EN

Installation Manual

Electrical Drive for the Quattrocycle

Safety regulations

With use of battery powered devices it is strongly recommended to use fitting safety regulations for the protection of the user against fire hazard, release of battery acid, injury or material damage. The following regulations are some that has to be followed:

Take the environmental conditions into account

- Do not expose the vehicle to water or snow
- Do not repair/mount the vehicle in wet environments
- Do not repair/mount the vehicle in environments where there are fire or explosive hazards.

Keep your attention to what you are doing

- Think of possible dangers before they occur
- Use common sense while working/using the vehicle
- Never use or work on the vehicle under the influence of alcohol

Remove the battery

Remove the battery under the following cases:

- While the vehicle is not in use
- While working on the vehicle

Use the cable with care

- Do not hang the charger from its cable
- Do not pull on the cable to remove the plug from its socket
- Keep the cable clear from any heat sources, oils and sharp edges

Store the vehicle in a safe place

- Store the vehicle, battery and charger in a safe and dry place after use outside the range of children

Maintain the vehicle with proper care

- Keep the vehicle clean to maintain a safe user experience
- Maintain the safety regulations while performing maintenance or changing accessories
- Keep the handles and switches free of water, oil and grease

Repairs

- The vehicle meets the matching safety requirements
- Repairs can only be done by qualified mechanics with use of original spare parts

Additional safety regulations for batteries and chargers

Batteries

- Never try to open the battery
- Never expose the battery to water
- Keep the battery in places where the temperature never exceed 40 degrees Celsius
- Charge batteries only while the environmental temperature is between 15 and 30 degrees Celsius
- Charge batteries only with the provided charger
- Check if the battery is dry and clean before charging
- Use only the correct type of battery to power the vehicle
- Dispose the battery with the correct care for the environment
- Never burn the battery
- Do not try to charge a damaged battery
- Prevent short circuit the battery
- Charge the battery once every two months by minimum, even while not used
- Charge battery directly after use

Charger

- Only use the charger with corresponding batteries
- Other batteries can burst and cause injury to the user while using the wrong charger
- Never try to charge not rechargeable batteries
- Repair a damaged cable immediately before using again
- Do not expose the charger to water
- Do not open the charger
- Do not put objects inside the openings of the charger
- Use the charger only inside
- The charger is double isolated, therefore a ground wire is not required
- Only use the charger in sockets with corresponding AC voltage
- Never use a normal cable without charger to charge the battery

Requirements:

Step 1: Disassemble the mountset

Step 2: Check and installation extra sprocket

- Extra sprocket with freewheel 1x

Step 3: Mounting the mountset

- Mountset with motor and controller 1x
- Exhaust clamp 58mm with locknut M8 2x
- Pedal assist sensor 1x
- Pedal assist sensor plug 1x
- Sticky cable holder 1x
- New steering handles 2x

Step 4: Mounting the chain

- Chain of approximately 42 shackles 1x
- Closing shackle 1x

Step 5: Mounting the safety covers

- Right safety cover 1x
- Left safety cover 1x
- M5x10 bolt 6x
- M5 ring 6x
- Rubber seal 1x

