

FOIL DRIVE ASSIST SLIM

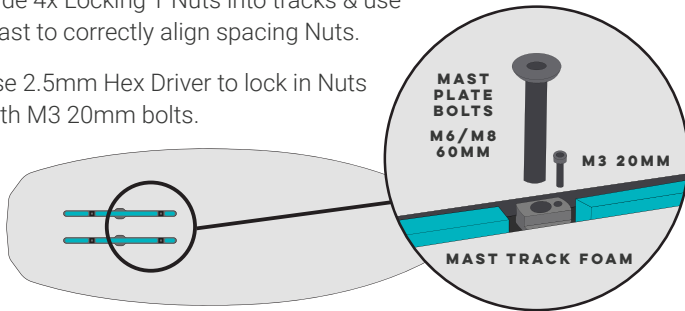
ASSEMBLY INSTRUCTIONS

Turn over for full Installation Instructions!

1. PREPARE YOUR BOARD

Slide 4x Locking T Nuts into tracks & use mast to correctly align spacing Nuts.

Use 2.5mm Hex Driver to lock in Nuts with M3 20mm bolts.

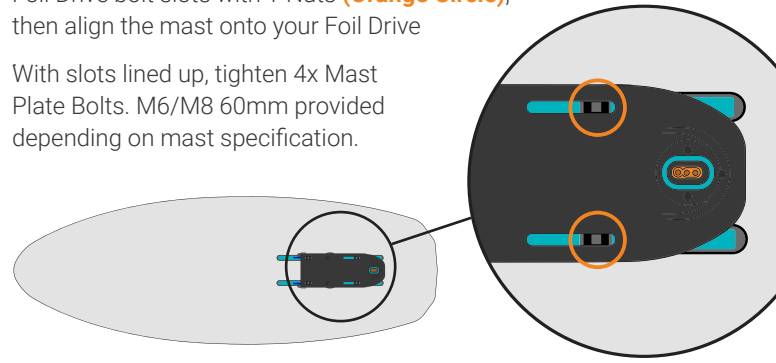


You **MUST** fill tracks with Mast Track Foam (See Blue). If more is required, use a high density foam available online or through a dealer.

2. FIX THE MAST AND FOIL DRIVE

Place your Foil Drive on board with Motor Plug facing the rear. Align Foil Drive bolt slots with T Nuts (Orange Circle), then align the mast onto your Foil Drive

With slots lined up, tighten 4x Mast Plate Bolts. M6/M8 60mm provided depending on mast specification.

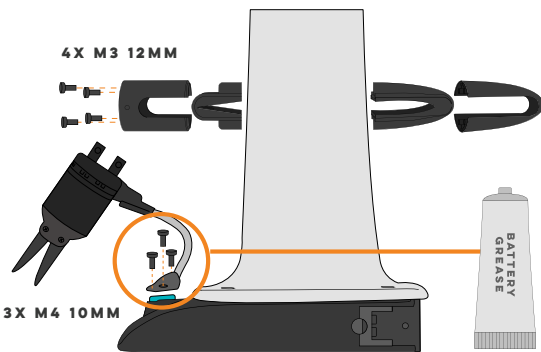


3. FIT MOTOR

Loosely fit Motor Pod on mast.

Blue O-Ring **MUST** be clean, well lubricated & in place. Use Battery Grease to lubricate O-Ring & Plug Terminal (Orange Circle) plug in then bolt Motor Plug.

Note: If attaching Rotor to Stator, gently guide it on ensuring magnets do not slam parts together.



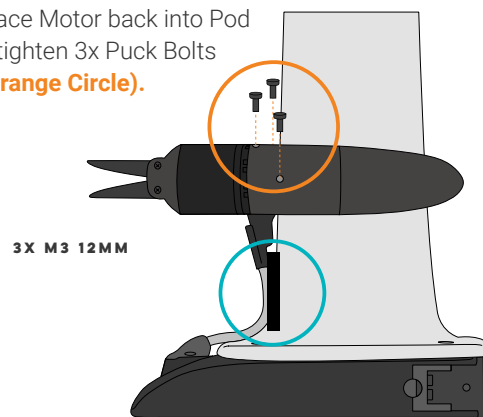
4. SECURE MOTOR

Check Motor reaches Motor Pod, adjust Pod placement if required.

