Renaissance Bicycles Installation Guide

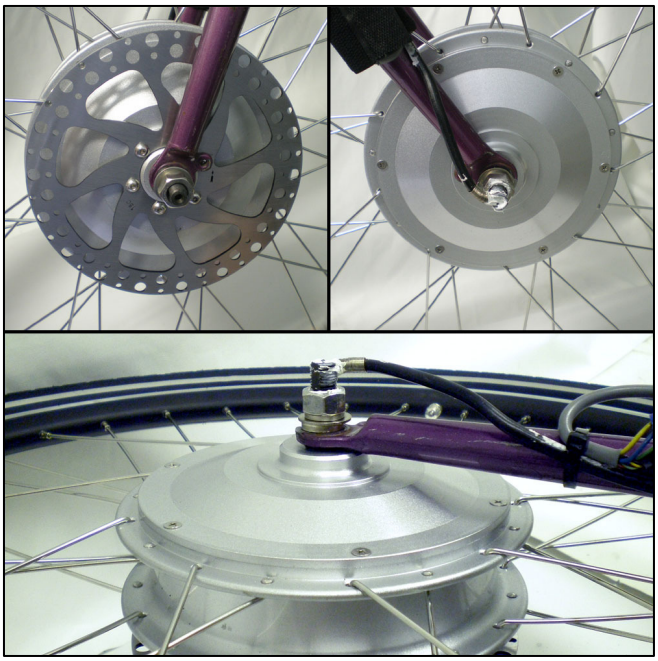
eZee Electric Bike Conversion Kit

The following guide will help you successfully install your eZee Electric Bicycle Conversion Kit. This kit contains a hub motor, battery, and all the electronics necessary to bring electric power to your ride. Installation can be accomplished with basic bike maintenance tools and takes between 30 minutes and 2 hours.

