

Version

3

POWER*in***MOTION**

Electric Bike Conversion kit installation Guide

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Overview



The guide will take you through the entire process from the moment you open the box to your first ride. We assume that your dealer has not performed any pre-assembly, but some dealers do much of the work for you. They may have packaged your system differently, might have performed part of the assembly, and might have included accessories such as a third-party speedometer or light set. Those items should have their own documentation. This guide covers installation and assembly of the equipment supplied by PowerInMotion with your hub motor system.

This kit is designed to be installed easily and give the best performance thanks to the use of its high quality components. Attentively read the following instructions before starting to install your kit. If you do not feel sufficiently qualified to install your kit you should contact your local dealer. Should one not be available, then consult a professional bike mechanic.

CAUTION

If you are not confident in your ability to assemble a safe and properly adjusted bicycle please take it to a bike shop along with these instructions. The charge may range from \$45 - \$100, and it should take a professional a short time to do the job correctly.

There are various options of configuration for your electric vehicle. Whether being front or back motor, frame-fit battery packs or a rear rack battery, every bike is different therefore your retrofit may require unique adaptations. **This guide only provides a general set of instructions that are guidelines and may not be exact instructions for your specific bicycle.** Following the set of instructions is are general trouble shooting tips for common difficulties.

WARNING

DO NOT connect the batteries before the motor is properly installed. The motor should never be started until it is tightly secured in the forks of your bike. If you operate the motor before it is installed, you will likely damage the wires. Damage from such misuse is not covered under warrantee. During the installation, refer to the diagrams included or contact the dealer you purchased your kit from for any questions may have.

Required Tools

- Wire cutter



- Allen key, 2mm & 5mm



- Tire lever



- Crescent or 17mm wrench



- Cable ties



- Freewheel remover



Package Contents

Package may vary depends what you order, and region that you are in. We carry both Canadian and US version.

- One motor spoked in wheel
- Controller
- Throttle
- Battery in hard casing or battery in battery bag
- Cable ties
- Bicycle rack or Basket

Installing Front Hub Motor

1. The front wheel of your bicycle must be removed first in order to be replaced with the motorized wheel. To see how to remove the front wheel please see APPENDIX A. Once the front wheel is removed you can install the motorized wheel. Carefully remove the motorized wheel from the box. A tire and inner tube must be properly installed onto your motorized wheel before installing it.

A new tire and inner tube can be installed onto the motorized wheel, or the tire and inner tube of your original wheel can be removed and reinstalled onto the motorized wheel. To see how to remove and install a tire and inner tube please see APPENDIX B.

2. Place the wheel onto the fork dropout.

When the motorized wheel has the tire and inner tube properly installed it can be placed into the dropouts. Ensure that the axle is completely in the dropouts (fig.1). If the dropouts are not properly installed (fig.2) it may cause the motor to dismount when operating, so please make sure the axle of the motor is flush within the dropouts.



fig.1 (correct installation)



fig 2 (incorrect installation)

When installing the motorized wheel there are two things to pay careful attention to:

a) On the **Crystalte** motor there should be an arrow (fig.3). This arrow points in the direction that the motor spins. The motor should be installed so that the spin at the bottom of the cycle faces the back of the bicycle.



fig.3

On the **2007 BL-36** and **BD-36** instant start motor there is no arrow. To ensure the proper installation the wire should sit on right hand side when on sitting on the bicycle.

b) The second thing to pay attention to is the wire extending from the hub motor (fig.4). The wire only protrudes out in one part of the hub. Make sure the wire is **pointing downwards** when being installed so that it does not get pinched by the dropouts. It is also a safety precaution to prevent water from getting into the motor and allow any water on the hub to drain away from the wiring. The wire is flexible and is later looped upwards to be secured into place.



fig.4

You may be required to file away paint on the inside of your dropouts. The paint on most bicycles is a powder coat finish that adds about a millimeter to the dropouts. Removing this may provide the 10mm spacing required for the axle to fit.

