

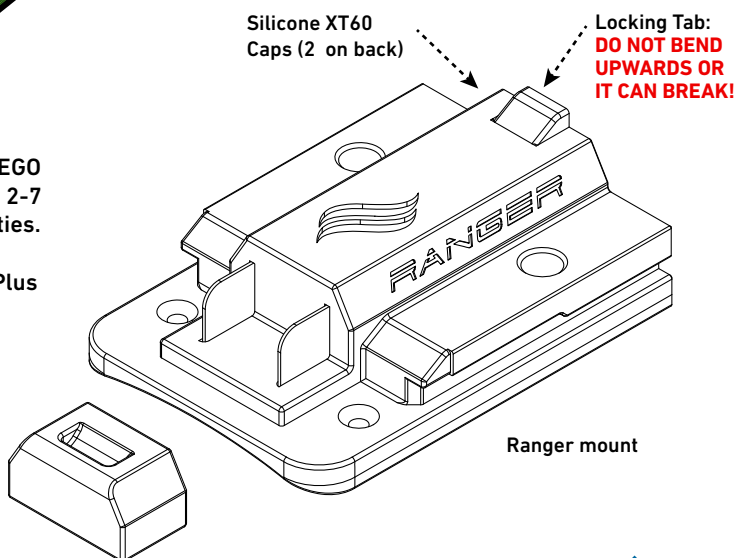


RANGE AUGMENTATION FOR ONEWHEEL+

For use only with EGO  
Brand batteries in 2-7  
AH battery capacities.

Works on V1 and Plus  
models only.

Terminals cap



Installation video by Jimmy Chang: <http://tinyurl.com/y2s2dbj6>



## OVERVIEW & WARNING

The installation for the RANGER™ is straightforward. There are two main parts:

**STEP 1:** Install the mount somewhere on your fender.

**STEP 2:** Remove the battery from the Onewheel and install the included cable.

The installation features no soldering or cutting of wires, and the battery parallel cable can only be plugged in one way to the Onewheel's battery, minimizing errors. A complete reversal to stock is simply the reverse process of installation.

Realize you are dealing with significant voltages and the risk of shock is always present. Please work carefully and as safely as possible when working with live wires.

**NEVER** touch the terminals on the RANGER™ mount when connected to the Onewheel battery. You could shock yourself, possibly with injury, burn, or worse.

**NEVER** charge the Onewheel with the EGO battery connected. Not only will it take forever to charge, but the EGO battery will not have its cells balanced during charging, reducing the life of the battery overall. **Use the Onewheel charger for the Onewheel only.**

**ALWAYS** pair a fully charged EGO battery with a fully charged Onewheel if possible. However, we have been riding long rides by swapping on a new EGO battery on and riding on. The Onewheel battery is very durable, and the only downside to this may be a few less charges on the total life of the battery (The Onewheel battery should last a minimum of 1000 cycles charge/discharge).

**ALWAYS** put the EGO battery on the RANGER™ first, then connect the XT60 to the Onewheel battery as the final step before powering your board on, to minimize shock hazard.

**NOTE:** This product is intended for use **ONLY** with an EGO 2.0AH, 2.5AH or 5.0AH battery (or 7.5AH if using a backpack setup). The 2.5AH battery will double the range you normally get on your Onewheel+. The 5.0AH will triple it. These are rough guidelines but offer decent estimates of how far you'll go.

We recommend purchasing the EGO Rapid Charger (about \$99) to charge your EGO batteries quickly and safely. It's nearly twice as fast as the standard charger.

