Started</i>	
	- <i>3 Acceleration Modes</i>	
	- <i>Changing Acceleration Modes</i>	
	- <i>Pairing & Calibration</i>	
9 -	Magnetic Cut-off	p.37
10 -	Optional: Mounting Propeller Without Guard	p.38

1. CONTENTS

It is important to keep the original boxes and foam packaging for all future shipping, including for maintenance / returns & repairs / resale. No returns under warranty will be accepted if the product is not shipped in the original packaging and padding.



BOX 1: THE BOARD

Our construction technique guarantees boards that are both strong and light. Our boards are made from an EPS HD slab shaped on a 4-axis CNC machine, then laminated with epoxy, fiber and carbon. They are then reinforced with a paulownia sandwich. In addition to the obvious strength attributes of paulownia, the wood lends a true aesthetic appeal to our line of boards.

The shape takes advantage of a double concave, making it easier to take off as well as touch&go with as little braking as possible.



BOX 2: THE BATTERY

We are proud to offer batteries manufactured in France. The lithium-ion cells are sourced from the best suppliers to ensure top quality. At our production site, the cells are cast in resin inside the case to ensure a first level of waterproofing. The cover of the box is then sealed to create a second watertight barrier. The aluminum of the case also plays a role in continuously cooling the battery.

With the supplied 25A charger, your battery will fast charge in about 1.5 hours and provide approximately 1.5 hours of use... Approximately, because battery life depends greatly on your size and your flight experience. A lithium-ion battery can be charged between 1000 and 1200 times.

You can connect to the battery via Bluetooth with the free app VICTRON CONNECT. It allows you to track battery voltage and temperature in real time. Among other advantages, this allows you to check that your battery is between 5 and 35° for better operation and longevity. The battery can also be accessed remotely by PWR-Foil for troubleshooting.



COLIS 3 : THE EFOIL SYSTEM



> A MOTOR CUT-OFF FOR YOUR SAFETY AND THE SAFETY OF THOSE AROUND YOU:

An essential safety element, we have spent a long time developing a 100% efficient system. This leash cut-off is the main element guaranteeing your safety. A 1m long leash is attached at one end to your ankle (front foot) or waist, and at the other end to a magnet with the equivalent of 25kg of pull. When this magnet is in contact with the board, it closes the electrical circuit, and the motor runs. When you fall off the board, the short length of leash attached to your ankle or waist pulls the magnet loose from the board, opening the electrical circuit and instantly cutting off the motor and stopping the propeller.

> AN INTUITIVE REMOTE CONTROL

As with the battery, we are proud of the technological developments of our remote control. It is ergonomically designed to offer a perfect grip with the control screen facing you and the trigger for the throttle at the tip of your index finger. A flexible resin completely surrounds all the electronics and ensures that the remote stays waterproof. The remote control is held to your wrist by a buoyant strap, so you don't need to worry about losing it mid-flight.

> MAST / FUSELAGE / WINGS

Our mast, specially developed and designed for our foil, is made of marine anodised AL6061 aluminium. One of the great properties of nautical aluminium is its ability to transfer temperature. Our cooling system is therefore naturally installed in the mast. The electrical cables also run inside. We opted for an 80 cm mast because whatever the conditions, whether it's glassy, rough or even in the waves in surf mode, this length brings ideal comfort and always that incredible feeling of flying over the water. The fuselage is also made of AL6061 marine anodised aluminium for the same mechanical characteristics. We wanted it to be streamlined in order to reduce disturbances as much as possible. Our wings are manufactured with a CNC machined PVC core which gives them good flotation and lightness. They are then laminated with pre-preg carbon and heat moulded to provide increased sun resistance and strength.

BAGGAGE PACK (optional)

> BOARD COVER

Fits all board sizes.

> ACCESSORY BAG ON WHEELS

Fits perfectly with the packing foams (package 3).

> BATTERY BACKPACK

With fireproof coating.

LUGGAGE AVAILABLE ON WWW.PWRFOIL.COM

2. CHARGING THE BATTERY



PWR-Foil batteries are equipped with several safety features (reverse polarity / temperature / automatic charge and discharge balancing / over-voltage / undervoltage / short-circuit) to provide as much protection as possible. However, human supervision remains essential during the charging phase / after a session and discharge / after transport or during handling.

- 1** Remove the PWR-Foil battery from its packaging. Do not throw away the packaging in case you need to return the battery to the factory.
- 2** Inspect the battery carefully and, before charging it, it is imperative to check that no damage has occurred (**see pp. 10 & 11 of this manual**).
- 3** Find a safe location and safe outlets (**see pp.10 & 11 of this manual**). Plug in the charger, then toggle the switch to the OFF position.
- 4** Connect the charger to the PWR-Foil battery, making sure that the polarity is correct: red charger terminal to red battery socket, black charger terminal to black battery socket.
- 5** Toggle the switch to the ON position. Charging begins. The display shows a voltage that increases over time. It is imperative to monitor a PWR-Foil battery during charging in order to watch for any potential anomalies (**see pp. 10 & 11 of this manual**).

