

## **Before you go on your first test drive READ THIS and review the User Manual**

Fossil fuels have helped shape the world we live in today. The time is now to look at what we can do to shape our world for the future. Fossil fuels set a very high bar in terms of the amount of stored energy per a given volume and weight for other technologies to reach. We believe there is not going to be a one single solution to our existing worlds dependency on fossil fuels but changes to our fossil fuel lifestyles and thinking will help us get there much quicker. As new technologies advance, our basic understanding of these technologies and how we can maximize them should also advance, to help us get the most from them as they develop. This pamphlet was created to help you understand the Science of Maximizing your ESR Performance and help you get a better understanding of your ESR, but is not intended to take the place of the User Manual which is filled with a lot of other very helpful and important information we recommend every users should understand before operating the ESR.

### **Science of Maximizing your ESR Performance:**

Getting your ESR to go further/faster/happier. With any vehicle drag, resistance, and heat is a constant struggle. This is even more so with electric vehicles. There are a few things we can do to at least keep these things in check and or help to create an improvement in your overall ESR performance. There are a lot of little things that all add up and really make an enhancement in performance if followed or vice versa if not, so we have listed them below in no particular order.

**Break-in.** Just like the fossil fuel engines of today, your electric motor also requires a short "break-in period" to help make all the new parts in the motor "seat" to each other and help improve your ESR's efficiency. The break-in period on your new ESR is to simply use the first complete battery charge on "Econo" mode selected on the throttle control and avoid operation in "Turbo". After the short break-in period your ESR is ready for normal operation.

**Keeping your motor cool.** It is also important to understand that your ESR is a performance minded electric vehicle that if operated improperly a user can damage the unit. The most common method of damaging the ESR is by over heating the motor. Motors can be over worked and eventually this will burn out the brush card inside the motor. Replacing a brush card is pretty simple and straight forward but this procedure can be avoided if the operator is aware that heavy loads on the motor is what creates the heat so avoiding frequent accelerations, burnouts, wheelies, towing heavy loads, long steep hill climbs, and the likes that require the motor to work extra hard is highly recommended. If you have been working the motor hard, reach down and carefully feel the temperature of it. The best place is at one of the 2 power terminals and if it is too hot to hold your hand/finger against then stop riding and give it a chance to cool down before continuing. These heavy loads also exert huge power draws from the batteries that drastically shorten your usable range and battery life so its best to avoid those situations when ever possible. With that in mind, get in the practice of pushing off with the ESR from a standing start to get some forward momentum built before applying the throttle. A simple one push, push off from all your dead stops can squeeze out another mile in range, reduce the load, and heat on the motor that in turn will help preserve the longevity of the motor and batteries. Furthermore, keeping your speed relatively steady will also improve your range considerably.

**Don't get dragged down.** Check and maintain your brakes and chain. Brakes and chain should not be dragging or preventing the wheel from spinning freely. The brake caliper is designed to float to account for alignment and may touch. This is normal, but you should not find them dragging heavy when you try spinning the front wheel. There is a small amount of natural drag created by the drive components but making sure they are in working order, properly lubricated, adjusted, and in alignment, helps ensure you are not losing any performance. Information on proper adjustments is found in your User Manual that came with your ESR.

**Rolling.** Tire pressure is also key to ESR performance. There is a lot of rolling resistance created from the tire. Some of the rolling resistance is unavoidable but in many cases, a good portion of this rolling resistance can be eliminated. Make sure you have the proper pressure in the tires. There is a PSI tire pressure rating on the side wall on the tire and you should try to keep your ESR tires at that pressure at all times. We have found it is safe to go as high as 10 PSI above the rating on the sidewall. This will further reduce the rolling resistance of the tires and increase the usable range, acceleration, and speed. Some people have found that adding the extra 10 PSI in the rear improves the usable range and the softer front tire helps keep the smooth ride so you should play with what works best for you. We're sure you will notice the difference this performance tip can make.

**CAUTION!!! Putting too much pressure in the tire can result in a blowout and sudden loss of control. So do not put more than 10 PSI over the tires PSI rating or you will run this risk.**

### **Keeping your batteries lasting longer:**

Your ESR incorporates sealed lead acid batteries in its design. The sealed lead acid batteries in your ESR have had many technological improvements from the lead acid batteries that were first invented back in 1859. However, letting the batteries sit in the ESR with a depleted charge is harsh on the chemistry that makes them functional and will greatly reduce their usable life. So, it is best to get in the practice of keeping them charged when ever possible.

