conversion Kit
Users’ Manual
Knowing Electric Bikes

Rules and Regulation of electric bikes

General electric bicycle’s regulations in North America

e-bikes are limited to 500 W output (in some areas it varies 750W and 1000W), and cannot travel faster than 32 km/h (20 mph) on motor power alone on level ground. Generally, they are considered vehicles (like motorcycles and pedal cycles), so are subject to the same rules of the road as regular bicycles.

All require an approved helmet. Regulations may or may not require an interlock to prevent use of power when the rider is not pedaling.

Electric bike regulations vary in different provinces or states. As an example in Canada BC To qualify as a Motor Assisted Cycle, certain conditions must be met such as:
The electric motor must be 500 watts or less and be capable of propelling the cycle no faster than 32 km/h on level ground without pedaling.
The vehicle must be equipped with a mechanism that either:
• allows the driver to turn the motor on and off, or
• prevents the motor from turning on or engaging before the MAC attains a speed of 3 km/h
The motor must disengage when the operator:
• stops pedaling, or
• releases the accelerator or
• applies a brake.
• The motor cannot be gas-powered.

The motor must be capable of being propelled by muscular power using the pedals, but it is not necessary to always be pedaling.
The vehicle must meet any other conditions in the Motor Assisted Cycle Regulation (B.C. Reg 151/2002).

Search for your local e-bike regulations.

Our offered e-bikes and conversion kits can be set and customized based on various regulation constraints and it is the customer’s responsibility to maintain it street legal for the area they are using.

Electric Bike Regulations in Canada

Electrical assist bikes or power-assist bicycles have become increasingly popular in all areas of the world. You consistently see them on the roads, parks, and on mountain trails. However, as more people are purchasing them, the dangers around electric bikes increase as well. To ensure everyone is safe when electric bikes or ebikes are involved, the Canadian government has created some rules and regulation, however, many provinces have slightly different regulations which we will discuss in this post.

In Canada, the technical term for ebikes is “assist bicycles” or “power-assist bicycles” which is legally defined under the Canadian Federal Legislation. These type of ebikes do not include bikes with internal combustion engines like the traditional motorbike or moped. They fall under a different category and are subject to different laws.

Since 2000, Canada’s Motor Vehicle Safety Regulations have defined assist bicycles or power-assisted bicycles as a separate category from combustion engine vehicles which require a license to operate. E-bikes are currently defined as a two- or three-wheeled bicycles which operate with pedals and a battery-powered motor.

A power-assisted bicycle may be imported and exported freely within Canada without the same restrictions, taxes, or levies placed on automobiles, motorcycles and other combustion engine vehicles. Since some of the provinces have slightly different regulations surrounding electric bikes we have divided the information to make it easily accessible.

Click the provinces below to learn more about provincial regulations:

British Columbia

Alberta

Ontario

Manitoba
New Brunswick

Saskatchewan

Nova Scotia

Prince Edward Island

Quebec

Newfoundland and Labrador

Yukon, Northwest Territories, and Nunavut

*license requirement to ride an electric bike*

Vehicle licenses and liability insurance are not required in US and Canada for street legal ebikes and conversion kits we offer.

*Electric bike legal speed*

We have ebikes capable of 57km/h, however the controller will cut-off the assist power beyond 32km/h by law. 350W systems gives the maximum street legal performance on ebikes; however 500W gives a better performance on hills yet street legal with the max speed setting at 32km/h

*Running costs of electric bikes*

Our motor/controller system is maintenance free. The batteries have about 80$/Year depreciation on average. The average power consumption is about 1KWh/100km, taking 1KWh 10cents then the power cost of 100km will be about 10 cents.

*Single battery charge Range*

The range depends on many factors such as weight, road condition, bicycle, weather, level of assist and amount of muscle power being used. We maintain a minimum 30km average range on our systems generally. The minimum compatible battery capacity is capable of over 100km range if being used on level 1 of assist. You will be guided through the right battery capacity for your particular case if you inquire.
Battery Life

We offer Li-ion battery packs which are well engineered and protected with BMS (Battery Management System) for longest possible life. The cells used in our battery packs are A-grade LG, Samsung or Panasonic branded cells which have strict quality control and maintain their quality and performance for long. The technology and quality of cells are similar to what Tesla is using in their cars. There is a calendar life as well as cyclic life on the battery cells which is about 6 years and 800 full charge/discharge cycles. If using daily, you can expect about 20000-30000Km before the battery capacity shrinks to less than 50% which we consider as dead.

Battery replacement Cost

The Li-ion battery is quite costly. The number of cells in a typical ebike battery is 40-50 units; almost 10 times more than a laptop or 50 times of an iphone with similar quality and specs. Battery is almost half of the cost of a conversion kit or 1/3 of an average complete electric bike.

Electric bike’s maintenance

No maintenance is required for e-bikes other than simple physical protections and keeping batteries fully charged after each use.

Regenerative Recharge

Regeneration only makes sense when you use the kinetic energy of a bike in breaking or descending a downhill which at best it can increase the range by 10%. The idea of regenerative braking doesn’t work well on bikes because unlike cars the mass/aerodynamic loss ratio is too small.

Battery recharge Period

It takes about 4-7 hours depending on the battery capacity using standard chargers. We may offer quick charger which doubles the speed of charge.
Using ebike in rain or snow

The system is rain proof, good to go in rain or snow, however no water jet and no parking or storing un-covered in rain or snow.

Choosing 350W or 500W electric bike systems over 1000W, 3000W or 6000W

Besides by-law limitations for street legal maximum 500W power, there are many engineering and safety reasons behind sizing a motor power on a bicycle, no matter if this is a factory-made bicycle or a retrofit conversion project. 3000W, 1500W, 1000W, 750W motors are not street legal and are too powerful and heavy for bicycles. Typically, we offer such high-power motor system for students or R&D projects, not electric bicycle applications. Putting a 4L engine on a Toyota Yaris is just waist the money and resources. This engine will break the transmission shortly and the small heavy car does not provide a satisfactory drivability on small wheelbase and small tires. 250-500W is the optimum power you can expect a reasonable weight, speed, range, durability and safety on a bicycle. Knowing that an aerobic pedaling power by a regular cyclist is between 70W to 200W helps us understand 500W is like 5 people pedaling power. You may read or see exciting reports or videos about 1000W to 6000W electric bikes, however this will not last long on those bikes. Trust us saying the biggest motor is not the best! Powerful motors are not necessarily more expensive, but the voltage and capacity of the battery should be much higher to feed the motor. This increases the cost of higher power systems.

Why Buy An Electric Bicycle Conversion Kit

Have you thought about buying a conversion kit for your bicycle and turning it into an electric assist bike? If you love riding your current bike, a conversation kit will allow you to modify it and give it some extra power. Not only does it save you money, but it also allows you to instantly customize your bike which is especially great if you’re a cycling enthusiast. In addition, the conversion kit comes with everything you need so you can install it yourself without any special expertise.

There are many options out there but the three most important aspects to consider are durability, performance, and adaptability. Many inexperienced riders, when first researching conversion kits, don’t understand the importance of having a durable kit and instead buy the cheapest option. They end up underwhelmed by the kit’s performance and longevity. In fact, a cheap battery may not only die faster but also can have the risk of fire and explosion. In addition, a cheap motor or controller may run fine at the beginning but lose performance with the passage of time due to magnets, electronic or mechanical components poor quality.

If you go the conversion kit route, you must ensure that your bike is in good working condition. It’s not safe to put a motor on a fatigued or cracked frame or fork. You need to ensure your gears work and you have high-quality brakes. If either gears or brakes are worn, consider replacing them as you’ll want high function parts since you’ll stress them more with a powered bike.

One of the most important things to consider is what type of motor you want. You can go with a Direct Hub, Gear Hub, and Mid drive system. With a Direct Hub, also known as gearless motors, you get a reasonable amount of torque and power which makes them especially suited for high-speed ebikes. However, it does tend to make them heavier and decreases range and climbing ability. The Direct Hub is simple with only two pieces attached to the motor: the rotor and the stator which spins on either side of the motor. The regenerative braking is one advantage of direct hub motors.
The **geared motor** gets its name from the sun planetary gears system kept within the casing. This type of motor is great for higher torque and power to weight ratio. Unlike direct hubs, the geared motors have a free-wheel clutch which prevents the rotor from dragging you down by any sort of cogging or gears friction when the motor is not in use. Geared hub motors have the advantage of fast acceleration and better hills climbing and overall higher energy efficiency.

The single biggest advantage a mid-drive system has over the other motors is the mass attached to the frame rather than the wheel. It gives a better rideability for **rock jumping** and **mountain biking**. Also taking advantage of bicycle gear ratio allows the rider to power the rear wheel with the same chain and gear set as the pedals which means that a low gear can be used to power up a steep hill or accelerate quickly; however for an aftermarket conversion of an existing bicycle with conventional transmission you may not get a reliable or durable setup due to chain and cogs vulnerability.

If you’ve decided to buy a **conversion kit**, then fill out the inquiry form on our website and provide as many details as possible regarding your bicycle or requirement and we will be happy to help you out with a tailored solution. Our conversion kits are designed to be **street legal** for all **Canadian** and **US territories**. Prices generally start around $1,000. We recommend either the **350-watt** kits or for extra power the **500-watt** kit. At first glance, most riders want to convert their bike with an extremely powerful motor but you may not need a high-top speed and there are other things to consider such as weight and durability. We have plenty of videos to show you how to install the kit yourself.
Enhance Your Technical Knowledge

Definitions of Torque (Nm), Power W (Watt), V(Volt), Ah (Ampere-Hour), Wh (Watt-Hour)

T:
Motor Torque is the characteristic which reflects the traction (thrust) and is important for climbing up hills. The more torque at the wheel gives you a higher grade-ability. The traction force equals Torque divided by wheel radius (F=T/R). The smaller wheel diameter gives a higher traction force or climb-ability with same motor torque.
The torque at the wheel for mid-drive motors should be calculated like this:
Max Torque at Wheel for crank motors = Max Motor Torque x Number of rear cog teeth / Number of Chain wheel teeth

W:
The amount in Watts shows the power (P) of motor. The power is important for riding faster both on flat or slope.
There is a rated power definition for electric motor which is the nominal power the motor is designed to work at which delivers a good efficiency and long life. Usually maximum or peak power is higher than the rated power. For example EbikeBC 350W geared hub motor can deliver up to 500W power at standard controller setting.

V:
Voltage has no mechanical effect on the ebike performance. This is a parameter which is set based on electrical characteristics of the motor/controller and wiring. Voltage in Li-Ion batteries is a matter of number of cells in series.
Power equals Voltage by Current, the higher the voltage the lower current is necessary to get the same amount of power (P=VI). The voltage should be managed by compromising safety and current rating of component. Having a higher motor or battery Voltage does not translate a higher performance or higher range by itself. Voltage alone doesn’t show any performance characteristics of the ebike unless you know the current rating for motor /controller or capacity of the battery in Ah.
Battery Voltage will not be constant and varies based on SOC (state of charge) a complete charged battery voltage is about 42V when it is nominally 36V and battery voltage is about 30V when the battery is considered complete depleted.