- 6** The charger will automatically stop charging once the PWR-Foil battery is fully charged, a green light next to the ON/OFF switch confirms this.
- 7** Toggle the switch to OFF. You may now safely disconnect your battery from the charger and unplug the charger.
- 8** Wait for your battery to cool down to between 0 and 35° before connecting it to the efoil for flight.
- 9** Never leave the charger plugged in when no longer charging.

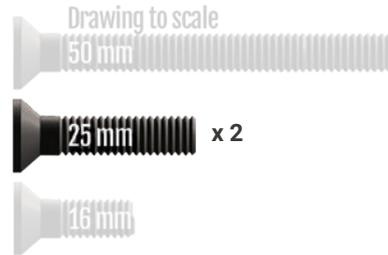
WARNING

- > Do not charge your battery immediately after use. Wait 15-20 minutes, especially if the case feels too hot to the touch.
- > Refer to the proper use of the battery guidelines on pages 10 & 11 of this manual. Review them carefully before each time you handle the battery.
- > PWR-Foil accepts no responsibility for improper use of the charger. User is solely responsible for its use.



3. WING-FUSELAGE-STABILIZER ASSEMBLY

- 1** Remove the fuselage from its packaging. Collect the screws M6 x 25mm.



- 2** Apply a little marine grease to the front end of the fuselage to make it easier to insert into the front wing housing.



- 3** Take front wing and slide the fuselage into the corresponding hole in the middle of the front wing.

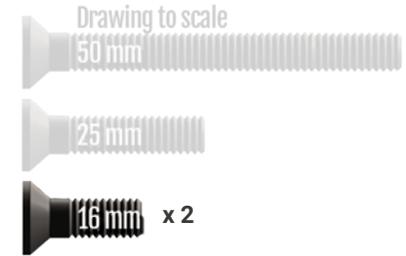


- 4** Screw in the front wing using 2 x M6 x 25mm torx head screws, after having applied marine grease to the threading of both screws, with the supplied T27 torx key. Tighten well to about 6N and check that the wing doesn't move.

- 5** Take the stabilizer (the smaller wing) and install it on the fuselage following the guides (visible on the underside of the stabilizer).



- 6** Screw in the stabilizer with 2 x M6 x 16mm torx head screws, after having applied marine grease to the threading of both screws, with the supplied T27 torx key. Tighten well to about 6N and check that the stabilizer doesn't move.



REMEMBER

- > It is very important that the supplied a4 stainless steel screws be fitted to the aluminum parts (mast or fuselage) after having been coated in marine grease in order to minimize corrosion, which could damage parts.
- > If you wish to leave the wings and fuselage assembled, it is imperative you remove the screws every 2-3 weeks and re-coat them with marine grease before re-installing them.

4. MOUNTING WING-FUSELAGE-STABILIZER TO EFOIL SYSTEM

Your wings are now installed on the fuselage, the next step is to mount the fuselage to the mast of your efoil system (mast + motor + cooling system and electronics).

1 Unpack your efoil system including:

- On top, the case housing the electronics with 3 chords coming out of it:
- Positive power chord: Red
 - Negative power chord: Black
 - Chord with 8-pin female connector (data)

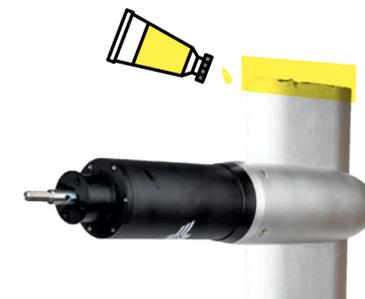
And a coolant reservoir with a black PVC cap. The reservoir is filled beforehand (except for deliveries outside of France, in which case is necessary to fill it with demineralized water).



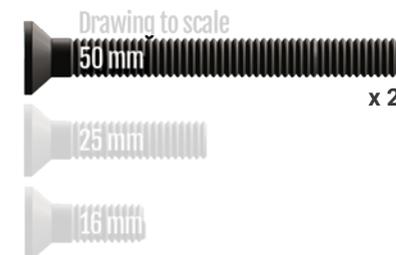
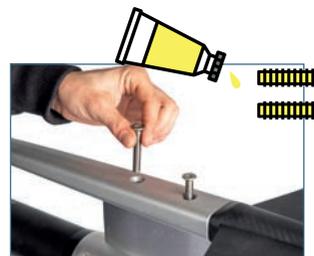
2 Position your efoil system upside down, taking care not to damage the black electronics case.



