Instruction manual

IMPORTANT

Dear Kwiggler,

Congratulations, the world's unique Kwiggle is now yours.
Please read this manual carefully and follow the instructions, get used to the new ride and you will experience the great benefits of the Kwiggle.

The saddle height is preset to your size. The **saddle must be as high as possible** so that you can feel the Kwiggle move.

During the learning phase, be sure to try out whether small changes to the adjustment of the two long saddle bolts can still improve the riding experience. Even **half a turn of the screws** when adjusting the height of the saddle or the distance between the saddle and the handlebars can make a big difference to the riding experience.

Adjust the handlebars so high that your **forearms** are **horizontal.** Then you can soon **let your arms loose** and your Kwiggle will alternately lean a little to the side with each pedal stroke.

Distribute your weight between pedals and saddle. Then you will ride quickly without it being strenuous.

Take some time until you have internalized the Kwiggle move.

And then we wish you a **lot of fun with your Kwiggle**.

ATTENTION:

Read carefully before using the Kwiggle for the first time!

Dear Kwiggle customer,

Congratulations, you have bought a great product - the world's unique Kwiggle.

Riding Kwiggle is different

Unlike a conventional bicycle, the Kwiggle is distinguished by its superior riding characteristics. What are these?

1. The seating position is upright. You ride almost standing up. This allows you to use your body weight more effectively. Thanks to these physiological advantages, you can ride a Kwiggle much longer than a conventional bike. At the same time, back pain, neck pain and tingling hands are a thing of the past.

2. The saddle swings horizontally with your pedaling movements. Because, due to the almost standing sitting position, your hips also move. As if you were walking on the spot, thus alternately loading your right and left leg. Accordingly, the saddle follows your hip movement.

Kwiggle riding: a short acclimatization period is followed by pure riding pleasure

However, you have to get used to these special features of the Kwiggle ride a little bit in the beginning. In the beginning everything seems a bit wobbly - because of the swinging saddle. And in the first curves you might feel a bit insecure. But don't worry, after a few tries you will become much more confident.

Our experience with countless testers showed that already after one hour, kwiggling is much easier. You should start cautiously at the beginning, ride for a few minutes and then take a few minutes break. **After 2-3 days at the latest, you will be able to ride the Kwiggle as easily as you can see on the videos on our homepage.** At the latest then you will ask yourself how it could be that it was a bit wobbly at the beginning!

The whole thing is comparable to learning to ride a bike: You also had to get used to keeping your balance at first, and today you can't imagine what was difficult about it.

Please read the following operating instructions very carefully and follow all instructions.

On our homepage we have compiled numerous videos for the use of the Kwiggle. Here you can learn how to ride the first meters, how to fold and unfold it and how to adjust the seating position. Then you will have a lot of fun with the Kwiggle from the beginning.

Be sure to check this out as well:

https://www.kwigglebike.com/kwiggle-2020-bedienen

Component description

Seat equipment
Saddle
Saddle tube
Pedal
Folding joint frame
Crankset
Chainring
Chain
Rear light
Rear wheel guard
Rear wheel
Rear wheel sprocket
Valve
Gearshift
Rear side-pull brake
Closure strap

Brake lever, shift lever
Handlebar
Handlebar clamp
Swivel
Gripping wire
Luggage rack
Steering Tube
Folding joint steering tube
Trolley wheels
Front light
Front wheel guard
Front side-pull brake
Front fork
Front wheel axle
Front wheel
Tyres

Upper pulley wheel
Rear wheel sprocket
Gearshift
Lower pulley wheel

Bolt seat equipment
Swivel
Gripping wire

TABLE OF CONTENTS

Dear Kwiggle customer,

In this manual we have summarized for you many tips on the operation of your Kwiggle and a lot of interesting information about the technology, maintenance and care. Please read this manual thoroughly before using it for the first time.

It's worth it, because the riding technique of the Kwiggle is completely new.

This manual is mainly intended for the driver and the operator of the Kwiggle.

To ensure that you always have fun when riding your Kwiggle, and for your own safety, you should carefully read and understand the entire printed part of this manual.

- read in the chapter "The intended use", for which purpose your Kwiggle is intended and how high the permissible total weight (Kwiggle, driver, clothing and luggage) is.
- carefully read and observe all safety and hazard information.
- observe and follow the instructions in the chapter "Before the first ride".
- and carry out the minimum function test before each journey. How to do this can be found in the chapter "Check before each ride" in this manual. Do not ride if the test has not been passed one hundred percent!

You must already know how to ride a bike before you get on the Kwiggle. This manual cannot teach you how to ride a bike or the rules of the road. Riding the Kwiggle, like any other cycling activity, is a potentially dangerous activity with a risk of injury. You should be aware of this and keep your Kwiggle under control at all times.

Please always drive carefully and respect other road users. Never ride under the influence of alcohol, drugs or medication that affects your ability to drive. Never ride with a second person on your Kwiggle and always keep both hands on the handlebars.

Ride in such a way that you do not endanger yourself or others. Always wear adequate cycling equipment, at least a suitable helmet, sturdy shoes and conspicuously bright clothing suitable for cycling.

The Kwiggle Team wishes you a lot of fun with your Kwiggle!

Specifications and illustrations in this manual are subject to change without notice. For additional instructions, please also visit www.kwiggle-bike.de. There you will find news, hints and useful tips.

Manufacturer of the Kwiggle is:

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Germany
Phone +49 (0) 511 228 442 60
E-mail: service@kwiggle-bike.de
www.kwigglebike.com

1. The intended use

The Kwiggle is a completely new type of mobility device with a bicycle-type drive system. You first need sufficient practice and familiarization on safe ground and without traffic before you should ride the Kwiggle on other paths and in traffic.

According to traffic law, the Kwiggle is classified as a bicycle and may therefore be used on bicycle paths and roads.

The Kwiggle is designed for use on paved roads and paths with a smooth surface, e.g. tarred or paved. The Kwiggle is not a piece of sports equipment. The Kwiggle is not suitable for off-road riding.

With the Kwiggle the permissible total weight (Kwiggle plus rider, clothing and luggage, e.g. backpack) is **100 kg.**

The permissible total weight including the driver must not exceed **100 kg.**

1.1 Improper use

Failure to observe the intended use triggers the risk of personal injury and property damage. The Kwiggle is not suitable for the following uses:

- Riding with a damaged or incomplete Kwiggle
- Riding with an improperly maintained Kwiggle
- Riding with a higher total weight than specified
- Riding with the folding lever open
- Riding over bumpy roads
- Climbing stairs
- The passage of deep water
- Lending the Kwiggle to untrained riders
- Taking another person with you
- Riding with excessive luggage
- Hands-free riding
- Riding on ice and snow
- Trick and art rides
- Jumps from kerb edges

Symbols used

Warning!	May cause serious injury or death if not avoided.
Caution!	Can lead to injuries if not observed.
Attention!	Non-observance can lead to material damage and impair the function of the product.
Hint!	Supplementary information on the operation of the product.
	Not recommended or prohibited
	Recommended or required

1.2 The most important danger and safety instructions

The Kwiggle is unique in the world. It is so compact that when folded it is the only one that even reaches hand luggage size. At the same time, both small and very large people can ride the Kwiggle. The upright Kwiggle riding position is uniquely beneficial from a physiological point of view and is based as closely as possible on the natural movement of the human body.

The sum of these advantageous features opens up mobile freedom of movement that you cannot achieve with any other device in the world.

However, these properties can only be achieved with a completely new and hitherto unknown riding style and with the aid of many moving frame parts.

The compact folding size and the upright riding position require a frame geometry with small wheels, short wheelbase and high centre of gravity.

These three Kwiggle features, in addition to their beneficial properties, carry risks that you must pay special attention to in order not to fall and injure yourself. The most important ones are:

⚠ **Caution!** Due to the small wheels, you must always pay attention to the road conditions and cannot rely on the fact that you can safely drive over obstacles with the Kwiggle, which you would easily overcome with a bicycle with large wheels.