New eZee Kit installed on an old purple mountain bike

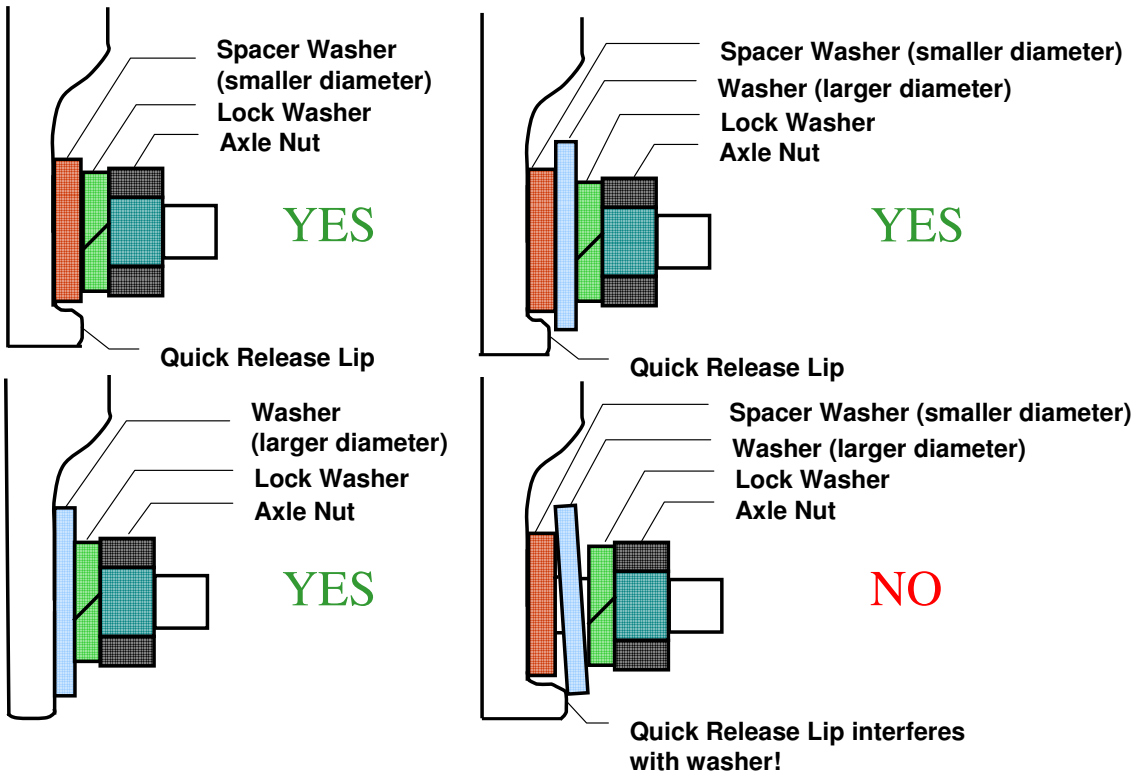
Hub Motor Installation

The easiest way to mount a hub motor and secure the front wheel is to orient your bicycle upside down resting on its handlebars and seat, if you don't have a bike stand available.



Some key guidelines:

- Remove original front wheel
- Orient the hub motor so that, when facing forward, the disc brake is on the left-hand side of the bike and the electric cables are on the right.
- If the bike does not have disk brakes, the disk rotor can optionally be removed from the hub. Removing the disc will expose the inside workings of the hub via the bolt- holes. The holes need to be filled with the bolts and small washers.
- Check if the axle can be slid inside the slot in your fork. If there is difficulty, then a small amount of filing may be necessary.
    - The hub motor axles are ground flat to 10mm on 2 edges. Ideally, your bicycle dropout slots will also be 10mm wide and the motor will slide into place.
    - If your axle does not slide into the dropouts, some minor modification is required by using a file to a) enlarge the dropout slot and/or b) file down the axle flats so the axle slides snuggly into the dropout
    - Note: When filing is required, only enlarge enough for a snug fit. Avoid over filing.



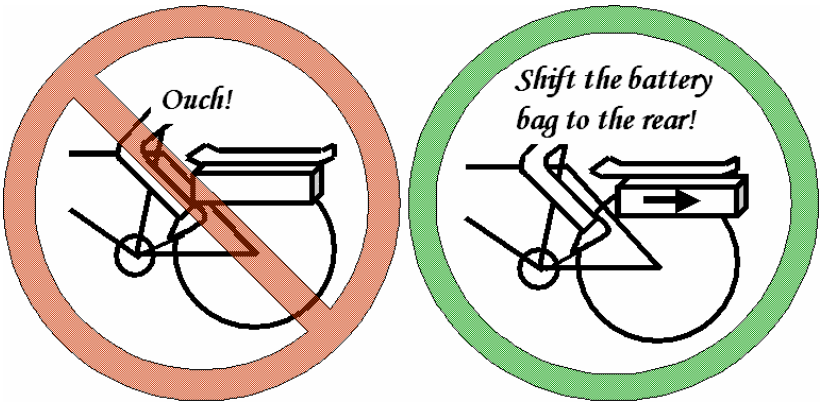
- After ensuring that the axle sits deeply and snugly into the dropout slots, the axle must be secured tightly to the fork using the washers, lock washer, and axle nut. The inner washer is designed to fit inside the quick release recess. *If the nut gets loose, the torque of the electric hub motor is sufficient to cause the axle to spread the dropouts apart and spin out, possibly severing the power and Hall Effect wires and causing the wheel to detach from the bicycle.*
    - On one side of the axle, wires exiting through the axle prevent the washers and nut from being removed. The smaller diameter washer, larger diameter washer, lock washer, and axle nut must be secured so they all sit flat against each other.
    - On the opposite side, there is an option to exactly mirror the first side. Alternatively, depending on your bike geometry and if you have a quick release lip, you can eliminate one of the smallest diameter washer or larger washer. The diagrams above illustrate each case. Next, follow the washer by the lock washer, and then the axle nut.
    - The axle nuts must then be fastened tightly, as all the torque of the motor is transferred to the frame of the bicycle through the axle flats and axle nut.
    - If your bicycle geometry is such that you fall in the 'NO' category in the above picture, some minor modifications may be required so the quick release lip does not interfere. More detailed guidance on quick release modification can be found by contacting www.ebikes.ca or your local dealer.
    - **Check and confirm you have firmly tightened the nut on your axle so all pieces sit flat against the fork.**
    - In case it wasn't clear from the last comment: **Tighten the axle nuts firmly!**

Battery Bag, Battery and Motor Controller

The eZee Kit Battery bag is designed to hook on a rear pannier rack. It holds both the Battery and Motor Controller.