3 Apply marine grease to last 3cm of the mast to facilitate insertion of the fuselage.



4 Insert the fuselage and fasten it with 2 x M8 x 50mm torx head screws, after having applied marine grease to the threading of both screws, with the supplied T40 torx key.



5 With your fuselage and wings now attached to the mast you can turn the assembly upright and have it rest on the wings.



CAUTION

> It is imperative to re-coat all these elements with marine grease every 2/3 weeks.

5. FILLING THE COOLANT RESERVOIR

- > Deliveries in France? Your e-foil system arrives with a full tank of coolant.
- > Deliveries outside France? You must fill the reservoir and check that there are no visible leaks from the mast, which acts as a radiator for the coolant.
- > The coolant must be renewed at least once every 6 months.
- > Only distilled or demineralized water should be used to fill up your PWR-Foil's cooling system reservoir.

ADVICES



- > If you do not plan on replacing the coolant regularly, it is advisable to add a biocide and an anti-corrosion liquid to the distilled water (additives available suppliers of liquid cooling system for PCs) to avoid clogs in the system, damage to the pump and reduction-oxidation reactions.
- > In very hot weather, it is recommended you lower the coolant level very slightly to avoid excessive pressure inside the tank.

- 1 Unscrew the cap to your efoil's reservoir.



- 2 Lay your mast down, making sure it is well supported and stable. Using a funnel, fill the reservoir with the mixture described in the **advice box on the previous page**.



- 3 Screw the cap back on.



! WARNING

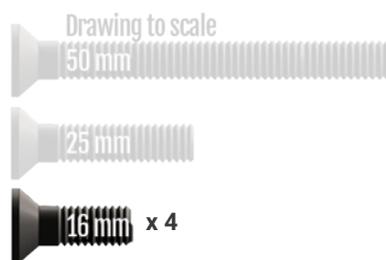
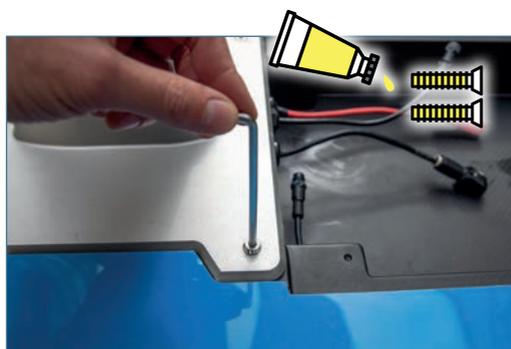
- > Your PWR-Foil is equipped with a thermal protection, a failure of the water pump or of the cooling system will cause your machine to stop immediately.
 - If this happens, do not use your PWR-Foil as it could lead to overheating of the electronics and irreversible damage, resulting in expensive repairs.
 - Contact PWR-Foil immediately through our website, www.pwrfoil.com, to arrange for assistance.

6. BOARD – EFOIL SYSTEM ASSEMBLY

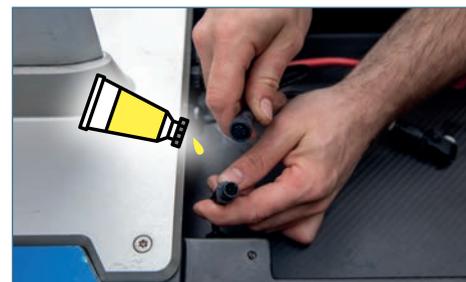
1 Lay your board with the anti-slip pads against the ground.



2 Take your efoil equipped with fuselage and wings, turn it upside-down and position it with the front wing towards the front of the board.



3 Screw in the 4 x M6 x 16mm torx screws, after having applied marine grease to the threading of both screws, with the supplied T27 torx key. Tighten well to about 6N.



4 Connect the 8-pin female connector from the efoil electronics case to the male connector on the board.

5 Tighten the rings firmly to ensure a tight seal. Only when the plugs are plugged in and the mating screws tightened are these connections watertight.

REMEMBER

- > It is imperative to apply marine grease before each assembly:
 - each screw holding the efoil system
 - the 8-pin female connector.
- > Ensure that the pins are properly aligned and gently push the 8-pin male and female connectors together.
- > The pins on the connectors must be clean and dry and must be free of foreign matter or you risk damaging them and rendering your PWR-Foil completely inoperative.
- > After each use, it is recommended you clean these connectors with WD40 contact cleaner or equivalent.
- > If a connector accidentally comes into contact with water during assembly or disassembly, do not plug it in and do not power up your PWR-Foil by connecting the battery. Water in the pins could cause a short circuit, rendering your PWR-Foil inoperable and irreversibly damaging certain electronic components. If such a mishap should happen to you, let the connectors dry for at least 24 hours before reconnecting them, and clean them with WD40 contact cleaner.