Place Mast Cable Guides between mast & cable (Blue Circle).

Finish tightening 4x Motor Pod Bolts.

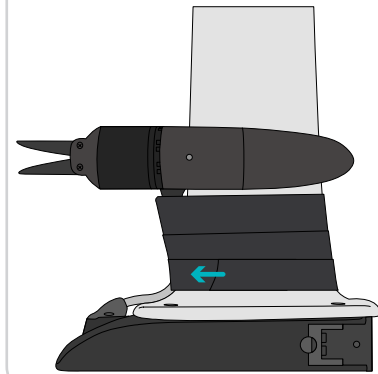
Place Motor back into Pod & tighten 3x Puck Bolts (Orange Circle).



5. SECURE CABLE

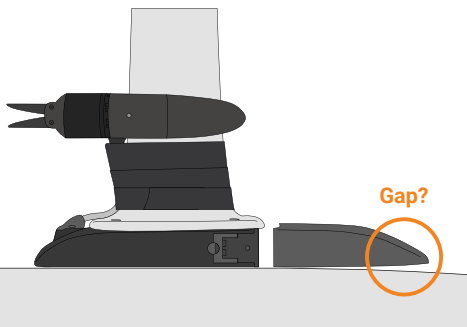
Tape all the way from motor to base of mast to secure cable. Drag will significantly reduce when done well.

Ensure tape finishes in same direction as flow of water to avoid peeling.

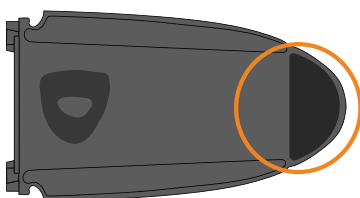


6. TEST FIT NOSE CONE

If board has significant rocker, you may need a Nose Cone Rocker Pad to level the surface between the Nose Cone & board.



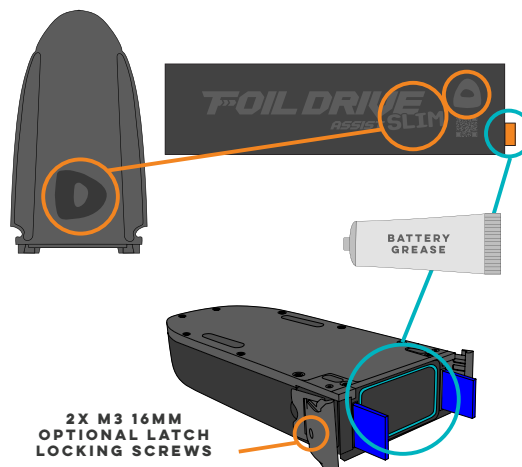
If Yes, add Rocker Pad to Nose Cone.



7. PREPARE BATTERY

You **MUST** apply Battery Grease to electronics terminals (Blue Circles) before every use.

Check battery is compatible with the Assist Slim, ensure the letter on Nose Cone matches letter on Battery (Orange Circles).



Blue O-Ring **MUST** be clean, well lubricated & in place. Use Battery Grease to lubricate (Blue Circle).

8. CONFIGURE VOLTAGE (APP)

The Slim Batteries run on different voltages, this means you **MUST** use the app before changing between battery types ie. Performance > Endurance.

Failure to do so can permanently destroy your Performance Battery.

If you only own one battery type, you don't need to use the App. If you switch between the Slim Battery you must use the App as they have different voltages. The Controller also needs to recalibrate telemetry settings (see setting 5 in controller menu).

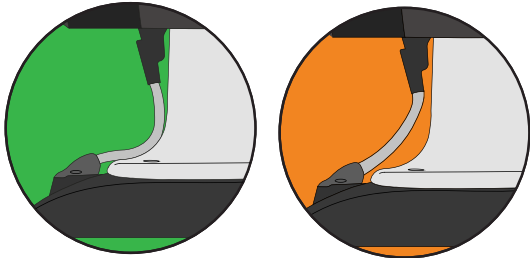
9. CROSS CHECK

Install Battery and Nose Cone then close both latches. Check all bolts are tight.