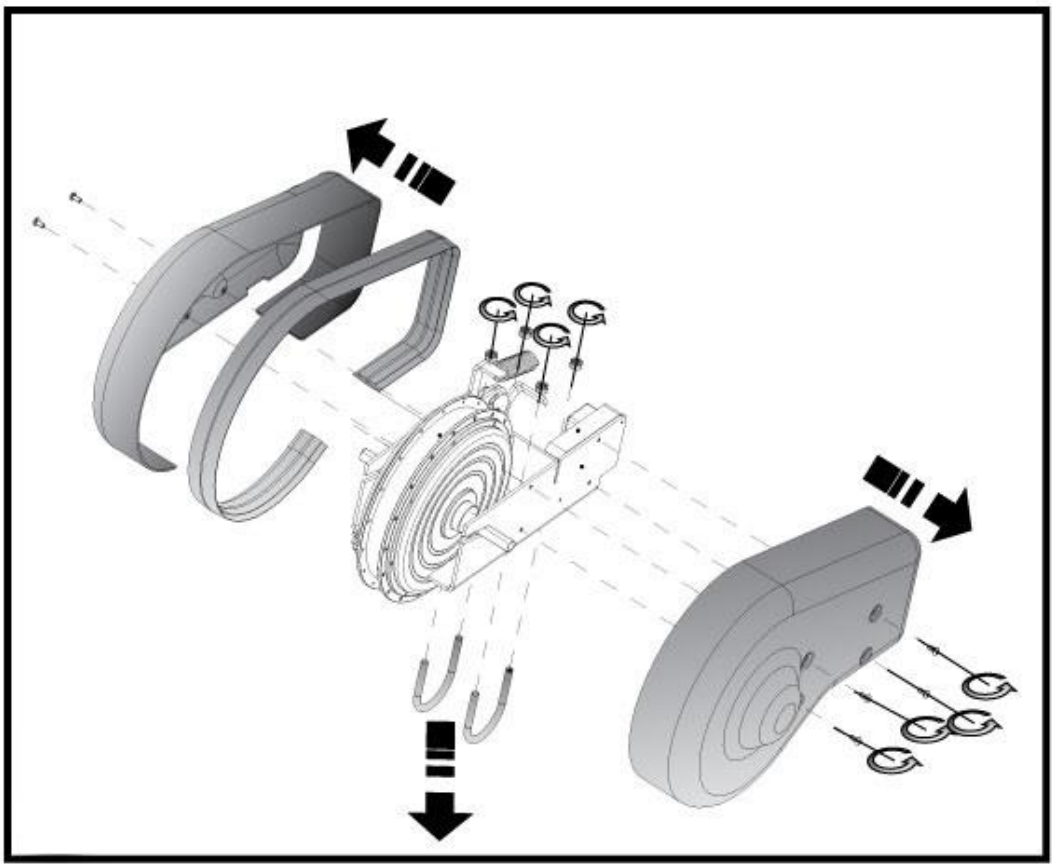
Step 6: Mounting the battery

- Battery 1x
- Mounting plate 1x
- Self-drilling screw 4,2x16mm 4x

Tools

- Allen wrench 3 mm
- Socket wrench 10mm
- Socket wrench 13 mm
- Socket wrench 14 mm
- Socket wrench 21 mm
- Socket wrench 30 mm
- Phillips screwdriver --
- Drill bit 6,7 mm
- Chaintool --

Step 1.



Figuur a: Disassemble method

The set is mounted together delivered. It has to be disassembled before it can be mounted on the Quattrocycle. Unscrew the six M5 bolts in the covers to loosen them. If they are off, the motor, motor controller and pedal assist controller will be visible.

Look closely how the cables are connected to the different sockets, this is the correct way. After disconnecting the cables the lid of the pedal assist controller can be unscrewed. ***Before lifting the lid of the pedal assist controller check if the cable glands are loose too.***

If the lid has come off, the two screws that holds the pedal assist controller on the frame are visible, those can be unscrewed with a small Philips screwdriver. After the pedal assist controller is disassembled from the frame, the controller can be loosened. This is done by unscrewing the two screws that hold the controller in place.

If done correctly the frame with motor, motor controller and pedal assist controller are three loose components. The controllers must be removed before the exhaust clamps can be removed.

Step 2.