7. CONNECTING THE BATTERY TO THE EFOIL

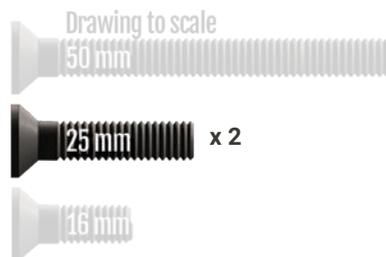
This is a very simple operation but requires your full attention to ensure that you do not make any mistakes in the polarity of the connections.

- 1 Place the battery with the aluminum plate facing up, with the handles and terminals towards the rear of the board, slightly tilted so that it can rest on the edges of the insert.



- 2 Connect in this order: the red chord from the efoil electronics box to the red terminal on the PWR-Foil battery and then the black chord from the efoil electronics box to the black terminal on the PWR-Foil battery. You should feel a safety «click» when the waterproof terminals are properly connected.

- 3 Slide the battery into the slot until the front part is held in place by the carbon lip. On either side of the PWR-Foil battery handle, secure to the board with supplied 2 x M6 x 25mm countersunk torx head screws.



- 4 To disconnect the connectors from your battery, it is imperative you press the push button on the side of the connector.



⚠ WARNING

- > Your PWR-Foil is now powered up, wrong handling could cause the propeller to rotate and result in serious injury or even death.
- > It is imperative that the system start key, which is the magnetic switch attached to the leash, be kept away from the PWR-Foil until it is launched.
- > If you wish to perform a test run before launching your PWR-Foil, it is imperative that no one other than the person holding the remote control and the magnetic contact key be near the PWR-Foil. The user is then fully responsible for any damage he/she may cause to himself/herself, to third parties and to property in the vicinity.
- > No test run of the PWR-Foil rotating the propeller out of the water should exceed 10sec, as this may cause damage to the bearings and motor shaft.

8. REMOTE CONTROL

Remote control battery charge level.

Efoil battery charge level.

Acceleration level from 0 to 100%.



A push button below the screen allows you to switch between modes.

A main trigger on the front of the remote control for acceleration.

A push button on the left side of the handle to turn the remote control on and off.



On the opposite side is a logo to indicate the location for induction charging.

GETTING STARTED

- 1 Unpack your PWR-Foil remote control. Connect the USB cable to your PC and to the induction charging cradle. Place the remote control on the side with the induction charging logo. A blue light will appear on the charging cradle, the remote control display will light up and show the charge level and charging voltage.



- 2 When your PWR-Foil remote control is charged, turn it on. At the top left of your screen an antenna icon is displayed but no signal reception bars are displayed.

As soon as you connect the battery of your PWR-Foil to the efoil system (see section 7, page 30), your remote control should display several bars next to the antenna icon (your remote control and PWR-Foil have been paired at the factory beforehand).



⚠ WARNING

- > The remote control should not be left to charge unsupervised.
- > During charging, the remote control will display the charging voltage and the battery voltage. Take care to not exceed 4.0V for the battery in order to prolong battery life.
- > It is forbidden to leave the remote control charging for several hours on the induction pad. The high heat created by the induction will deform the outer casing and damage the battery.
- > It is absolutely forbidden to switch on your PWR-Foil if the remote control is not fully charged. You risk the remote control losing the signal to the board while out on the water. Your PWR-Foil will maintain its last speed and you will lose control of the board, possibly causing injury and damaging equipment.
- > It is totally forbidden to charge a wet remote control on the induction pad.

3 ACCELERATION MODES

The modes preset by PWR-Foil in the remote control are the result of extensive testing with both novice and more experienced watersport riders.

1 Beginner Mode



This mode is used to get to know the PWR-Foil. It will allow you to get comfortable with your position on the board and learn to manage the throttle.

This mode smooths out the acceleration and deceleration over 5 seconds. It also limits the power delivered by the engine to 80%. The muscle tension inherent in starting a new activity (especially nautical) means that the management of acceleration and deceleration when you think you are going to fall is very often of the on/off type. You accelerate very hard and decelerate just as hard. Smoothing avoids this phenomena and makes it easier to recover.

2 Intermediate Mode



This mode also smooths out acceleration and deceleration but over a shorter period of 2.5 seconds. The motor is at 100% power.

3 Pro Mode



There is no more smoothing, the PWR-Foil motor reacts instantly to the trigger input both during acceleration and deceleration.



SWITCHING BETWEEN ACCELERATION MODES

Changing modes is a very simple operation on the remote control and can be done at any time.