FILE AWAY ONLY THE PAINT!

Excessive filing will cause the dropouts on your bicycle experience metal fatigue and to fail and possibly break. This kind of damage will not be covered by your bicycle warranty or our warranty and will very likely cause physical harm to the rider. If you are unsure on any part of this procedure please contact the dealer you purchased your kit from.

3. Once your motorized wheel is aligned correctly in the forks the wheel can be tightened into place.

You will need to use the appropriate washers. The **Crystalte kit** includes three types of washers (fig.5):

- (1) a regular washer,
- (2) a lock washer and
- (3) a rectangular washer



fig.5

The rectangular washer is optional if it fits and locks into an existing hole meant for a fender (fig.6) without getting in the way of next washer you will be adding. From here, you will either use the regular washer or the lock washer depending on which one obtains more surface area on the dropout.

When in doubt, it is recommended that you use the slimmer lock washer, as it will usually give the most surface area for the nut to bolt onto.

The **BL-36 and BD-36 kit** comes with only a single washer (fig.7). Because the bolt is a flange nut it does not require the additional washers (but you might need a lock washer if your bicycle has a quick release).



fig.6

If your bicycle has a quick release mechanism the lock washer should be used (fig.8). If you look carefully at the dropouts with a quick release you will notice a slight indent, or basin. By using a lock washer this indent will be properly filled allowing a flush connection when the bolt is put into place. Using the regular washer on a fork with a basined ridge fork for quick release wheels would actually be levering your dropouts slowly till it gives out from the applied pressure. (please request upon on order. BL-36 & BD-36 does not provide at the distributor)



fig.7

Once the appropriate washers are in place bolt in each side of the axle and ensure a tight and secure fit. When it is tight the wheel should spin independently of the hub motor.

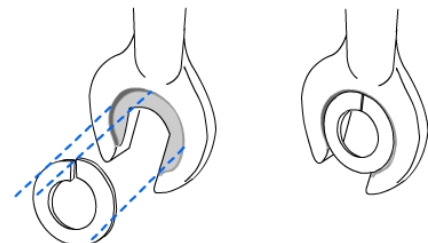


fig.8

4. Once the above steps are completed, it is best to run a quick test on your motor to find out if everything is functioning properly, and to make sure the motor is spinning in the right direction.

DO NOT attempt to run this test if the motor is not securely mounted on your forks yet.

Connect the motor and the throttle to the controller and when these connections are secure connect the battery as well. **Please refer to wiring section for more information about how wiring is completed.**

The motor should still be motionless once everything is connected. Make a quick check nothing will get caught by the spinning motion of the motor. After that you can use the throttle to test the motor out. As mentioned, the wheel should spin so that the bottom of the wheel points to the back of the bicycle.

5. Disconnect the battery, throttle, and controller once the test is complete.

Installing Rear Hub Motor

1. The rear wheel of your bicycle must be removed first in order to be replaced with the motorized wheel. The rear section of the bicycle has more parts such as the derailleur and the gears so extra caution should be used to properly remove the wheel. To see how to remove the rear wheel please see APPENDIX A.

Once the rear wheel is removed you can install the motorized wheel. Note that the wheel does not include the gears, so the gears on your existing bicycle can be installed into the motorized wheel or a new freewheel can be installed. To see how to remove and install a freewheel see APPENDIX C.

A tire and inner tube must be properly installed onto your motorized wheel before installing it. A new tire and inner tube can be installed onto the motorized wheel, or the tire and inner tube of your original wheel can be removed and reinstalled onto the motorized wheel. To see how to remove and install a tire and inner tube please see APPENDIX B.

2. After the freewheel is removed it can be installed into the rear wheel axle of any rear motor hub wheel. This is simply done by screwing it into the threads immediately next to the hub itself (fig.9). The tool is not needed in this case because the clockwise spin turns the entire freewheel including the core.



fig.9

3. There may be a need to use spacers with the freewheel. A spacer is a ring that fits around the threads of the rear axle to create extra space between the hub and the gears. All provided freewheels should come with a spacer (fig.10). It should be used at the owners own discretion in judging the spacing for the individual bicycle.

