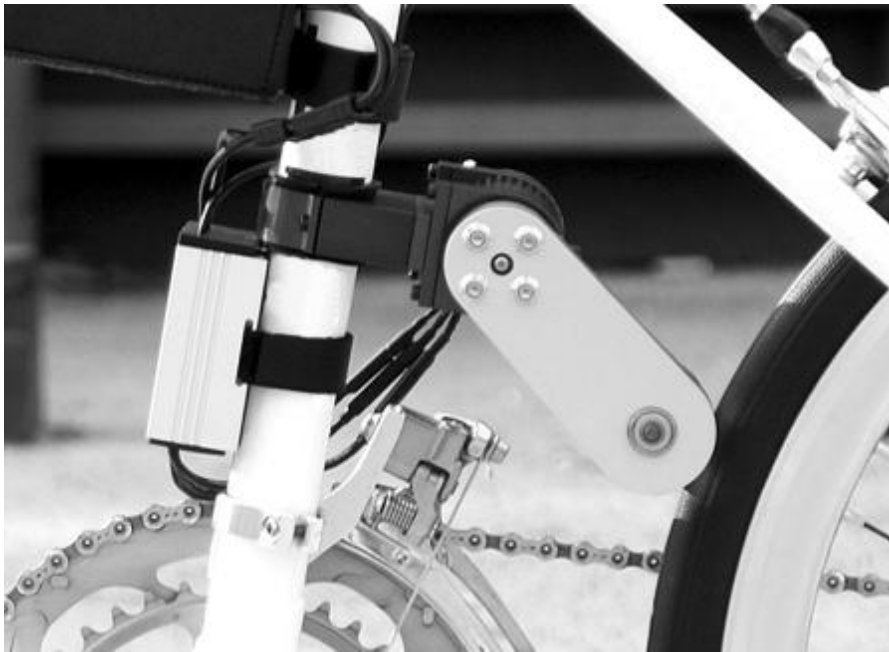


# Electric Power Assisted Conversion Kit

## RB-1/MV-1 User Manual



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## 1. Overview

Thank you for purchasing our products.

This guide covers installation and maintenance of the products supplied by HiddenPower. Please read this instruction carefully before installation for your safe bike riding. We hope you can fully enjoy advantages of our products.

You can always find more information on [www.hiddenpower.co](http://www.hiddenpower.co) or [www.hiddenpower.co.kr](http://www.hiddenpower.co.kr) where we update and add new information.

## 2. Our Product Line

The below are products with specifications for your brief review.

Applicable Type of Bike	Product	Control	Wheel Size	Other details
MTB Hard Tail	MX-1	Side drive system, manual	24~26"	Operate with remote lever.
	RB-1	Underside drive system , automatic	24~26"	Automatic.
Other MTB		Vary upon customization	24~26"	Customization is possible.
City Bike (Hybrid)		Underside drive system , automatic	26~27"	Automatic.
Minivelo	MV-1	Underside drive system , automatic	18~20"	Customization is necessary except certain models
Recumbent and Others		Vary upon customization (Side/Underside/Chain drive)	Vary upon models	Customization is possible.

### ■ Other Products

- Accessories : Accelerator (dial type, hall sensor grip Type, PAS sensor), Charger (regular/speed), Battery lock , Carbon crank guard
- Others : Battery, Battery case, Accelerator dial, Belt, Drive roller (regular/with additional options), Bearings and Cables



- \* Some of these products are not available currently.
- \* Motors and electronic speed controllers are not sold separately.

## 3. Main Features of our Products

This product is a whole new type of assistant power conversion kit for on-road biking on paved roads which is ultra-compact and lightweight. It can be simply installed Without any modification to your MTB hard tail type, City and minivelo bikes.

In RB/MV series, power is delivered by a friction drive using the roller pressing against the underside of the tire.

- RB-1 : underside driven, automatic for on-road bicycles
- MV-1 : underside driven, automatic for minivelo bicycles

Depending on the type of bike, please choose the product suitable for you.

※ Please visit our website for more information.

### ■ What Makes our Products Special

- Ultra-compact and lightweight (approximately 2.5 kg including battery)
- Can be used for commuting, long distance cycling and other leisure cycling
- Easy installation to existing bikes without having to modify or change parts
- Multifunctional. Applicable to all types and sizes of bikes
- Ultra-compact, high torque brushless motor
- Ultra-compact, highly efficient, high-end lithium polymer matched cell which is called the next generation secondary cell
- Riding in Electric power without pedaling and even enables cruising in power generation.
- Does not increase pedal-load when the batteries go out.
- Provide higher efficiency and better guarantee your safety by preventing sudden start/stops. (Power goes off automatically in case of a sudden stop.)
- Various customizations are possible. Applicable to almost all types of bikes.
- Simple user-friendly structure. Easy to change parts.
- Handmade in Korea

### ■ Other Features

- Proportional speed control by accelerator dial
- Applicable to various types of accelerators  
(Applicable to dial type, hall sensor grip type, PAS.)
- “Slow Start” system prevents sudden starts.
- Automatic power-off system guarantees your safety from sudden stop, overloading and sudden battery drain.
- Cruise Mode(※ Speed cannot be adjusted.)
- Simplified system through cutting-edge algorithm of sensor-less way  
(3 kinds of cables)
- Battery level indicator shows remaining battery charge by 4 levels.