Battery and Battery Bag

- The battery bag can be mounted on either side of the bike with the hooks hanging onto the rear pannier rack. Mount the bag in the most rear position to avoid any interference with peddling: this is a common issue with panniers and the pannier rack can be adjusted to sit further back as needed.
- Place the battery in the bag such that the battery on/off switch and charging port are accessible through the flap in the bag.
- A strap and buckle are provided that can loop around the bag and prevent it from swinging or bouncing side-to-side.



Motor Controller

The motor controller contains the electronics to deliver power from the battery pack to the hub motor based on the user's throttle setting.

- Place the eZee Kit Motor Controller in the battery bag with the LED light visible through the indicator window in the bag, as well as red and black battery connectors facing up. Feed the motor controller wires out of the hole in the bottom of the motor controller pocket.

Throttle and LED Display

Throttle

Install an eZee Kit Throttle in place of your original right-hand grip on standard 7/8" handlebars. Orient the throttle so that the switch faces towards the rear of the bicycle and the thumb-switch is comfortable to turn on and off.

- Remove the grip from the bicycle and slide the throttle in place. Tighten the setscrew with a 2.5mm Allen wrench.
- Removing handgrips can sometimes be tricky. Bike shops usually use compressed air; other tricks involve squirting hairspray or lubricant under the rubber. The eZee Kit Throttle is complete with a grip, so it is always an option to cut off stubborn units with a sharp knife.

LED Indicator

The Green/Yellow/Red Indicator shows the battery voltage level. Install an eZee Kit battery indicator on the left hand side of your handlebars, opposite to the throttle. Orient the indicator so that the LED faces towards the rear of the bicycle. The short 5-pin connector connects directly to the throttle. Note the on/off switch of the LED indicator is not currently wired and so the switch does not have any effect.

Wiring

The next step is wiring the components together, running the wires together along the frame and neatly securing the wires to the bicycle tubing.

- Run the motor controller wire from the battery bag to the hub motor following the bicycle frame.
- Connect the LED indicator wire back from the handlebars, back to the controller in the battery bag.

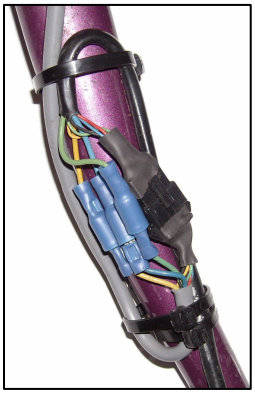

Throttle Connector

Secure the Wires:

To make your setup look pro, route the wires along the bicycle tube in a tidy fashion, using cable ties.

- The motor wires can be run from the motor up along the front fork to meet at the crossbar with the battery indicator wire. Together, they can follow the crossbar back to the controller in the battery bag.

- Ensure enough cable slack at the front forks so the wheel can turn freely without inadvertently tugging connectors.
- When securing with cable ties, feed the tie underneath exposed brake and derailleur cables to avoid interfering with these mechanisms.
- A Velcro wire covering sleeve can be used to hide the connector to the hub motor



For setups that will see frequent wet weather use, it is a good idea to cover every exposed electrical connection with self-adhesive silicone tape. Not only does this effectively seal any water from getting into and corroding the contacts, it also holds the mating halves of the connector together so they are unlikely to be inadvertently pulled apart.

Charging the Battery and LED Battery Life Indicator

The battery can be charged anytime, regardless of whether the battery is run down completely or not. When the battery is fully rundown, it will automatically shutoff and the LED display will not light up.

To charge the battery, ensure the battery switch is in the on position before connecting the charger and turning the charger on. If the battery requires charge, the orange LED will turn on and the internal fan will spin. Once charge is complete the LED light will turn green and the fan will shut off. A flat battery will take on the order of 5 hours to fully charge.

If the charger is turned on when the battery switch is off, or is not connected to the battery, the charger light will turn green, falsely indicating a full charge. Once green, a charger must be turned off and on to reset.

Since the battery is charging in the 'on' position, we suggest to make sure your throttle switch is turned off or your battery disconnected form the system so that your bike doesn't take off on you while you are charging.