Ah:
It’s the current capacity of battery. The maximum current the battery can be discharged at continuously for 1 hour. For example; you can draw 10A continuously from a 10Ah battery for 1 hour or 5A for 2 hours. This is a parameter that gives you a range. However, the energy density of a battery should be measured by Wh(watt-hour) if you are comparing battery systems of different voltage. Ah increase when using higher capacity Li-Ion cells or using more Li-Ion cells in parallel in a battery pack.

Wh:
It’s the energy capacity of battery. Wh=Ah x V. For example a 48V, 8.8Ah battery gives you 48V 8.8Ah = 422.4Wh energy which ideally means you can draw 422W power for 1 hour. The equivalent battery in 36V standard will be about 11.7Ah.

Difference between different voltages

A: Voltage has no mechanical effect on the ebike performance. This is a parameter which is set based on electrical characteristics of the motor/controller and wiring. Voltage in Li-Ion batteries is a matter of number of cells in series. Increasing voltage helps maintain a lower current on same power rating which makes it easier to maintain the electrical efficiency; on the other hand lower voltage offers more safety.
We have standardized 36V for our street legal conversion kits. Our regular ebike battery packing and wiring is capable of 22A continuous power which is equal to 800W at 36V average voltage. There is no considerable voltage drop for up to 800W peak power with our LG 10.4Ah (minimum recommended for our 500W system is 10.4Ah). The peak current is 25A and the peak power 900W and the voltage drop is less than 3V in our system (all wiring resistance included). There is no advantage in 48V or 52V over 36V for up to 500W rated motor class. There are also some safety concerns for above 42V electric products including battery chargers in some provinces. We have 48V or 72V battery and hub motors for off street use up to 5000W rated power.
**Difference between 350W vs 500W**

350W provides 60Nm and 500W peak power enough toques and power for your 10% uphill climbing in pedal assist mode for an 80Kg rider. Don’t expect an ebike climbing up hills fast without pedaling.

500W provides 80Nm enough to climb 15% grade for 80kg rider and power up to 750W. You will have more performance using 500W. Select 500W if you need more climbing ability, higher acceleration, and speed; note that more is not always better since it drains the battery more quickly and is slightly heavier.

**Cons and pros of front hub motor to a rear hub motor**

We have rear options as well as front, but most of customers choose front and that is because of easy installation and maintenance. Our 350w and 500W geared hub motors are only 2.7kg and 3.3kg. There is no gyro effect on the handling; unlike direct hub motors which are bigger and heavier. So why not selecting the easy to install and prevent transmission adjustment headaches?

Front hub motors are performing better on slippery road like snow. If you don’t have any specific reason, don’t go for the rear hub neither a generative mid-drive motor, unless some special requirement such carrying a heavy cargo such as trailer or for uphill mountain biking.

If you select a rear hub motor, we have up to 9spd freewheels in stock. You can order us the rear wheel with the freewheel of same number of speeds. (freewheel price is extra)

It may take some time to put spacers and adjust the axle spacing and derailleur adjustment and needs more patience from the bike mechanic if using a rear hub motor.

**Performance of geared motor powered and un-powered**

Our geared motors have an internal clutch which is automatically released when motor is not in use. Unlike Bionx (which has a slight cogging torque and noise), there is no drag or noise at all when freewheeling.

Motor/Controller options are provided for regenerative braking, but infrequent braking and the low mass of bicycles limits recovered energy. It only makes sense for the frequent long up-hill/ down-hill travels; not to regenerate and recharge the battery, which at best it can increase the range 10%, but to save bicycle brake pads and better bike speed controls.

This option in our geared hub motors have a tiny disadvantage that the motor clutch is always engaged, even if there is not a request for assist power. There will be nearly unrecognizable noise and resistance for the rider when riding as normal.

**Using e-bike in freezing temperature**

In freezing condition you need to keep the battery indoors. The battery performance will drop down if the cells temperature reaches below 5 degrees Celsius. It warms up if being in use, however in -30C you need to cover the battery to keep it warm. Cold doesn’t harm the battery but just like smartphones loses charge quickly.
**Tire and Rim size**

The rim we use is an oval section black double walled alloy rim, stronger than regular rims using 2.6mm chrome spokes. The rim has pad brake tracks and the wheel supports both rim and disk brake. The tire can be 20in, 24in, 26in, 27.5in, 28in-700C-29er by 25mm or 1in up to 2.3in.

**Battery fit on my bike’s frame**

First of all check the mounting place alternatives on your bike. The lower center of gravity is a big advantage. To check if a certain battery fits in the frame check this link for various batteries dimensions.

**Fork fit Check**

Typical hub motors are designed for regular QR forks, needs 10mm drop out width, 100mm axle spacing front or 135mm axle spacing rear. FAT bikes need our special FAT hub motors 135mm front and 165mm rear. There is an adjustable tolerance for all forks spacing. Filing 9mm drop outs sometimes required. Thru axle forks require different solutions. Contact us for details.

**Modifying the fork drop out**

Dropouts are usually 9 to 10mm considering the paint coat and filing 0.25mm or 0.5mm either sides is sometimes necessary and OK.

**Hub motor fit thru-axle fork**

We do not have a hub motor which can be installed on thru-axle forks at present. We are hoping to develop such motor in near future.

**Torque arm usage for front or rear hub motors on fork**

The motor back torque is maintained by the axle nuts friction torque to the fork, not the drop out teeth. Our calculations regarding axle nut friction torque proves that even torque arms are not necessary and useless if the fork is properly inspected for any structural defect, washers are placed as recommended and nuts are torqued properly.

**Access to speed and power limit settings**

For EbikeBC hub motor kits with LCD controllers all settings are accessible. All users do all settings based on their vehicle requirements and local regulations at their own liability.
**choosing the right product**

Buy the electric bike if you have found the right fit with a reasonable price. Do you already have a sound bicycle which is ergonomically fit and you like it? Or you want to save on price of the bicycle as well as freeing some storage space? Inquire your conversion kit do it yourself or let a bike mechanic does it.

**Regenerative braking on electric bicycles**

EbikeBC’s controller system is capable of Regen-braking, however our geared motors freewheel when not energized. So normally when you squeeze the brake it signals for cut-off only. If the motor rotor is forced to spin on both directions together with hub by locking up mechanically the clutch, this signal activates the Regenerative (Regen) mode. The side disk in the picture showing a 500W geared hub motor internal parts is the clutch. You need to lock up the motor internal clutch to force the rotor spin back ward or generate negative torque. This option is available by modification or customization of the hub motor.

In regen mode the hub motor converts the mechanical torque to electrical back current to battery and recharge the battery while braking or going down the hill while dragging the bike or decelerating. It can generate about the same amount of torque as full throttle but in the reverse direction. This braking can decelerate to about 5km/h speed but cannot fully stop the bike, so the disk or rim brakes on the other wheel should complete the job.

There is some parameter setting available to set the intensity of braking torque versus efficiency of the regeneration in the LCD/computer display.

We have tested some 350W regenerative hub motors but have not done for 500W motor yet.

**Mid-drive Vs Hub motor**

There is a loud noise out there about the Mid-drive motors as if it is the novel e-bike technology going to take over the hub motors; However that’s not true. EbikeBC offers both Mid-drive and Geared hub motors so there is no commercial bios on this evaluation. Remember it is not about the Good and Bad; It’s about selecting the right fit for your application. Table bellow compares 2 similar motors of the 2 types at the maximum street legal power.

**Components Introduction & Maintenance Guide**

**Motors**

Direct hub, Geared hub, or Mid-drive motor systems are all top of the line and excellent fits. Learn more below:
**Geared Hub Motors**

Higher electric power can be achieved through higher RPMs with a smaller size and lighter weight electric motor. An embedded high-efficiency, reliable, maintenance-free Nylon sun-planetary gear system provides greater torque and power in a very small and lightweight hub motor. People rarely recognize this is a hub motor as it is a little bigger than a conventional bicycle hub or brake hub. An automatic clutch keeps the wheel released while freewheeling and engage it only when you need a torque or power from the motor. No noise and no sense of geared motor engaged in whole trip.

Installation simplicity, light and small size, low moment of inertia, high torque and power are achieved accompanied with maintenance free reliability in hub geared motor.

**BionX motors**

BionX hub motor is the best engineered direct (Gear-less) hub motor in the world. Adding only a little weight to your bicycle, the BionX system works seamlessly as you pedal. The control processor continuously analyzes your torque input using strain gauge sensor on the axle of the rear wheel and feeds that information to the motor, which applies electric assist in proportion to how hard you are pedaling.
**Mid-drive motor:**

The best choice is to have the mass of the motor attached to the bike’s frame for higher wheel maneuverability, especially for mountain biking and full-suspension bikes.

These motors are typically more complex and heavier due to the required mechanisms that separate the pedal crank from the chain ring. This is necessary to let pedals and motor drive the rear wheel through the bike’s chain independently.

Bosch, Yamaha, Shimano, Brose are well-known brands offering this type of motor, however they only produce motors for OEM e-bike fabrication. They all need a special frame design to fit this motor.

Bafang or 8FUN is a well-known factory which manufactures mid-drive motors for regular bikes retrofits. They require standard bottom brackets to be fit on. Transmitting the muscle power and motor power through the existing chain and cogs is problematic for bicycle conversion which reduces the reliability and durability, hence it is not recommended for urban or commuter bicycle conversion.
Battery

The Li-ion battery is the most critical part of the ebike technology for cost, performance, and safety concerns. We don’t use cheap or low-quality batteries. With all of our products, we use A-grade branded Li-ion cells including Samsung, LG or Panasonic. Li-ion batteries have both cyclic and calendar life. For that reason, we produce and import batteries at least four times a year to guarantee delivery of the best and newest batteries to our customers.

A Li-Mn battery is lightweight with 500-800 full cycles of effective life and is the best choice for an ebike application. Packs of 30, 40, 50 or more cylindrical 18650 cells are the best option because you have the ability to maintain them compared to polymer packs. They are also lighter than Li-FePO4 technology.

Each 3.7V cell is continuously monitored and protected from over-voltage, under-voltage and over-current as well as 10 or 13 series cells voltage balance to guarantee maximum pack life cycle.

The battery packs are manufactured under strict qualifications and are CE and RoHS stamped.
**Bare battery**

Li-Ion pack without casing

The bare battery is a versatile battery. Use this battery for your electric bike kit configuration if you have battery placement idea other than what we provide. The bare batteries come in different capacities you need to select.

- 36V 8.8Ah, 10.4Ah, 12.8Ah
- 48V 10.4Ah, 13Ah, 17.5Ah

**Dolphin Battery:**

Dolphin style down tube mounting Li-Ion pack in stylish ABS case with charge indicator, security lock, accessories and auto connect socket, 5V USB output for mobile phone charge,
The Dolphin battery is a battery you can mount on bike’s frame 2 water bottle bolt mount. Check the bicycle frame down tube geometry then select. The battery can be locked to its support or un-lock and slide out to remove.

- 36V 1.4Ah, 13Ah, 16Ah
- 48V 10.4Ah, 13Ah, 17,5Ah

**Lizard Battery:**

Lizard style down tube mounting Li-Ion pack in stylish thin ABS case with auto connect socket, with charge indicator, security lock and accessories.