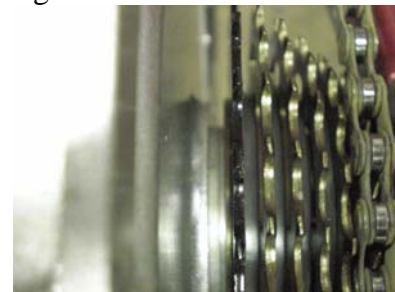


fig.10

4. When the motorized wheel has the tire and inner tube properly installed it can be placed into the dropouts. Ensure that the gears are placed properly on the chain. Extend the derailleur to provide more slack on the chain (fig.11), and the gears should be placed in between the chain's loop before putting it into the dropouts.



fig.11

When installing the motorized wheel there are two things to pay careful attention to:

a) On the **Crystalyte** motor there should be an arrow (fig.12). This arrow points in the direction that the motor spins. The motor should be installed so that the spin at the bottom of the cycle faces the back of the bicycle.



fig.12

b) The second thing to pay attention to is the wire extending from the hub motor (fig.13). The wire only protrudes in one part of the hub. Make sure the wire is pointing downwards when being installed so that it does not get pinched by the dropouts. It is also a safety precaution to prevent water from getting into the motor and allow any water on the hub to drain away from the wiring. The wiring is flexible and will be bent towards the frame to be secured later on.



fig.13

5. Once the motor is in place appropriate washers are in place bolt in each side of the axle and ensure a tight and secure fit. When it is tight the wheel should spin independently of the hub motor.
6. Once the above steps are completed, it is best to run a quick test on your motor to find out if everything is functioning properly, and to make sure the motor is spinning in the right direction.

DO NOT attempt to run this test if the motor is not securely mounted on your forks yet.

Connect the motor and the throttle to the controller and when these connections are secure connect the battery as well. **Please refer to wiring section for more information about how wiring is completed.**

The motor should still be motionless once everything is connected. Make a quick check nothing will get caught by the spinning motion of the motor. After that you can use the throttle to test the motor out. As mentioned, the wheel should spin so that the bottom of the wheel points to the back of the bicycle.

7. Disconnect the battery, throttle, and controller once the test is complete.

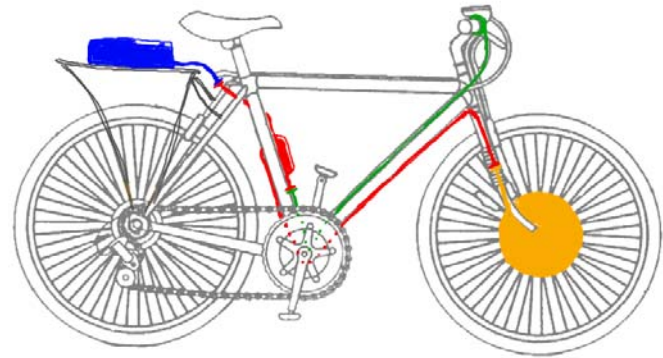
Mounting the Controller

1. The controller (red) is the central unit connecting all the other parts so its positioning is critical. Carefully assess the arrangement of your throttle and battery in relation to the motor. The controller must be placed in a location where the wiring from all three components must reach with a reasonable amount of slack.

The motor (orange) has the shortest wiring so accommodate for that first.

The battery (blue) may be mounted on the rack or it may be mounted within the bicycle frame so it is important to determine the location before mounting the controller. That way if the wire is too short to reach the battery, you will know to mount the controller else where.

The throttle (green) typically has the longest wire, but ensure that there is enough slack to allow full rotation of the handlebars.