Standing clear of props, test run motor. Check controller is calibrated then turn off. Controller **MUST** be off until in water.

READY TO FLY!

FULL USER MANUAL AVAILABLE ONLINE SOON. YOU WILL BE EMAILED AS SOON AS IT IS AVAILABLE.



When installing Motor, cable must run against mast (**Green**). There should not be tension on the cable, or an excessive gap (**Orange**). If so, move the Motor Pod closer to the system until the gap closes. Cables **MUST** be taped on to protect the cable.

SCAN TO WATCH FULL INSTRUCTIONAL VIDEOS & DETAILED ARTICLES ON EACH TOPIC

The full unboxing video below explains everything you need to know! Also find specific videos for the key components of your setup. All of these titles can be searched on our Help Centre, if you're unable to scan QR Codes visit <https://help.foildrive.com/en-US>



Full Unboxing & Assembly Assist MAX

Watch: 21 minutes



Installing Motor & Mounting the Pod

Watch: 5:30 minutes



Fitting Motor Pods to Tapered Masts

Read: 2:30 minutes
Watch: 14:40 minutes



T Nuts, Foam Tracks & Mounting the Box

Watch: 3:30 minutes



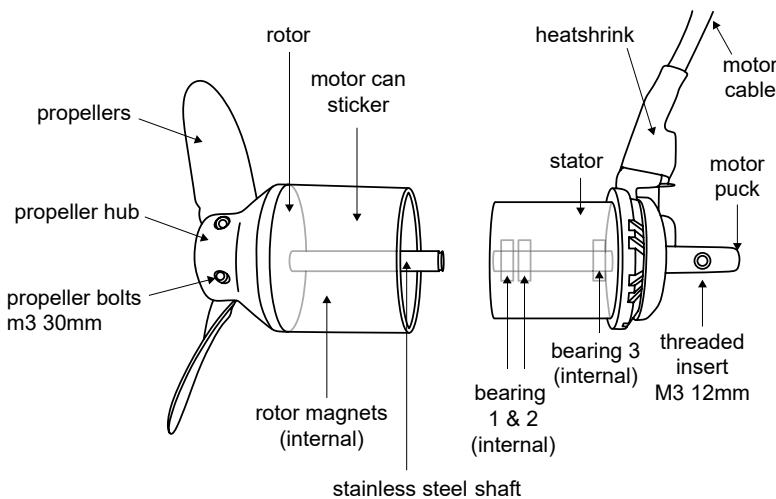
Battery, Nose Cone, Test Controller

Watch: 6:30 minutes



Installing Latches

Watch: 7:50 minutes

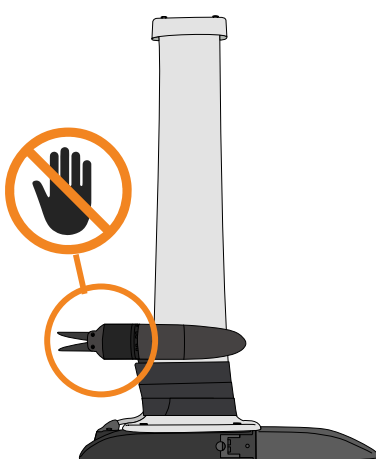


ROTOR INSTALL

Foil Drive Motors function using very strong magnets. The outer spinning part is called the Rotor (Motor Can), and the stationary part is called the Stator.

When putting the two pieces together, you **MUST** hold the Rotor with two hands and gently guide it together.

DO NOT allow the magnetic force to slam the two pieces together as you risk damaging the bearings.



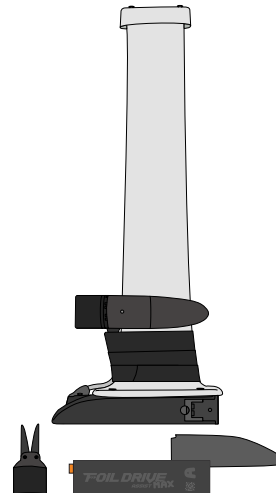
DO NOT TOUCH MOTOR WHEN POWERED.