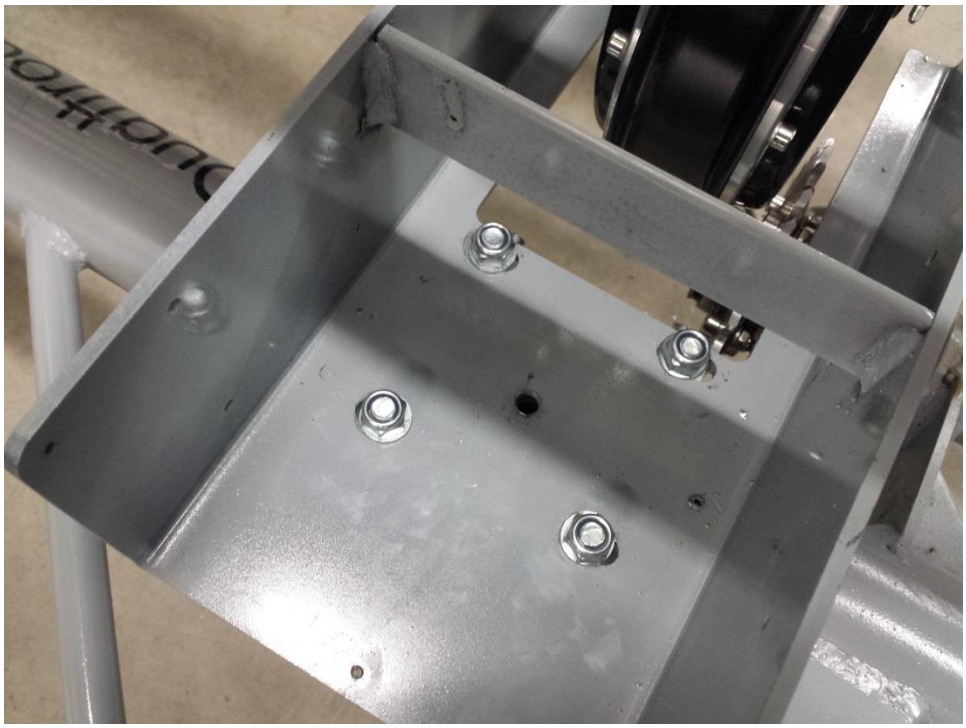
Figuur b: Axle with freewheel sprocket

First check if there is already an extra sprocket installed on the Quattrocycle. If it is, check if the freewheel function is working in the correct direction. If so, this step can be skipped, if not continue with this step.

To remove the axle, remove the plastic cover on the wheel nut. If removed, the nut can be unscrewed with the *socket wrench 30mm*. After this nut is removed, the wheel can be removed. Slide the axle to the center of the Quattrocycle till it is loose.

Replace the original axle with the one provided with the set. Mount the axle in reverse sequence as removing the old axle.

Step 3.

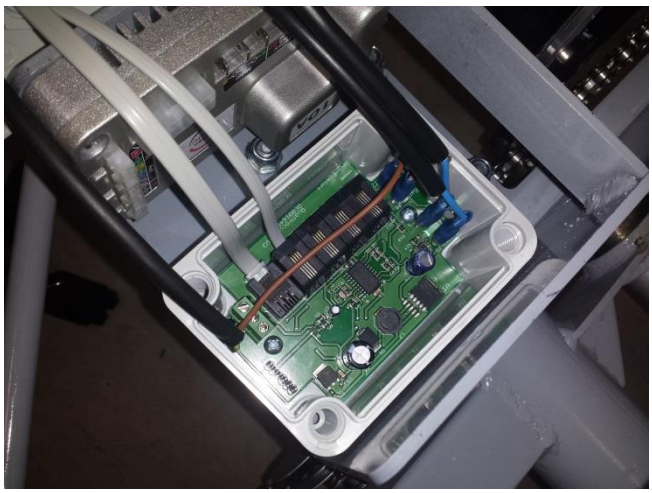


Figuur c: Frame on Quattrocycle with securing hole

Mount the frame with motor on the tube of the Quattrocycle. Vertical the motor has to be placed so it can turn freely without hitting any of the Quattrocycles parts. Horizontal the sprocket on the motor has to line up with the extra sprocket on the Quattrocycle. *The space available is very small, so place the motor with care.*

If the frame is placed correctly and the nuts on the exhaust clamps are secured, there is a possibility to secure the frame against turning under the motor load. To secure the motor and its frame against turning there is an extra M8 bolt provided, the mounting hole for this bolt has to be drilled and tapped.