A built-in PCM protection circuit prevents overcharging.

- Balanced per-cell charge system for battery life, efficiency and safety.
- Water resistant

The speed is adjusted to the regulation of Korea, at 30Km/h without pedaling in power mode. Users hold all responsibilities for any incidents happen during cycling.

※ Speed may differ for each bike type, rider's weight, road conditions and wind.

## 4. Safety Guidelines

Please read this instruction carefully before using our product to ensure your safety.


- Please observe traffic laws of the country when you ride.
- This product is warranted for 6 months. Defective products are covered by HiddenPower and other installations issues are covered by bike shops you purchased the product.
- Since this product is designed for on-road cycling on paved roads, it may not be suitable for rough terrains in the forests or mountains.
- This product is underside friction automatic drive.  
No replacement or refund is possible after installation.
- Though it is applicable to almost every type of bikes, we highly recommend you to consult seller or us before installation to ensure your safety and correct installation.
- HiddenPower bears no responsibility for accidents occurred due to user's mis-operation by not following the installation guide or violating the traffic laws.
- This product is water resistant but please avoid riding in heavy rains. Please consult us if your product was used in rains or was waterlogged.
- Although this product is convenient for cycling uphill, cycling in head wind and long distance cycling, HiddenPower bears no responsibility for any thefts or damages due to user's carelessness.
- Do not bike in power mode in situations below.
- (On snow-covered or iced roads, downhill, crossroads, in a narrow alley and in other situation in which any danger is expected.
- Do not touch the motor part or the case of ESC (electric speed controller) after use for long time. Those parts are maybe heated by longtime use.
- The product cools down by the air when in use, but may be heated temporarily when bike is not moving.
- This product's temperature tolerances ranges from  $-10^{\circ}\text{C}$  to  $+40^{\circ}$ . Sudden and extreme drop or rise in temperature may cause unstable operation.
- In this product, motors, all the parts including electric speed controllers, speed reduction gear boxes and batteries are assembled optimally. Do not use it mixed with other products. It may cause the failure of the product.
- When any trouble is doubted, stop using immediately and consult our customer center or bike shop you purchased the product.
- When any problem is doubted, stop using immediately and please refer to our user manual or contact our customer center.  
Please avoid shocks to the product. When the battery was exposed to external shocks, please contact our customer service center.
- When in use, please avoid using wireless electronics such as wireless speed meter or earsets. They may cause mis-operation.
- After use, please disconnect battery from terminal block. Leaving the battery connected for long time and not use, it may ruin the battery.  
Battery, belt in drive units, friction roller, dial and bearing in accelerator are consumable parts.
- This product is handmade and the shape or some of its features may change without prior notice when considered it is necessary for consumers' convenience and safety.
- This product is applied for domestic and international trademark, a patent on a new device, and design patent. No illegal copies or remodeling is allowed.
- In cases not stated here, we follow general customs.
- Please always wear helmet for your safety.

## 1) Cautions

- This product is a never-seen-before device that is applicable existing bikes. By adding this electric power kit, you can transform your bike into an electric one. HiddenPower holds no responsibilities for any problems occurred when it was used for other purposes.
- This product is for on-road cycling on paved road so it may not be suitable for rough roads in the forest and mountains, or for slippery roads in rainy or snowy day. Those unfavorable conditions may weaken driving power since they help tires to have a good grip.