⚠ **Warning! If you ride over obstacles or potholes that are too high, you may fall and injure yourself. Edges, sticks, stones, roots, bumps and similar obstacles up to 2 cm in height or potholes up to 2 cm deep can be ridden over without any problems.**

In the case of larger obstacles or potholes, it is imperative that the rules of use in the chapter "Potholes, edges and bumps with the Kwiggle" are followed exactly.

When riding on dirt roads and off-road, you may fall due to uneven surfaces, loose ground or on leafy or snow-covered paths if you do not recognize and avoid the obstacles.

⚠ **Warning! Due to the short rear wheelbase, you must never pull on the handlebars while riding, as long as you are sitting on the saddle. This applies in particular when riding uphill. Otherwise you run the risk of falling backwards.**

⚠ **Caution! Never brake only with the front brake (left brake lever) and make sure that you never pull the front brake too fast and too hard.**
Although the front brake is equipped with a brake force limiter that prevents you from falling forward when braking, you could still fall forward if you apply the brake lever very quickly and strongly. First do test braking by steadily increasing the braking force and the speed with which you pull the brake lever to carefully get to know the braking behavior of your Kwiggle.

2. General notes before first use

1. Note that the Kwiggle is a completely new means of transport that requires familiarization and practice. Familiarize yourself with the Kwiggle gradually in an uncrowded place away from traffic and slowly get to know the riding characteristics, the braking behavior and the function of the gears. More information at www.kwigglebike.com

2. Are you familiar with the brake system? The Kwiggle is delivered with the front brake operated by the left brake lever. Check whether you can operate the front brake with the same brake lever as you are used to. If this is not the case, you will have to train the new arrangement properly, as careless use of the front brake can lead to a fall. If necessary, have the brake lever arrangement modified by a specialist. You can find more on this subject in the chapter "The brake system".

3. Make sure that you do not shift gears at the front and rear at the same time and that you do not pedal hard during the shifting process. You can find more on this topic in the chapter "The gearshift".

4. Are the saddle and handlebars correctly adjusted? **In order to be able to ride the Kwiggle optimally, you have to adjust the saddle and handlebars to your body dimensions. This is very important and applies to both the saddle height and the distance between the saddle and the handlebars.** Feel free to experiment a bit with the saddle position and saddle angle. You can find more on this topic in the chapter "Adjusting the saddle height".

5. Only the luggage carrier individually manufactured by us for the Kwiggle may be used as luggage carrier.

6. Your Kwiggle is subjected to a lot of stress due to the influences of the road and the forces that you apply to the Kwiggle. Have your Kwiggle inspected regularly so that any resulting signs of wear and fatigue can be detected and repaired at an early stage. You can read more about maintenance and operational safety in the chapters "General care instructions and inspections", "Recommended tightening torques" and "Service and maintenance intervals".

7. Follow all safety instructions in this manual.

3. The preparations

3.1 Unpacking

1. The cardboard box in which the Kwiggle is delivered is made of especially strong cardboard and is therefore especially protected against damage. Please check that the carton is intact. In particular, please check that the corners of the box are intact or have been dented. Please notify us of any carton damage by email with a photo at info@kwiggle-bike.de.

2. Get the Kwiggle out of the box.

3. The high-quality transport box and the foam inserts are reusable.
   Keep the Kwiggle carton and the two inserts in case you need to return the Kwiggle later.

4. Two transport locks are attached to the folded Kwiggle with red cable ties, which must first be removed.

See the following video:

https://youtube.com/shorts/Ml9bTY0wsg4

5. Check the Kwiggle for any transport damage. In particular, check that both trolley wheels on which the Kwiggle stands are on a straight axis to each other.

6. Now the pedals must be attached to the right crank arm.

   A. Kwiggle with luggage carrier:
   The right pedal is attached to the luggage carrier. Push the outer ring of the pedal bracket towards the luggage carrier and pull the pedal out. Continue with B.

   B. Kwiggle without luggage carrier:
   Take the pedal and insert it into the socket on the right crank arm. Press the outer ring of the receptacle in the direction of the crank. Now push the pedal even further into the receptacle. Press the pedal into the receptacle with a little force until it locks into place. The pedal manufacturer recommends that you then insert the yellow locking ring between the crank arm and the receptacle until it snaps into place. This ensures that the pedal is locked in place and cannot come loose from the mount.

3.2 Unfolding

The Kwiggle fits as hand luggage on the plane and can still be ridden by people of all sizes. That's why many joints have to be moved when folding and unfolding. This requires some practice at the beginning. The more carefully you watch at the beginning and the slower you perform the process the first few times, the better you will succeed. Once you have learned the right moves and with a little practice, you should be able to unfold in 15 - 20 seconds, even if it will take 1 - 2 minutes at first.

First of all, an important note for orientation: The orientation of the Kwiggle remains at all times when folding and unfolding so that the chain side always faces away from the body.

1. Put the Kwiggle backwards on the protruding pedal, so that you can read “kwiggle”. Release the closure strap under the saddle by pulling up the upper part of the button.

2. Grasp the seat tube and handlebars and slowly pull it up until the saddle assembly locks into the handlebars and the Kwiggle is standing on its tires.




3. Most important step of the folding process: Close the lever on the steering tube by turning it all the way down.

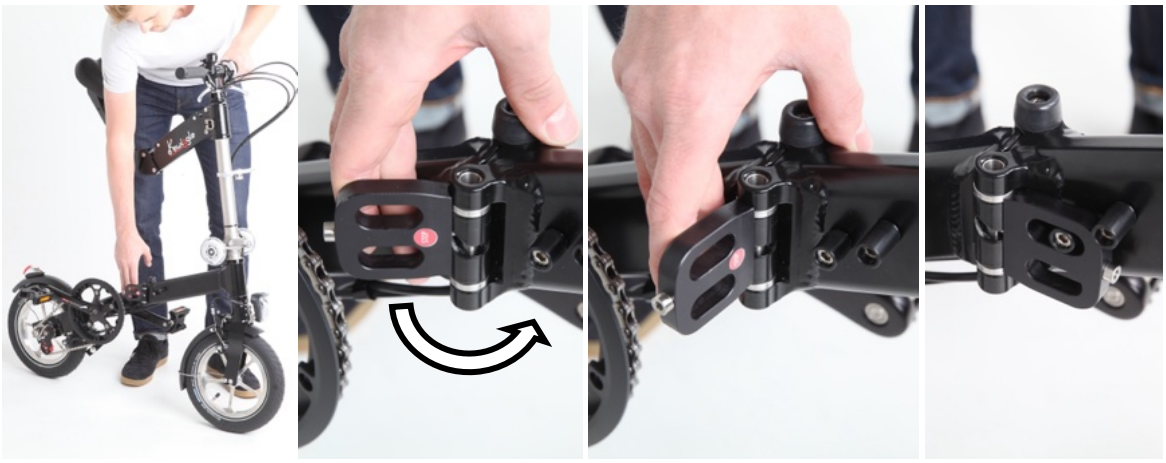


4. Stand behind the Kwiggle. Pull the right pedal upwards with your right instep until the two wheels come free and the frame comes off.