- 1 Your PWR-Foil is setup, the battery is connected (no need for the deadman-magnetic cut-off- switch to be in place).
- 2 The PWR-Foil remote control displays the battery level with 5 bars on the left side of the display (if your battery is fully charged).
- 3 Press the trigger found under the display for 5 seconds, release it, and then press the trigger again repeatedly.
- 4 You will see the bars that normally give the battery level on the left of the screen change from 1 to 3 and then 5 bars depending on the number of successive presses on the trigger below the screen.
- 5 One bar = beginner mode
3 bars = intermediate mode
5 bars = pro mode.
- 6 To confirm your choice, press the throttle trigger, normally this should take you back to the basic screen with the bars indicating battery level.

ADVICE

If your remote control becomes stops functioning properly or if, following servicing, the remote control no longer displays the battery level or the possibility of changing modes:



1 - Enter the remote control sub-menu (see p.32)

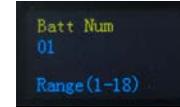


2 - Press the power On/Off button repeatedly to select the Batt Ser Num function.



3 - Confirm by pressing the power button for a longer period of time.

4 - A number appears, generally «10». By repeatedly pressing the power button, make «01» appear (it appears after «18»).



5 - Exit the menu by pressing the trigger under the screen.

6 - If your PWR-Foil is plugged in, the battery charge bars will display and you will be able to change menus.

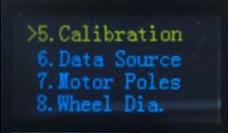
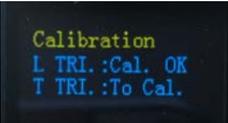
It is possible that electromagnetic interference may cause the PWR-Foil remote control to lose its pairing with the receiver, or that a faulty receiver may need to be replaced or the triggers (under the screen and throttle) may need to be re-calibrated as they no longer display 100% when fully pressed.

PAIRING

- 1 Assemble your board and efoil system. See section 6.
- 2 Make sure your PWR-Foil battery is not connected.
- 3 Turn on your remote control.
- 4 Simultaneously press the power On/Off button on the remote control and the push button under the screen.
- 5   A sub-menu will appear on the screen. By briefly pressing the power button, scroll down to the "Pair" function. Confirm by pressing the power button longer.
- 6 Connect the battery.
- 7 The screen of your remote control has returned to displaying the submenu. Exit by pressing the mode trigger. You are back to the main screen, and bars next to the antenna icon confirm pairing.

> If the pairing did not work, repeat the steps above, making sure that the PWR-Foil battery is disconnected.

CALIBRATION

- 1 Turn on your remote control without your PWR-Foil assembled.
- 2 Squeeze the trigger below the screen and then press the Power On/Off button while holding the trigger down.
- 3 A sub-menu will appear. Briefly press on/off, scroll down to the "Calibration" function (5) which follows the "Pair" function (4) and confirm by pressing the power button longer.  
- 4 The screen on the remote control displays "Calibration". One after the other, press the accelerator trigger and then the trigger under the screen. OK appears next to each trigger Thr (acceleration) Bra (trigger below the screen). 
- 5 To exit, press the power button and the trigger below the screen simultaneously for several seconds.

9. MAGNETIC CUT-OFF

- > The key acts like a contact switch: the magnetic cut-off is the essential safety element of the machine. It completely cuts off the power supply between the battery and the electronics that manage the motor in order to avoid any risk of the propeller spinning the instant you fall off the board into the water.
- > The key is attached to a leash that can be fastened to the ankle, calf or waist.
- > The length of the leash and its position ensure the circuit is cut as soon as you start to fall so that the propeller stops before the user even touches the water. It also prevents the board from going too far away.
- > To power on your PWR-Foil safely, the magnetic key must be connected to the cut-off switch when the user is on the board. Once on the board, grab the leash with the magnetic key and place it on the intended slot. From this moment on, your PWR-Foil is powered up, any pressure on the throttle trigger of the remote control will rotate the propeller and set your PWR-Foil in motion. If you fall, the key disconnects, the electrical circuit is cut, your motor is no longer powered on and the propeller stops instantly.

WARNING

- > It is forbidden to leave the magnetic key in place without the leash. The remote control could still operate and the propeller could continue to spin even while you are not on the board. This could result in serious injury or death to yourself or others and could cause serious damage to property, since the range of the remote control is over 100m. The PWR-Foil is not intended to be used in such a manner, and any such use is the sole responsibility of the user.
- > If the cooling pump of your PWR-foil starts up while the magnetic cut-off is not connected, it is the sign of a malfunction. Do not use your PWR-Foil. Contact us immediately.