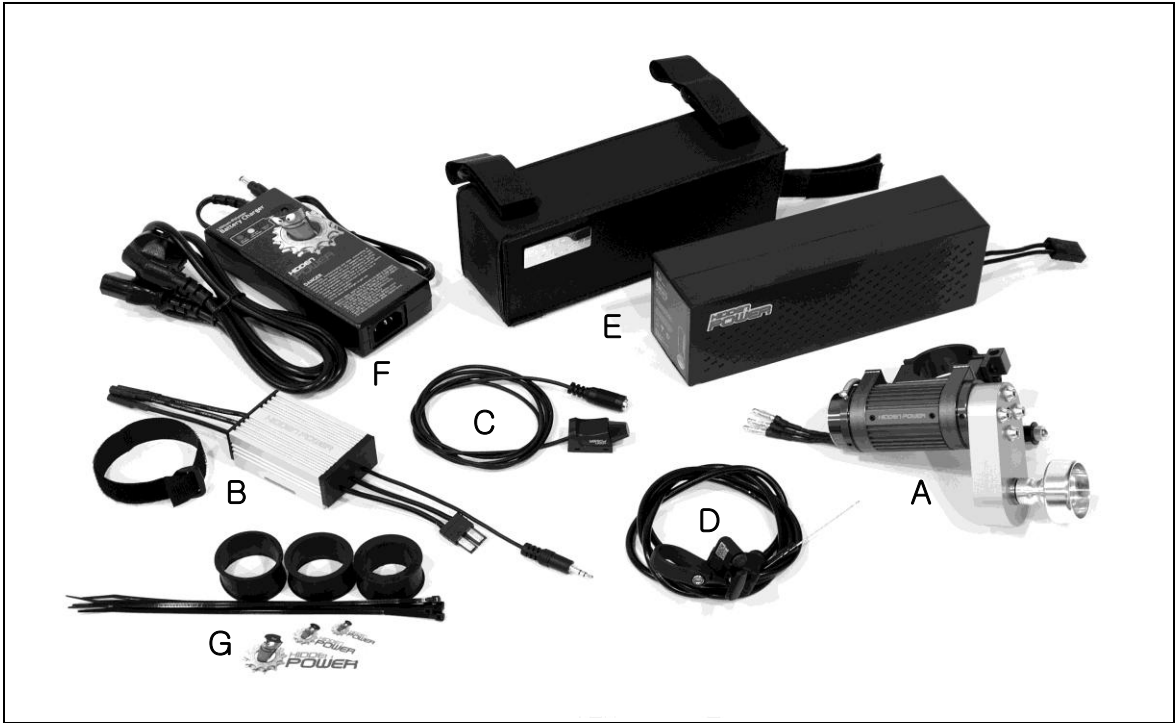
## 2) For Your Safety

- Please read carefully these instructions before use.
- Please check carefully all the parts of this kit and your bike before use. You may refer to 6-1) of this manual.
- For defective products or malfunctioning, please contact us or the shop you purchased the product for expert checkup and repair services.
- When your bike is not in use or parked, please turn off the power and disconnect the battery from the connector..
- Please disconnect the battery when cleaning or getting service.
- Never leave charging battery unattended and keep the battery well away from inflammable materials.
- Never charge the battery in an enclosed space or in a bag.  
This product is not recommended for those who wear electronic aid devices such as cardial pacemaker.
- This product requires particular attentions for children, pregnant women and the elderly and infirm.
- This product is basically water resistant but please avoid using in rain and snow. Do not use high pressure washer or high pressure spray directly to this product.
- Since this product allows you to speed up to 30 km/h, please observe all the safety rules and pay particular attentions.

 According to Product Liability law, HiddenPower bears no responsibility for injuries or damages occurred by the user's carelessness and neglecting the instructions.

## 5. Installation

1) includes



A-Driving Unit Set (MTB or City bikes):

Mount Set, Motor, Decelerator set, Drive Roller (This set comes semi-assembled.)

※ MV-1 's driving unit set has different shape and size from RB-1.

B-Electronic Speed Controller

C-Accelerator

D-Rockshox Remote lock control

E-Battery and Leather case

F-Charger and Cables

G-Rubber rings, Cable ties, Stickers



This product is used 3D CNC machined, hard anodized and partially color-stained high quality aluminum alloy (Duralumin). Since it is a handmade product, the color of the parts may differ from each other. Therefore, the color difference for it does not mean product is defective.

# Installation Guidelines

## 2) Limitations



Please check this limitation before installation.

### ■ Applicable Bike Type

In RB-1 and MV-1 series, power is delivered by a friction drive using the roller pressing against the surface of the tire and the drive roller can be controlled in automatic way. So, it means in power mode, driving roller works by sticking automatically on the underside of tire and in power-off mode, it just keeps contact with the tire without giving any loads on pedaling. Despite the ultra compact size, the kit contains high-revolution, high-torque brushless motor suitable for MTB, City bikes or mini velo bikes which guarantee the certain durability. Thus, please avoid installation to low priced ordinary bikes because of its non certificated durability. For the bicycles, with suspension on the rear side such as Full suspension or with special formed seat tube that cannot attach the mount of this kit (several types of folding bikes), installation is not recommended. But we have some options that can be customized to those bikes. So do not hesitate to contact us.

### ■ Applicable Seat Tube Size

This product is designed to fit the regular seat tube size, 27.2mm, 31.8mm, 34.9mm. However, some Carbon or special targeted Frame's seat tubes are well thicker or thinner than the standard. in that case, please do not hesitate to contact us and we will provide the suitable mount with the minimal charge or for free.

### ■ Applicable Tires and Limitations

The material and the type of tires are greatly important in our product. The grip of the tires and the drive roller determines the product's durability, efficiency and the friction noise. Thus, there are some limitations in tire choice for the best use of our products as follows.

(※ Visit our website for more detailed information)



#### **Recommended Tires**

- On-road tires with smooth tread.
- ※ The material of the tire determines the degree of the friction noise.



#### **Un-recommended Tires**

- off-road tire with big tread.  
(bad friction efficiency and bigger noise occurred)



## 3) How to install

 **Before installation, please read this instruction carefully, particularly 5-2) Limitations.**

This product comes assembled for easy installation. You may add this kit to your bike by simply following the instruction. However, if you are not confident in your ability to install safely and properly, please take it to a bike shop with these instructions since the product can be best used without troubles only when it is installed properly as these instructions suggest.