**IMPORTANT!**  
INSTALLATION OF THIS  
PRODUCT WILL VOID YOUR  
ONEWHEEL'S REMAINING  
WARRANTY.

## KIT CONTENTS:

- (1) RANGER™ mount
- (4) M5 14mm stainless screws
- (4) M5 low-profile nuts
- (1) Parallel Battery Cable
- (1) RANGER™ terminals cap
- (2) Rubber XT60 caps
- (1) 3mm Allen key

## TOOLS NEEDED:

- 3/32" Allen key
- Power drill
- 3/16" (5mm) drill bit
- Small Phillips-head screwdriver

## DISCLAIMERS

Use this product at your own risk. Misuse can result in electric shock, injury or death. By using this product you agree to hold the designer and manufacturer (Land-Surf, LLC) harmless and free from any liability.

Electric shock may occur. Never touch the terminals or leave them without the cap on the RANGER™ mount when connected to the Onewheel battery.

## ALSO...

This design is patent-pending and protected by copyright law. EGO® is a registered trademark of Chevron, Inc.

Designed in Marin, California



# INSTALLATION

TIME TO COMPLETE: 30-60 MINS



*Don't rest the EGO on the footboard...- give it at least 1/2" clearance.*

## 1. CHOOSE A POSITION FOR THE RANGER MOUNT

Start with the fender on your board. Put an EGO battery of the largest size you intend to use on the Ranger mount. Then find a position that works for you, but don't let the battery "sit" on the rear footpad, as this will make it hard to remove for charging.

The closer you can mount the battery to the rear footpad, the less effect the weight will have on the handling from a shift in CG. Also make sure to center the EGO battery (**not the mount**) between the left and right sides of your board.

Then mark the chosen position of the mount on the fender using a pen or tape. Then remove the EGO battery from the Ranger mount, and place the Ranger back in position on your fender.

There are 4 holes in the Ranger mount for the included screws to go. Mark and drill those holes into your fender (remove the fender first). Then use the 4 included M5 x16mm flathead screws and low-profile washers to secure the mount to the fender. The hex key is a 3mm size. Tighten each screw snugly.



*Center left/right on board.*

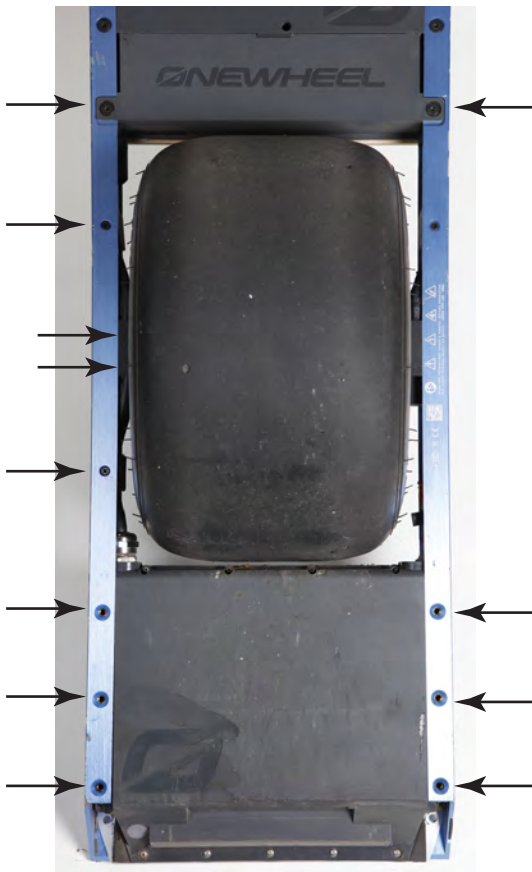
## 2. REMOVE THE BATTERY BOX

Remove the fender if attached, as well as the rear bumper and footpad, using a 1/8" or 3mm hex key. Then remove all of the screws along the bottom rails that hold the battery box in place (as shown left).