10. OPTIONAL : MOUNTING PROPELLER WITHOUT GUARD

1 Remove the cone without the propeller guard from its packaging.

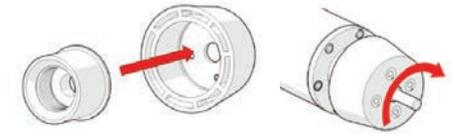


2 Unscrew the M8 nut with a 13 mm socket wrench (not supplied). Remove the nut and its washer, then take out the propeller. Slide the pin through the cross hole to remove it.



3 Unscrew the 4 x M4 x 10mm hexagonal screws on the propeller guard that hold a ring with the same thread as the motor baseplate thread, then remove the propeller guard and ring.

4 Slide this ring into the inside of the cone without the propeller guard and screw the cone without the propeller guard onto the thread of the motor base (tighten lightly).



5 Screw the 4 x M4 x 10 mm hexagonal screws with the supplied hexagonal key to hold the cone with the ring, then reposition the pin by sliding it back into the cross hole.



6 Reassemble the propeller taking into account the position of the pin, then replace the washer before screwing on the M8 nut (tightening approx. 10N).

! WARNING

- > Warning: This configuration is at your own risk and peril and should not be used by beginners as it may lead to serious injury and death.
- > This configuration can only be used by very experienced users who have mastered the operation and handling of the PWR-Foil. Its advantage is that it reduces drag and, consequently, increases range.

FINALLY IN THE WATER!

1 -	Introduction	p.42
2 -	First Flights	p.43
3 -	Progressing	p.46
4 -	Fine Tuning	p.47
5 -	Turns	p.47





1. INTRODUCTION Carefully re-read: page 7 Safety & Precautions

- > Your first attempts with the PWR-Foil will be a real challenge, but your first flight is a fantastic reward!
- > It is imperative when using the PWR-Foil to wear an approved flotation device (like a life jacket) as well as a suitable approved helmet.
- > If you are unfamiliar with the area, talk to people who know the area and the potential risks. It is necessary to select a location with sufficient water depth, approximately 1.5m that is free of obstacles on or below the surface.



- > Choose a suitable launching and training site, within reasonable distance of swimmers and other users of the ocean, sea, lake or river where you wish to launch your PWR-Foil.
- > It is also important to check the local legislation regarding boating permits to ensure you can use your PWR-Foil.
- > It is strongly recommended you learn to use your PWR-Foil on very calm water, with as little waves, current and wind as possible, for obvious reasons of ease and safety.
- > The range and distance for the PWR-Foil depends on: the weight of the user, the average speed, the choice of wing and the sea state and wind conditions. Always keep an eye on your PWR-Foil battery level displayed on the remote control. A safety cut-off during acceleration will warn you that you are about to enter safe mode (acceleration blocked at 30%). You should then head back to your starting point.
- > Never ride your PWR-Foil further from the coast than you could swim.

2. 1ST FLIGHTS : KNEELING

- 1 Turn on your remote control and put the strap around your wrist.
- 2 The beginner mode is then activated (smooth acceleration for 6 seconds to reach 80% of the throttle - Ditto for deceleration) to change modes refer to the section on the remote control.
- 3 Attach the leash with the magnetic key to your ankle, calf or waist.
- 4 Grab the magnetic key attached to the leash and place it over the intended slot.
- 5 Ensure correct operation by accelerating slightly. After a few moments your PWR-Foil will start to move forward. Release the throttle.

6

When kneeling, as well as standing later, the correct position before starting is quite forward on the board and body weight also forward. At this point it is important to understand how a foil works:



> A «hydrofoil» is the equivalent of an underwater aircraft wing. The wing of your PWR-Foil has been designed to make it easier for you to take off and fly. To work properly, the wing needs to be kept as horizontal as possible.

> When you accelerate, the power of the engine will change this inclination, so you must counterbalance this with your weight and center of gravity by positioning the weight of your body forward. Putting your weight forward is a fundamental notion that will allow you to take off with your PWR-Foil and to control its altitude and trajectory.

7

FINDING STABILITY IN A STRAIGHT LINE WITHOUT FLYING

Now that you are kneeling in a good and stable position, look straight ahead, so that you can be aware of your surroundings and avoid obstacles that may be ahead. Never look at the nose of your board.

8

LEARNING TO TURN WITHOUT FLYING

Accelerate gradually. Shift your body weight to the right and then to the left, turning your shoulders to initiate turns. This learning process is essential to steering your PWR-Foil. Like with driving or skiing you must be in control of the trajectory when going in a straight line and turning, not the machine.



9

LEARN TO HANDLE TAKE-OFFS AND LANDINGS

As soon as you feel comfortable, you can increase the acceleration while keeping your weight forward. As soon as you reach the speed where the wing can lift you and the machine, your PWR-Foil will take off.



> As this is a new and unfamiliar sensation, the reflex is to release the throttle abruptly, which the beginner mode compensates for. You will still slow down, and if you make a sudden movement after your PWR-Foil has lifted off, you will fall.