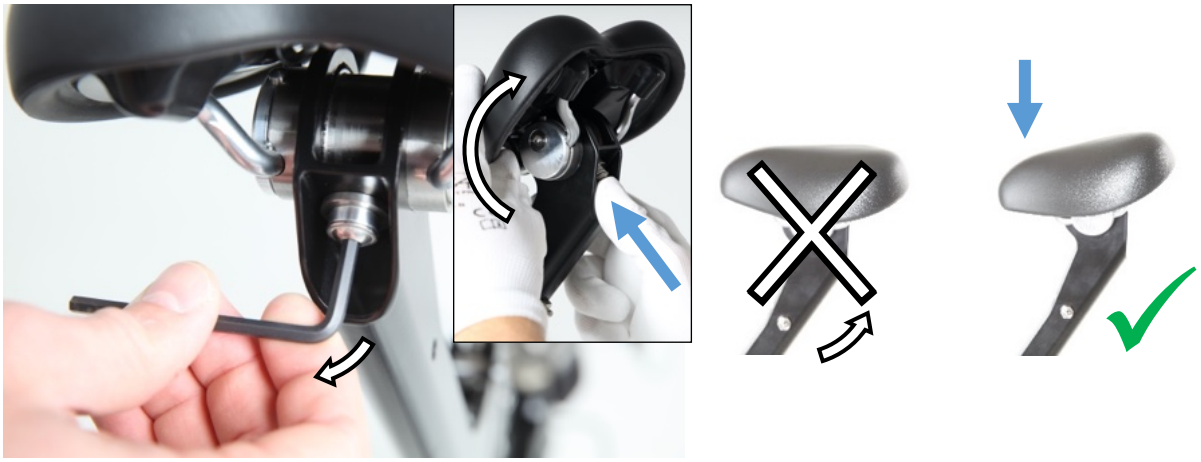


5. Pull the right brake lever and drive forward with the front wheel to the side.

6. Close the frame joint and turn the folding lever until it is fully in contact with the frame.



7. When you unpack the Kwiggle, the saddle is still folded. Pull the supplied Allen key, which is attached directly under the saddle, out of its holder and insert it into the small screw (S3 see below) and press the screw in. Now the saddle can be moved in the inclination. Adjust the inclination of the saddle and tighten the small screw underneath the saddle. Put the Allen key back into its holder.



8. Open the handlebar clamp, pull out the handlebars and close the handlebar clamp again. Adjust the handlebars so that your forearms are horizontal when riding.

3.3 The correct saddle adjustment

Important: If you have told us your step height and your body weight in advance, we have preset the optimum saddle height according to our experience. **Otherwise you have to adjust the exact saddle position before your first ride.** This means that the height of the saddle and its distance from the handlebars must be adjusted. The settings are very decisive for the riding characteristics of the Kwiggle or for an effortless movement.

For the optimal saddle height according to our experience you need two things:

1. Your crotch height, measured from the floor to the perineum
2. Your body weight

Go to the following website and enter this data in the corresponding fields, then the optimal saddle height will already be displayed:

kwiggle.odoo.com/sattelhoehe

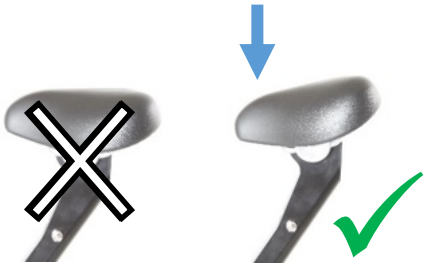
The matching formula is:

Optimal saddle height in cm above ground = 12cm + crotch height in cm + body weight in kg/10

Or shorter Saddle height (cm) = 12 + crotch height + body weight/10

The belly button can usually also serve as a reference point. Lighter people adjust the saddle height slightly below the belly button. The heavier you are, the closer the saddle must be adjusted to belly button height.

The saddle nose should always be slightly tilted downwards so that your pelvis rides more in "standing mode" than in "sitting mode". Thereby the lower back is straightened up a bit.



In the beginning you will often find that your back is still a bit curved and bent forward, because you are used to it from riding a bike. The more secure you become on the Kwiggle, the more you can really straighten up, whereby your pelvis comes a little in front. You will directly feel the relief and mobilization in your lower back.

In **general: Do** not adjust the saddle too low. If the saddle is too low, you will not get the advantageous kwiggle movement. The saddle is only set too high when it presses uncomfortably.

After you have ridden the first kilometer with the Kwiggle, experiment a little with the saddle adjustment by turning the bolts in or out by half a turn or one turn at a time in order to achieve an optimum riding feel.

Generally speaking, kwiggling is about riding comfortably while standing up and putting as much weight as possible on the pedals. The saddle has more of a supporting role. On the other hand, if you put more than 50% of your weight on the saddle, riding will be more inactive, more tiring and more strenuous. Then the saddle may also seem too hard.

3.4 The correct handlebar setting

The handlebar height should be selected so that the forearms are horizontal or slightly tilted downwards when riding. Experience shows that the handlebars should be set about 20-30 cm higher than the saddle.

3.5 Check before each ride

> ⚠ **Caution! Before every ride, make sure that both folding levers are closed.**
> Otherwise there is a risk that you will fall over with the Kwiggle when getting on. There is also a risk that the Kwiggle will be damaged because the folding joint is overloaded. For this reason, a red STOP sticker is attached to the inside of both folding levers. As long as you can see the STOP sticker, the folding lever is open and you may not drive off, but must first close both folding levers.

> ⚠ **Caution! Before each ride, make sure that the handlebar clamp is firmly closed and that the handlebars do not slide down when you lean on the handlebars.**
> Otherwise you run the risk of losing control of the Kwiggle.

Before each ride, check that both tires are in good condition and adequately inflated. Turn both wheels to check the concentricity. This can also help to detect sideways burst tires or broken axles in good time. See the chapter "The wheels".

Before each ride, check that the chain is guided over the teeth of the chain wheel and rear sprocket. Check the chain tension.

Before each ride, make sure that the brake and shift cables are routed away from the handlebars towards the front and are not looped around a brake lever.

Test the brakes while stationary by pulling the brake levers towards the handlebars with force. A pressure point must develop after a short lever travel; however, it must not be possible to pull the lever through to the handlebar! The brake pads must hit the rim flanks over the entire surface. They must not touch the tires. See also "Brakes" in the chapter "The brake system".

If you want to ride at night, check the lighting system. See chapter "Lighting system".

4. Riding Kwiggle for the first time: how it works best

4.1 Ascending

You don't have to lift a leg to get up on the Kwiggle.

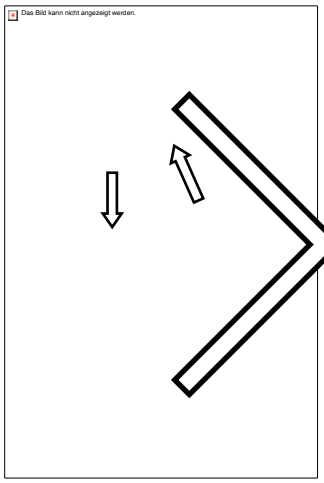
Stand to the side of the Kwiggle, hold the handlebars with your hands and tilt the Kwiggle towards you and the saddle will swing towards you. Once the saddle is low enough to pass between your legs, walk with the seat between your legs towards the frame until the saddle hovers centrally over the frame. Your legs are now to the right and left of the kwiggle.

4.2 Riding the Kwiggle for the first time

⚠ **Caution! Whenever you kwiggle, first stand between the handlebars and the saddle, position a pedal to start riding and then always start riding standing up and only sit on the saddle after riding a few meters.**

Otherwise there is a risk that you will start riding and pull on the handlebars and fall backwards.

⚠ **Warning! When riding the Kwiggle, never pull on the handlebars while sitting on the saddle.** Since the Kwiggle has a short wheelbase to the rear, there is otherwise a risk that you will fall backwards with the Kwiggle.



Do not pull on the handlebars while sitting on the saddle and riding, **always get out of the saddle first.**

⚠ **Caution!** In the beginning, ride on a well-paved surface without edges, potholes, stones, etc. until you develop a safe feeling for riding the Kwiggle.

⚠ **Careful!** Pay attention to the ground structure when riding. You must avoid all potholes, edges, bumps, sticks, stones and similar obstacles at the beginning.

Get to grips with the brakes and shifting gears before going into traffic.

Have fun Kwiggling!

4.3 Get off the bike

Getting off is always done to the side.

You come to a stop and immediately stand between the handlebars and the saddle again. Then lift your right leg over the lower frame. Take a few steps sideways and tilt the Kwiggle to the side until you can easily bring the saddle back out from between you.