### ■ Required Tools

- hex wrench(1.5mm/2mm/2.5mm), wire nipper, +/-screwdriver, scissors

### ■ Understanding system principles before Installation

This kit is a base Drive system that fixes the driving unit on the bicycle's seat tube and with friction roller pressing against the underside of tire. When the motor is not activated, the roller keeps contact without causing friction load with the tire but when the motor is applied, the roller starts to turn at first, causing friction against the underside of tire, then automatically goes up to press firmly the tire. When the power is turned off, the wheel pushes away the roller, making it intact without friction again.

In on-power mode, due to the friction occurred between drive roller and tire, the roller continues going up and will be blocked by limitation bolt. Right limitation bolt set is the best way to keep efficient use of mount, drive roller and tire.



**Please refer to “Installation Guide” that comes with this manual .**

# Installation Guidelines

## 4) Final Checkpoints


- ⚠ Rotate the dial with your middle or ring finger to set on 0 (OFF).  
Connect the battery terminal to the electronic speed controller terminal.  
You might see a minor spark when connecting but do not worry about it. It is an usual phenomenon when connecting high current battery.
- Rotate the dial gently with your middle or ring finger. See if the friction roller spins as well and check the tire drive direction. If the friction roller spins normally, you have successfully installed the kit.
- ⚠ If the friction roller does not spin even when the motor does, disconnect the battery connector and exchange 2 cables out of the 3 of motor and electric speed controller. It will enable reverse motion since the motor in this kit is brushless. Then, connect the battery again and see if it works properly. If the motor spins normally, use the remote lock control and spin the tire. (Try this with the rear wheel lifted from the ground.) If it works fine, now you are finally done with the installation.
- ⚠ The battery is only 50~60% charge when sold. Please fully charge the battery before use and please use the charger that came with this kit only.



- ※ Please read these instructions carefully and completely before your first ride.  
We hope you can fully enjoy our innovative product.  
This is a safe assistant electric power kit but can be dangerous when used for the wrong purpose. Please wear helmet and observe all the safety rules.  
Thank you for your purchase.

## 6. Usage Guidelines

### 1) Prior Checkpoints

- Accelerator – Please check if the accelerator dial is fixed sturdily on the underside of the right side grip, and if the dial rotates smoothly.
- Remote Lock Control Lever
  - Please check if the friction roller is securely pressed against the tire.
- Driving Unit – Please check if the driving unit is fixed sturdily, if the volts are tightly set and the friction roller works fine.
- Electric Speed Controller
  - Please check if all the connecting terminals are connected properly. (motor terminal, battery terminal, accelerator terminal)
- Battery – Please check remaining battery level and the battery case
- Battery case – Please check if the leather case and the Velcro tape are fixed sturdily.
- Tire – Please check the tread surface if there is any scratch or damage.  
Keep the tread surface always clean.  
Please check the air pressure and keep it enough.  
 If the air pressure is insufficient or excessive, the tire might skid and it could cause decrease of efficiency, tire damage or malfunction of system.


Wheel – Please check if rim is straight.

- Others – Please check overall riding condition of your bike.

### 2) Operation Manual

#### ■ Accelerator


- This product is different from the conventional e-bike's hall sensor type accelerator. You can control speed using the throttle with your middle finger or ring finger.  
you might find yourself a little bit uncomfortable at first but soon you will get used to it and feel comfortable. The direction of accelerator operation is opposite to that of motorcycle's. It may confuse you at first but we designed this way after considering every variant and decided this is the best for your safety.


 Furthermore, unlike the usual e-bike's return type grip, this is proportional valuable speed control that maintains the speed after it is once set which enables you enjoy cycling in a cruise mode.


※ For your safety and convenience, put your thumb and index finger of your right hand on speed controller and middle finger on the brake lever. Though this product is designed that you can control with your middle or ring finger, we recommend the ring finger. Once you get used to it you will feel why we believe this was a better choice.

## ■ How to insert battery

- Open the lid and slide the battery in and pull out the connector through the hole on the back of the case.  
connection terminal at the back of the battery case later.
- Close the lid. When taking out battery, open the lid and push the back part of the battery with your finger like you slide it out..  
Please take extra precautions not to drop the battery.


 This product does not have a switch on its battery part. Only the connector is installed. This is for better daily shock resistance. However, Please disconnect the connector when not in use. Though it is a small amount, it consumes energy when it is connected even if the bike is not moving. Note that a damage can be done to the battery if you have the battery connected for a long time,

 Please make sure the connector is completely slid in before you turn it on.

 Make sure that the battery connection terminal is disconnected when connecting or disconnecting motor or accelerator cable connector to the speed controller. Otherwise, it may cause malfunction of the speed controller.


## ■ How to operate

- Rotate the accelerator dial inwards with your ring finger and set on “0” (OFF). The device does not operate if you connect the battery when the battery while the accelerator is not correctly put on OFF. In that case, turn it off and try again from the first step.
- Connect battery to speed controller. At this point, some minor sparks might occur. It is a possible phenomenon seen that can happen when the battery of high current electricity is connected.


 Our battery doesn't have power switch to prevent prospective bad connection might be caused by frequent daily shocks.