> As soon as your PWR-Foil leaves the surface, the machine accelerates on its own now that friction is greatly reduced. You must then concentrate on maintaining the acceleration and release it very gently to maintain sufficient speed.

10

ALTITUDE MANAGEMENT

Once you have done your share of take-offs and falls, while still on your knees, you must try to maintain and manage your altitude by playing with the position of your chest. Moving forward you descend, moving backward you climb. Similarly with the throttle: the faster you go up, the slower you go down. It is recommended that you take off and touch down on the surface of the water several times to train your eye and brain to recognize how much lift (height) you have to play around with. The maximum height is very easy to figure out, the propeller comes out of the water and the machine becomes very difficult to control.



! WARNING

> Any pitching up of the PWR-Foil is likely to damage components or cause the motor to heat up because neither the wing nor the propeller are functioning properly. Instead, you are just pushing water around and tiring the machine prematurely.

> It is important to note that the warranty will be void if the user's weight and size are inappropriate for the capacity of the masts or boards used.



3. PROGRESSING: STAND UP

1 Get down on your knees and accelerate. As soon as the speed is sufficient (but lower than the take-off speed), stand up quite forward on the board, your front foot at the edge of the pads. Without accelerating too much, repeat the same process as when kneeling to understand the reactions of your PWR-Foil and the impact of your movements. Turn your shoulders to steer, weight on the front leg to control the pitch up on acceleration, always with the aim of controlling the trajectory of your PWR-Foil.



2 Then accelerate hard for take-off with your body weight on the front leg (your back foot should be very light) and as if kneeling, release the throttle very slightly as soon as the board leaves the surface. Straighten up after take-off to reposition your center of gravity and try to maintain your trajectory and altitude. For the first few attempts, fly as close to the water as possible, take off for 5/10m and touch the water again to re-stabilize and gain confidence.

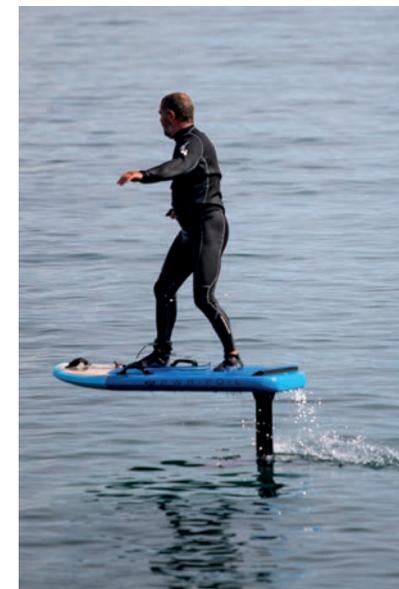
3 Repeat these take-offs and short touch & go flights so that your brain gets used to coordinating your body position and acceleration. You will then be able to start longer flights without touching the water. Again, your brain needs to get used to the visual and sound cues to gauge the range of heights where you can fly (without touching the water - too low, and without the propeller coming out of the water - too high).

ADVICE

> If you don't take off, you are pushing water, which can damage the machine and cause the engine to overheat (see warnings on previous page). Cut the throttle and reposition yourself properly. Your weight is not on your front leg but on your back leg. Your front leg should not bend and dampen the pitching up of the foil under acceleration, it should remain locked, and your weight should counteract this pitching to keep the wing level.

4. FINE TUNING

- > You will notice that you can't recover from being too abrupt or too expansive in your movements, so it is strongly advised not to try to catch yourself to avoid falling on the board or the foil. Always throw yourself off the board in the direction you start to fall. This habit allows you to fall safely away from the foil and propeller.
- > Don't vary your speed too much, a constant speed at which you feel comfortable allows for smooth flight.
- > Don't go too slow, your wing, like an aircraft wing, stalls at too slow a speed and you're bound to fall.
- > Don't try to make turns until you are perfectly comfortable flying in a straight line, and you have full control of your altitude.



5. TURNS

- > Start with very wide turns. When you start a turn, your mast «skids» in the water and it is this feeling under your feet that you must learn to master.
- > The turn is initiated by pointing your eyes and shoulders in the direction you want to go: either backside, a turn behind your back; or frontside, a turn in front of you.
- > The support on the back foot, then allows you to maintain your altitude. When you turn, you are tilting the wing and reducing its lift, so you have to compensate by forcing the wing to straighten out to regain altitude.
- > It is important to maintain your speed through the turn and even accelerate slightly when exiting the turn.