5. Kwiggle on the road and in traffic

The first ride often feels wobbly. You hold the handlebars very tightly and your hips swing left and right. This is very unfamiliar. Most Kwigglers feel this way during their first attempts.

The more you get used to riding, the more you should relax your arms so that the Kwiggle can automatically move to the left and to the right in the cradle step. Then you move yourself less and the Kwiggle moves almost by itself always a little to the left and right. You don't have to do this Kwiggle movement yourself, it comes mostly automatically if you can let your arms relax. At the same time, your hands hold the handlebars firmly.

5.1 Potholes, edges and bumps with the Kwiggle

On bike paths there are also sometimes edges or an uneven spot. How do you behave with the Kwiggle?

⚠ Be careful! You must pay attention to the road you are riding on at all times.
Your Kwiggle has small wheels. Obstacles that you can easily ride over with a bicycle with large wheels cannot be easily ridden over with the Kwiggle. There is a risk that the obstacle is too high above the road or that there is too deep a gap in the road and you will fall when riding over it.

Hint! You can drive over edges up to 2 cm high and potholes up to 2 cm deep without any problems. In the case of larger obstacles, it is imperative that you observe all of the following instructions in this chapter.

⚠ Warning! Never pull on the handlebars when you are sitting on the saddle and riding.
Otherwise you run the risk of falling backwards with the Kwiggle.
This instruction applies in particular when riding over obstacles and when riding uphill.

Hint! If you want to ride over obstacles with the Kwiggle, the most important thing is to get out of the saddle a bit first, i.e. no longer sit on the saddle, but stand up a bit. Only when there is no more weight on the saddle, you can pull a little on the handlebars to ride over the obstacle.

⚠ **Warning. You must avoid larger obstacles or descend and carry the Kwiggle.**
Otherwise there is a risk that the front wheel cannot pass the obstacle and you will fall forward with the Kwiggle.

Ground waves or bumps are unevennesses on the path that have height differences but no edges. Ground waves or bumps can occur on all paths, e.g. when the road surface has been raised by roots or when water drains cross the path or at transitions between roads and cycle paths.

⚠ **Caution. When riding over bumps,** the Kwiggle tilts backwards and forwards. To prevent this tilting movement from throwing you off balance, **here's our tip:** You need to get out of the saddle a bit before riding over bumps, i.e. stop sitting on the saddle and stand up a bit. If there is no more weight on the saddle, the Kwiggle underneath you can perform the tilting movement better, but you yourself remain balanced. If you remain sitting on the saddle when riding over a bump, there is otherwise a risk that you will lose steering control and fall**.**

⚠ **Caution! Driveways and exits** at road crossings and sidewalks, as well as other obstacles such as speed bumps, cable tunnels and drive-over plates, etc. must also be ridden over in such a way that you get out of the saddle before reaching the obstacle, i.e. you are no longer sitting on the saddle. Then the Kwiggle underneath you can perform the tilting movement that is triggered by the obstacle and you remain in your balance. Otherwise, if you remain sitting on the saddle, there is a risk that you will fall over forwards or backwards.

Tip: Look for smaller edges first and practice riding over them by getting out of the saddle a little before reaching the edge and then pulling a little on the handlebars just before reaching the edge to ride over the edge. In this way, slowly feel your way towards larger edges and obstacles.

Always be careful and very attentive when you are on an uneven road. Rather get off the bike once more and push the Kwiggle over the obstacle than try to ride over it.

5.2 Sitting upright on the saddle

Riding Kwiggle means taking an active upright, standing riding position.

The saddle is therefore always set much higher and closer to the handlebars than on a normal bike.

From riding a bike, you are used to bend your back. Make yourself aware of this and straighten up when riding the Kwiggle so that your back is straight.

Riding a bike standing up is more efficient cycling because you put your weight on the pedal from above and therefore need less power. However, riding without a saddle is more strenuous because you have to lift your weight back up with every pedal stroke.

The Kwiggle saddle now supports you in lifting your weight back up after each pedal stroke. So you should only sit on the saddle as much as the saddle effortlessly brings you up. The rest of your body weight should be used to push on the pedals in order to make the most efficient progress. Be aware that you are pushing your weight more from the top of the pedals and less from your thighs.

As a guideline, you should sit on the saddle with a **maximum of** half your weight and stand on the pedals with at least 50% of your weight.

When riding and rolling, you support yourself on the pedals as well as on the saddle. The right mixture makes it.

In no case should you sit awkwardly on the saddle, as you know it from seated bicycles.

The Kwiggle movement: Saddle nose down and a maximum of 50% of your body weight on the saddle.

In order for the saddle to support you in getting into an active, upright position, the saddle nose must always point slightly downwards. This allows your pelvis to rotate forward and your lower back to straighten up. In this way, you get into a more upright and active position when riding.

Tip: If you then feel your thighs after riding Kwiggle for a while or it still feels wobbly, the saddle is probably

still set too low. Then adjust the saddle even higher, see the chapter "Adjusting the saddle height".

Only when riding feels easy, you have found the right saddle setting.

We have made the saddle a little harder than you might be used to on your seat bike.

Why?

On the Kwiggle you ride in a standing-sitting position.

If you sit too much on the saddle, you might find it a bit too hard. Then you should try to ride more upright and put more weight on the pedals. Only then will you get into the advantageous Kwiggle movement.

In addition, your leg always glides over the curves of the saddle during the saddle movement. If the saddle were too soft, your leg would feel a hard edge from the saddle base as it slides along the saddle. This would be uncomfortable.

6. The handling of the Kwiggle

6.1 Folding

Attention. Move the Kwiggle gently and slowly when folding and unfolding.
Jerky movements can cause the chain to jump off.

Folding in is done in the reverse order to unfolding.

1. Loosen handlebar clamp, push in handlebar, close handlebar clamp.

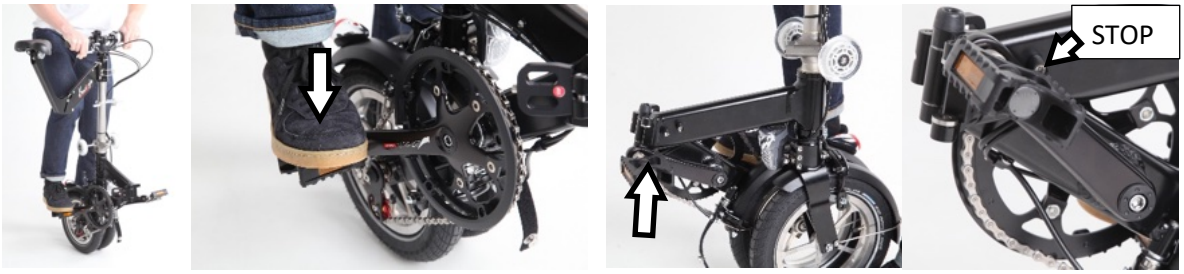
2. Align left pedal forward down

3. Turn the folding lever on the frame until it is fully open.

4. Pull the right rear brake lever and push the frame towards the chain side.

5. Pull the front wheel back next to the rear wheel between your feet, keep the brake lever pulled.
   VERY IMPORTANT: The front wheel is not turned with the front frame, it stays parallel to the back wheel.