The Lizard battery is a battery you can mount on bike’s frame 2 water bottle bolt mount. This is the thinnest battery case for suspension frames or small size frames. Check the bicycle frame down tube geometry then select. The battery can be locked to its support or un-lock and slide out to remove.

- 36V 1.4Ah, 13Ah, 16Ah
- 48V 10.4Ah, 13Ah, 17,5Ah
Rack Battery:
Rack mounting Li-Ion pack in stylish Aluminum and ABS case with charge indicator, security lock, accessories and auto connect socket.

The Rack battery is a battery you can mount on bike’s regular rack or special racks designed for this type of battery. In either case the battery can be locked to the rack or un-lock and slide out to remove.

- 36V 1.4Ah, 13Ah, 16Ah
- 48V 10.4Ah, 13Ah, 17.5Ah
Controls

In addition to the motor and batteries, all e-bikes and conversion kits have some electronic modules to drive and control the torque, speed, and power of the motor. These modules also ensure the proper motor working condition of the motor which is typically brushless DC motors.

There is an interface display to switch on-off, set the level of assist and see the charge status of the battery. Usually the logics and programs are loaded to this part which can be called computer/interface of the e-bike.

In most systems, you can set or change some basic settings, see the speed, mileage, power, voltage and a lot more as well as error codes in case of a failure.

A pedal assist sensor (PAS) signals the controller to run the motor providing a boost to your pedaling depending on the level of assist you select while riding.

A thumb throttle which gives you extra power is best and exists in most of our products which activate the motor proportionally to the twist no matter you pedal or not to give you a fully electric ride in case you cannot pedal or need an instant acceleration or uphill push.

Switches called brake cut-off sensors are provided to cut off the power whenever the brake levers are squeezed. It is a double safety feature for panic stops and not a mandatory device. This switch can call regenerative mode of the controller if equipped.

To learn more about each individual specs select the product and see details.
Charger

Battery chargers are smart CC-CV and will automatically disconnect after battery is fully charged; you can leave them plugged overnight with confidence. Chargers are UL (C & US) Listed and stamped.

Maintenance

Just like any regular bicycle, your electric bike is going to need routine maintenance. However, don’t be put off by the bike’s electrical components as they actually require very little upkeep – it’s the tires, the brakes, and the wheels that need to be maintained by an experience bike or ebike mechanic. Dealerships will ensure that before you buy, your bike is in tip-top shape from the moment you take it out of the store. This is especially important for ebikes as they need to be set up correctly to function properly.

To get the longest life possible out of your ebike you can take some simple steps to maintain it yourself or you can take it to an experienced dealer.

Keep Your Ebike Clean

If possible clean your ebike after each ride, especially after riding it through mud or dirt. You should use a sponge with bike specific cleaners to gently wipe the parts down. Do not use a hose or any kind of pressure washing as this can wash out grease lubricating the bearings. It will also force water into the internal components which in turn will corrode and destroy the electric parts. If you want your ebike to look as good as new, you should use polish which can leave a layer of protection over the paint and frame. However, be careful not to get the polish close to any braking surfaces or inside the battery components as it will corrode.

Lubrication

In order to keep the mechanical parts of the bike in good working order, you should apply lubrication on the moving parts such as the chain and brake. However, before you do so, you should use a special cleaning solution to clean off any dirt or mud on the chain before applying the lubricant. This should ideally be done at least once a week if you use your electric bike regularly.

Keep the Tires Properly Inflated

It’s important to check your tire pressure at least once a week. You can use a tire pressure gauge or the manual method of pushing down on the tire with your thumb. If the tire is underinflated it can lead to uneven tire wear and burn the battery too quickly. It will also make your life easier as the bike will be easier and more fun to handle with less resistance. Of course, you want to ensure that you don’t over inflate your tires as they will pop. Be sure to check the correct pressure which is usually printed on the side of the tire.

Check the Brake Pads

Keep an eye on the brake pads about once a month to see how wore they are. If you realize there is a lot of wear and tear then it is probably time to replace them. When you start to ride, you always want to test out e-bike brakes to make sure they are in good working order, especially if you haven’t ridden for a while. It’s essential that you have effective brakes or else you could end up in a serious accident. Brake pads can be easy and cheap to replace whenever needed so you don’t need to worry about spending money.

Battery Care

The most important electrical piece on the bike is, of course, the battery. It is what powers your electric bike, giving you that pedal assist when you need it. Carefully read the manufacturer’s instructions on how to properly maintain your battery or ask your dealer for instructions. If you don’t charge your battery properly it can end up damaging the battery and wearing out quicker. Battery replacements can be expensive, so take care of it to ensure it lasts a long time. With most modern Lithium cells it is better to keep...
the battery topped up rather than deplete it all together. So even if you only go for a relatively short cycle down the road, it is better for the battery to be charged after that ride.

**Conclusion**

Electric bike maintenance is important if you want to avoid expensive replacements down the road and will keep you safe from having a serious accident. These are some quick and easy maintenance items that you can do for yourself or you can take your bike to an electric bike dealer who will be able to help you have a better riding experience and extend the life of your electric bike. If you need repairs or maintenance on your ebike, or have any questions regarding maintenance or upgrading, call or email a trained professional at [EbikeBC](mailto:EbikeBC).
Safety of Use

Thank-you for choosing EbikeBC. Our number one focus is to make you aware of the dangers of riding a bicycle and especially an electric bicycle so you can ensure you have safe and enjoyable riding experiences for years to come.

IMPORTANT: Please read this manual in its entirety before riding your bike or allowing anyone else to ride your bike. All others should read this manual before you allow them to ride your bike without your supervision.

If you have any concerns, questions or suggestions about your electric bike, please contact us at info@EbikeBC.com Again, thanks for choosing ENVO Electric Bike!

WARNINGS AND CAUTION STATEMENTS

Electric Bikes can be dangerous to use. The user or consumer assumes all risk of personal injuries, damage, or failure of the bicycle or system and all other losses or damages to themselves and others and to any property arising out of or as a result of using the bicycle.

As with all mechanical components, your bicycle is subjected to wear and high stresses. Different materials and components may react to wear or stress fatigue in different ways. If the design life of a component has been exceeded, it may suddenly fail, possibly causing injuries to the rider. Any form of crack, scratches or change of coloring in highly stressed areas indicate the life of the component has been reached and should be replaced.

If you have an impairment or disability such as visual impairment, hearing impairment, physical impairment, cognitive/language impairment, and/or a seizure disorder, consult your physician before riding our bikes.

For replacement parts, technical information and warranty assistance, please contact:
info@EbikeBC.com

PLEASE NOTE: THIS MANUAL IS NOT INTENDED AS A DETAILED USER, SERVICE, REPAIR OR MAINTENANCE MANUAL. PLEASE SEEK ASSISTANCE FROM A QUALIFIED TECHNICIAN FOR SERVICE, REPAIRS OR MAINTENANCE. YOUR INSURANCE POLICIES MAY NOT PROVIDE COVERAGE FOR ACCIDENTS INVOLVING THE USE OF THIS BIKE. TO DETERMINE IF COVERAGE IS PROVIDED YOU SHOULD CONTACT YOUR INSURANCE COMPANY OR AGENT. DO NOT DISASSEMBLE, MODIFY OR REPLACE ELECTRICAL PARTS.

This manual contains many “Warnings” and “Cautions” concerning the consequences of failure to maintain or inspect your bicycle and of failure to follow safe cycling practices.

The Caution symbol (above) can be seen throughout this Manual, and indicates a potentially hazardous situation which, if not avoided, could result in serious injury or death, or is an alert against unsafe practices.

Many of the Warnings and Cautions say, “You may lose control and fall.” Because any fall can result in serious injury or even death, we do not always repeat the warning of possible injury or death, and if we do not, please assume this is the case, as all bicycles, including electric bikes, are dangerous and their safe use requires constant and consistent maintenance and care.
Please ensure that prior to each and every ride (without exception), each electric bike rider reviews the safety requirements enumerated throughout this Manual, and if any problems are observed, they should be resolved prior to use.

Because it is impossible to anticipate every situation or condition which can occur while riding, this Manual makes no representation about the safe use of this Electric Bike under all conditions. There are risks associated with the use of any bicycle which cannot be predicted or avoided, and which may be caused and/or prevented through the actions of the rider, and which are the sole responsibility of the rider.

You should save this Manual along with any other documents that were included with your bicycle purchase for future reference, including the manuals provided by the manufacturers of the motor, battery and any other components. You should read and become familiar with the contents of these additional manuals as well before riding your bicycle.

All content in this Manual is subject to change or withdrawal without notice. Visit https://ebikebc.com to download the latest version. EbikeBC assumes no responsibility or liability for any errors or inaccuracies that may inadvertently appear herein.

**LEGALITY**

- In the Canada, electric bikes are defined as “a two- or three wheeled vehicles with fully operable pedals and an electric motor of less than 500 watts (0.67hp) whose maximum speed of 32Km/hr.

- Local and state regulations vary. It is your responsibility to ensure your bike is legal in your particular area before riding it on public roads. If you’re unsure, ask your bicycle bike mechanic for more information about local laws and regulations.

**GENERAL SAFETY**

When operating your bike, it is critical that you know how to properly care for each part or your bike as well as your bike as a whole. Please ensure you have familiarized yourself with all aspects of your bike functions and operations before riding it – ESPECIALLY on the open road with other traffic.

Since Electric Bikes are VERY different from regular bikes please be sure to read the section on “RIDING ELECTRIC BIKES” as well as this entire manual.

NEVER operate your bicycle when you are under the influence of alcohol or drugs, including prescribed or over the counter medications.

Always Ride at a speed appropriate for the conditions. High speed means higher risk.

It is your responsibility to familiarize yourself and comply with the applicable within the country, state, county, province and/or city where you will be riding.

Be careful to keep your body parts and other objects away from the sharp teeth of the chain rings, the moving chain, the turning pedals and the crank, and the spinning wheels of your bicycle.

**USE:**
EnikeBC Electric bike systems are designed to be ridden on paved roads or light trails only. The bike is not designed to withstand off-road conditions or downhill terrain. EBIKEBC assumes no liability for any accident, injuries, or property damage incurred as a result of rider's use or misuse of EBIKEBC bicycles, including any damages resulting from or arising out of off-road usage.

An Electric Bike is not a mountain bike, racing bike, or BMX bike – Riders who do jumping, stunts, wheelies, and bike tricks should never be on this bike and can cause harm to themselves and others

and putting undue, unintended or unnecessary stress on the bike parts, frame, brakes handle bars, stem, or forks can cause these components and/or the bike to fail, causing serious injury or death. DO NOT USE THIS BIKE FOR JUMPING over curbs, riding on mountainous or off-road trails, or any use other than for commuting and cruising in a relaxed, safe manner. Never exceed 20 miles per hour on this bike.

**WEIGHT CAPACITY:**

EbikeBC Electric Bike systems are designed with a maximum weight capacity of 100KG or 220 pounds on motor axle. The hub motor can be utilized for bike and passenger weight up to 200Kg when evenly distributed between two-wheel axles. Exceeding the maximum weight capacity can result in damage to the bike, which can lead to serious injury or death.