- Controller
- Throttle
- Motor
- Battery

There are two different sizes of controllers. Small and large. The smaller controllers (fig.14) are plastic and not very wide allowing it to be mounted onto the frame of any standard bicycle. Larger controllers (fig.15) are metallic and due to the greater width should be mounted underneath the rack or attached sideways with the thinnest part of the controller against the frame.



fig.14



fig.15

Suggested mounting locations:

Mid-frame (rear)

- This is the best location to mount small controllers included in most of the **Crystalyte** kits.
- Larger controllers from the BL-36 can be mounted sideways in this location, but it may not be a secure fit.

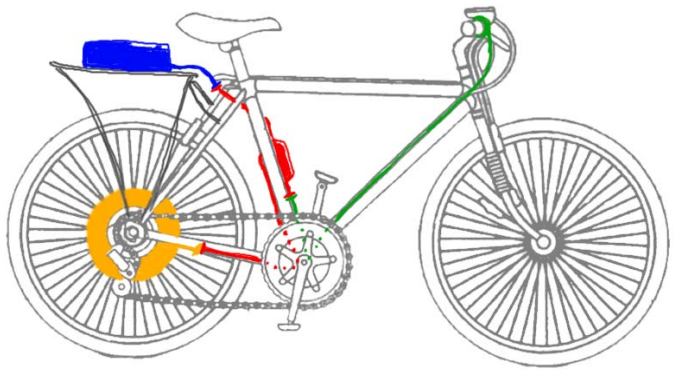


fig.16

Mid-frame (top)

- Small controllers can also be mounted on the horizontal bar of the frame instead of the vertical one.
- It still provides a central location and easy installation.

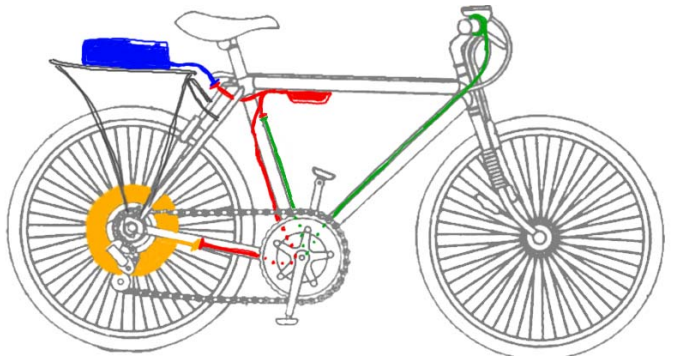


fig.17

Under the rack

- For the larger controllers it is ideal to mount it directly underneath the rack since it doesn't fit onto the frame posts very easily.

Note that the battery can also be placed mid-frame to eliminate the use of a rack.



fig.18

2. Once the ideal location for the controller is set it can be mounted into place. The battery is usually near the top of the bicycle while the motor near the bottom so make sure the wire for the motor is pointing downward and the wire for the battery pointing upward before mounting. Once everything is set use the zip ties and fasten the controller to the part of the frame you have selected. Make sure the controller is firmly in place and will not shift or slide.

Attaching the Throttle

1. To install the throttle the handles must first be removed. The simplest way to do this is to lubricate the inside of the handle and twist it off carefully.

A screwdriver can be wedged underneath the handle, and the lubricant can be poured inside the handle (fig.19). A solution of soap and water is a sufficient lubricant that also doesn't leave any residue.



fig.19

Another trick to remove the handle is with an air compressor. If you cover the hole in the end of the handle you want to remove, then blast air in through the opposite handle the pressure will lift the handle from the handlebar making it easy to remove.

2. After the handle is off the throttle can be put into place. Slide in the throttle and then tightened it into place using the proper Allen key (fig.20). Be sure that the throttle is set at a comfortable angle for use, and, for thumb throttles, make sure the range of motion of the throttle is not hindered by any other equipment (eg: shifters, wiring, etc.)



fig.20

3. The throttle should also include a set of handles to be installed after the throttle is in place. The handles differ depending on the type of throttle.

For a thumb throttle, the handle that does not flare out at the end accompanies the side the throttle is attached to. The flared handle is for the side without the throttle, and is optional to the existing handle on the bicycle.