Turn off controller or unplug battery.



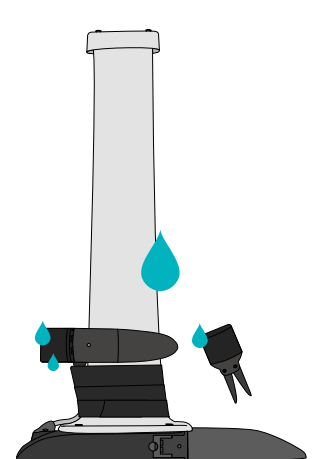
DO NOT REMOVE NOSE CONE, MOTOR PLUG OR TOUCH BATTERY WHEN WET.

Ensure hair/wetsuit is not dripping.



DO NOT LEAVE BATTERY PLUGGED IN WHEN NOT IN USE.

This can permanently destroy your battery.



REMOVE ROTOR, WASH, DRY & LUBRICATE AFTER EVERY USE.

See note above "Rotor Install"

AFTER USE CARE

In order to get your system to you ASAP, some of this information features Gen1 Foil Drive. While we will be updating you with Gen2 specific content, the below information is still relevant to your Gen2 Systems!



O-Ring Seals

How to care, clean & remove O-Rings

Read: 2:20 minutes

Watch: 6:30 minutes



Dielectric Battery Grease

How, where and when you should be using Dielectric Grease.

Read: 1:30 minutes

Watch: 5:30 minutes



Motor Cleaning & Maintenance

You **MUST** clean after every use to avoid corrosion, here's how!

Read: 1:00 minutes

Watch: 5:50 minutes

CHARGING BATTERIES

Batteries **MUST** be charged in the provided Lipo Bag, away from flammables and out of direct light.

1. Check the Voltage

Before plugging in your battery, the Voltage on the Charger **MUST** match the voltage on the battery!

2. Plug the Charger

Plug the Foil Drive Charger into 100-240V power and turn it on at the wall.

3. Plug in the Battery

Plug the battery into the charger ensuring the plugs are keyed in the correct direction. Failure to do this will damage your battery by short circuit.

Note: A small audible pop may occur, this is the battery and the power supply equalising. If a spark/smoke occurs, check you have not plugged anything in backwards, if so email support@foildrive.com images.

Charge Time Slim Performance
Standard Charger 40V: 1hrs

Charge Time Slim Endurance
Standard Charger 28V: 2hrs

CHARGING CONTROLLER

Aligning the rings on the side of the controller onto the middle of the charge pad, with the Foil Drive logo faced up. The pad will illuminate when in position.

Typical Charge Time: 1.5-2 hours
Approximate battery life: 5 hours

Note: Do not leave your controller on charge for more than 4 hours. Position needs to be precise.



Just like a car or boat, your Foil Drive needs regular care, especially straight after use. All of these titles can be searched on our Help Centre.

If you're unable to scan QR Codes visit <https://help.foildrive.com/en-US>

1. Fresh Water Rinse

With everything closed, rinse the system with fresh water (even after use in fresh water, debris needs to be washed away). With controller off, remove the Rotor and rinse the motor (at minimum using a drink bottle). Once the motor is rinsed, spray the externals of the system including the controller.

Leave the Rotor off for storage and transportation and remember to always guide the Rotor back onto the Stator when re-installing!

2. Get Yourself Dry

Never remove your Nose Cone, Motor Plug, or handle batteries when wet. Take extra notice of your hair and wetsuit, as well as your gear, as they may drip on these important areas. Salty water/air are extremely corrosive and precautions should be taken to minimise exposure to electronics.

3. Remove Battery

Your battery should never be left plugged in when not in use, doing so risks permanent damage to your battery. Unlatch the Nose Cone and remove the battery. Leave the Nose Cone off for transportation and storage. Your battery should be placed inside the Lipo Battery Bag.

4. Dry and Lubricate

Use a towel to dry the Rotor and Stator, any small amount of salty residue can start to effect your motor. Once dry, apply a layer of Lanolin Rust Preventer (or similar) to the Rotor and Stator. You will also need to lubricate the Bearings (located in the Stator), to prevent rust. This is a good time to ensure your Bearings are all in working condition.