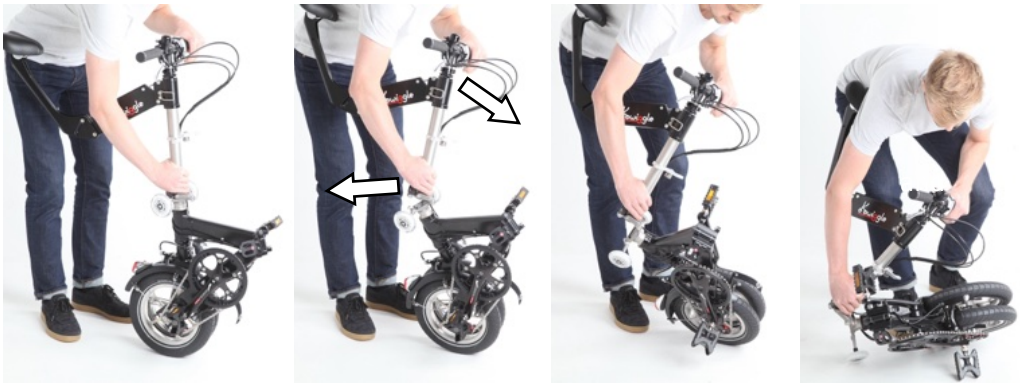
6. Both wheels must be close together. Press the right pedal down firmly with your foot until the left pedal engages with a "click" at the STOP.
   VERY IMPORTANT: Both tires must be very close together to do this.



If necessary, use your hand to push the pedal up until it engages, supporting your thumb on the frame.

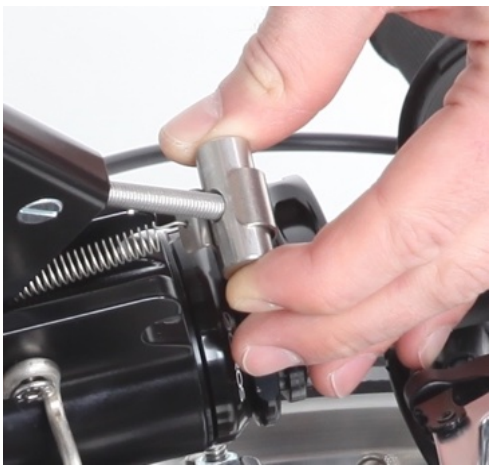
7. Open the black folding lever on the steering tube. Now you can read the word "STOP".


8. Fold in the steering tube, placing the Kwiggle on the rear pedal and the right trolley wheel. Pull the joint apart in the direction indicated by pulling it backwards with your right hand and pushing the handlebars forward with your left hand.

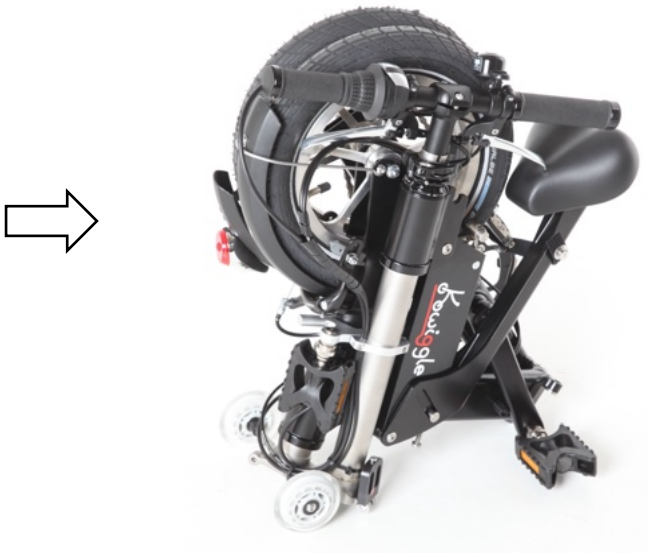


9. Take the seat post in your right hand, pull all cables to the side with your left hand and underneath the steering tube, guide the seat tube downwards.

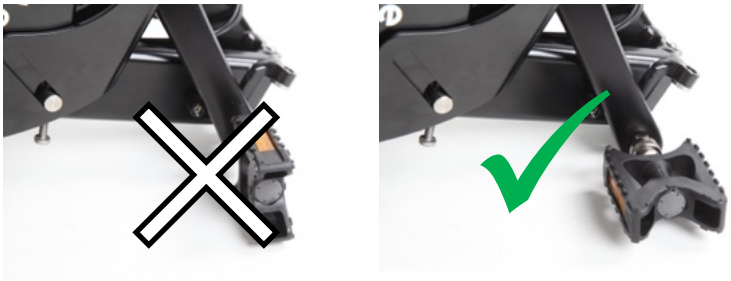
10. Unhook the bolt at the swivel joint upwards with thumb and forefinger and let it slide out of the device. Fold the seat device and turn it to the side.



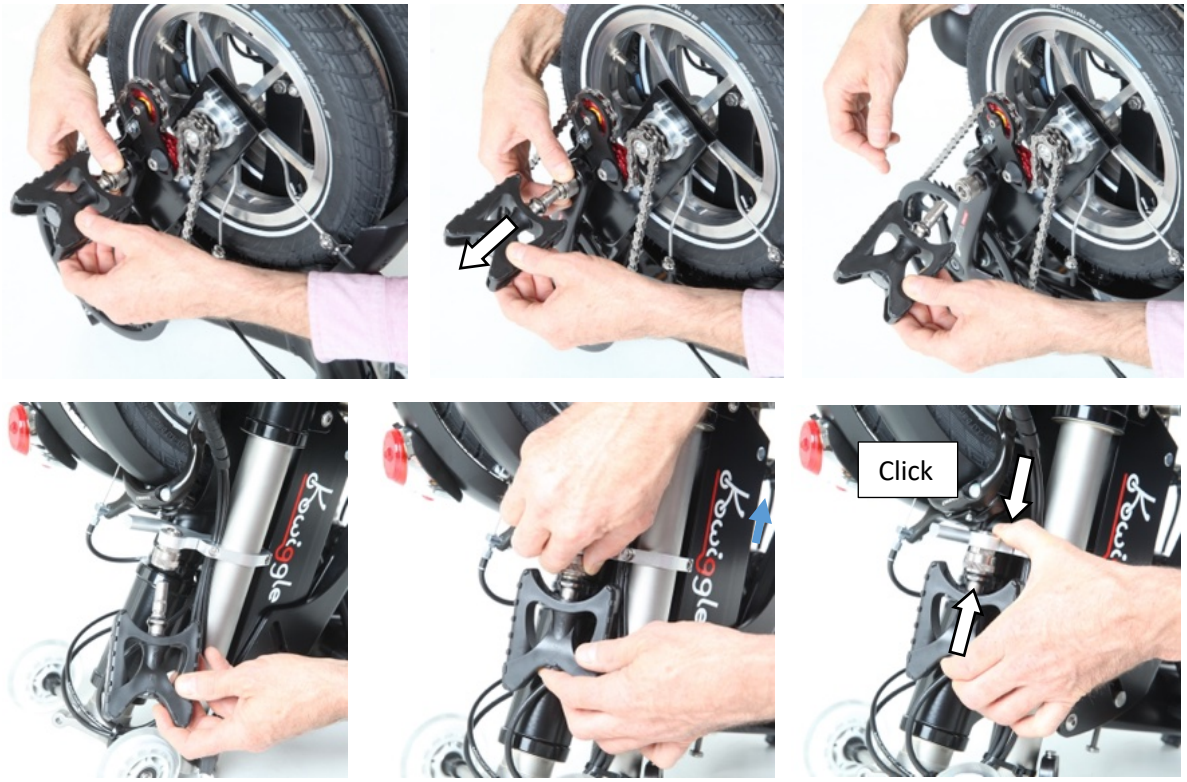
11. Close with the Closure fastening strap, pressing on the push button.



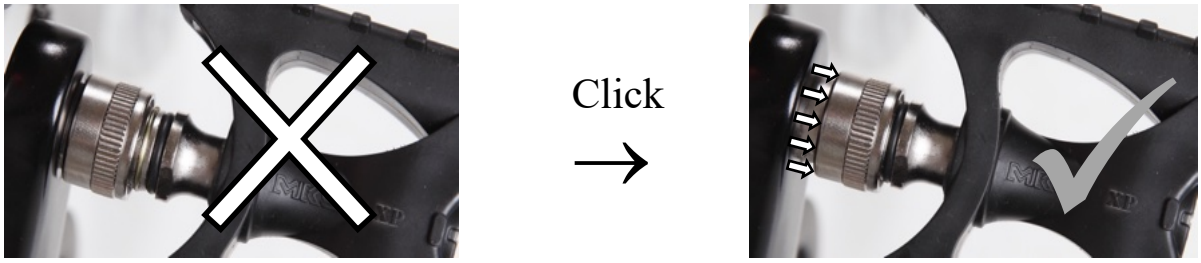
12. Set up and make sure that the pedal is in the correct position.