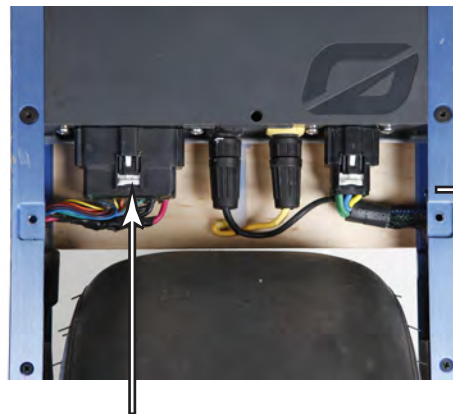
Once the screws are removed, move to the front of the board, and underneath the nose, remove the plastic panel covering the cable box.

Detach the widest connector – this runs from the control box at the front to the battery in the back (shown below). Push on the white plastic arch indicated, towards the front, and wiggle the connector loose.

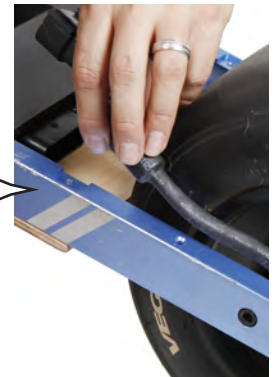
Inside the rails there are two plastic brackets keeping the cable inside the frame. Remove these, as well as the two screws for the small panel that goes over the axle. Ease the cable up out of the rail so that you can gently slide the battery box out of the frame (shown below right).



*Remove screws at arrow locations. Note that bumper and rear footpad have been removed.*

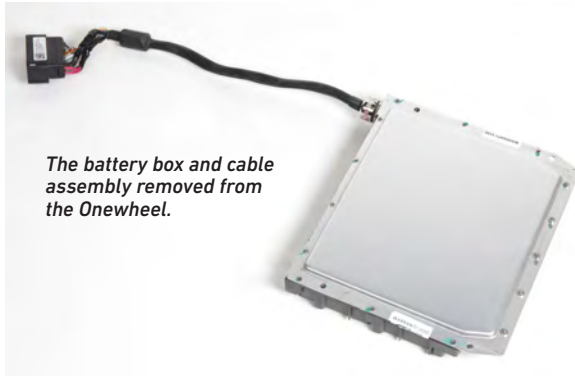


*Pull this white part of the connector down to unlock it, then wiggle the whole thing free.*



*Gently free the cable that runs to the battery box.*

# INSTALLATION CONT'D



*The battery box and cable assembly removed from the Onewheel.*

## 3. OPEN THE BATTERY BOX

Remove all of the screws around the perimeter of the bottom of the battery box. There are both Philip's head screws and 3/32" hex screws. They unscrew farther than you think!

Remove the top aluminum plate. You may have to pry a bit around the edge with a flat screwdriver to get it to come off.

Inside you will see the battery (light blue) as well as the BMS along the rear edge of the box. Behind the BMS is the main power cable, and a blue plastic electrical connector called an EC3.