Drill the hole in the middle of the exhaust clamps and tube, like the picture above. After drilling, tap the hole with M8 thread. After this is done the M8 bolt can be bolted into place. After the mounting of the frame, the controller can be mounted back into place. After the controller, the pedal assist controller can be mounted back into place.



Figuur d: Controllers back into place, lid not yet mounted

With the motor and controllers mounted, the sensor have to be mounted. The sensor is provided in a new crankshaft housing which can be mounted as whole.

First remove the chain guard, this can be done by unscrewing two screws at the front and one in the back. If the chain guard is removed the cranks can be removed, this is done by unscrewing the bolts in the crank with socket wrench 14mm. After the bolts are removed the crank has to be pulled of the shaft.

After the cranks are removed, the crankshaft and housing are removed by loosening the two bolts with socket wrench 14. If done correctly, the frame will look as the picture below, without the hole at the top.

This hole is for the signal cable and has to be drilled too, measure from the provided crankshaft and housing how far from the side the hole must come. The hole must be drilled around the middle of the two tubes welded in the frame.

Figuur e: Drilled hole for the sensor cable

With the hole drilled, the new crankshaft can be mounted. The cable has to go thru the hole to the center of the frame beam. The cable can be secured with a sticky cable holder so it will not get caught in the chain. After mounting the new crankshaft the cranks can be put back into place, after this the chain guard can be put back into place also.

The hand controls can be mounted on the steering rods, on the left the on/of button and the normal brake. On the right the brake with parking brake function. There are new handles included in the package so the old ones can be cut off.

Connecting the cables

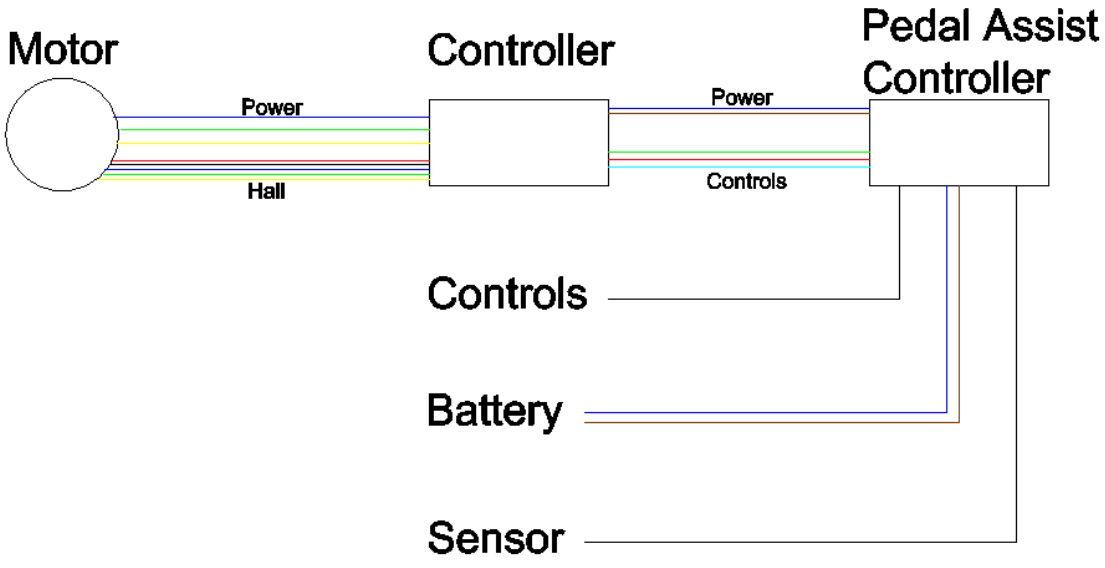
After mounting the sensor, the plug can be put on, the plug is provided too. The cable has to be put in the plug according to the picture below. While holding the opening away from you, and the secure pin at the top, the color of the cables will be from left to right, from top to bottom:

Empty, Grey, Blue, Black, White and Brown

Figuur f: Colors of the sensor plug cable

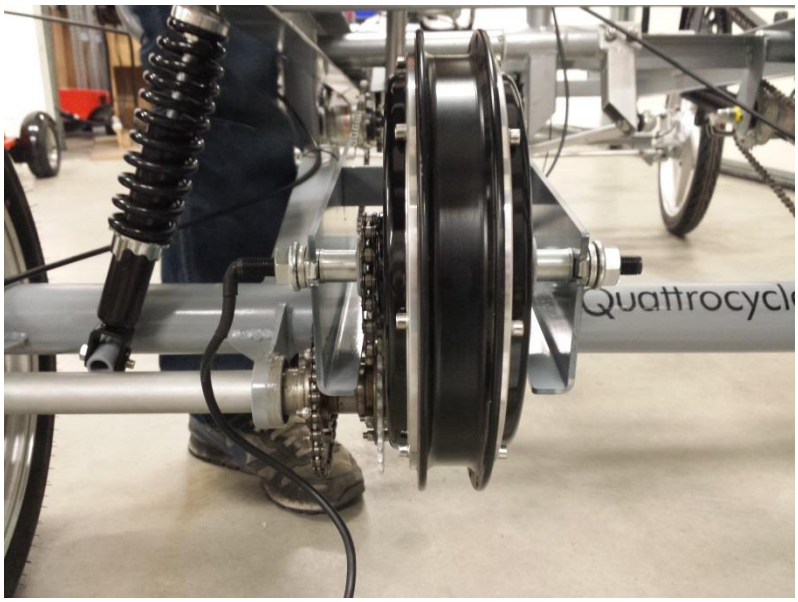
After connecting the plug to the sensor, all cables can be connected. The motor has 3 different power cables that has to be connected to the controller, next to the power, the motor has Hall-sensors that has to be connected to the controller. The pedal assist controller will forward the power from the battery to the motor controller. The other cable is for the assist signals to the controller.

The battery, hand controls and sensor must be connected to the pedal assist controller.



Figuur g: Electrical plan Quattrocycle

Step 4.



Figuur h: Motor with chain from the back

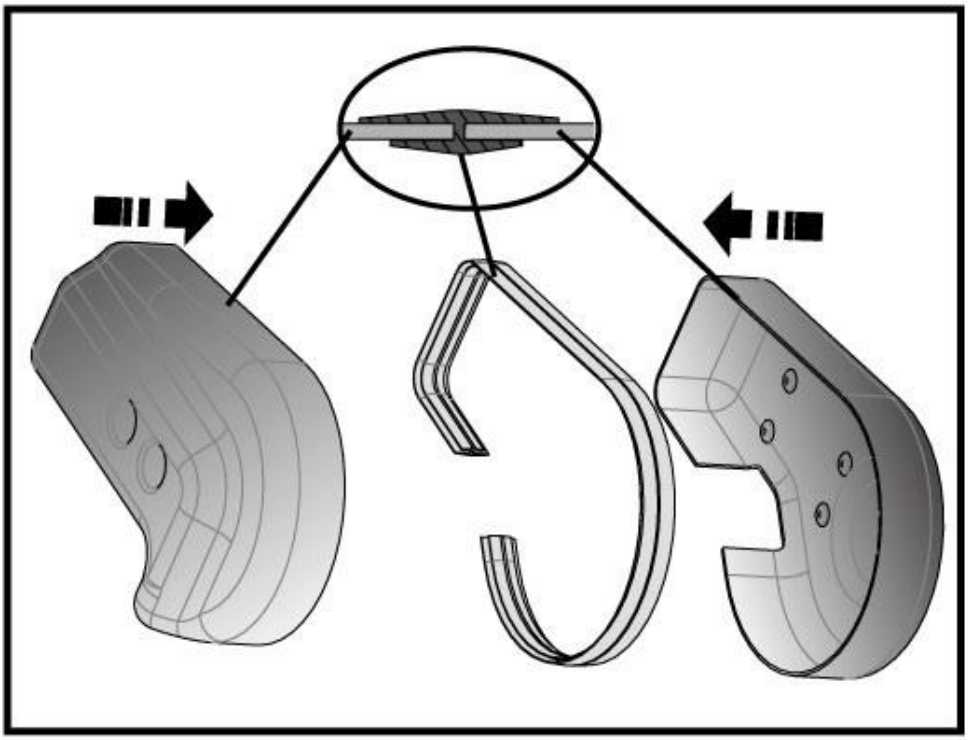
After connecting all the cables the chain can be mounted. *Make sure the motor is in the most forward position in the frame before mounting the chain.* The easiest way to mount the chain is to roll it over both sprockets and define the correct length. When the length is known the chain can be modified to that length with a chaintool.