- When you want to change the cycling mode to the E-power mode, gently turn the accelerator dial lever on the handlebar. Then the turning drive roller will be firmly pressing against the surface of the tire. Now the E-power motor is activated.
- Rotate the accelerator dial outwards gently with your ring finger of your right hand.

The more you rotate the dial outwards, the more the speed increases.

 You can stop rotating the dial at the point of the speed you want and keep and the speed at that level.

You can also increase or decrease the speed with pedaling .

 To decelerate or halt in power mode, always decrease speed by accelerator dial before brake.

Although the product provides automatic power cut-off system for sudden stop or overload, it may not be fully controlled under certain circumstances.

- Turn the accelerator dial to off position when not in electric power mode then you can pedal without any friction loads.



## ■ Warning

- ⚠ Do not turn on the electric mode before the bike moves. The device is an assistant electric power kit, not a scooter. Applying overload can damage the product.
- ⚠ The power delivers slowly in power mode even if you try to speed up rapidly. This is due to the “Slow Start” system to prevent accidents by sudden start.
- ⚠ To unlock the Slow Start system, rotate the dial slightly from OFF to make motor work. Wait for 0.5~1 second and rotate it outwards hard to unlock the Slow Start system and the speed increases as much as you rotate it hard. And you can set and maintain the speed at the level you want. This function is for when you want rapid power when cycling uphill in the mountain and so on. However, please take extra precautions for your safety. Power could be cut when you try to increase speed rapidly without pedaling since the systems considers it as overload.

## ■ Automatic power cut off

- ⚠ The electric speed controller cuts off power for your safety in the following event.
  - When you try to start the bike only with electric power.
  - When you try to use the power mode without pedaling after moving short distance at low speed
  - When you try to use the power mode when cycling uphill or when overloaded.
  - When you try rapid acceleration in power mode without pedaling.
  - At sudden start. (Even normal start may cause power-off sometimes in some unfavorable conditions.)
  - When the battery is empty. (Power cuts off automatically for battery protection.
  - In high temperature or when the kit recognizes certain conditions are unfavorable..
- ⚠ In the circumstances above, set the accelerator dial on “0”(OFF) and restart except for the case that the battery is empty. This is for better battery protection.

## 3) Tips for Efficient Use

- You can travel one hour without pedaling but if you use the power mode as an assistant electric power with pedaling, it increases up to two hours. How much you can increase depends on circumstances so here we give you some tips for better, efficient use of this product.
- The kit is developed as an assistant power, unlike electric bicycles, so the product must be used as an assistant power, not a semi-power source.
- Make sure that you can turn on the power mode only when the bike is already moving. Otherwise, a great amount of energy will be consumed which might overload the driving unit. Since starting cycling in power mode from the beginning may cause malfunction, please pedal for some time before you start the kit.
- Even when in power mode, a certain amount of pedaling is recommended.
- While pedaling in power mode, right gear ratio will reduce battery consumption and increase the battery life.
- Pedaling in low gear will enable you to cycle uphill with less energy.
- Sudden changes of accelerator such as sudden start or sudden stop consumes more electricity, so operate gently with pedaling.
- Disconnect the battery after use is strongly recommended.

 **Please, always keep the tread clean.**

## 4) Safety Tips

- Your maximum speed without pedaling is 30 Km/h. Some pedaling may increase the maximum speed but it requires extra precautions for your safety. We highly recommend to bike under the regulation speed.
- This product is an assistant electricity power kit which utilizes tire friction. Tire wear out may differ for different types of tires. Please observe guidelines provided by HiddenPower when choosing tires.
- This product is an assistant electricity power kit. Refrain from using the kit in bad weather (e.g. heavy rain, snow) or on slippery roads because the kit is less efficient in that weather condition.
- Please wear safety gears for your safety.
- Turn on your headlight and taillight when cycling at night.
- Please follow all traffic regulations on the road.



## 7. About Batteries

The battery in this kit is a highly efficient lithium polymer battery. Please read safety instructions before use. Good or bad care of battery influences greatly on life of the battery and efficiency. Please read carefully and fully understand the instructions for better care of your battery.

### 1) Battery Charging

- Use the charger provided in this kit only.  
Hidden Power holds no responsibilities for any damages from using an unidentified charger .
- Do not charge the battery when the case is deformed or swollen by any kind of shocks.
- Do not charge the battery when waterlogged.
- The battery takes six to seven hours to be fully charged after a complete discharge. (Charging time may vary upon the remaining battery level.)
  - ✳ For longer battery life, 0.1C (by the 10-hour standard) recharge is optimal. Quick charging shortens the battery life.

#### ■ Insert and charge batteries

- Turn on the charger first before you connect the battery.
- Please check LED lamp when you connect the battery to the charger.
  - **Red LED lamp** : Charging
  - **Green LED lamp** : Charging completed
  - **Red flickering** : Error (Check the battery connection.)  
 If the LED lamp continues to flicker, contact our customer service center.
- After charging, please remove the battery from the charger and disconnect the charger from the power outlet.  
 If you want to charge the battery attached on the bike, please make sure that the battery is completely disconnected from the speed controller.