**VEHICLE RACKS:**

Misuse of vehicle racks could result in a potential hazardous situation which, if not avoided, could result in serious injury or death. Be sure to read and follow the instructions provided by the rack manufacturer for more complete information. Always remove battery from bike frame when using a vehicle rack.

**PEDAL ASSIST**

- When you are in PAS mode – Do not pedal around corners – you will get a boost and your pedal will hit the ground and can cause injury or death!
- Do not use pedal assist on level and downhill grades if people are visible on the path or boardwalk.
- Do not use pedal assist if small children or pets are within 100 feet.

**HELMET USAGE**

- Always wear an approved helmet and ensure it fits according to the manufacturers’ instructions.
- Ensure your helmet meets the latest certification standards and is appropriate for the type of riding you do – and if there are any special requirements for riding an electric bike.
- Most serious bicycle injuries involve head injuries, which might have been avoided if the rider had worn an appropriate helmet. FAILURE to wear a helmet when riding may result in serious injury or death.

**MECHANICAL SAFETY CHECK**

- Check the condition of your Electric Bike before every ride.
- Make sure no nuts, bolts or fixings are loose, and pay attention to the axle, nuts and handlebar stem.
- Make sure the tires are correctly inflated with the recommended air pressure, which can be found on the rim of every tire.
• Check the brakes for proper operation.

**SMALL BICYCLE ACCESSORIES AND CHOKING HAZARD**

Some Bicycle accessories may present a choking hazard and other hazard to small children. Keep any bike parts accessories, tools away from small children.

**TECHNICAL SUPPORT**

It is important to your safety, performance and enjoyment to understand how things work on your bike. We urge you to ask your bike mechanic how to fix the things described in this section before you attempt them yourself, and that you have your bike mechanic check your work before you ride the bike. If you have even the slightest doubt as to whether you understand something in this section of the Manual, talk to your bike mechanic or qualified mechanic- or do not ride your bike!

**USING GOOD JUDGMENT**

Make sure no straps are dangling where they could get caught in the wheels – No bags, boxes or any items should be placed in a position where they could get caught in the spokes Double check your load for security and stability. Check to see that your wheels are securely fastened and that no components or frame members are cracked or broken (in general, if at any time you notice a crack or bend in your bike, stem, forks, or bars of your bicycle, stop riding immediately; take your bike to your local bike shop and have them inspect it).

**WARNING: A SPECIAL NOTE TO PARENTS**

**IN CANADA, ELECTRIC BIKES MAY ONLY BE RIDDEN BY PERSONS 16 YEARS OLD AND OLDER!!!**

**IT IS ILLEGAL FOR INDIVIDUALS YOUNGER THAN 16 TO RIDE ELECTRIC BICYCLES.**

As a parent or guardian, you are responsible for the safety of your adolescent when riding a bicycle. To maximize the safe use of the bicycle by an adolescent, EBIKEBC strongly advises you to read this Manual in its entirety, and practice the following precautionary guidelines (1):

• Understand and obey not only the applicable local motor vehicle, bicycle and traffic laws, but also adhere to common sense rules of safe and responsible bicycling.

• Make sure the bicycle is properly fitted to the adolescent.

• Make sure the bicycle is always in good repair and safe to operate.
• Make sure that you and your adolescent have learned and understand how to safely operate an electric bicycle and are familiar with the roads and/or other terrain upon which the bike will be ridden.

• Make sure your adolescent always wears an approved bicycle helmet when riding (2).

**Failure to follow the aforementioned warnings could result in serious injury or death.**

1. EBIKEBC assumes no liability for failure to comply with the stated guidelines.

2. Make sure your adolescent understands that a bicycle helmet is for bicycling only and must be removed when not riding. A helmet must not be worn while playing in play areas, including playground equipment, etc.

**Highlighted Safety Rules**

1. Obey the Rules of the Road and all traffic Laws.

2. Remember that you are sharing the road or path with others – motorists, pedestrians and other cyclists. Respect their rights.

3. Ride defensively. Always assume that others do not see you.

4. Look ahead, and be ready to avoid the following:
   - Vehicles slowing or turning, entering the road or lane ahead of you, or coming behind you
   - Parked car doors opening
   - Pedestrians stepping onto the road or path
   - Children or pets playing near the road
   - Pot holes, sewer grating, railroad tracks, expansion joints, road or sidewalk construction, debris and other obstructions that could cause you to swerve into traffic, catch your wheel or cause you to have an accident
   - Miscellaneous other hazards and distractions which can occur on a bicycle ride

5. Ride in the designated bike lane, on designated bike paths or as close to the edge of the road as possible, in the direction or traffic flow or as directed by the local governing law.

6. Stop at the stop signs and traffic lights, slow down and look both ways at intersections. Remember that a bicycle always loses in a collision with a motor vehicle, so be prepared to yield even if you have the right of way.

7. Use approved hand signals for turning and stopping.

8. Wear proper attire, including bright clothing, protective glasses and sturdy shoes. Never wear a loose-fitting dress or long dress when riding – it can get caught in the moving parts of the bike and cause serious injury or even death.

9. Never ride with headphones. They mask traffic sounds and emergency vehicles sirens, distract you from concentrating on what is going on around you, and their wires can tangle in the moving parts of the bicycle, causing you to lose control.

10. Never carry a passenger, unless it is a small child weighing less than 40 pounds whom you feel comfortable carrying on a bike, can maintain head control and absorb the stresses felt on a bike ride. Ensure the child is wearing an approved helmet, appropriate clothing for the ride and is secured in a correctly mounted child carrier or a child carrier trailer. The child seat that attaches to the EBIKEBC bikes is for side walk and board walk riding only and should never be used on the open road where
there is a chance or an accident with a car or other moving vehicles. Never exceed 15 miles per hour when you are carrying a child on the back seat, or 20 miles per hour when having a child in an approved child trailer.

11. Never carry anything that obstructs your vision or your complete control of the bicycle, or which could become entangled in the moving parts of the bike.

12. Never hitch a ride by holding on to another vehicle or bike.

13. Do not weave through traffic or make any moves that may surprise people with whom you are sharing the road

14. Observe the right of way

15. Avoid riding in bad weather, when visibility is obscured, at dawn, dusk or in the dark, or when extremely tired

Each of these conditions increases the risk of accident.

1. Night Riding – Riding your bike at night is much more dangerous than riding during the day. Adolescents or inexperienced bike riders should never ride at dawn, at dusk or at night. Adults who choose to accept the increased risk of riding at these times need to take extra care both riding and choosing specialized equipment, which can help to reduce that risk. When riding at night or in other hazardous conditions – RIDE SLOWLY – no more than 10 miles per hour.

2. Consult your local authorized bike shop or bike mechanic about night riding and safety equipment.

3. Reflectors are not a substitute for required lights. Riding at dawn, at dusk or at night or at other times of poor visibility without adequate bicycle lighting systems and without reflectors is dangerous and may result in serious injury.

4. Check reflectors and their mounting brackets regularly to make sure that they are clean, straight, unbroken and securely mounted. Have your bike mechanic replace damaged reflectors and straighten or tighten any that are bent or loose.

5. Do not remove the front or rear reflectors or reflector brackets from your bike. They are an integral part of the bicycle safety system. Removing the reflectors reduces your visibility to others using the roadway.

6. Make sure your bicycle has and always is equipped with correctly positioned and securely mounted reflectors.

7. ALWAYS wear a helmet, closed toe shoes and eye protection when riding.
8. Electric bikes are considerably heavier than normal bicycles. For this reason, parking, pushing, lifting and carrying the bike is more difficult. Bear this in mind when loading your bike into a car and unloading it, or when mounting in ton a bicycle carrier system.

9. Never ride at a speed outside your comfort zone, or that you feel may be unsafe for the given conditions.

10. When mounting your bike, make sure not to step on the pedals until you are sitting on the saddle and gripping the handlebars firmly.

11. Keep your hands on the brake levers – or at least two fingers and remember that they will always slow or stop the bike if pulled. Even on bikes without brake inhibit switches.

12. Get used to riding your EBikeBC bike without power or use of throttle or PAS (peddle assist) – only once you are comfortable riding the bike as a regular bike then slowly introduce the PAS on lowest level and work your way up. After you are 100% comfortable with PAS then start using the throttle – very gently at first until you are comfortable with the settings, speed and acceleration.

13. When you’re ready to introduce power, use the lowest assist setting until you feel confident controlling the electric assist.

14. Heavy electric bikes take longer to slow down; leave extra space for stopping safely.

15. Remember that all the information in this manual referring to bicycle safety also applies to your electric bike.

**Riding on Hills**

- If you encounter a hill that causes the speed of your bicycle to drop below 11km/h on electric power only (throttle mode) with the throttle fully applied, you should pedal to assist the bicycle up the hill.
- Failure to pedal can overstress the motor and controller, possibly causing those components to overheat.
- Failure to pedal up steep hills to assist the bicycle also will overstress the battery reducing its capacity and shortening its useful life.

**Riding in Adverse Weather Conditions**

- Your electric bike is built with components that are sealed against dust and water and can safely operate in most weather conditions. To ensure the longest life of your components, however you need to make sure your electric components will get fully dry after riding in wet weather.
- The EBikeBC battery seams and motor cable gland, however, cannot handle water jet or being submerged in water. You should refrain riding more than 1 hour or parking your ebike un-covered.
• Never use the USB outlet when riding in the rain. Park the bike in a dry, warm place and wait at least 12 hours before charging or using the ebike.

• Since Electric Bikes are faster and heavier than normal bikes, when riding in wet weather, you should use extreme caution. You are more likely to fall from a wet road surface when traveling at high speed. Heavy electric bikes also take longer to slow down and the required stopping distance in wet weather is even greater. Be sure to leave ample room for stopping and brake gently and evenly to avoid falling.

If You Have an Accident, Drop your BIKE or it falls over

If you have an accident, drop your bike or it falls over, your bike is unsafe to ride until you follow the instructions included in this section. Failure to follow these instructions could lead to component or bike operation failure. This could lead to serious injury or death. Check the rechargeable battery. If the rechargeable battery is no longer properly in its holder or shows any damage, do not use your bike any longer, at least not in assistance mode. Switch off the motor and the battery separately, if necessary. Damage to the outer housing of the rechargeable battery can result in the entry of water or moisture, which can lead to a sudden failure of the electric assistance, a short circuit or electrical shocks. The battery could catch fire or even explode!

1. Remove the battery before performing any additional service, inspection, or maintenance on your electric bike. Failure to remove the battery could lead to the bicycle turning on unexpectedly, causing serious damage or injury.

2. Read, understand and comply with the drive system user manual. Do not disassemble or attempt to service components unless you have been advised how to do so, explicitly in writing, by the EBIKEBC manufacturer.

3. Check whether the wheels are still firmly fixed in the dropouts and whether the rims are still centered with respect to the frame or fork. Spin the wheels and observe the gaps between the frame and tire and between the brake pads and the rim sides.

4. If the width of the gap has changed markedly and you have no way to true the wheel at your location, you will need to release the rim brake pads without touching them. Please note that in this case the brakes may not act as powerfully as you are used to.