For half twist throttles, there is a shorter half-handle to be used with the throttle.

For full twist throttles, the throttle itself is the handle and the additional handle is optional for installation on the opposite side.

Completing the Wiring

1. Once the controller and throttle are in place the wiring can be completed. The arrangement of the parts should have been previously decided on when mounting the controller onto the bicycle. In following the arrangement all the wires should have enough slack to reach the controller. If not the controller needs to be mounted in a different location.
2. The first wire to work on is the one from the hub motor.

If you have a **front motor** the wire coming from the hub should be pointing upwards towards the fork. This set of wires can be secured to the fork using the cable ties. Ensure that there are no obstructions to the wheel itself or something might become damaged.

For front motor installations the wire from the controller for the motor will be longer. Depending on the position of the controller the wire can run along the bottom or top of the frame of the bicycle towards the front forks. Make sure the wire is not obstructing the brake and shifting cables before securing it onto the frame.

When connecting the **Crystalite** motor cable take careful notice of the orientation. These connectors can only be connected in one specific orientation. The small tick on the outer edge (fig.21) has a specific counterpart on the other end of the connector so be sure to match these up before connecting. **DO NOT** force the wires to connect at a different orientation or the connector may get damaged.

For pictures of the other connectors please see APPENDIX D.

If you have a **rear motor** the wire coming from the hub should point towards the front of the bicycle along the frame. This set of wires can be secured to the fork using the cable ties. Ensure that there are no obstructions to the wheel itself or something might become damaged.

The wire from the controller for the motor should run down towards the pedals before towards the motor. This is because the wire from the motor is horizontal in position and may cause damage if forced to point upwards. Make sure the wire is not obstructing the pedals or the brake and shifting cables before securing it onto the frame.

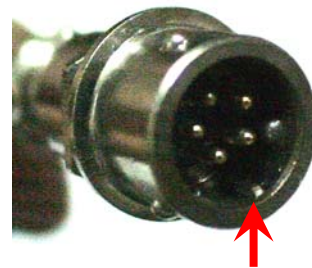


fig.21

- The second wire to attach is the throttle. It can either be run towards the bottom of the frame, under the pedals and back up (fig.22) or run along the top of the frame (fig.23). The connector for the throttle is either 3-pins or 4-pins so be sure you plug it into the proper wire from the controller. Note that there are some 3-pin controllers with the width of a 4-pin, so these can be plugged into a 4-pin connector.

With either arrangement it is important to consider the amount of slack near the handlebar. There should be enough slack to rotate the handlebar a complete 90 degrees without straining the wire. The easiest way to ensure enough slack is to line the wire along the brake or shifting cables before mounting it onto the frame.

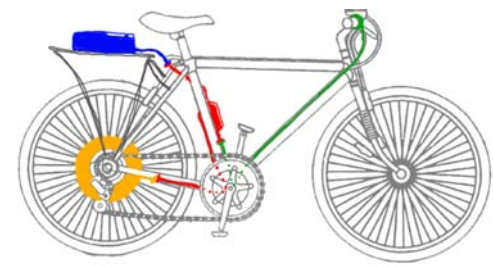


fig.22

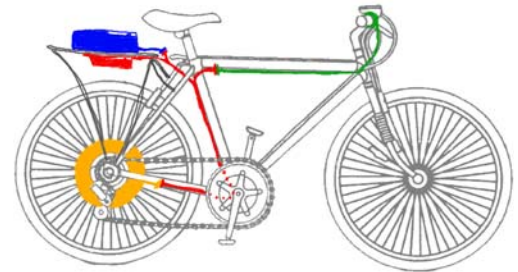


fig.23

- The third and final wire to attach is the battery. Both the throttle and motor should be connected with the wires securely in place before attaching the battery. Also the battery should be mounted securely into place before connecting it onto the controller. If the battery is to be mounted on a rack, instructions for mounting a rack can be found in APPENDIX C.