### 2) Battery Handling

#### ■ Initial use

Lithium polymer batteries are charged only 50~60% when sold.  
Please fully charge the battery before use.

#### ■ For better use

- Push the battery check button on the front side of the battery before each use.
- Avoid frequent complete discharges because it puts additional strain on the battery.
- The battery prefers a partial rather than a full discharge. Frequent full discharges should be avoided when possible.
- There is no concern of memory when applying partial or unscheduled charges.  
Short battery life is mainly caused by heat rather than charge / discharge patterns.

## 3) Battery Storage

- Store batteries in cool, dry place without direct sunlight.  
Places where the temperature ranges between +10°C and +20°C are suitable for long term storage.

Avoid high temperature and confined places.

(e.g. inside the car in sunlight in summer)



Do not allow metallic substances to contact the battery and the connection terminals.

For prolonged storage, keep the battery at a 50% charge level.

For prolonged storage, never store the battery fully charged or discharged because it may shorten the battery life.

## 4) Battery Care

### ■ Safety instructions and warnings

- Please use Hidden Power's original Li-Po rechargers when recharging.
- Do not charge batteries unattended.
- Do not charge batteries near any combustible substance.
- Always disconnect batteries immediately if at any time you witness anything unusual and leave it in a safe fireproof location outside of a building or a vehicle for approximately 30 minutes.  
If any of the following symptoms occur during charging, please disconnect the battery immediately.
  - battery overheating, unpleasant smell, smoke, swelling up and rupturing.
- Do not use the battery for inappropriate purposes.
- Self-renovation or disassembling may cause malfunction to the device. Do not disassemble or modify batteries for any reason.
- Do not throw batteries or apply shock to the batteries.
- Do not store batteries near an open flame or heater.
- Do not allow batteries come in contact with moisture or water at any time.
- Never mix the batteries with other batteries or other secondary batteries [Ni-Cd/Ni-MH].
- Do not use batteries when damaged.
- Range of recharging temperature : 0°C ~ +40°C
- Range of operating temperature : -20°C ~ +50°C
- Never fully discharge the battery. When fully discharged, the battery cannot be reused. Recharging a discharged battery may cause swelling or fire.
- Li-Po batteries are free from memory effect. It can be charged anytime unlike other secondary batteries.

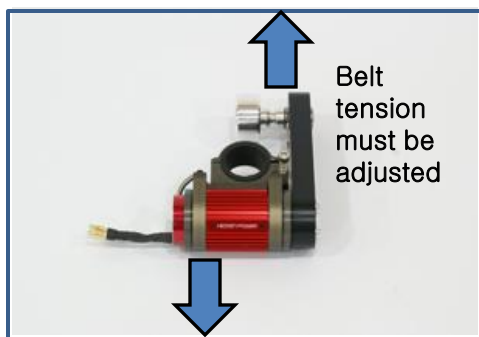
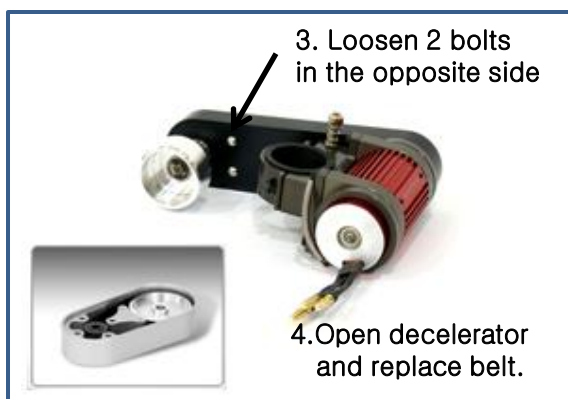
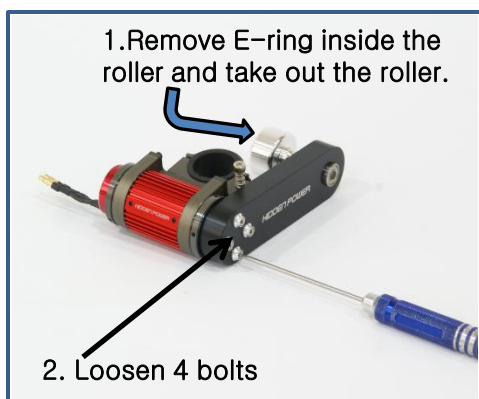
When you dispose the battery, please follow regulations of the region or the country.



## 8. Service and Maintenance

This electric power conversion kit is a low-maintenance product that rarely needs repair but for your safety, we recommend you to have the product checked serviced every 1,000 kilometers.

- **Accelerator dial**
  - The accelerator dial is consumable. It has 10,000 hours of life expectancy. However it may be shortened when overloaded. Replace accelerator compartment if it is necessary.
- **Remote Lock Control Cable** – Replace the cable in case of abrasion.
- **Maintenance and replacement of decelerator belt**
  - The belt is consumable. We suggest to replace belt every 3,000~5,000 kilometers for your safety.
  - Overload under unfavorable circumstances may cause damage or stretch to belt. Please examine your belt every season.