5. Check the handlebars and stems to confirm that neither are bent or broken, and that they are level and upright. Make sure the stem is firmly fixed on the fork by trying to turn the handlebars relative to the front wheel. Briefly lean on the brake levers to make sure the handlebars are firmly fixed in the stem.

6. Realign the components, if necessary and carefully tighten the bolts to ensure reliable clamping of the components. The maximum torque values are printed directly on the components and/or specified in the enclosed operating instructions. If neither are available, call EBIKEBC for assistance.

7. Check whether the chain still runs on the chain rings and sprockets. If your bike fell over onto the chain side, check that the gears function properly. Ask someone to lift the bike by the saddle and carefully shift through all the gears. Make sure the rear derailleur does not get too close to the spokes as the chain climbs onto the larger sprockets.

8. If the rear derailleur or the dropout/derrailleur hanger is bent, the rear derailleur may collide with the spokes. This can result in damage to the rear derailleur, the rear wheel and/or the frame. Check the function of the front derailleur. A displaced front derailleur can throw off the chain, which will suddenly interrupt the drive of the bike, potentially leading to an accident, injury or death.

9. Confirm the saddle is not out of alignment, using the top tube or the bottom bracket shell as a reference. If necessary open the clamp, realign the saddle and re-tighten the clamp.
10. Let your bike bounce on the ground from a low height. If there is any rattling, see where it comes from. Check the bearings, the bolts and the proper searing of the battery and the connectors, as necessary.

11. Check the display. Are all the values displayed as usual? Do not use your bike if the display shows an error message or a warning. If necessary, switch off the system and wait at least 10 seconds before turning it on and checking it again. DO NOT SET OFF ON YOUR BIKE WITH DRIVE ASSISTANCE IF THE CONTROL ELEMENT SHOWS A WARNING.

12. Take a good look at the whole bike to detect any deformation, color changes, cracks. Ride back very carefully or walk your bike back to a professional mechanic and have the mechanic check the bike and help resolve any issues.

13. If you have had an accident and are unsure whether your bike will function properly, leave your bike rather than risk riding and endangering yourself and others.

14. If you do ride your bike, do not accelerate or brake hard until the bike has been checked by a bike mechanic.

15. Deformed components, especially those made of aluminum, can break without previous warning. If this occurs, they may not be repaired, i.e. straightening, as the imminent risk of breakage will remain. This applies in particular to the fork, the handlebars, the stem, the cranks, the seat posts and the pedals. When in doubt, you should replace these components.

16. At no time should you make any modifications to your bikes’ electrical systems, unless they are explicitly approved by the manufacturer in writing.

**Brake Controls and Features**

- For your safety you should know which brake lever controls the front and which controls the rear brake on your bike. Typically, the right brake lever controls the rear brake and the left lever controls the front brake. To confirm, squeeze one brake lever and look to see which brake (front or rear) engages. Next, do the same with the other brake lever.

- Make sure your hands can reach and squeeze the brake levers comfortably. The lever reach is adjustable. If you are unable to reach the brakes, you may need a different brake lever design.

- If at any time, for any reason, you need the stop the bike or stop the bike motor from turning – simply squeeze the brake levers.

**Brake Check:**

- Ensure both brakes work prior to going on every single ride.
- Familiarize yourself with the braking actions of the bike.
- Test the brakes at slow speed, putting your weight towards the rear and gently applying the brakes, rear brake first.
- Check the quick releases are closed. Check all control cables are seated and securely engaged.
- Sudden or excessive application of the front brake could pitch you over the handlebars.
- Applying brakes too hard can result in locking up the wheel, which could cause a loss of control and injuries.
• Skidding is an example of what can happen when a wheel locks up.
• Ensure you can fully engage the brakes without them having touch (bottom out) the handle bars.
• Do not ride the bike unless the brakes are working well and adjusted by a professional bike mechanic.

**Brake Cut off Switch**

• EBIKEBC Bike brakes include an electronic disconnect switch which is activated when the lever is depressed. Depressing this switch will disconnect the power to the motor.

• You should check the operation of your brake disconnect switch before every ride: While riding slowly in a controlled environment (like your driveway), engage the motor then squeeze each brake separately. The motor should lose power immediately and remain off as long as a brake lever is depressed.

• Caution: The cable of your disconnect switch can be cut, come loose or malfunction – so always perform a check before you ride. Be sure to depress both brakes in an emergency or when you need the motor to disengage.

**Tire and Wheel Safety**

• Ensure both front and back wheels are securely fastened – and if you do not know how or what this is – do not guess – take the entire bike to an authorized certified bike mechanic. Incorrect install or replacement of wheels, tires, brakes; cables or any part of the bike can cause serious injury or even death!

• Make sure tires are correctly inflated. Check by putting one hand of the saddle, one on the intersection of the handlebars and stem, then bouncing your weight on the bike while looking at the tire deflection. Compare what you see with how it looks when you know the tires are correctly inflated; and adjust if necessary.

• Check to see if tires are in good shape – Spin each wheel slowly and look for cuts in the tread and sidewall. REPLACE damaged tires before riding your bike.

• WARNING - Bicycle Rims are subject to wear. Ask your mechanic to check the usability of your RIMS and keep this in mind in making your decision to ride your bike – constantly check this with your qualified mechanic.

• Ensure your wheels are TRUED before each ride. Spin each wheel and check for brake clearance and side to side wobble. If a wheel wobbles side to side even slightly or rubs against or hits the brake pads, take the bike to a qualified bike shop to have the wheel trued.

• Bicycle Wheels are designed to be removable for easier transportation and for repair of a tire puncture. In most cases, the wheel axels are inserted into slots, called “drop outs” in the fork and frame. EBIKEBC bikes have two ways of securing the wheels – front wheels are secured using the hollow axil with a shaft (“skewer”) running through it which has an adjustable tension nut on one end and an over ~center cam on the other. The back wheel uses a Hex nut and hex key bolts which are threaded onto the hub axil.

• It is very important that you understand the type of wheel securing method on your bike, that you know how to secure the wheels correctly, that you know how to apply the correct clamping force that safely secures the wheel. Ask a bike mechanic to instruct you in correct wheel removal and installation, and ask him to give you any available manufacturers instruction.

• Riding with an improperly secured wheel can allow the wheel to wobble or fall off the bike, which can cause serious injury or death. Therefore, it is essential that you:
• Understand and apply the correct technique for clamping your wheel in place.

• Each time, before you ride the bike, check that the wheel is securely clamped. The clamping action of a correctly secured wheel must emboss the surfaces of the drop out.

• Front wheel Secondary Retention Devices:

• EBIKEBC bikes have front forks, which utilize a secondary wheel retention device to reduce the risk of the wheel disengaging from the fork if the wheel is incorrectly secured. Secondary retention devices are not a substitute for correctly securing your front wheel.

• Secondary retention devices are not a substitute for correctly securing your wheel. Failure to properly secure the wheel can cause the wheel to wobble or disengage, which could cause you to lose control and fall, resulting in serious injury or death.

• Tire Inflation and Deflation:

• Never inflate a tire beyond the maximum pressure mark on the tire’s sidewall. Exceeding the recommended pressure may blow the tire off the rim which could cause damage to the bike and serious or fatal injury to the rider and injury to bystanders.

• There is a safety risk in using gas station air hoses or other compressors. They are not made for bicycles. They move a large volume of air into your tire very rapidly, which could cause the tube to explode. You should use a bicycle pump which has a build in pressure gauge.

• EBIKEBC inner tubes contain a chemical substance to reduce the chance of deflation when contacted with a road hazard. Tires should not be deflated unless necessary. A white or green substance will be discharged from the air valve when deflated. It is not harmful unless it is ingested. To minimize tire wear and for maximum riding safety, comfort and handling, maintain recommended tire air pressure, which can be found on the side wall of all tires. Use a reliable tire air pressure gauge to check for proper inflation before every ride. At the same time, inspect tires for excessive war and cracks. Replace tires if necessary.

• Inner Tube of Tire:

• We highly recommend that you carry a spare inner tube when you ride your bike. Although EBIKEBC inner tubes are puncture resistant, they are not 100% puncture proof. They tubes provide significant protection for up to 3mm holes, but you should always be prepared for unforeseen punctures. Have an authorized mobile mechanics number handy and request their assistance in the event of a tire puncture.

• Patching: Always carry a patch kit so that you can patch a tube in an emergency repair. Caution: If you do not apply the patch correctly or apply several patches, the tube can fail, which could cause you to lose control and fall. Replace a patched tube as soon as possible.

\textbf{Stem, Handle Bars, Ends and Grips}

• Ensure that the stem and handle bars are properly fastened. Also look for any cracks or fatigue. Alignment – make sure the saddle and handle stem are parallel to the bikes center line and
• clamped tight enough so that you can’t twist them out of alignment. If you observe any issues with alignment, you must have the bike inspected by a qualified bike mechanic prior to riding.

• Loose or damaged handlebar grips or extensions can cause you to lose control and fall. Unplugged handlebars or extensions can cut you and cause serious injury. Make sure the handlebar grips are secure and in good condition.

• Make sure the handlebar ends and extensions are plugged.

• Make sure the grips are tight enough that they do not twist.

• Your handlebar stem is a “quill” stem – to adjust, use the right size Alan key to adjust the height. Never adjust above the recommended mark, or high enough to allow 4 inches of the stem to be left inside the head tube.

• It is critical to tighten the Alan Key bolt according to torque table.

• Always check that the stem is tight and cannot move.

• A quill stem’s Minimum Insertion Mark must not be visible above the top of the headset. If the stem is extended beyond the minimum insertion mark the stem may break or damage the fork’s steerer tube, which could cause you to lose control and fall.

• On some bicycles, changing the stem or stem height can affect the tension of the front brake cable, locking the front brake or creating excess cable slack which can make the front brake inoperable. If the front brake pads move in towards the wheel rim or out away from the wheel rim when the stem or stem height is changed, the brakes must be correctly adjusted before you ride the bicycle.

• Stem angle: Our Bikes are equipped with an adjustable angle stem. Do not attempt to make the adjustment yourself as changing stem angle may also require adjustments to the bikes control.

• WARNING: An Insufficiently Tightened Stem Clamp Bolt, handle clamp bolt or bar end extension clamping bolt may compromise steering action, which could cause you to lose control and fall. To determine whether the stem of your bike is tightened properly, place the front wheel of the bicycle between your legs and attempt to twist the handlebars/stem assembly. If you are able to twist the stem in relation to the front wheel or turn the handlebars in relation to the stem or turn the bar end extension in relation to the handlebars, the bolts are insufficiently tightened. A bike mechanic should set up your bike and ensure all bolts are tightened properly. Thereafter it is your responsibility to check the clamp bolt each time you ride.

• Control Position Adjustments: The angle or the brake and shift control levers and their position on the handlebars can be changed. If you choose to make your own control lever adjustment, be sure to re-tighten the clamp fasteners to the recommended torque.

• This EBIKEBC bike has brake levers that have adjustments for tension and reach. If you have small hands or find it difficult to reach the levers – ask your bike mechanic to adjust the levers, change the brake lever or do not ride the bike.