13. Remove the protruding pedal on the chain side. Push the ring away from the pedal and pull the pedal out. Insert the pedal into the ring on the luggage carrier above the white trolley wheels, pull the ring upwards and press the pedal into the receptacle until it engages and the ring springs back.



⚠ **Caution!** Make sure that the ring on the pedal mount always springs back when you have inserted the pedal. Otherwise there is a risk that the pedal will get lost and you will lose control of your Kwiggle and fall.



Please also refer to the enclosed operating instructions from the pedal manufacturer MKS.

6.2 Adjusting the saddle height and position

The saddle device always locks into place at the height already set when unfolded.

To do this, the saddle is adjusted once well and then no longer needs to be adjusted.

For the optimal saddle height according to our experience you need two things:

1. Your crotch height, measured from the floor to the perineum
2. Your body weight

Go to the following website and enter this data in the corresponding fields, then the optimal saddle height will already be displayed:

https://www.kwigglebike.com/sattelhoehe

The matching formula is:

Optimal saddle height in cm above ground = 12cm + crotch height in cm + body weight in kg/10

Or shorter Saddle height (cm) = 12 + crotch height + body weight/10

Body weight has an influence because the steering tube compresses somewhat due to the weight on the saddle, which increases riding comfort.

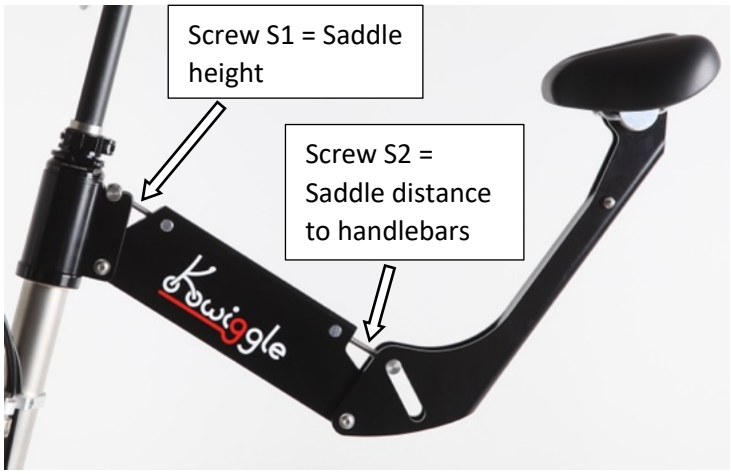
The belly button can usually also serve as a reference point for the saddle height. Light people adjust the saddle height about 5 cm below the belly button. The heavier you are, the closer the saddle must be adjusted to belly button height.

Other indicative values:

- Sitting on the saddle, you should just be able to get one foot on the ground.
- When riding, the leg should be almost fully extended at the lower pedal point.

In order to bring the saddle to the correct height, the following 3 steps must be carried out one after the other and repeated more often if necessary:

a. Adjust saddle height with screw S1
b. Adjust saddle distance with screw S2
c. Adjust saddle tilt and tighten bolt S3



⚠ **Careful!** Put the saddle far enough forward.
If the saddle is too far back, you don't get the advantageous Kwiggle movement and your body's centre of gravity shifts backwards. This means that you run the risk of falling backwards.
As a rule: The rear edge of the saddle should always be slightly in front of the rear wheel axle. ○ never behind it!

An Allen key is attached under the saddle, which you need for the saddle adjustments. Pull the Allen key out of the device.

a. Adjust saddle height with screw S1

To adjust screw S1, stand behind the Kwiggle and fix the rear wheel between your feet.

Then take the front bolt on the saddle suspension in your hand with your thumb and index finger and pull the saddle tube upwards with your other hand.

This moves the bolt upwards and you can now take it out of the lock while moving the seat tube downwards at the same time:



Now you can turn the S1 bolt by inserting the Allen key into the hole of the stainless-steel clasp that surrounds the bolt.

Attention! Be sure to hold the bolt when turning screw S1. Otherwise, the retaining spring that pulls the stainless-steel clasp and the bolt into the lock can be damaged. In addition, the screw can only be adjusted if the bolt is held in place.

Be sure to hold the bolt as shown while turning the S1 screw.

Rotate clockwise
= Saddle gets **higher**

Turn counterclockwise
= Saddle becomes **lower**

Tip: Even a few turns have a significant adjustment effect. In the case of fine adjustment, even half a turn has a major effect on the correct riding feeling.

Then you just grab the seat tube and pull it back up. In doing so, the saddle suspension engages again at the newly set height.

b. Adjust the saddle distance to the handlebar with screw S2

If the saddle was adjusted with screw S1, the distance of the saddle to the handlebar changes at the same time.

This must be corrected again with screw S2. To adjust screw S2, fold the seat post forward so that you can turn the screw SR2 with the Allen key.

If the saddle was lowered with screw S1, the distance between the saddle and the handlebars will increase. In this case you have to turn screw S2 clockwise a little bit until the correct distance of the saddle to the handlebar is reached again.

NOTE: The rear edge of the saddle should always be slightly in front of the rear wheel axle, never behind it! This also ensures that the distance between the saddle and the handlebars is correct.

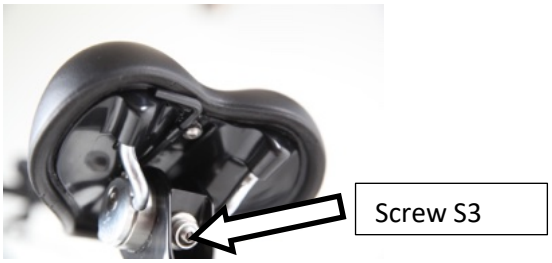
	
Screw in screw S2 (clockwise) = Saddle handlebar distance becomes smaller 	Unscrew screw S2 (anticlockwise) = Saddle handlebar distance increases 

⚠ **Caution!** Screw S2 is fixed by a small grub screw in the threaded bolt so that it cannot be turned by hand. If it is very difficult to unscrew with the wrench, the grub screw must be loosened slightly beforehand. Screw S2 is furthermore protected against loss at the end of the screw by a lock.
As soon as you feel greater resistance when unscrewing the screw, you have reached the maximum permissible screw length. Do not unscrew the screw any further. Otherwise the safety is no longer guaranteed. There is a risk that the seat tube will fall backwards and you will fall while riding.

As long as the screw can be easily adjusted with the Allen key, it will fit securely.

c. Adjust saddle tilt and tighten bolt S3

To adjust the saddle inclination, loosen the S3 screw at the rear under the saddle with the Allen key, but only until you feel again resistance. Then the screw must be pressed in so that the saddle can be turned.



Please loosen the screw S3 about 1.5 turns.

Attention. Do not continue to unscrew the S3 screw if you feel resistance again after unscrewing the screw. There is a risk that the nut, which is connected to the inside of the S3 screw, will loosen. This can adversely affect the function of the locking mechanism. Approximately 1.5 turns are sufficient to loosen the locking teeth that hold the saddle in the set position.

Then the screw S3 must be pressed in so that the locking teeth are released and the saddle can be adjusted in its inclination.

Now the saddle inclination can be adjusted, the saddle always locks into a new position.

First adjust the saddle horizontally and then push the saddle nose down by 1 notch.

Since the Kwiggle is ridden standing up, the saddle nose should point slightly downwards. This puts the pelvis in a more active riding position and makes it easier for you to move forward.

When the saddle angle is adjusted, the screw S3 must be tightened again with the Allen key.

6.3 Pulling the Kwiggle as a Trolley

The folded Kwiggle is perfect to take with you everywhere and you can simply pull it behind you like a trolley.