*Unplug this EC3 connector.*



*The battery box with the aluminum top plate removed*

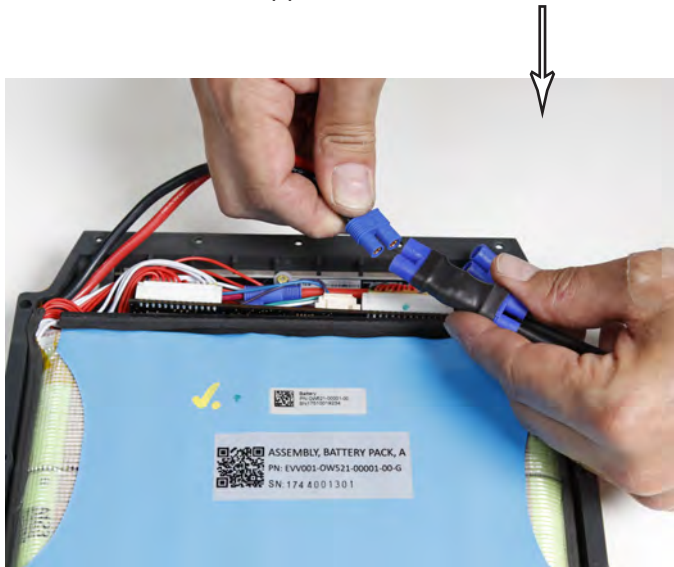
## 4. INSTALL THE INCLUDED WIRE HARNESS

**Take a minute to put on the silicone cap over the yellow XT60 connector** that is at the end of the supplied battery cable (the only yellow connector). The silicone cap is located on the back of the Ranger and is red or green. Take care to always keep this silicone cap on this end when not using the Ranger setup. Dirt, water, and mud can get in and possibly create a short or spark.

Unplug the blue EC3 connector. The 2 long wires running along the back edge go to the battery. The other direction, wires go to the BMS (Battery Management System). We are going to splice in our wire here.

Use the included wire harness as shown. Note that the blue EC3 connector ends are male/female and only fit one way. (You can adjust the battery cable a bit to take out some slack.) Then fit the long cable with the bullet ends down along the edge of the battery as shown.

*Gently remove the battery pack from the box for a moment (don't disconnect anything), and push the open ended wires down along the edge of the battery box. There is a small space here to fit the wire past the bms circuit board.*



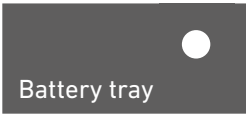
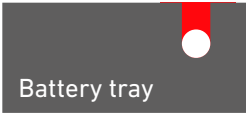
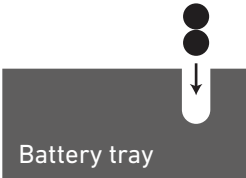
*Install the included wire harness to the ends you unplugged. They can only plug in one way.*



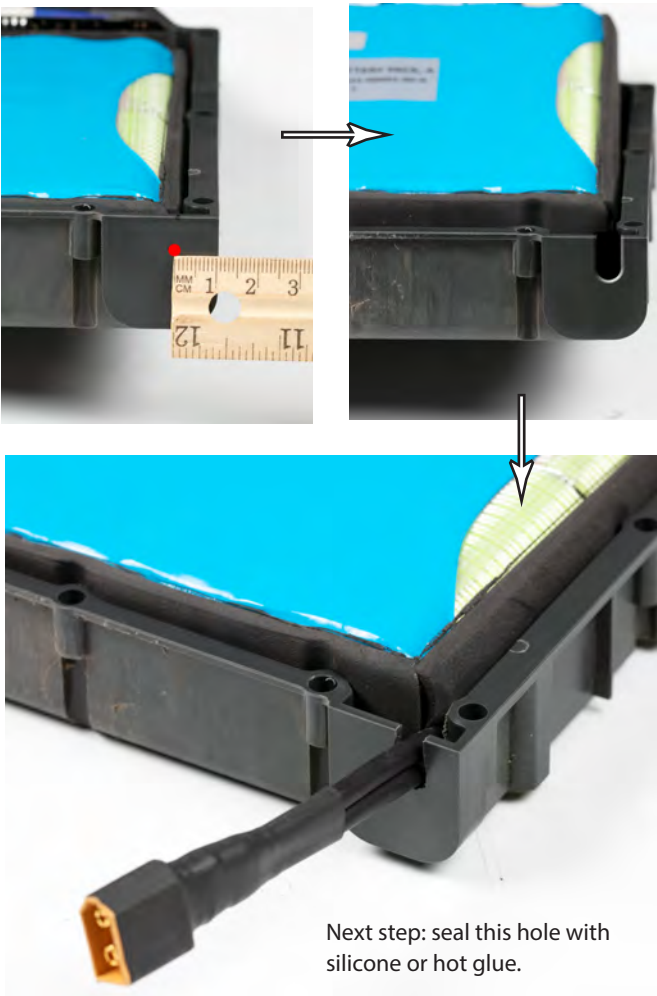
*Harness connected. Fit excess wire on the left down into the battery box. Be careful to not damage the circuit board and connectors.*



## INSTALLATION CONT'D

- A.  Drill a 3/16" (5mm) hole 3/8" (10mm) below the top edge of the battery tray, and the same distance from the right edge.
- B.  Use a small hobby saw or Dremel tool to remove the area in red.
- C.  Put supplied battery cable into the slot. Make sure the aluminum top can go back over.