Leave the Rotor off for storage and transportation and remember to always guide the Rotor back onto the Stator when re-installing!

5. Battery Storage

Batteries must be stored in their Lipo Battery Bag at the recommended state of charge (between 40-60%). This is to ensure they maintain top end performance for as long as possible. Batteries are consumables and will slowly wear down the top end capacity and output after use.

COMMUNITY

Welcome to the Foil Drive Community if you're new! Aside from the joy of foiling, the community is an incredible part of owning a Foil Drive. Also be sure to subscribe to our mailing list on the bottom of the website for all updates!

1. Foil Drive Owners Group (Facebook)
2. Foil Drive Riders Groups (Region Specific - Facebook)
3. Foil Drive on Facebook
4. Foil Drive on Instagram
5. Foil Drive on Youtube

USEFUL VIDEOS & READING

Getting started with Foil Drive? Check out these articles:



Foil Driving Etiquette

A must read! Be safe & respectful with your new found power!

Read: 5:00 minutes



Takeoff Technique Smaller Boards

Important technique for lower volume, prone boards.

Watch: 8:00 minutes

BOOST SETTINGS

Understanding and Using Boost Mode Assist Slim

From factory, Boost Mode is pre-set to 16%, this means you can get 116% thrust for a short burst to get on foil.

Boost Mode can be turned off or fine tuned via the App.

To activate boost, pull the throttle over 95%.

Boost Mode runs for up to 12 secs or until you reduce the throttle below 95%.

After 12 secs of boost has been used, it needs to be reset to be able to use it again.



Boost Mode

Watch: 2:37 minutes

To reset, lower the throttle to below 50% for more than 5secs.

Boost Mode not available with Slim Endurance Battery.

BASIC TAKE-OFF STEPS

Select the right gear

If possible, select a larger foil and board than you think for your first ride. Make it easy for yourself!

Mast Placement

Mount your Foil Drive and Mast towards the rear of the tracks (board). For motor positions closer to the fuselage, push mast further backwards.

Weight Distribution & Gradual Speed

To get started, a small amount of throttle will help with stability getting to your feet. You'll need your stance to be further forward than you're used to.

Gradually build speed with more weight on your front foot, as the foil starts to lift, shift your weight backwards. Depending on your weight, you may not need full throttle.

If your board starts plowing through the water, you may need to stop and try again.

FIRST RIDE TIPS!

There's a few important things to note before your first ride. If you're new to foiling, or have never used a Foil Drive before, it might take a few sessions to get the hang of it! We also advise you use a larger foil for your first session, there's plenty of time to get smaller and faster!

Where to ride?

While you get familiar with your Foil Drive, we recommend first taking it out in flat water, away from others. No matter your skill level, this is highly encouraged.

Running the Motor near the Fuselage?

If you're running the Motor close to the fuse, we recommend placing your Mast further towards the rear of your board tracks (closer to the back of the board). As the propulsion is coming from down low, this counters the nose of the board wanting to lift.

Initial Takeoff

Think of taking off like an aeroplane, they never boost to full power, straight into the air, they have a runway. Gradually build up speed, keeping your body weight forward to keep the nose of the board down. Once you build up speed, rock your body weight back to center, allowing the foil to lift you out of the water.

Controller Connectivity

Gen2 Foil Drive features significant improvements in connectivity. If you have a Carbon Board, you **MUST** have Mast Track Foam placed in your tracks wherever there is no hardware. When duck diving, you may need to hold the hand controller against your board to maintain connectivity.

FOIL DRIVE APP

Foil Drive Gen2 Systems can now be further customised using the Foil Drive App. Using a wireless Bluetooth chip in the units, fine tune your Foil Drive ride experience adjusting settings such as Power Modes, Boost Modes and Latency. If you cannot access the app, your system will run on factory settings. If using Slim Batteries, you **MUST** use the app so it can program the voltage.



App Overview

Learn about the App & download.

Read: 3:30 Minutes

Watch: 12:00 Minutes

WE KNOW YOU DON'T LIKE INSTRUCTIONS...