When the chain is the correct length it can be mounted on the sprockets. After the chain is rolled over the sprockets, it can be closed with the provided closing shackle. This shackle can be pushed closed with a small screwdriver.

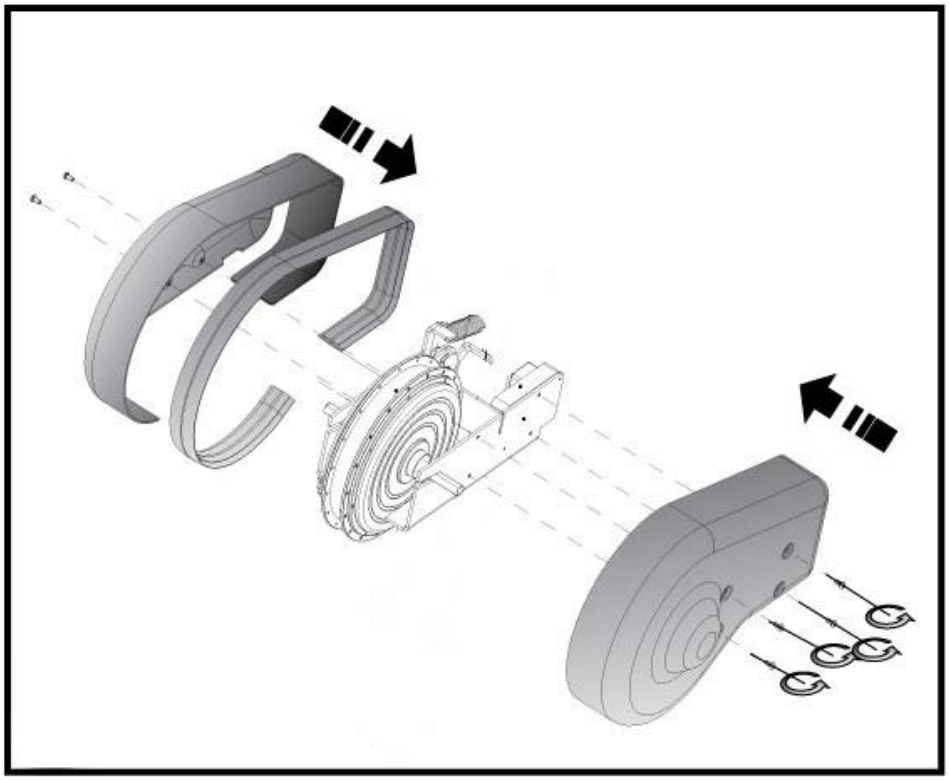
After the chain is closed the motor can be moved to the rear until the chain is set tight. The motor can then be secured by tightening the two nuts with a wrench 21mm. If all steps are done well the motor can turn freely in one direction, the other direction it will drive the right rear wheel of the Quattrocycle.

If the motor cannot rotate freely, the frame is mounted too low. If the chain cannot move freely, the frame is mounted too far to the left of right.

Step 5.