Photos of the above process:



## 5. CREATE A U-SHAPE CHANNEL FOR THE CABLE

To exit the battery compartment and connect to the Ranger mount, we need to create a u-shaped channel that is open at the top edge of the plastic battery tray. Pull the battery up out of the way momentarily so that you don't drill into it. Then take a power drill and a 3/16" (5mm) bit (or equivalent) to drill a small hole 3/8" (10mm) down from the top edge of the battery tray, in the location shown. Make it only large enough to fit the radius of one wire, since we are going to stack the wires vertically to minimize the size of the opening, and we have to seal it later with silicone or hot glue.

Next, using a hobby saw or Dremel tool, remove the area shown in red at left.

Run the wires down along the edge towards the u-shaped channel, and put the wires into the slot so that they exit the battery compartment.

Using either a hot glue gun or silicone sealant, seal the hole that you drilled for the wires to exit. Work from the inside of the battery tray and make sure you get it sealed well all around the wires. This will also act as a wire strain-relief, preventing the bullets from disconnecting. Hot glue works well and fast, but probably isn't as weatherproof as silicone. Silicone will also conform to the shape when you put the top back on.

Put the battery back in the box, and next to or over the wires you installed. Make sure the battery wires and the connectors are all tucked down neatly, and then put the aluminum cover back on.



# INSTALLATION CONT'D

## 6. REINSTALL THE BATTERY PLATE & BOX

Reinstall all of the screws we removed when taking off the battery box cover, being careful not to pinch any wires in the process.

Slide the re-assembled battery box back into the rear of the frame. Run the main wire bundle back along the inner rail to the control box, and resinstall the brackets we removed, as well as the cover over the connectors at the front. Reinstall all of the screws holding the battery box to the frame, and then the bumper, footpad, and finally, the fender. You're done!

## 7. NOW, GO RIDE 2X or 3X YOUR NORMAL RANGE!

The use of this product is simple: **Put the EGO battery on FIRST.** Then connect the XT60 connector. Then power on your board and ride away.

Don't connect the XT60 connector first, as that energizes the terminals on the mount, which could give you a nasty shock if you accidentally touched them. **Always mount the EGO battery first before anything else. When it's not mounted, use the Terminals cap to keep the terminals from getting tarnished, dirty, or bent.**

If you have one of our STEALTH™ HANDLES or BONE FLEX™ HANDLES, you can slide the pigtail end of the wires from the battery box into the inner rail area and under one of the mounts, keeping it out of the way of the wheel. If you don't have one, grab one from our web site!

## TIPS & HINTS

Always mount the EGO battery first, then plug in the XT60 connector, to reduce the chance of shock. When the XT60 connector is hooked up, the terminals of the Ranger mount are "live" and not to be touched.

Always start with both the EGO battery and the Onewheel battery fully charged. At night, leave your Onewheel plugged in so that the cells can rebalance.

The EGO 2.5AH battery charges in about 25-30mins. Use only the chargers approved for EGO batteries.

Use the included "Terminals cap" to protect the electrical terminals of the Ranger when not in use from the environment and damage. Press-fit on and pull off. It's a tight fit so that it stays put.

When putting on the EGO battery, ensure that it's fully seated on the mount and engaging the terminals. You can hit it with the palm of your hand strongly to make sure it's all the way on. The friction fit is tight to keep it in place.



This will be wrong too.

Disregard this estimated % left...it will be wrong all the time. It goes to 1% and stays there on a long ride. The count from 100% to 1% only refers to the internal battery.