You've seen what can be done in videos, but it's important to understand it takes time! Takeoff technique, installation, board and foil selection can all make a big difference. A larger foil and correct installation go a long way in getting started. Don't expect to head out for the best session of your life right away.

Read this content and check out our instructional videos on YouTube and you'll be off and flying!

BATTERY WARNINGS

Lithium-ion batteries currently provide the highest power to weight density of all rechargeable batteries. Additionally, we have added a Battery Management System (BMS) that automatically manages each cell to ensure safety and automation charging.

Lithium batteries are most at risk of damage to the cells when being charged.

Avoid moisture contact with the battery. Pay special care when handling around water and ensure you have clean, dry hands. Do not store or carry the battery with wet towels, wetsuits or damp gear.

Allow the battery to cool down to room temperature before recharging.

Charge in a cool, dry, open place free from moisture and flammable materials, inside the provided Lipo Safe Bag.

When re-charging, do not leave the battery unattended. Disconnect from the charger when the battery is full.

Do not charge or leave batteries in hot environments or direct sunlight. Leaving a battery in a car exposed to sunlight can lead to cell failure, venting, or even fire. The most likely outcome of overheating is that cells lose performance and capacity, affecting its longevity.

WARRANTY

Foil Drive™ components are carefully manufactured and assembled in Australia with quality control processes to meet a high standard.

If the product is faulty or contains manufacturing defects do not use the system and email support@foildrive.com

Warranty claims will be considered on a case-by-case basis and outcomes will be determined at Foil Drive's discretion, in accordance with Australian product warranty.

Foil Drive™ Assist Kits - 1 year limited warranty.

Foil Drive™ Batteries - 12 month limited warranty.

This covers manufacturing defect only as all batteries have a useful life span set by the manufacture of the raw cells that make up our batteries. Eventually, you'll notice some performance drop in the initial punch, slightly slowing down power output, this is expected. All batteries suffer degradation, just like a phone decreases battery life over time. Batteries are not covered under warranty where typical wear and tear is prevalent.

Failing to follow the care and maintenance outlined in this manual voids warranty.

MOTOR & PROPELLER WARNINGS

Follow the instructions and warnings to operate the product correctly and minimise the chances of damage, serious injury or death. This system is not a toy and should be used with caution. By using the Foil Drive™ system you agree to do so at your own risk.

We put this first not to scare you, but because it's super important - Keep things safe, respect the gear, yourself, and others and you'll have no problems!

Spinning objects are dangerous. Integrated safety features such as over current protection, no signal, fail to off, and excessive torque limits have been included to limit risks, however, they are still present.

Never operate the throttle with motor/propeller obstructed.

Never hold a powered motor, including for testing purposes.

Only operate the system when securely mounted to a mast or jig.

Never touch the motor/propeller with the battery plugged in.

Never foil near other people or animals.

Do not place hands or feet under the board where motor contact could occur.

Turning the controller off will engage Fail Safe Mode where the throttle will no longer activate the motor.

Consider using this feature when mounting the board to reduce risk of bumping the throttle.

Propellers are designed and tested for durability and are strong enough to resist natural flexing. They are sharp and may cause bodily harm.

INTENDED USE

Foil Drive™ systems are intended to be used as a retro-fit kit. This has been designed for added thrust to your standard foil setup, making foiling easier.

We endeavor to make the product use and installation as simple as possible. Carefully follow all aspects of these instructions to ensure safe, reliable and lasting fun.

The Motor Pod Mast Adaptor must be compatible with your mast type. Please ensure you have the correct adaptor for your mast profile, DO NOT use the incorrect pod for your mast.

Potential injury or damage to your Foil Drive™ or equipment can result from incorrect fitting of your system and it is your own responsibility to ensure you follow directions. Foil Drive™ kits must not be modified, adapted, or re-purposed in any form. Doing so will void your warranty and risks significant damage to your gear.

CONTACT US

Foil Drive HQ is located in Adelaide Australia (GMT +9.5), please keep this in mind when calling. We will soon have contacts available in Europe and the US, in the meantime email us or contact your local dealer.

Support@foildrive.com
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CONTROLLER INSTRUCTIONS

Each Menu item to the right has specific instructions for both operation and troubleshooting.