• The shorter the brake lever reach, the more critical it is to have correctly adjusted brakes, so that full braking power can be applied within available brake lever travel. Brake lever travel that is insufficient to apply full braking power can result in loss of control, which can result in serious injury or death.

Bolts and Nuts
• Check the condition of the bolts and nuts on your bike before EVERY RIDE – bolts and nuts will come loose, so it is important to check the appropriate attachment of every nut and bolt.

• Correct tightening force on fasteners, nuts, bolts, and screws is extremely IMPORTANT – too little force, and the fastener may not hold securely. Too much force, and the fastener can strip threads, stretch, deform, weaken or break. Either way, incorrect tightening force can result in component failure immediately or anytime in the future, which can cause you to lose control, fall or worse, lead to serious injury or even death.

• To confirm that no component parts are loose, lift the front wheel off the ground by two or three inches, then let it bounce on the ground. Ensure nothing sounds, feels or looks loose.

• Do a visual and tactical inspection of the whole bike. Any loose parts or accessories need to be secured and checked by a qualified approved mechanic.

• To ensure that the many fasteners on your bicycle are correctly tightened, refer to the table showing “Fastening Torque Specifications”.

• Correctly tightening a fastener requires a calibrated torque wrench. A professional bicycle mechanic with a torque wrench should torque the fasteners on your bike.

• If you need to make an adjustment at home or in the field, we urge you to exercise care, and to have the fasteners you worked on checked by a qualified mechanic before your next ride.

Battery Safety

• Our EBIKEBC batteries are of the highest quality. They are equipped with Smart Chargers and Smart BMS (battery management system) to ensure the battery will last as long as possible. You can expect your EBIKEBC battery to last at least 3 years, but closer to 5-8 years, depending on extent of use.

• WARNING:

• Failure to properly use, charge, and store your battery as instructed will void the warranty and could cause a hazardous situation. Before using your battery for the first time, read this section of the manual in its entirety.

• If you have any questions about your EBIKEBC battery or its usage, please contact: info@ebikebc.com for additional instructions and guidance.

Things To Do After Purchasing New EBIKEBC battery

• Batteries are not shipped with a full charge. You should charge your battery for at least 4-5 hours with a super external charger or for at least 10 hours with the internal charger.
• The EBIKEBC battery is equipped with a five-minute sleep function. If no activity is detected, the bike will go into “static” mode to conserve battery power. Simply cycle the bike off then on again to reactivate the battery.

• The rated output capacity of the battery is measured at 77 degrees Fahrenheit. Any variations in this temperature will alter the performance of the battery. Keep your battery away from high temperatures especially; heat will reduce overall battery life and run time.

• No “break in” period is necessary for our batteries – simply fully charge the battery before first use.

Safety Guidelines for Charging

• Charge your bike indoors whenever possible. Charge your battery during the day in a room which has a smoke or fire detector. Do not charge in your bedroom.

• During the charging process, place the battery on a non-flammable surface or leave in the main sleeve.

• Charge in a well-ventilated area. Keep away from flames and sparks.

• Avoid any contact with water of other fluids while charging. If the battery, charger or any connections become wet, immediately unplug the charger and thoroughly dry all components.

• Never use the internal charger after riding in the rain – wait at least 24 hours before using the internal charger.

Battery and Charger Care

• Your EBIKEBC Bike Battery comes standard with a Smart Internal Charger (uses best possible charging techniques to ensure longevity of the battery). The external charger will charge a fully depleted battery in 5-6 hours – while the internal charger will charge it within 12-14 hours. The indicator light on the charger will be red/orange when battery is charging and will turn green when fully charged.

• Avoid subjecting the battery to high temperatures, such as directly under the sun, for prolonged periods of time. Recharge the battery before it becomes completely discharged. Completely discharging will reduce the numbers of recharging cycles during the battery’s life and limit the capacity.

• Never store the battery in the discharged state. After much use, your battery’s charge-holding capacity will decrease. If you find that your battery does not hold sufficient charge, you should contact EbikeBC to order a replacement.

• If the battery isn’t used for an extended period of time, charge it fully and recharge it every 2 months. Store it in a cool, dry place.

• Your ENVO Electric Bike battery is engineered with precision for high capacity and a long, useful life. Do not use it to power other electrical devices. Improper use of the battery will damage the battery and shorten its useful life and may cause fire or an explosion. If you experience unusual sounds or odors coming from the charger or the battery, unplug charger immediately and contact ENVO Electric Bike customer service.

Battery Maintenance & Safety
• Improper use of the battery charger can cause a fire resulting in severe injury or death and property damage. Please review the following instructions and guidelines carefully to ensure safe battery use and maintenance.

• If you are not going to use your battery for a while, fully charge the battery prior to turning it off. Be sure to turn on and charge your battery every 2 months to ensure it never completely loses its charge.

• The battery will get hot to the touch when charging, which is normal; however, if you smell or see any smoke – turn the battery and charger off and unplug anything attached to the battery. Call EbikeBC to obtain a diagnosis or a replacement.

• After a ride, fully recharge your battery as soon as it has cooled to room temperature. If battery is left in a discharged condition it will deteriorate much faster than a fully charged battery.

• Do not block the fan vent on the battery pack or external charger. This can cause overheating and fire.

• You should protect the battery from water and other moisture at all times. Never submerge your bike or battery in water, or even spray battery with water.

• DO NOT use this battery with any other vehicle or appliance. Use of this battery with any other product will void the warranty and may create a hazardous condition that could cause a fire, resulting in severe injury, death and/or property damage.

• Never disassemble the battery or open the battery case. There is a significant risk of electric shock and damage to the battery. This will also void the warranty.

• Never short - circuit the discharge terminals of the battery. A short circuit will damage the battery and could cause a fire resulting in severe injury death, and/or property damage. When handling the battery, be aware of conductive materials that may short the battery terminals such as coins, nails etc.

• Never crush or puncture the battery. A punctured or crushed battery could catch fire causing a fire or explosion with could lead to serious injury, death and/or property damage.

• Keep battery away from excessive heat (104 degrees F or higher) or open flames. Avoid long-term exposure to direct rays from the sun.

• Protect the battery from materials that may contaminate the charge port or the output port, such as dirt and sand; the ports may be difficult or impossible to clean out.

• Never subject the battery to intense physical shock or severe vibrations.

**Battery Transport**

Lithium Ion batteries are subject to many regulations and are often considered dangerous or hazardous materials by carriers. Be sure to check for relevant laws and ask the carrier for approval prior to shipping a lithium-ion battery or transporting it by air.

**Battery Disposal**

• Be friendly to the environment. Be sure to recycle your old batteries at a local battery-recycle center.
• Do not throw them in the garbage.
• We cannot provide any shipping label, return facility or shipping means from any departure to our premises.

 Fuse

• The fuse is located on the bottom of the battery, between the charging port and the On/Off switch.
• The fuse is designed to protect the battery. If the fuse blows, there will be no power to any of the electrical components powered by the battery. You can replace the fuse with a standard automotive 40-amp fuse or contact ENVO Electric Bike customer service at info@EbikeBC.com

Installation

EbikeBC Hub motor kits installation & Manuals
Installation Guide

Controller cables introduction

All controller Connections are designed to be connected to a unique counter connector. So no matter what the color of the wires is, once you just push the connections and lock them the entire wiring job is done. Bellow picture shows what the controller’s wires are about. There is no way to connect a wrong connector if you just did not cut and replace any.
Tools
You are able to use similar tools, or you could buy specialized tool kits. You will not require Crank tool (No 10 and 11) if you have a 2 pieces PAS Magnet Sensor and in most cases a small adjustable wrench (No 3) is enough and you don’t need any other wrench, however a set of Allen Key is necessary. If you use a Controller bag, you need a sharp cutter to make an outlet opening for the cables way out of controller. This cutter can also be used to remove the paint layer or modify a 9mm to 10mm in fork axle dropout to fit motor axle.

Step 1 Check that your bike is suitable for conversion:

Our e-bike kit is universal and can be used to convert most conversional bicycles; however, there are criteria which must be met first.
Your front forks and rear dropouts must be wide enough to accept hub motor.

For regular bicycles, the dropout of front fork require 100mm (more or less)
Front fork dropout MUST BE 98-102mm for regular bicycles: Rear conversions require 133-137mm for regular bicycles.

Generally, the diameter of motor axle is 10mm

You may have to remove a layer of paint for the axels to fit in the dropout. You’re better off to remove a layer of paint to make the fit reasonable. If you use too much force instead of filing back a layer of paint, you risk damage to the fork and also that could result in a dropout failure due to stress fractures.
Damage to forks is not covered by warranty.
The horror is always there if you have an un-inspected front fork and the drop-out fails to hold the axle. No matter if that is a motorized wheel or not. Let’s clarify this first; The amount of torque in the street legal hub motors is not enough to break the fork drop outs. The amount of motor traction forces and stress to the fork is negligible compared to brakes forces and stress so this is only the bad installation that might cause catastrophic failure. Ignoring the fact that maintenance on the converted ebike should be more often than the regular bike can also be fatal. We don’t recommend motor installation on Carbon fiber forks no matter rear or front.

Let’s take a look at reasons for breaking a fork whether Steel, Alloy or suspension forks:

1- Forcing the axle into the drop out and causing pre-stress. Hammer hitting the axle inside the fork drop outs can be a typical mistake people do instead of filing the drop out to remove paint or size the drop out to 10mm opening.

2- Not sticking to proper order or direction of washers and locking washers.

3- Insufficient bolts torque or not providing a proper nut seat on grooved alloy dropouts.
4- A cracked, defective or old fork

5- Loose or defective headset
Step 2:
Transfer your tire & tube & install the motor wheel.

You will need to transfer your existing tire and tube or a new tire and tube to hand-built motor wheel. Rim tape is highly advisable. If you’re existing wheel has rim tape, simply transfer the tape across to the new motor wheel. Otherwise, rim tape is inexpensive and available from any local bike shop. That will minimize the risk of puncture.

Front motor wheel (disk or caliper brakes):

1. Take out the original bicycle wheel and release the caliper;

2. Dismantle the original disc and install it on the motor wheel (when tightening the screws for the disk, fasten in diagonally).
3. Fit the spacers close to motor: Spacer’s quantities depend on your bicycle.

4. Fit the spacers on the axle and insert the motor wheel;

Make sure the rotation direction is right. The motor cable shall come out of axle from right side of you bike when on wheels. The cable shall be taken out upward to handle bar, so control it before you fasten the bolts. The thicker spacer’s appendix shall be out of fork sliding hole.
5. Tighten all nuts and put the seal caps of motor axle both sides:

6. Adjust caliper to suitable location and tighten the bolts:
Step 3 Install display

1. Release the screws on the back of the display and fit it on the handle bar
2. Adjust the display location and tighten the screws

Step 4 Install the brake levers & throttle & handle bars

1. Take out the original brake levers grips (left & right):

2. Insert the brake lines to new electric brake levers:
3. Fit the electric brake levers on the bike and tight the screws (left & right):

4. Fit the throttle (generally right side) and fit the new grips (left & right; you may to warm the grips using a hair dryer or blowing between the grip and handle bar by an air compressor if they are hard to remove or fit)

If you have rapid fire, twist grip, hydraulic brakes or any other sort of integrated shifter or hydraulic brake setup, please see how to use a magnet cut-off sensor instead.
Magnet sensor e-brake power cut-off

You must mount the Brake Cut off sensors underneath the brake levers. The sensor and its magnets are available separately in the package however they aren’t exchangeable for the standard e-brake handles. There is a photo to illustrate the way they can be installed. The magnet should be stuck in a moving part of brake system in a way that one the brake is pulled the distance increases and the sensor send the brake signal to controller. This is a procedure that needs try and error to suitably adjust the installation distance. When you reach to the desired location mount the magnet on the 3M double side sticker and then apply some epoxy glue to stick it permanently under the lever.