To use the folded Kwiggle as a trolley, stand with the chain side facing away from you.

Loosen the handlebar clamp and pull the handlebar out as far as necessary and tighten the handlebar clamp again.

Make sure that the brake and shift cables run in such a way that they are not wrapped around a brake lever.

Grasp the right handlebar grip with your right hand and pull the Kwiggle behind you on the trolley wheels to your right.

Make sure that you always remove the right pedal or attach it to the pedal bracket of the rack when you move the Kwiggle in the trolley function in confined areas, especially when there is a lot of pedestrian traffic or in shops with protruding shelf corners and edges. Otherwise, there is a risk of the protruding right pedal catching on something or injuring a pedestrian.

After a long-distance trolley pulling and especially after you have pulled the folded Kwiggle over bumpy roads, you must check after unfolding whether the saddle is positioned further back, because the saddle adjustment screw (screw S2) has turned out a little when pulling the trolley. We have fixed the screw S2, so that any unscrewing is inhibited, but it can happen that it still unscrews a little.

After unfolding the saddle again, please check whether the saddle is now positioned further back than before and, if necessary, screw the screw S2 in again clockwise by hand until the old saddle position is reached again. At the latest when riding again you should notice that the saddle position has changed and then you should screw the screw S2 back in a little.

6.4 Carry Kwiggle

Stand on the left side of the Kwiggle and reach over the seat to the frame with your right arm. Grasp the frame with your right hand just before the folding joint and straighten up to carry the Kwiggle.

6.5 Stowing the Kwiggle

The folded Kwiggle has hand luggage dimensions, namely:

1-speed version and 3-speed version: 55 cm x 40 cm x 25 cm

6-speed version: 55 cm x 40 cm x 27 cm

Since almost all stowage options are designed for luggage dimensions, the Kwiggle can also be stowed anywhere that hand luggage suitcases can fit: Lockers, lockers, smallest trunks, storage compartments in the train and on the plane.

These storage options give you unprecedented flexibility and freedom. You can always take the Kwiggle with you and no longer have to plug it in outside or leave it unattended away from your seat.

To stow the Kwiggle in lockers and lockers or under the seats in long-distance trains or commuter trains, you should remove the right pedal and, if available, insert it into the pedal holder on the luggage carrier. If the Kwiggle then still does not fit in or under it, take off the left pedal and check whether it now works.

Please note: The Kwiggle weighs about 9-10 kg. Please estimate your strength correctly when you lift the Kwiggle at head height or overhead to stow it. Please do not endanger other persons. A falling Kwiggle with its weight and especially with its metal edges can cause serious injuries to a person sitting or lying below.

6.6 The pedals

We have opted for high-quality plug-in pedals, because these reduce the folding size again by a decisive 2 cm. Only then the Kwiggle fits under the seats in the long-distance trains and the metro and only then it fits in small lockers and lockers.

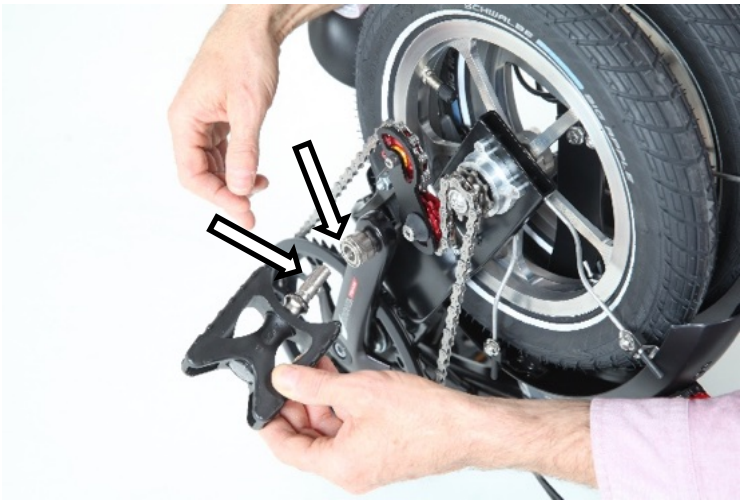
The clipless pedals have a disadvantage that you need to be aware of:

The end of the pedal is greasy and can therefore easily get dirty. Always handle the pedal so that the end of the pedal does not come into contact with your hands or other objects.

Likewise, the pedal mount on the crank is greasy and can trap dirt. The danger exists that you come with your pants or with your hand to the pedal admission and a round black impression on the pants or on the hand. Therefore, always make sure to handle the Kwiggle in such a way that the chain side and thus also the open pedal mount always face away from you.

Also, always make sure that the chain side is facing away from you when pulling the folded Kwiggle as a trolley to avoid soiling your pants.

Also observe the enclosed operating instructions of the pedal manufacturer.



6.7 Packing the Kwiggle in the shoulder bag

Not applicable, we are already working on a new backpack solution.

6.8 The luggage carrier

The luggage carrier on the Kwiggle is suitable for Ortlieb bags with Quick-Lock 2.1 suspension systems, for QMR-system of VAUDE and for panniers with comparable suspension systems.

The maximum load on the luggage carrier is 10 kg.

Adjust both hooks on the back of the pannier so that there is a distance of 9.5 - 10 cm between them. Make sure that the hooks are symmetrical to the middle of the bag.

Hang the bag from above into the two protruding arms of the carrier.

Since the luggage carrier is attached to the steering column, the bag moves in the direction of steering when you steer. The heavier the bag, the more sluggish the steering. In addition, a heavy bag can significantly increase the intended steering angle, which you must always take into account when steering.

Therefore, first practice riding with a heavy bag in an inanimate place and carefully carry out test steering to be able to assess the steering behavior with a heavy bag and learn to control it.

⚠ Caution. Never ride with a bag where the hooks are more than 10 cm apart. Never ride with a bag where the hooks are not properly hooked and secured. Otherwise you run the risk of falling and injuring yourself.

⚠ Caution! When riding with a heavy bag, always hold the handlebars with both hands so that you can control the steering angle at all times.

⚠ Caution. Be especially careful when riding over edges and heels with a heavy pannier.
Since the overall weight is shifted more to the front due to the heavy pannier hanging on the steering column, there is a risk that you will fall forward when braking with the front brake even with lower braking forces. Likewise, there is a risk that you will not be able to ride over an edge that you would otherwise have been able to ride over with the Kwiggle, as there is more weight on the front wheel with the heavy pannier. It is also more difficult to lift the Kwiggle at the front in order to ride over an edge that can basically be mastered with the Kwiggle, as described.

If in doubt, take some weight out of the bag and always ride with a lighter bag if you are unsure.

6.9 Kwiggle riding with a backpack on your back

If you ride Kwiggle with a backpack, you have to take into account when riding that the backpack will shift your overall center of gravity further back, which increases the risk of falling backwards considerably.

Therefore, only put on small and light backpacks and do not overload them. When riding the Kwiggle with a backpack, if in doubt, bend forward a little to shift your overall center of gravity forward again.

Riding with a backpack requires more attention to the tipping point of the Kwiggle from you.

If in doubt, practice riding with a backpack in an uncrowded area first.

6.10 Kwiggle riding with attached trolley case

Using the Kwiggle with an attached rolling suitcase gives you tremendous freedom when traveling.

To attach a rolling suitcase to the Kwiggle, you need the trolley strap, which we offer in our online shop.

The handle of your wheelie case must be at least the usual 104 cm above the ground when extended. Otherwise, there is a risk that the wheelie case will hit the rear wheel guard or even the rear wheel of the Kwiggle when riding, thus impairing or even endangering the Kwiggle ride.

We recommend that you only use wheeled suitcases with quiet-running and robust wheels, ideally with rubberized wheels or, even better, with skate wheels.

Shopping trolleys can also be attached to the Kwiggle as long as they also have a handle at least 104 cm above the ground.

Loop the trolley strap around the handle of your trolley and pass the end of the strap through the loop of the strap in such a way that the Loxx button connected to the strap sticks out towards the front in the direction of travel.