Depending on the location of the controller the wire for the battery may be too long. It would be best to tie up any extra slack in the wire to prevent the wire from moving around to be safe. A loose wire may end up obstructing the spinning of the wheel and/or may be cut or damaged due to extraneous movement.

Once the battery is securely in place and there is no extra wire moving around the battery can be connected. The connectors for the batteries should only connect one way. For colored connectors make sure the correct colors are connected to one another (eg: red to red and black to black).

WARNING

There is one peculiar case for the BD-36 controllers. **Both the battery and motor cables have the same connector (fig.24).** One is very long with red and black colored wires and this is for the battery. The other has a shorter blue and green colored wire and this is for the motor. Make sure to connect the proper wire to the proper component or it may result in damage.



fig.24

- After all the wiring is complete a quick test can be run to see if everything is running smoothly. Make sure the throttle is able to spin the motorized wheel, and also check to see if the crank can be easily pedaled without any problems.

If there are any problems the wiring should be double checked to see if the proper connections are

made to the controller, and to see if there might be any loose connections.

Troubleshooting and FAQs

1. The axle does not fit into the dropouts. What can I do?

You may be required to file away some of the paint within the dropouts to increase its width. The axle fits into a 10mm dropout, but the paint sometimes adds an extra 0.5-1.0mm.

2. The controller has some extra wires and connectors. Are these necessary for the kit to work?

No, these extra connectors are not necessary. As long as the main components of the battery, throttle, and motor are connected the kit should work. The extra wires are for optional parts such as a pedal assist, monitoring device, e-brakes, or cruise control. For more information on the connectors please see APPENDIX D.

Each of the wires have their own purpose and may or may not be labeled. **Be careful not to connect any of the wires on the controller to any other wire on the controller for this may cause short circuiting of the controller.** They are only meant to be connected to its designated component.

3. Can the motor be converted into a different size wheel?

Yes, the hub motor can be converted by changing the rim and tire as well as replacing the spokes. Since the motor is larger than a typical bicycle hub the length of the spokes must be carefully measured to provide the correct size. Also, even though the wheel size can be changed the dimensions of the motor remain the same so it is important to see if the bicycle has the correct dimensions to accommodate for the size of the motor.

4. Can a throttle be installed in either the left or right hand side?

There are specific handed throttles that fit onto only one particular side. They are designed so that the throttle is twisted towards the rider to accelerate. It would be possible to install into the opposite side of the designed purpose, but it would require twisting away from the rider. This is not a suggested option as it may be difficult to control.

5. Can number of gears be changed on the rear wheel when it is converted?

Yes, the number of gears can be changed by changing the freewheel installed on the rear motor. For Crsytalyte rear motors the maximum number of speeds it can fit is 8-speed. Any freewheels higher than 8-speed will not be compatible with the motor due to the increased width that it would need to fit in the dropouts.

6. After I installed the motor into place I plugged in all the components to test it, but the motor will not start. What should I do?

The first step to take is to check if there are any loose connections. The next step to take would be to check if the battery is switched on if you have a key switch or a Crystalyte Journey kit. Also check to see if the battery is fully charged. On the charger there is a small LED light that turns red when the battery is not fully charged and green when it is fully charged. If these two steps do not resolve the

problem the next item to check is the controller. Some controllers also have a power switch so ensure that it is in the 'on' position. If all these steps fail there may be a problem with the motor itself or the controller. Please contact the dealer for further consultation.

7. When I charge the battery there is always a red light there. Is my battery charging?

If the indicator light is not turning green the battery may not be charging properly. The voltage of the battery should be checked using a volt meter. For 36V batteries it should read about 40V when fully charged, and for 48V batteries it should read close to 52V. After charging for a few hours if the appropriate reading is showing then the indicator light is faulty. If not, then there is a problem with the battery and/or charger. Please contact the dealer for further assistance.