**⚠ Take reversed step when assembling the product after belt replacement. As you see in the picture, hold the decelerator body and apply some pressure while tightening bolts. Make sure you set the belt tension tight enough.**  
Put in the four bolts at the same time and adjust a little one by one. Do not tighten completely one bolt at a time. It may cause the belt be distorted or loose its tension.

- **Friction Roller** – Roller is a consumable. Replace it every 3,000~5,000 Kilometers. How fast it wears out depends on how and how often you use the product. Check the roller often and replace when you consider it is necessary.
- **Battery** – The battery is also a consumable. Buy a new one when your battery no longer holds sufficient charge to meet your needs. .
- **Tire** – Because of the product's unique features, tire surface may wear out quicker.
- Please check the rear tire and if it shows sign of deterioration, rotate with the front tire or replace with new one.

# Service and Maintenance

## • Bike wash and other maintenance

- Do not apply chemical substance (detergent or lubricant) on the driving unit.  
This may damage the bearing and cause malfunction.
- The product is basically water resistant but avoid cycling in heavy rain or washing with high pressure washer. Please disconnect the battery and the speed controller when washing your bike and do not use high pressure washer especially for the driving unit.
- Do not disassemble the motor, battery or speed controller for self-maintenance.
- Do not try self-renovation or assemble with other unidentified speed controller or battery. It can do a serious damage to the product.

## 2) Troubleshooting

- Please contact our customer service center if you are experiencing trouble that is not listed below.

Symptoms	Possible Reasons	Solutions
Motor does not spin	<ul style="list-style-type: none"> <li>- Battery may be damaged or fully discharged.</li> <li>- Bad connection.</li> <li>- Accelerator failure.</li> <li>- E-speed controller failure.</li> <li>- Motor failure.</li> </ul>	<ul style="list-style-type: none"> <li>- Charge or replace battery.</li> <li>- Check connecting points around the connector.</li> <li>- Short circuit or failure of accelerator dial.</li> <li>- Repair or replace E-speed controller.</li> <li>- Replace motor.</li> </ul>
Motor spins, but the friction roller does not	<ul style="list-style-type: none"> <li>- The pulley inside the decelerator may be loose</li> <li>- Loosen or damaged belt</li> <li>- One way bearing inside the roller may be damaged</li> </ul>	<ul style="list-style-type: none"> <li>- Re-adjust the pulley</li> <li>- Re-adjust belt tension or replace belt.</li> <li>- Replace roller</li> </ul>
Roller spins, but the tire does not rotate	<ul style="list-style-type: none"> <li>- Friction roller's grip may be decreased.</li> <li>- Insufficient air pressure in the tire</li> </ul>	<ul style="list-style-type: none"> <li>- Replace roller</li> <li>- Check tire air pressure and deterioration status.</li> </ul>
Speed and power is reduced	<ul style="list-style-type: none"> <li>- Faulty and aged battery.</li> <li>- Tire grip may be decreased.</li> <li>- E-speed controller failure.</li> </ul>	<ul style="list-style-type: none"> <li>- Check or replace battery.</li> <li>- Replace tire or re-adjust friction position.</li> <li>- Repair E-speed controller.</li> </ul>
Case of abnormally excessive noise	<ul style="list-style-type: none"> <li>- Bad installation of drive unit</li> <li>- Tire abrasion or friction point deviated on the tire tread.</li> <li>- Decelerator belt may be loosen.</li> <li>- Damaged bearing(s).</li> </ul>	<ul style="list-style-type: none"> <li>- Re-install the driving unit.</li> <li>- Replace tire or re-adjust the friction point on the tread.</li> <li>- Replace tread.</li> <li>- Replace bearing(s).</li> </ul>
"Slow Start System" does not work. While sudden stop, "auto power cut-off system" does not work. Can not control the speed.	<ul style="list-style-type: none"> <li>- E-speed controller failure.</li> <li>- E-speed controller failure.</li> <li>- E-speed controller or accelerator failure.</li> </ul>	<ul style="list-style-type: none"> <li>- Repair or replace.</li> <li>- Repair or replace.</li> <li>- Repair or replace.</li> </ul>
Etc.	<ul style="list-style-type: none"> <li>- It may be complicated problem in electronic or driving parts.</li> </ul>	<ul style="list-style-type: none"> <li>- Overall examination is needed. Please contact our service center.</li> </ul>

## 3) Repair Service

- (1) **Free service** : Until 6 months from the date of purchase (except for consumable parts)
- If the product was damaged during delivery, contact us immediately and we'll replace it by a new one.
- (2) **Charged service** : After your 6-months warranty is expired, repair costs will be charged. Cases below are not covered by the warranty even when your warranty is still valid.
- Failure caused by user's carelessness.
  - Damages caused from not observing the instructions we provided.
  - Damage from external shock
  - Damage from misuse we prohibit in this manual.
  - Failure caused by self-renovation we prohibit in this manual.
  - Damage caused by Force Majeure
  - Not registered product or with no warranty certificate

## (3) Shipping Policy

: Shipping (both ways) is free within seven days from delivery.  
Replacement is possible only when returned product is not damaged.  
Change-of-mind return is not available.