INSTEAD, USE THIS % USAGE  
This is how much you have actually used out of the total. The total varies based on the size of the battery you are using.

It counts UP instead of DOWN, as it measures how much battery has actually been USED:

100% = your normal OW range  
200% = OW + a 2.5AH battery  
300% = OW + a 5AH battery.

As it gets close to these numbers, it will be fully empty. Take note of how far you go. If you turn off the board, the usage will reset, so keep that in mind.



Install the included XT60 Silicone cap (provided on the back of the Ranger mount) over the end of the XT60 connector, since this is an "always hot" connection to your OW battery!

Always replace this cap after using your Ranger to prevent shorts. Store it on the Ranger to keep it from getting lost.

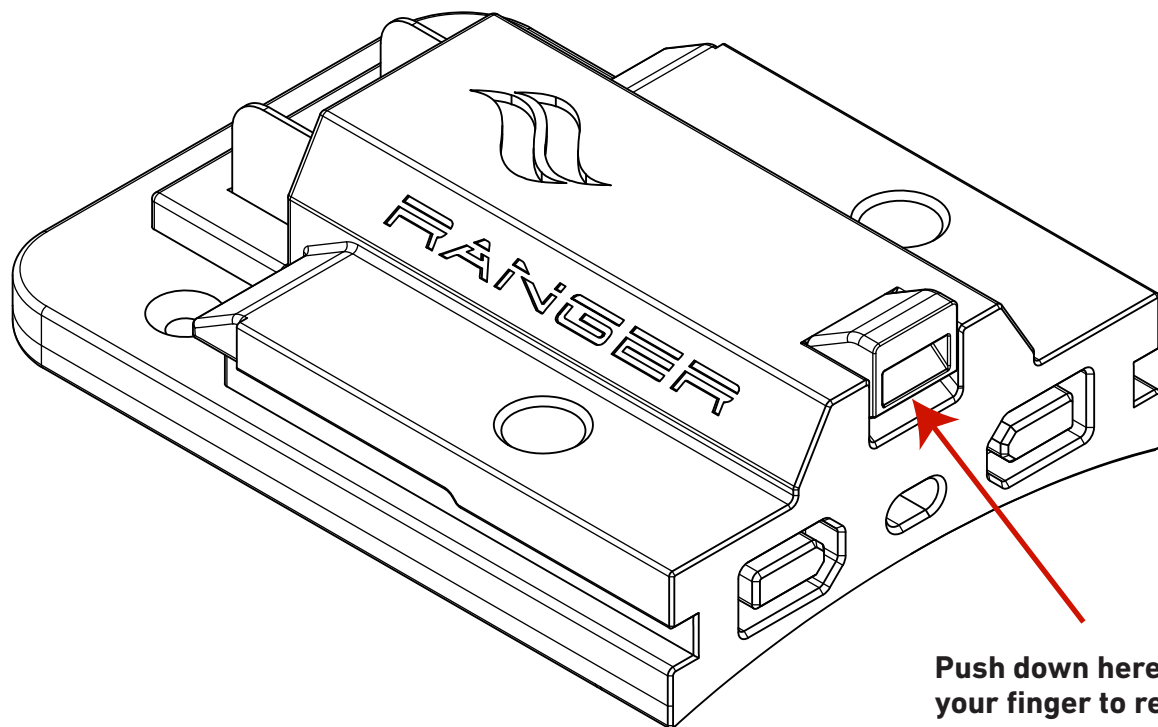
# CHANGING BATTERIES

## USE THE LOCKING TAB TO RELEASE THE EGO BATTERY.

Your Ranger™ comes with a locking feature to keep the battery on the mount until you want to remove it for charging. To release the battery, pull down on the loop on the back of the mount where indicated (see diagram).

While holding the loop down, slide the battery off the mount.

Slide a fresh battery on and the lock will engage automatically.



**Push down here with your finger to release the battery lock.**