APPENDIX

APPENDIX A: Removing a Bicycle Wheel

1. The easiest way to do this is to flip your bicycle upside down having the bicycle sit on the handlebars and the seat to provide a stable structure to work with. Be sure to remove any accessories you may have on the bicycle (eg: headlights, speedometer, etc.) before flipping it over.
2. The wheel is attached to the bicycle via the axle. There are two different types of axles.

The first is the more traditional bolt screwed on to hold the axle in place (fig.i). To remove this use the appropriate size wrench and remove the nut and the washers holding the wheel in place.



fig.i

The second is a more recent design called a quick release (fig.ii). This type of axle is held into place using tension provided by springs in the quick release mechanism.

To remove this pull the tab to loosen the tension, then unscrew the cap on the opposite side to remove the axle. Once the axle is removed the wheel can be removed as well.



fig.ii

3. If the bicycle has V-brakes some accommodation of the braking system is needed before the wheel can be removed because the V-brakes do not provide enough room for a fully inflated tire to pass through. To solve this, the tire can be deflated almost completely so that the tire can squeeze through the V-brakes. To deflate the tire look for the valve on the inside of the rim and remove the cap. There is a small piece inside that looks like a pin (fig.iii). Open the valve by pressing the pin to release the air inside the tube.



fig.iii

4. The wheel should be easily removed once these steps are taken. The front wheel comes off of the front forks and should be placed somewhere safe.

The rear wheel must be more carefully removed because of the chain and gearing. Ensure that the

gears are removed from between the chains. Pulling on the derailleur may help.

APPENDIX B: Removing and Installing an Inner Tube and Tire

1. To remove the inner tube and tire the bicycle wheel must first be removed. Please see APPENDIX A for instructions.
2. With the wheel removed the tire can then be removed from the wheel. First deflate the tire so that there is no pressure in the tube which provides room between the rim and the tire. Squeeze the tire so that there is a gap between the rim and the tire.

On the tire lever there is a small hook at one end (fig.iv). This is the end of the tool needed to remove the tire. Wedge the tire lever into the rim and underneath the lip of the tire so that the lever hooks underneath the lip (fig.v).



fig.iv



fig.v

With the tired hook push the lever towards the rim so that the tire is pulled out of the rim. Then slide the lever along the circumference of the rim to pull the tire out on that entire side of the wheel (fig.vi).



fig.vi

Do this on both sides of the wheel to remove the tire and the tube inside completely from the rim. The cap on the tube needs to be taken off before the tube can be removed.

3. Once the tire and tube are removed they can be installed into another wheel.

Place the tube and tire onto the new wheel. Be sure to line up the valve of the tube to the hole in the rim. Make sure that the valve is completely through the hole and make sure that the tube is comfortably in the rim (fig.vii and fig.viii). It may help to partially inflate the tube so that it is slightly firmer.

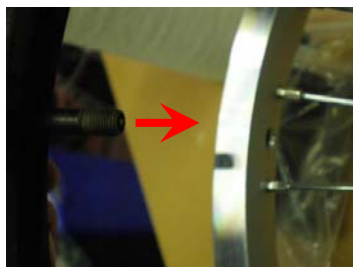


fig.vii



fig.viii

Once the tube is in place the tire should cover the tube. The tire lever is used again to place the lip of the tire into the new rim. This time wedge between the tire and rim so that the lever hooks underneath the rim (fig.ix). Pull the lever away from the rim to push the tire down and slide along the circumference to push the tire in on that entire side of the wheel.



fig.ix

APPENDIX C: Mounting the Rack

1. Most bikes will have screw adaptations along the frame by the back axle for a bike rack. The standard rack is adapted to fit on your rear axle screw adaptation and your seat post adjustment. The adaptation of the rear axle just uses a screw to attach (fig.xi). For the seat post adjustment remove the bolt or quick release in order to attach the rack (fig.xii). Some seat adjustments (mostly quick release latches) may not be suitable for the standard rack and may need to be adjusted.