Figuur i: Mounting of the rubber seal

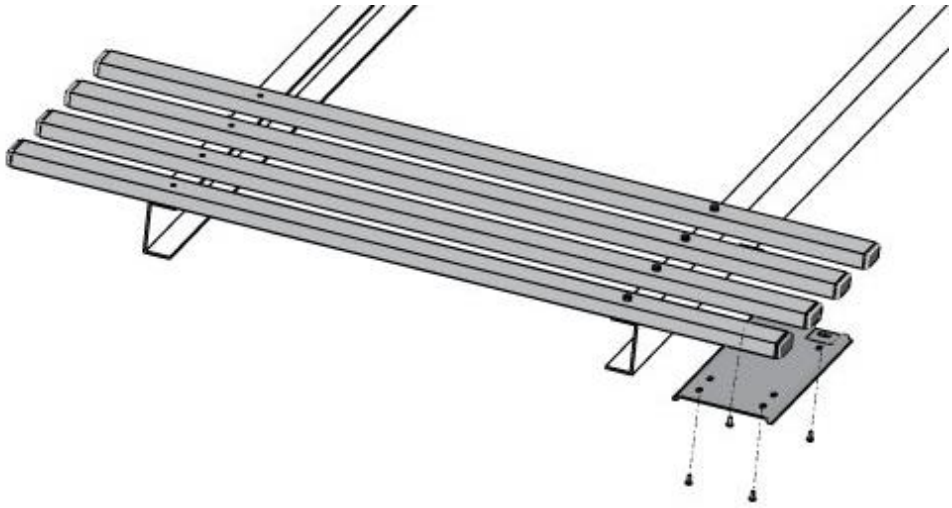


Figuur j: Mounting of the covers

The mounting covers are made out of two parts, one left and one right part. The left cover has to go on first, this is the cover with two mounting holes. The mounting holes in the metal frame are double, the rear ones are preferred, only if this won't fit the front holes can be used. The left cover can be mounted by holding it into place while using the M5x10 bolts to secure it. When this cover is in the correct place the rubber seal can be put on the edge of the cover.

After the left cover and rubber seal are mounted, the right cover can be secured. Because the rubber seal is flexible, the cover can go a little difficult. But after the cover is secured with the last four M5x10 bolts, the rubber seal can be carefully be adjusted to the correct position.

Step 6.



Figuur k: Mounting of the battery mounting

The last step to complete the peddle assist set on the Quattrocycle is to mount the battery mounting plate on the rear of the Quattrocycle. The battery is mounted on the right of the luggage carrier. On this side the key switch of the battery is within reach when the battery is in place.

The mounting plate can be secured with the provided self-drilling screws. Position the mounting plate so that there are four mounting holes supported by the aluminum profiles. *The battery can be mounted as far to the side of the Quattrocycles as wanted, but keep in mind that the battery may not exceed the aluminum profiles.*

The mounting plate must be mounted so that the battery can slide into place from the back, so the key switch and the connector are in the front.

After all the steps are completed the Quattrocycle has a peddle assist system. If there are any questions, you can contact us for support:

DeVi-Comfort B.V.
Vaart 2a
1713GR Obdam
The Netherlands

+31 (0)72 502 0860
info@devi-comfort.com

Starting up the Quattrocycle

If the installation is complete, make sure the switch on the left steering rod is set to ‘Off’. When the battery is inserted, it locks into place in the mounting sheet. Turn the key switch on the battery to ‘On’ and take place on the steering seat. Set the switch on the steering rod to ‘On’ and enjoy the ride.

Notes:

- The sensor will measure power and speed, when the battery is turned on make sure the pedals are free to move without any force applied to them for a good ride.
- When the Quattrocycle is standing still, putting the left peddle on top and applying force to it makes the motor help you to make speed. This is only an initial ‘push’, after this push the crank has to rotate before the motor kicks in.
- When braking with the provided brakes, there goes an electrical signal to the motor which will always turn off the motor directly.
- When you feel the assist of the motor is not working properly, try turning the battery off and on again, the system will reset itself and all will work well again.