- Shipping is free within the warranty period.
- Both customer and we bear the shipping fee for charged services within the warranty period.
- Shipping costs both ways is customer's responsibility after the warranty expires.  
(In this case, repair cost involves the shipping fee)

Registration on our website is recommended for your better and more convenient customer service. For further information, please contact your customer service center or the shop you purchased the product.

We can provide a faster and more efficient service if you send the part in need of repair.

Address: Hidden Power Inc.

6<sup>th</sup> floor, Namdo Bldg. 570-1, Sinsa-dong,  
Gangnam-gu, Seoul, South Korea  
135-891

☎ Customer service center : +82-2-545-9700

## 9. Product Specifications

Items	Specification	Additional information
<b>Motor</b>	<ul style="list-style-type: none"> <li>- Brushless DC Motor</li> <li>- Rated power : 300W</li> <li>instant max. power : 600W</li> </ul>	<ul style="list-style-type: none"> <li>- Hand made BLDC Motor</li> <li>- High quality bearing</li> </ul>
<b>Electronic Speed Controller</b>	<ul style="list-style-type: none"> <li>- 80A</li> <li>- auto power cut-off at low voltage or excessive current</li> <li>- Dial , Hall sensor type , PAS (Power Assistant System)</li> </ul>	<ul style="list-style-type: none"> <li>- Proportional variable control system</li> <li>- "Slow Start System" preventing sudden start</li> <li>-Auto power cut in case of sudden stop, overload, battery out.</li> </ul>
<b>Battery</b>	<ul style="list-style-type: none"> <li>- Li-Po, 14.8V 18Ah (16.8V: full charged)</li> <li>-Inbedded PCM( battery protection circuit)</li> <li>-Inbedded individual cell charge balance control circuit</li> <li>- 4 steps LED Checker</li> </ul>	<ul style="list-style-type: none"> <li>-Overcharge preventing system</li> <li>- Full individual cell charging system</li> <li>- High quality matched cells</li> </ul>
<b>Charger</b>	<ul style="list-style-type: none"> <li>- Li-Po charger</li> <li>- Input : 100~240V, 50~60Hz</li> <li>- Output : +16.8V 2.5A</li> </ul>	<ul style="list-style-type: none"> <li>-3-level LED display of remaining battery level.</li> <li>- Compliant to global safety standards</li> <li>-Charging time : 6~7 hours (after fully discharged)</li> </ul>
<b>Maximum speed</b>	-approx. 30Km/h (without pedaling)	- Conditions : bicycle(10kg), adult(80kg), on paved flat road without wind
<b>Mileage</b>	<ul style="list-style-type: none"> <li>- approx. 30Km (without pedaling)</li> <li>- Above 60Km (with pedaling)</li> </ul>	- Range and speed could be varied upon bicycle type, rider's weight, road condition and wind speed.
<b>Weight</b>	- 2.5~2.6kg including battery	<ul style="list-style-type: none"> <li>- Standard Kit</li> <li>※ The total weight varies depending on the different kit composition upon each minivelo bicycle's form.</li> </ul>

※ Hidden Power's electric power kit observes safety requirements of products subject to Self-regulatory Confirmation set by Korean Agency for Technology and Standard (KATS).

⚠ The specifications are subject to change without prior notice.

# Warranty Certificate

<b>Product</b>	<input type="checkbox"/> RB-1 <input type="checkbox"/> MV-1	<b>Date of production</b>	
<b>Date of purchase</b>		<b>Serial No.</b>	
<b>Dealer</b>		<b>Telephone</b>	
<b>Customer</b>		<b>Telephone</b>	

Valid for  
6 months from the date  
of purchase.

Please keep this Warranty Certificate with your purchase receipt,  
as it will be needed when claiming service items of this Warranty. .

## Warranty policy

Types of customers' damages		Expenditure of compensations	
		Within the warranty period	After the warranty has expired
Malfunction or failure in normal use	Major repair is needed within a month	Replace the product	
	Repairable	Free charged repair	Charged repair
	Irreparable damage	Replace the product	
Malfunction or failure originated by customers' carelessness or mistakes	repairable	Charged repair	Charged repair
	Irreparable damage		

- "Major repair" is the repair needed due to fundamental defects of the product such as defective product design, defective parts or defects created in the process of manufacturing.
- Repair cost will be charged to the customer within the warranty period in case of following reasons.
  - Malfunction originated by customer's misuse, force majeure (e.g. fire, flood), or self-renovation.
- After the warranty has expired, repair cost will be charged.

- Manufacturer : **HiddenPower Inc.**
- Address : 6<sup>rd</sup> floor, Namdo Bldg. 570-1, Sinsa-dong Gangnam-gu, Seoul, South Korea
- Telephone : +82-548-8800, +82-545-9700(C)
- Website : [www.hiddenpower.co](http://www.hiddenpower.co) (English)

- Retailer :