Scan the QR Code below of search **Foil Drive Controller Overview** on the Help Centre for full step by step instructions.



CRUISE CONTROL

Please ensure you understand these functions before use! Cruise Control should only be used by advanced riders and should not exceed 50% throttle. It is useful for traversing offshore or long distance paddling from one place to another. Remain vigilant when using Cruise Control and be ready to disengage if you fall.

To activate Cruise Control, the menu option must be toggled on.

When ready to commence press Trigger 3, three times within 1.5 seconds, the motor will run at your pre-set throttle percentage and the screen on the controller will flash this percentage while active.

To disengage Cruise Control, do one of the following:

Pull Trigger 3 "Cruise Control" to deactivate. Although not advised, if cruise is set at 100%, you must push Trigger 3 "Cruise" in to disengage.

Pull Trigger 2 "Throttle" above your preset throttle percentage ie. Cruise Preset = 50%, pull throttle until it reads above 50%, as you would in a car.

If you have set a Throttle Limit (Menu Option 2), the controller will always select the lower maximum limit ie. Throttle Limit = 40%, Cruise Control Preset = 50%, Final Output = 40%.

UNLOCK YOUR CONTROLLER

If your controller displays "LCK" (locked), unlock it by holding trigger 3 "Cruise Control" for 3 seconds. Refer to menu 10 /11 for more information.

CALIBRATING THE BATTERY SERIAL NUMBER

Menu "5. Battery Serial Number" must be set to display correct telemetry. Match your battery voltage to the following: 22 Volt is 6, 28 Volt is 8, 40 Volt is 11.

Open the Menu item then hold power button for 3 seconds. Single press the power button until the number reads correctly. Once the number reads correctly, simply single press the Cruise Trigger (3).

CONTROLLER PARTS - FIRMWARE V21.33

The Foil Drive Controller not only allows you to control your kit, but has many user settings available. Here's the rundown:

1. On/Off Button
2. Throttle Trigger
3. Cruise Control Trigger
4. Wireless Charging Point - Bottom Image
5. Throttle Position Percentage
6. Controller Battery Indicator
7. Signal Strength Indicator



To access the menu, with the controller on, hold Trigger 3 "Cruise Control" and single press the Power Button. Once in the menu, release Trigger 3. Single (short) press the power button to scroll through the menu, press power button for 3 seconds to select.

1. **Pair** If your controller won't connect, you may need to re-pair.
2. **Throttle Limit (Default: Max. 100%, Range 20-100%)**
Limit your maximum throttle percentage. This is useful for learners or smaller riders who may not need the full power of the system, this limit overrides Cruise Control Preset (Menu Option 4)
3. **Cruise ON/OFF (Default: Off) - Advanced Riders Only**
For safety, the default factory setting for Cruise Control is OFF. You will need to toggle it on to enable the Cruise functions.
4. **Cruise Preset (Default: 35%) - 100% setting should NEVER be used**
Pre-set a cruise control percentage prior to starting your session. While the rider has the ability to set a percentage between 20 and 100%, we do not recommend percentages over 50% for safety reasons.
5. **Battery Serial Number** Number must match battery voltage for correct reading of data. Match the Voltage on your battery to the following:
22 Volt is 6, 28 Volt is 8, 40 Volt is 11.
6. **Motor Poles** For manufacturing purposes only.
7. **VESC Communication** For manufacturing purposes only - Should be set to: ON
8. **Speed Source** For manufacturing purposes only - Should be set to: VESC
9. **Calibration** If your throttle does not read 0% when disengaged, or 100% when fully engaged, you will need to recalibrate.
10. **Throttle Lock** Can be toggled off/on (Off from factory). Throttle Lock when on, and used with menu 11, will lock the controller after a pre set amount of time chosen by the user.
11. **Throttle Lock Timer** Once you have pre-set a Throttle Lock Timer ie. 5 seconds, your controller will lock whenever the throttle has not been touched for 5 seconds. This can be helpful if you fall off, or when exiting the water, knowing the throttle cannot engage until you unlocked it. Menu 10. must be toggled on for this to work.