When the battery is connected to your rig and turned on, the LED display will light up. (As mentioned before, the switch on the LED indicator is not connected.) The LED display lights are based on the battery voltage. The display is a very basic indication of your battery voltage: green indicates full voltage, yellow indicates low charge, and red indicates a warning before the battery automatically turns off. It takes a little while to get a feel for how long the battery will last for your unique riding route. If you are interested in a much more detailed display to monitor your battery charge, check out the Cycle Analyst available on www.ebikes.ca.

Ride On

That's all for the installation. Renaissance Bicycles hopes your electrified bicycle will help you to push new boundaries, climb bigger hills, and ride longer distances. Remember to charge your battery and that it can be recharged anytime. Regular bicycle maintenance will keep your bike in tiptop shape.

Specifications of eZee Kit Components

BATTERY

Voltage	37 V
Amp Hours	9.6 AH
Charger Currrent	2 A
Chemistry	LiMn
Weight	4.53 kg
Dimensions	37.5 x 7.0 cm

CONTROLLER

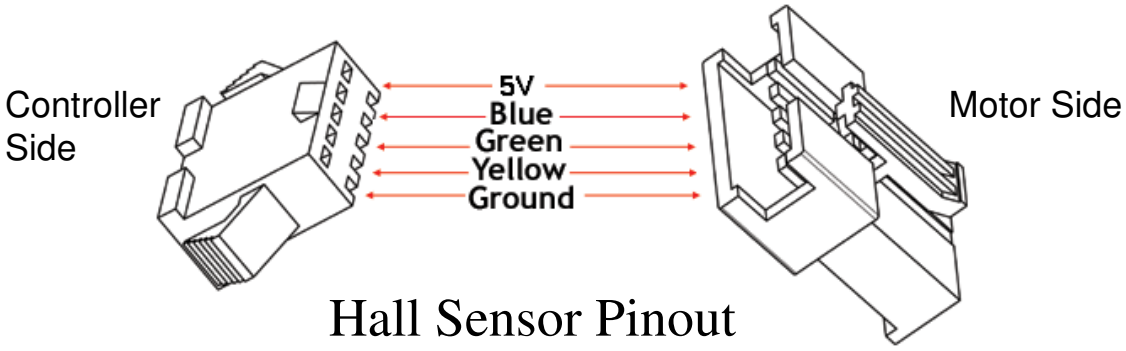
Max Voltage	44 V
Min Voltage	31.5 V
Waterproof	Yes
Current Limit	20 A
Weight	0.32 kg
Dimensions	9.8 x 6.5 cm

MOTOR

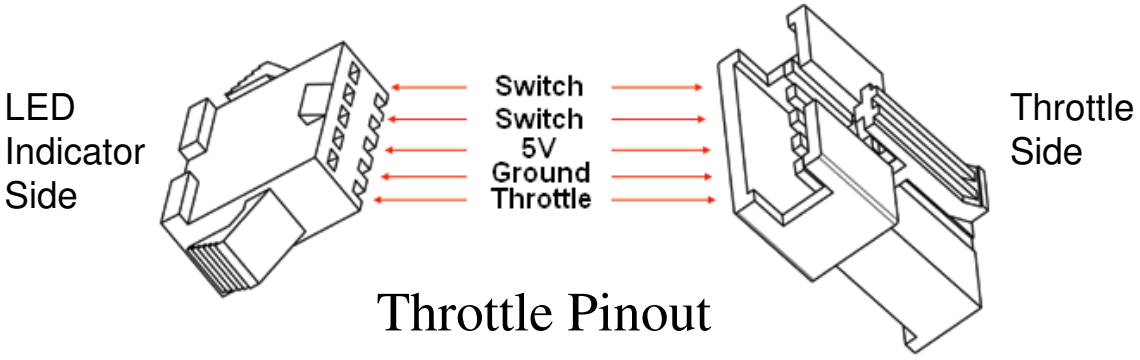
RPM/V	0.75
Gear Ratio	5:1
Nominal Power	400 W
Weight	3.72 kg

BICYCLE

Cruising Speed:	
26 inch wheel	32 kph
700c wheel	35 kph
Assisted Range	30-40 km
Motor Only	20-25 km



Hall Sensor Pinout



Throttle Pinout