Note: The magnet can be in square or circle shape.
Step 5 Install PAS (pedal assist system/sensor) Removable PAS, installed on the left side of the bicycle (crank arm removal not required).

1. Fit the disc on the crank axle, pay attention to disk working face be inward faced to sensor

2. Apply the adhesive sensor to the frame and position the pivot so that the sensor is within 1-3mm of the disk. Fix it with nylon bands after you test it.
3. Put the disc magnets. Keep in mind the direction of the arrows (perpendicular). The haw should look like in the photo.

4. You can remove the threads if you couldn’t mount the PAS on the crank when they are there.
Step 6 Install battery and controller

Tube/canister/water-bottle battery

1. Remove the bottle cage on the bicycle;

2. Insert the bracket of tub battery, tight the screws (may look different to photo);

3. Fit the tube battery, lock it, turn off the battery

4. Connect all controller plugs to the corresponding terminals on the wiring loom.

Battery Clamp Nut:

If the bottle water holes are not mounted where you want to put the battery bracket or even if there are no water bottle holes, you can apply “battery clamp nut” to mount and fix the battery bracket on the down tube.
Seat post battery

1. Dismantle the controller box. Please carefully keep these screws, they are a unique thread type.
2. Apply the rubber o-ring around the opening hole of controller box, insert the saddle seat stem, adjust the box location and tighten the screws;
3. Connect all cables with controller
4. Place the controller into the box, reassemble the box;
5. Insert the seat post battery.
Step 7 Make final adjustments

You have already installed all major component and it’s time to pass the cables suitably and tie them up by nylon belts.
Make sure the brakes are adjusted, the wheel is secure, screws are tightened and everything is functioning as expected.

Head light

Charging

To charge the battery connect the charging plug to local power and connect charging port to battery. Only use the specified charger to charge your battery and never use other Lead-Acid chargers of same voltage to recharge the Li-Ion batteries. You may recharge the battery whenever you like; since there is no history effect for Li-Ion batteries you don’t need to wait for a complete depletion to perform a recharge.

1. Insert charging port on battery first, then insert charging plug to main socket.
2. The charging signal is red during charging; it turns to green when fully charged.

The charge light will glow red whilst charging, and then green when charged.

Some chargers have 2 lights. 2 lights red is charging, 1 red, 1 green means fully charged.

**Load/Unload the batteries**

1. Please turn the keys left/right to lock or unlock the batteries
2. The keys have two functions: to lock the battery and ignite the power (for some models, not all).

Because the battery is a relatively heavy component and likely to get loose as a matter of road vibration, make sure you have enough rigidity and support for your battery case assembly. If you cannot fit both water bottle bolts on battery frame, drill the required place on the battery frame. Use other type of belt fasteners in case you are not confident about the firmness of the fasteners. Try to fix the battery from other spot’s back rest in order to prevent shaking. This could be done through leaning or sticking one other corner of battery to the vertical beam of bike frame via a flexible rubber material.
Additional Notes on the installation

Motor orientation:

Different series of kits have the cable coming out on different sides. The fool proof way to orientate the motor correctly is to make sure that the disk brake side of the motor is on the left. So when you’re sitting on the bike, the disk brake holes should always be facing towards the left.

Spoke adjustment:

The spokes used on the e-bike hubs are very heavy duty. Because of the rigidity of the harder, heavier gauge spokes, they may have a tendency to come loose more often than a regular bike wheel spokes. That means that it’s a good idea to check the spoke tension after the first 50km and then every 100km or so.

Vibration:

The motor hubs can at times be under quite a lot of load which can result in mild vibrations when accelerating or going up an incline. If there is a loose item anywhere on the bike, quite often that can exacerbate the moderate motor vibration into an almighty drone of a vibration, giving the rider the impression that the bike is about to come apart. If this happens to you, you have to look for anything that could be loose. Sometimes it might be an unused disk brake bolt or even something loose on the rear rack of the bike. If there’s something wrong with a component on the kit (like a motor) it won’t be that subtle.

BMS

Battery protection system or BMS (battery management system) is integrated in the battery box as well as charge indicator. It cuts-off the power once over current, over or under voltage.

Some Battery cases support USB output for mobile device charger only.

These kits are designed to be installed at home without any special tools or expertise. However, in some cases, certain bike models require additional knowledge and skill. We offer installation service in our local store. Contact us for details. Whether you want to have a whole picture or to start installation watch EbikeBC’s Hub motor kit installation Videos
Download the Hub motor kit installation & user’s manual
In order to have access to controller settings, learn more about the controller features or identify the trouble shooting error codes download LCD Controller setting Manual
For original default parameter settings download LCD3 EbikeBC Default settings.

Hub motor kit installation Videos
**Mid-drive motor installation**

Mid-drive motors are not recommended for urban or commuter bikes. Installation is still straightforward, however requires some special tools such as crank tools and some knowledge of gears adjustment.

- [BBS02 Manual](#)
- [BBSHD Manual](#)
- [C961 Display Manual](#)
- [C965 Display Manual](#)

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**BionX Kits installation (downloads)**

- [BionX-Installation-Poster-Rev-D](#)
- [Bionx 2017 user manual-EN-DE-FR](#)
- [Light-Set-Instructions](#)
- [RC3-Instructions](#)
- [DS3-Instructions](#)
- [Bluetooth-Module-Instructions](#)
- [Power-Supply-Instructions](#)
- [2017-DT-Battery-Templates](#)

BionX installation videos:
Over view, Motor, Battery, Console, Final inspection ([https://www.youtube.com/user/bionxinternational](https://www.youtube.com/user/bionxinternational))

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**Fork safety**

- **Alloy or Steel front fork Safety**

The bike fork is designed for severe working conditions including road shocks and hard braking no matter if it is alloy or steel. The amount of stress from motor axle torque is negligible compared to other loading scenarios. However, that’s your responsibility to inspect the fork and headset for any crack or defect to prevent risk of failure.

You may have to remove a layer of paint for the axels to fit in the dropout. You’re better off to remove a layer of paint to make the fit reasonable. If you use too much force instead of filing back a layer of paint, you risk damage to the fork and also that could result in a dropout failure due to stress fractures.

Damage to forks is not covered by warranty.
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2- Not sticking to proper order or direction of washers and locking washers.
3- Insufficient bolts torque or not providing a proper nut seat on grooved alloy dropouts.

4- A cracked, defective or old fork

5- Loose or defective headset

Battery installation Safety

- Always use minimum 2 screws for installation of downtube battery. In case the geometry limitation doesn’t allow a secure mount on water bottle holes, use alternative approaches like bottle bob nut clamps.
- Sometimes existing bicycle screws are made from aluminum; Always use steel screws only.
- Make sure you torque all screws properly.
- Make sure battery mounting bracket is not stressed or bent. Use proper spacers if required to prevent mounting bracket deflection.
- Using standard battery rack is recommended for safety and security of the rack batteries. Make sure you are using proper screws, proper number of screws for mounting the battery rail on rack as well as rack to bike frame and properly tightened. Rack battery should be completely horizontal or slightly tilted up to prevent battery from sliding out and stressing the lock.
- Seat post battery mount clamp should be tight enough to protect battery form twisting around the tube by road loads. Check proper clearance with the tire when bike is loaded and always lock immediately after mounting the battery to the bracket.
- Battery lock should secure the battery in place for harsh riding conditions and allow easy release when unlocked. Simulate severe road loads and check battery case in place.
- Battery wires should be secured away from any bike moving parts or body parts with zip-ties.

Electric bikes Service & Repair

We have many replacement parts for direct or geared hub motors as well as mid-drive motors; however before replacement, you should consider how much it will cost. In many cases, it is less expensive to simply replace the motor and controller instead. BionX is a high-quality direct hub motor kit system and one of our best sellers in North America in the past decade. We are an authorized BionX reseller and service provider. We have access to the know-how and replacement parts. Please contact us if you need any parts, service or repairs. Please contact us if you need any parts, service or repairs.
**Li-ion Battery Repair, Replacement or Refurbishing**

You may have an older ebike with dead SLA or Li-ion battery which just occupies some storage space. We can service the ebike and replace the battery with our branded Li-ion battery packs which will last you another 5-7 years.

**Parts & services**

See our [parts online store](#); if you cannot find it there contact us and let us know.
Troubleshooting Guide

Warning:
Do not use the without proper connection and parts inspection in case of an accident, impact or any wanted or unwanted modifications to cables and connections.
Do not store in humid, potential freezing, don’t let water freezes and cracks the seals...

Trouble shooting

- PAS TROUBLE SHOOTING

Cutting out on pedaling only is for pedal assist (PAS) magnet disk not spinning thoroughly with crank or wobbling.
Make sure the disk spinning together with crank.
make sure the sensor/disk spacing and angle is not changed like has not been stretched up etc.
you have not modified settings parameter in the LCD.
Connections are all good.
otherwise share pictures or videos of it.
EBikeBC Electrical System Trouble Shooting Guide

Make sure you have done all installation and setups as described in installation and maintenance manual. Find all required technical literature as a reference of this trouble shooting guide at this link:
https://ebikebc.com/installation-repairs/
https://ebikebc.com/ebikebc-videos-category/installation-videos/

<table>
<thead>
<tr>
<th>PROBLEM</th>
<th>CAUSE</th>
<th>TO DO</th>
</tr>
</thead>
<tbody>
<tr>
<td>System does not turn on</td>
<td>Connections are not completed</td>
<td>Do a thorough check from battery power lines to controller and all other connectors</td>
</tr>
<tr>
<td></td>
<td>Battery is turned off</td>
<td>Turn battery on using the on/off switch on the battery</td>
</tr>
<tr>
<td></td>
<td>Battery is dead</td>
<td>See if battery charge indicator LEDs light up</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Try charging the battery</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Try turning on the system when charger is plugged in</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Try turning off the battery hold 5 seconds then turn on</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check out battery fuse</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inspect battery for any sign of impact, moisture penetration, etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check out battery voltage right at the battery output port</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check out battery to bracket connectivity, wipe the dirt, watch for sparks or melted connections</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check out battery voltage at controller power input plugs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Contact your local dealer or EbikeBC customer's service with the report of the above tests for battery repair or replacement</td>
</tr>
</tbody>
</table>