fig.x



fig.xi



fig.xii

APPENDIX D: Wire Connections

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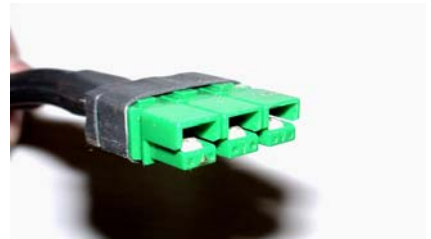


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APPENDIX E: Mounting Journey kit battery

1. The Crystalyte Journey kit - battery pack comes with a hard shell plastic casing. The battery can be mounted on a few positions onto the bike frame.

The most common and simplest location is the bottle cage. The spacing of the bottle cage matches directly to the spacing of the holes in the mounting bracket (fig.xiii). The entire mount simply can be secured to the frame with two screws.



fig.xiii

2. If this is not the ideal situation the bracket can also be mounted using the host clamp that comes with the package. This clamp is used to strap the bracket down onto the frame rather than be mounted into the frame like the bottle cage (fig.xiv). This provides added flexibility to mount onto different parts of the bicycle frame.



fig.xiv

3. Once the mounting bracket is in place the entire battery casing can slide onto the bracket to be mounted. Make sure the wire extending from the battery is not pinched by the bracket and is clearly through the opening in the back of the casing.



APPENDIX F: Installing Journey kit Pedal Assist System (PAS)

The Crystalyte Journey kit comes with an additional system called the Pedal Assist System (PAS). This component allows the pedaling speed to be used to run the motor. With this system active the motor will double the rotational speed produced by pedaling. For customers that may have difficulty holding onto the twist throttle or press down the thumb throttle for too long (eg: arthritis) the PAS is ideal. This system can also be of interest to those who enjoy pedaling over the throttle, or those who want exercise during commuting.

This type of package was put together for the European market since there are bylaws in Europe, specially the United Kingdom, that require any electric bicycle to be activated by pedaling. We do not have such laws in North America so this is an optional component for installation.

It is not recommended that this component be installed due to various difficulties associated with it. The magnetic disc needed to operate the PAS is often incompatible with the cranks of various models of bicycles here in North America. There is also a greater need for bike mechanic skills and specialty tools in order to complete the installation if it is compatible. Overall it is not recommended for the PAS to be installed.

If the installation of the PAS is insisted we suggest the bicycle be brought over to a professional bike mechanic to be assessed for compatibility and to be installed thereafter. The following instructions should be provided as well.

1. The Pedal Assist System (PAS) consists of two parts, a metallic ring and a magnetic disc. The metallic ring has a magnet attached in the small plastic component which reads the rotational speed of the magnetic disc in order to duplicate its speed using the motor.
2. The metallic ring is installed via the bottom bracket. The metallic ring is held in place by inserting the bottom bracket through the ring with the small plastic component pointing upwards so that the wire extending out can be easily run along the frame of the bicycle (fig.xv).



fig.xv

3. The magnetic disc fits in between the gears and the bottom bracket on the rotating axle (fig.xvi). The disc can be wedged into fit on the axle.



fig.xvi

4. Ensure that once the gears are reinstalled that the magnetic disc does not directly contact the magnet on the metallic ring. The magnetic disc should be 1-2mm away from the magnet on the metallic ring to freely rotate when the crank is rotating.

If the magnetic disc contacts the magnet on the metallic ring it is likely that the PAS is not compatible with this particular set-up on the bicycle. We have noticed that gears with these protrusions (fig.xvii) end up pushing the magnetic disc in too far creating contact between the disc and the magnet on the metallic disc. This would have to be filed down or replaced with a different set of gears in order for the PAS to work properly.



fig.xvii

5. If everything is in place and the magnetic disc is able to rotate freely then the wire from the metallic ring can be connected into the controller for the PAS system to be active. There is a power switch on the side of the controller designated for the PAS so be sure to turn this on before testing the system (fig.xviii).



fig.xviii