



Instructions for the assembly of an electric bicycle conversion kit.

Do not connect electrical components until the wheel is secured in bicycle forks!

The fundamental components you will need for an electric bicycle conversion are: a hub motor seated in a wheel, a motor controller, a throttle, a battery and of course a bicycle. All other kit components, such as brake levers, lights and pedal sensors are optional and need not be installed for the kit to be functional. Please follow the following steps to ensure that your kit is safely installed. Do not connect electrical components until the wheel is secured in bicycle forks. Doing so will cause the cable to spin around the outside of the wheel and will result in broken cables and a non-functional wheel. Some small amount of mechanical ability is needed but if you can fix a puncture then you should not have any problem with assembling your kit. Ensure that you have steel forks before installing a kit, you can check this by making sure a fridge magnet sticks to them.

Securely attach a carrier rack above the rear wheel of your bicycle, turn the bicycle upside down, loosen brakes and remove the front wheel.

Insert the electrical wheel into the fork spaces. If it does not fit do not despair! this happens occasionally and you will have to do about 1 - 10 minutes of filing of your fork gaps. You will only have to do a small amount of filing and this will not damage the bicycle. It is important for the axle to fit tightly into the fork gaps. Make sure that the complete axle sits within the fork gap. The cable nearly always goes up the left fork , if not you will move backwards and have to reinstall with the cable going up the right fork. The washer on the outside has a hook that should face toward the fork axle gap and likely sit in the gap. There is a groove in the wheel axle, ensure this faces upwards towards the handlebars to allow the cable better guidance. Make sure that the wheel spins reasonably freely and the axle does not spin. Ensure that the wheel is very straight in the middle of the forks. Tighten up the wheel nuts ensuring that the wheel remains very straight. Tighten securely. There should be some soft resistance to the wheel spinning but not too much. Once you have reached this point you can connect the electrical components and ensure that the wheel spins in the correct direction.

Turn the bicycle the right way around and adjust the brakes. If you have and want to use a set of levers that cuts off the engine then swap your brake levers around and use your electric ones. You will likely have to adjust the brake pads to sit firmly on the bicycle rim in either case.

Place the battery bag on the rack and secure loosely with some cable ties. It is up to you to decide how to put components in the bag but I personally like to have the zip come together at the very back of the bike. I have the controller closest to the seat and the battery behind it. It is important that the controller does not touch the battery as it heats up and it is really not a good idea to heat up lithium ion batteries. Place some insulating material between the controller and battery please. With the current bags I find the neatest way to set everything up is to cut a hole in the bag below the seat and thread all the cables through this. This way when you unzip the battery bag to recharge, you can have the recharge interface facing backwards and it is very neat and tidy. You will find the best method that suits you and you can often find better battery bags at op-shops for a few dollars.



The throttle is simple to put on. First, remove the original handle-grip. A good way to get this off is to slip a butter knife or flat screw-driver under the edge, lift it and spray any type of spray you have under there. Then twist and pull. Put on the throttle and tighten it in a comfortable position. Thread the cables from the motor, throttle and any other accessories you have through the hole in the bag and connect to the controller.

The connections are straight forward and it will be difficult to mistake any as there is only one way to connect the plastic connections and everything else is colour coded. From the motor, there are three power wires and a set of 5 timing wires. Be careful not to bend the pins of the timing wires - if the motor is behaving strangely check that no pins on the connection interface are bent. There should only be one way to connect the throttle to the controller and the same is true for brake levers or pedal sensors. There will likely be some unused wires coming from the controller, just leave them alone and they won't bother you. Other things you will not likely need to know are that there is sometimes a power control limit on the controller, it's usually in the form of a thin grey or blue wire connected to itself. If this is connected then power is limited, unconnect it for more power. Also, if you purchased a mini-motor you may have to change the connections of the motor power to controller wires so that blue matches with green and green matches with blue. If you want to install a light you should wire it to the power lines - though I don't recommend installing one, it's better to use an independant battery operated light I feel. There are usually two red wires from the controller that should connect to the positive wire from the battery. These will likely be connected together already, but if you are not getting any power then check to see that there is no spare red wire. When you connect the battery you will probably hear a popping sound as electrons jump across the gap, just do it quickly and there will be no problem. Hopefully you can now turn the throttle and see your bicycle wheel spinning beautifully!

Regarding the battery. Most likely you have purchased the best option that is available (LiFePO₄), these are the safest of the lithium ion batteries and the longest lasting but you must be careful with them! Lithium is the most reactive metal on earth and there is always the potential of turning the battery into a fantastic firework! Most importantly, avoid shorting them out. You must always have a in-line fuse just in case something shorts out downstream of the battery. Avoid heat and only use an appropriate charger - do not use an SLA battery charger, if your unsure don't risk it. Also, charge your battery in a place where if something does go wrong it won't burn your house down - especially for the first few times! The batteries we supply are very safe and have battery management systems inside to prevent damage but please use your common sense and precaution. If you are not planning on using your electric bicycle for over a few days then it's a good idea to disconnect the power from battery to controller. It's not healthy for any batteries to go flat so its best to fully charge before long periods of no use. Also, fully charge the battery before first use to enhance its lifetime.

Finally, to clean up all the cables I recommend a set of cable ties and a small piece of thin irrigation hosing. Cut the hosing down the middle and put all the wires inside this. Some electric tape will hold them all in position and then you can use cable ties to hold it to the bicycle and tie up all the loose wires.

A neat way to have the battery bag sitting on the rack securely without any strap is to place a thin piece of perspex on the bottom of the battery bag. Drill some holes through the perspex and bag and then tie the perspex and bag to the rack with cable ties. This will hold the bag securely and you can position the controller and battery as you please and use foam to keep everything in place.

Please don't hesitate to contact us if you have any questions or suggestions. Wishing you the best of use with your electric bike!

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