BOOKLET FOR YOUR EFOIL

1 -	Technical Specifications.....	p.50
2 -	Maintenance.....	p.51
3 -	Winterizing.....	p.52
4 -	Servicing.....	p.52



1. TECHNICAL SPECIFICATIONS

TECHNICAL SPECIFICATIONS

Speed	Maxi 35 km/h
Max load	100 kg (tested)
Riding time user of 75 kg	1H experience

PWR-FOIL SYSTEM

Motor power max inf 2 sec	5616W
Shaft power	4043W
Nominal voltage	43,2
Maximum current	100A
Motor type	Brushless inrunner
Max prop shaft rotation speed	5184
Protection	Short-circuit / Battery temp / separate watercooling for the electronics with temperature sensor and safeguards - ESC

REMOTE CONTROL

Type of communication	2,4Ghz radio frequency trigger
Speed control	Trigger
Modes	3 acceleration modes beginner / intermediate / pro
Charging	Induction / ~ 2h charging time / over 10h of use
Number of charge cycles	Between 400 and 700 cycles
Safeguard	IP67

BOARD DETAILS

Board 4 sizes and volumes	5'1 / 57L 5'7 / 98L 5'9 / 118L 6'6 / 138L
Construction materials	EPS HD Core / PVC / Double Sandwich Paulownia

BATTERY

Dimensions	470 x 316 x 88mm
Capacity standard version	1800Wh
Weight	12kg
Protection	IP68
Max voltage	50,4V
Nominal voltage	43,2V
Min voltage	36V
Continuous discharge current	100A
Charging current	25A
Number of cycles at 80%	600 / 800 cycles
BMS safeguards	Charge and discharge overheating / Short-circuit / Overvoltage / Polarity inversion / undervoltage
Additional safeguards	Encapsulation in dielectric resin / Shore A30 / Shock - humidity resistance / Over-pressure release valve

FAST CHARGER

Max charging current	Max 25A
Charging time	2H

2. MAINTENANCE

AFTER EACH USE

- It is very important to check your equipment thoroughly and make sure that no damage has occurred during a flight:
 - its general condition.
 - The power chords (red and black chords of the electronics case).
 - The chords as well as the case and various parts of your charger.
- It is essential to systematically rinse the entire system with clean water:
 - the complete e-foil system including the connectors (except for the 8-pin connector, which should be cleaned with WD40 contact cleaner).
 - Dismantle the e-foil system and the battery to rinse the holder and remove sand to avoid it getting into the screw inserts ([see Safety and Precautions p.7](#)).
 - The batteries should not be placed in the sand or on the ground to avoid scratches or sand damaging the seals ([see p.7](#)).
 - The remote control, taking care to let the water run into the seams along the triggers.
- It is essential to dry well before reuse:
 - the battery contactors before connecting to the charger
 - the remote control before putting it on the induction charger cradle

REGULAR MAINTENANCE

EVERY 15 DAYS

- Marine grease: it is important to dismantle the wings/fuselage/mast/propeller and propeller guard and to meticulously grease each insert, each screw, each nut and each thread.
- WD40 contact cleaner: regularly clean the 8-pin connector with WD40 contact cleaner (and put some marine grease on the female connector), as well as on the nuts and threaded rods of the nose cone and the propeller shaft outlet.
- For machines that were used in salt water, let the motor soak several hours in a fresh water in order to dissolve any traces of salt.

EVERY 6 MONTHS

- Drain and replace the coolant ([see page 26](#)).

3. WINTERIZING

- As with any mechanical device, it is advisable to run your efoil for a few minutes once a month or so:
 - You can just dip the part of the mast where the motor is located in a tub of fresh water to get it running.
 - Finally, if you want to keep your batteries unused for a long period of time, they should be charged at around 45v or 30%.
- It is recommended you dismantle all components and store them in a safe place to avoid any damage: foam transport packaging in the PWR-Foil bag.
- Your PWR-Foil must be stored in a dry and clean place. All components, e-foil system / PWR-Foil remote control / PWR-Foil battery must be completely protected from the sun (**see Safety and Precautions p.7**).
- We remind you that lithium-ion batteries are dangerous, highly flammable or explosive devices. It is therefore advisable to store them in a dry room away from the sun, any heat source or flammable products. The ideal storage temperature is between 20/28°C. Do not charge your battery to the maximum for a long period of time, charge it to between 44 and 48v, check with a voltmeter (**see Safety and Precautions p.7**).
- It is forbidden to clean the various components of your PWR-Foil with alcohol-based products or any other flammable solvent.

4. SERVICING France

Your machine must be serviced once a year. The first service must be carried out in our workshop to maintain the warranty.

The price of servicing is 399€ and includes a complete inspection (checking the good working order of the connectors, cables, all the electronics, the motor, etc.), the change of small consumable parts if necessary, and shipping.

For more information, please contact us.

Servicing usually takes 3 weeks, including shipping.





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