**All Charged Up.** The smart onboard ESR charger is automatically adaptable for various power grids throughout the world. The ESR charger goes in a quick charge state and charges the ESR to about 90% full in about 4 hours from a depleted charge. The last 10% takes about another 3 hours to complete. That last 10% is a maintenance charger as the charger attempts to equalize the charge levels in all the batteries and tops them off to get the most amount of possible charge cycles out of the batteries.

**Charged for storage.** Leaving or storing the ESR with the batteries depleted or with a partial charge can end up damaging the batteries chemical make up making them unusable or limiting the number of usable charge cycles, you can get out of them.

**When not to charge.** Do not leave the ESR on a charge for more than 2 weeks this can also end up damaging the batteries or even create a potential fire hazard. If you plan to store the ESR for more than 2 weeks you should first charge the ESR fully then disconnect the charger to store and put the ESR on a charge for a few hours once a month.

**On the horizon.** We are well aware of all the different technologies that are currently developing. A very common question we get is why do we stick with older lead acid battery technology. The answer is relatively simple. The ESR batteries are proven, relatively inexpensive and are capable of handling the high power demands your ESR exerts on them. Yeah, we know new battery technologies are being developed and some are even on the market today. However, along with these new developing technologies come a far higher cost, consumer hazards, and other limitations that are still holding them back to make them worthy to be in the ESR. Nevertheless, we do expect that as these new technologies will improve and the prices come down, one day the ESR will take advantage of them.

**Recycle.** 97% of a lead acid battery can be recycled so please find a proper recycling facility when it is time to replace expired ones. Some retail stores that sell lead acid car batteries and your local public solid waste facility will accept recyclable lead acid batteries. If you are unable to find one you can always send expired batteries to:

PMW Battery Recycling Program  
2220 Meridian Blvd.  
Minden, NV 89423

#### **Riding surfaces to avoid:**

**Mind the gap.** Your ESR incorporate some very sophisticated and sensitive electronic components that do not like heavy vibrations or heavy shock loads that is typically associated with riding on an unpaved/uneven surface or hopping down street curbing. The occasional unavoidable bump is ok but try to avoid rough terrain when ever possible. You and your ESR will be a lot happier.

#### **Weather conditions to avoid:**

**Wet or Muddy.** Your ESR is an electric vehicle that is not completely sealed from the elements so driving the ESR through standing water, wet or muddy conditions runs the risk of severely damaging it. The electronics in the ESR needs to have some ventilation to accommodate for temperature changes and prevent condensation from forming around them so you will find the electronics are not in a watertight environment. The ideal solution to riding any 2-wheel vehicle in wet/muddy conditions is to just not do it. Wet conditions limits visibility, reduce traction that increase the required stopping distance needed to stop, effects handling performance and forces the rider to exercises a lot more caution.

**Clean is good.** This does not mean you cannot wash or clean your ESR. They like being shiny and clean as it helps prevent dirt from getting into the electronics. Therefore, when it is time to get the sparkle back in your ESR you can do so with a mild soapy damp dishtowel and wipe it down. Just avoid heavy amounts of water that can end up finding its way to any of the electronics.

**Hot or Cold.** Another weather conditions you should be aware of are extreme temperatures. The hotter the temperature the less efficient your ESR will be so try to avoid operation on those very hot days. Also, avoid allowing your scooter to sit in freezing temperature as this could cause batteries cause them to freeze solid, crack and eventually leak and/or making the batteries unusable.

#### **There are a few other helpful bits of information from our most commonly asked questions for your review.**

Q. How do I lock up my ESR?

A. Use a standard bike cable lock and rap one end around the frame just behind the front fork and other around your unmovable object.

Q. Can I put a seat or basket on my ESR, and is there a carry bag available?

A. Yes your local authorized Go-Ped dealer will be happy to assist or you can look online at the products page of the [www.goped.com](http://www.goped.com) website for available options.

Q. Is it safe to modify or change the components in the ESR?

A. No, the ESR has been specially engineered and designed with currently available existing technologies that create a fine balance and synergy between them making changes or modifications is not advised and can create a failure or health risk. Only use OEM manufactured components on your ESR.

Q. Does the ESR incorporate regenerative braking?

A. Do to the nature of the ESR, power generated during braking does not even come close to the free unpowered distance gained from simply coasting. Therefore, to maximize efficiencies for your ESR, it does not have regenerative braking.

We hope you find this information helpful and informative and that it helps maximizes what your new ESR can do for you.

Kind Regards  
Goped Support Team