EBikeBC Electrical System Trouble Shooting Guide

<p>| LCD display or keypad issues | Check out related cables and connectors at handle bar |</p>
<table>
<thead>
<tr>
<th>Issue</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check out related cables and connectors at controller side</td>
<td>Visual inspection of the display and motor controller for visible sign of damage</td>
</tr>
<tr>
<td></td>
<td>Contact EbikeBC for service</td>
</tr>
<tr>
<td>Motor controller issues</td>
<td>Check out battery connections to controller</td>
</tr>
<tr>
<td></td>
<td>Visual inspection of the display and motor controller for visible sign of damage</td>
</tr>
<tr>
<td></td>
<td>Contact EbikeBC for service</td>
</tr>
<tr>
<td>Battery does not charge up with standard charger</td>
<td>Battery is already full</td>
</tr>
<tr>
<td></td>
<td>Battery indicator delays updating the recent charge status. Give it some moments of ride or read battery voltage when system is ON, on page 3 of screen by double clicking the middle button. Above 41V for 36V nominal systems is considered full. For 48V systems above 53V is considered full.</td>
</tr>
<tr>
<td>Charger does not function</td>
<td>Green LED may turn on when charger is plugged to battery only without being connected to wall. Try different wall plugs.</td>
</tr>
<tr>
<td></td>
<td>Try different charger cable cords.</td>
</tr>
<tr>
<td>The system is on, but motor is not running using both throttle or pedal assist</td>
<td>The brake cut-off circle sign is showing on top of screen</td>
</tr>
<tr>
<td></td>
<td>The brake cut-off sensors are not properly installed or adjusted on brake levers. To let the system rub, unplug the brake sensors from main controller. Test the motor, then try re-installing or re-adjusting the brake sensors one connected at a time. Follow installation manual or related video.</td>
</tr>
<tr>
<td>Error info 03 shows up</td>
<td>Motor cable connection is loose or arrows not aligned. Check and press both waterproof</td>
</tr>
</tbody>
</table>

**EBikeBC Electrical System Trouble Shooting Guide**

- **The system is on, motor is not running using throttle but works with pedal assist**: When hitting throttle nothing changes on the screen. Throttle has connection or other issues.

- **Error info 03 shows up**: Motor cable connection is loose or arrows not aligned. Check and press both waterproof connectors in the line between motor and controller.

- **LCD motor parameter settings have been modified**: Check and restore all parameters back to default.
<table>
<thead>
<tr>
<th>Error info 01 shows up</th>
<th>Check throttle positioning. It might have been stuck, rubbing grip, the other handlebar stuff or Throttle is broken</th>
</tr>
</thead>
<tbody>
<tr>
<td>The system is on, motor is not running using pedal assist but with Throttle</td>
<td>PAS sensor disconnected</td>
</tr>
<tr>
<td>Red LED on the PAS sensor does not flash when spinning the crank forward</td>
<td>Check magnet disk working surface</td>
</tr>
<tr>
<td></td>
<td>Make sure magnet disk is spinning together with crank and not loose</td>
</tr>
<tr>
<td></td>
<td>Check gap and spacing between little magnets and PAS sensor head</td>
</tr>
<tr>
<td></td>
<td>Sensor should be aligned radial to the magnet disk (not angled or tangential to disk different from what shown in manual or video)</td>
</tr>
<tr>
<td></td>
<td>In case of water or salt water penetration clean and dry the sensor. Sensor might be broken and needs replacement</td>
</tr>
<tr>
<td>Power cuts out while riding and screen goes off</td>
<td>Battery runs out of charge</td>
</tr>
<tr>
<td></td>
<td>LCD display waterproof cable connector is loose.</td>
</tr>
</tbody>
</table>

**EBikeBC Electrical System Trouble Shooting Guide**

| Loose conductivity between battery and bracket | Check connector pins for sparks or being loose. Might need a manipulation or replacement |
| Loose conductivity between battery cable bullet connectors and controller | Check connectors for sparks or being loose. Might need a manipulation or replacement |
| Controller overheated | Give It some moments, open the controller bag’s second expansion zip and cut some holes for ventilation there. |
| Battery fuse or other battery issues | Check battery output Voltage, remove and visually check the fuse. |
| Motor works on and off while pedaling, but fine when using throttle | PAS magnet disk on the crank is loose or wobbling | Fix it in place using epoxy or flexible heat or silicon glue. Align the disk with sensor. |
| System works but cannot change anything on the display | Keypad or display issue | Needs parts replacement |
| System works but cannot read anything on the display | Display LCD issue | Needs parts replacement |
| Motor making extra noise | Normal when motor is loaded on hills | No action |
Motor normal vibration is causing resonance on other bicycle components such as disk brake rotor, fenders, etc.

Try dis-positioning or changing vibration properties of the part by sticking something to or between parts.

Controller getting too hot when riding long on hills

Normal up to 70C

If more, try making some ventilation. open the controller bag's second expansion zip and cut some holes for ventilation there.

Controller power bullet connectors are melted

Loose connectivity cause sparks which fries and melt the connector.

Replace the bullet connector. Crimp properly and make sure the connector will stay fully connected.

Charger gets hot

Normal

Give the charger space to dissipate heat

Warranty Terms

Satisfaction Guarantee

We offer guaranteed satisfaction on all our products and services. If you buy an ebike installation kit online, verified by our consultancy, you have 10 days to return it and get your money back. However, we may ask you about the service record and the reason.

Liability Disclaimer

EBIKEBC will not take any responsibility and or liability for any accident, misuse, abuse, loss, injury for or by the rider nor a third-party, even if the cause is an ebike kit power, speed, bad or illegal parameter setting, components defect or malfunction.

If you buy an ebike kit or parts with no installation and service or if the kit is installed by us, the customer takes all responsibilities and liabilities on bike, ebike components, brakes, bike mechanical parts and adjustments, electrical wiring, unforeseen occurrences, safety issues, maintenance and services, etc.

Ebike rider must obey all traffic regulations and is responsible to follow rules and updates for the kind of vehicle is using.

Warranty

All ebike kit components including motor, controller, display, battery, charger, throttle, PAS sensor, brake sensors are covered by 12 months Free warranty. You can purchase an extended warranty up to 24 months for $5 per month.

Ebike is a vehicle in real working conditions. It is always exposed to unwanted impacts, shocks, vibrations, heat and cold, accidents, water penetration, etc.

If there is a defeat with your bike, we supply a free replacement part for you. You might be asked to pay the delivery or installation cost; ask for details prior to your request for any part.

If the problem is caused by an accident, wrong or careless installation by the customer, careless actions, wire stretch, bad storage or not following instruction manual, the customer will pay the cost of the part and replacement.

The cause of the failure will be recognized by our experts.

Please read our warranty terms and conditions.
Conversion Kit User’s Manual

Warranty Terms

All ebike kit components including motor, controller, display, battery, charger, throttle, PAS sensor, brake sensors are covered by 12 months Free warranty or up to 24 months purchased warranty (each extra month will cost only $5 CAD) which will be called full warranty period hereafter.

Ebike is a vehicle in real working condition with no limitation. It is always exposed to unwanted impact, shock, vibration, heat and cold, accident, water penetration, etc.

In case some defect comes up in a normal working condition we supply a free replacement part for you. you might be asked to pay the delivery or installation cost; ask for details prior to your request for the part.

If the problem is caused by an accident, wrong installation by customer, careless actions, wire stretch, bad storage or not following instruction manual, the customer should pay the cost of the part and replacement.

The cause of the failure will be recognized by our experts.

The EBIKEBC warranty covers the full warranty period for all parts of the ebike kit systems to the first owner, within the framework of the following conditions:

- This warranty exclusively covers ebike kit components provided by EBIKEBC and there is a proof of purchase and serial numbers showing the right part, not any other bicycle parts.
- This warranty covers the repair and/or the replacement of ebike kit components.
- This warranty only covers material and manufacturing defects.
- Costs for repair work performed in advance by persons who have not been authorized by EBIKEBC will not be reimbursed. In such a case, any warranty claim will cease.
- The warranty period starts with the date of purchase. Warranty claims must be reported immediately.
- If the battery pack does not provide full capacity in the course of normal use or for batteries going through a normal aging process or reduction of performance, EBIKEBC warranty covers that within the warranty period if the capacity proved to be less than 70% of Initial condition.
- No warranty claims are accepted in the case of damages due to the following:
  
a) External influences, particularly falling rocks, collision, accident and other external events with an immediate external effect due to mechanical powers.
  b) Purposeful and/or malevolent acts, theft and robbery as well as natural hazard events and/or acts of mischief.
  c) Inappropriate use, e.g. the product was exposed to liquids, chemicals of any type and/or extreme temperatures, wetness and humidity and/or if the battery suffers damages due to non-compliance with instructions.
  d) Overcharging the battery or not adhering to the instructions of battery handling
- No warranty claims are accepted:
  a) In the case of test, maintenance, repair and replacement work due to normal use.
  b) If the model, serial or product number on EBIKEBC product has been changed, deleted, blurred or removed.
  c) In the case of use of the battery in systems that are not approved for such use with this particular product.
  d) In the case of the operation of the EBIKEBC system with batteries other than the batteries designed for the EBIKEBC system (refer to user manual).
  e) If one or more than one EBIKEBC part has been opened, altered or repainted.

This warranty only covers the mentioned repair work and/or the replacement of defective or compromised components. It excludes any claims as to the reimbursement of property damages, downtimes, expenses for renting or leasing equipment, travel expenses, lost profit or any other claims. EBIKEBC liability in connection with this warranty is limited to the respective acquisition value of the product.

This warranty only covers original EBIKEBC components. The use of spare parts from unknown sources, for example, replacement parts from third parties, is strictly prohibited.

Warranty will be voided on any system on which it will be concluded that there has been any case of modification or tampering with firmware.

Return and Exchange

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There are terms and conditions applied to return or exchange of products.
All parts shall be unused, undamaged, unscratched, clean and resell-able to be eligible for a return and full refund.
Packing and shipping expenses including any labor involved in the customized order are not refundable.
You need to inform us prior to any shipment. Costumers will take shipping costs for both directions; unless the buyer made a good case with proof of EbikeBC’s mistakes.
Note that color of parts may be different that in pictures, e.g. silver or black motor, rack, battery, etc.

Repairs

1- Contact us and explain the problem with our experts. It might be resolved through a telephone discussion or email instructions provided to you. Sometimes something as simple as a loose connection or bad adjustment can cause failure.
2- If there is a broken part that you have recognized yourself or with the help of our technician, we will simply send you the right part and you can replace it yourself.
3- If there is a major problem with motor or battery you need to send the motor wheel or battery case to Us and we will repair it and send it back to you.
Our experts will help you find the fastest and most cost-efficient way to have your ebike working again. This is done through our service strategy:
a- Fast reply to your inquiry and question
b- Probing deep into the causes and reasons and fault diagnosis on call or online.
c- Educating you about the problem
d- Replacing only the defected parts, not the whole pack.

Contacts:

Address
128-2323 Boundary Road
Vancouver BC, Canada

Business Hours
Mon – Fri: 10 AM – 5 PM
Saturday: 11 AM – 3 PM
Sunday: Closed
(Pacific Time Zone)

Phone
+1 (604) 423-3381
Toll free: (888) 229-2980

Email
info@ebikebc.com