Now attach the Loxx button to the corresponding counterpart on the seat tube.

Note that the rolling case covers the rear light. Therefore, only ride in the dark with the wheelie bag if you have an adequate additional rear light that is not covered by the wheelie bag but is clearly visible to other road users.

Make sure again that the connection of the Loxx button to the seat tube is secured, and then you can start riding.

⚠ **Caution!** Ride over edges and bumps with the roller case in a straight line and, if necessary, more slowly. Otherwise, there is a risk that the roller case will roll over and endanger your Kwiggle ride**.**

Always follow the instructions for use provided by the manufacturer of the wheeled case.

6.11 Parking Kwiggle

The Kwiggle is made so that you can always take it with you everywhere. To do this, you usually fold it and put it in a suitable place. The Kwiggle therefore has no stand. If we want to lean it quickly, we lean it against a suitable place, e.g. a wall, fence, bush, tree, house wall or similar.

6.12 Locking the Kwiggle outside

If, for once, you don't want to take the Kwiggle inside but lock it outside, you can fold it up and connect it through both wheels with a suitable lock to a suitable fixed counterpart.

The rear wheel rim can only be separated from the frame with considerable effort and only with special tools. As long as the rear wheel rim is securely connected, the Kwiggle cannot therefore be stolen as a whole.

6.13 Push Kwiggle

If the Kwiggle is pushed on bumpy ground, the saddle device may rattle.

We had to deal with this for a longer time, because of course you are used to it differently from other bikes and the Kwiggle made a rickety impression in the first moment.

However, due to the system, it's hard to change that if you want to keep the adjustment and folding options so simple and the weight so light.

We therefore always push the Kwiggle so that we touch it on the saddle and give a little pressure on the saddle and also steer it. That takes a bit of practice, but then it works perfectly.
Others push it by using both hands, one on the handlebars, the other on the saddle. As soon as there is some pressure on the saddle, the rattling is also gone.

Better still to ride the Kwiggle and not push :)

6.14 Telephone holder on the Kwiggle

The handlebar of the Kwiggle is narrow, the mounting space for a phone mount is limited. If you want to mount a phone holder on the handlebar, we recommend the products by SP Connect:

https://sp-connect.de/collections/bicycle/products/bike-bundle-ii

You will need either the Universal Bike Mount or the Moto Mount Pro in order to get a mount for a handlebar with a diameter of 22,2 mm.

An alternative system is the Out Front Mount by Quadlock. However, according to our experience the connection between mount and case gets looser by time.

7. Care, maintenance, servicing of the Kwiggle

7.1 The brake system

Normally, the brakes on your Kwiggle are needed to adjust the riding speed to the traffic conditions. However, when needed, the brakes must be applied hard to bring your Kwiggle to a stop as quickly as possible. Physics comes into play during such full braking maneuvers. When braking, the weight shifts from the rear to the front, relieving the rear wheel. The strength of the deceleration is limited on dry and grippy surfaces primarily by the threat of the Kwiggle rolling over and only secondarily by the grip of the tires. Especially when going downhill, this law of physics is exacerbated. Avoid full braking and try to shift your weight as far as possible to the rear when braking on the hill.

Hint! We have equipped the front brake with a brake force limiter.

On the one hand, the braking force limitation ensures that the tendency to fall forwards is mitigated and that there is only a risk of falling forwards in the event of heavy emergency braking. On the other hand, this increases the braking distance somewhat, which you should always take into account when braking.

Apply both brakes at the same time and remember that the front brake can transmit the far greater forces on a grippy surface and through weight shifting.

With rim brakes, prolonged braking or dragging can cause the rim to overheat, which can damage the tube or cause the tire to move on the rim. Abrupt loss of air while riding can lead to a serious accident.
Check your riding style in this respect and learn to brake briefly but firmly and to release the brake again and again in between. If in doubt, stop for a moment and let the rim cool down with the brake lever released.

Carefully familiarize yourself with the brakes. Practice emergency braking in a traffic-free area until you have your Kwiggle safely under control. This can prevent accidents in traffic.
Wet conditions reduce braking efficiency. Allow for longer stopping distances in the rain.

Brake function
A fixed brake pad is pressed onto a rotating brake surface via a hand lever and rubs there. The wheel is decelerated by the friction. In addition to the force with which the pad presses on the braking surface, the so-called coefficient of friction between the sliding friction partners is decisive.

If water, dirt or oil gets onto the friction surface, this coefficient of friction changes. This is the reason why a rim brake responds slower in the rain and brakes worse.

Rim wear
The rims of the Kwiggle are very wear-resistant and durable compared to aluminum rims on other bikes. If you don't ride regularly and a lot through rain and dirt, and if you keep the rims nice and clean at all times, the rim should therefore last a very long time.

First of all, check regularly that the rims continue to feel nice and smooth everywhere where the brake shoes come into contact and that there are no grooves. As long as this is the case, the rim has no wear.

Nevertheless, the rim may suffer a small amount of wear over time.

Friction, especially with dirt and sand, causes wear of the brake pads and also the rims. The wear of the friction partners is considerably favored by many rainy rides.

If the rim starts to feel rougher, check the width of the rim at regular intervals.

The rim has a width of 31.5 mm when delivered.

⚠ **Caution!** If the width of a rim falls below 30.5 mm, the tire pressure can cause the rim to burst. The wheel may lock or the tube may burst. Risk of falling and injury. At the latest when you have braked down the second set of brake pads, the width of the rim should be checked every 1,000 km.

When replacing, only use the original brake pads that match the rim:
Tektro P205(0°) - grey shoes.

When replacing the brake pads, align them correctly in the direction of travel. The direction of travel is indicated by an arrow on the brake pad.

⚠ **Caution!** Have the rim checked by a specialist after the second set of brake pads at the latest. Worn rims can cause the hose to burst and lead to falls! To be able to decelerate effectively, the brakes must be checked occasionally and readjusted if necessary.

Damaged brake cables, where e.g. individual wires are sticking out, must be replaced immediately. Brake failure and a fall can otherwise be the consequences.

Checking and adjusting the brakes

In side-pull brakes, the brake arms are suspended together, thus forming a closed system. When the brake lever is actuated, the arms are pulled together by a cable and the pads rub against the rim flanks.

Checking the brake system

Check that the brake pads are exactly aligned with the rims and have enough pad thickness.

With the front brake, the brake arms do not hit the rim at the same time when the hand lever is pulled due to the system. In addition, the braking force of the front brake has been limited to prevent it from falling forward too early during emergency braking.

However, both brake arms of the rear brake should hit the rim at the same time when pulling the hand lever.

Does the lever of the brake provide an accurate pressure point during full braking and can it not be pulled through to the handlebar?

If the two brakes function properly in all respects, the brakes are correctly adjusted.

Height adjustment of the pads

Loosen the fastening screw of the pad with one to two turns at the most.

Slide the pad to the correct height, align it along the rim flank and retighten the mounting bolt to the required torque. Make sure that the pad is not mounted at the height of the tires. In any case, the pad should be flush with the inner edge of the rim and should never be mounted further out to prevent the pad from coming into contact with the tire when braking.

The tip of the brake beacon must point against the direction of travel of the rim.

Brake manufacturers provide detailed instructions. Read them carefully before carrying out any maintenance work.

7.2 The drive

The sprockets

3-speed derailleur:

The 3-speed gears are derailleur gears.

On the rear wheel there are 3 sprockets with the following numbers of teeth:

7 teeth
8 teeth
10 teeth

This close gradation has proven itself, as kwiggling is largely done with the help of one's own body weight.

On the one hand, the body weight must be moved forward, on the other hand, the body weight also drives the Kwiggler. This balance of forces leads to a constant crank speed regardless of the body weight of the Kwigglers. It is therefore better to have a close graduation in the gears in order to be able to maintain the favorable crank speed in somewhat changed riding conditions such as uphill rides or headwind.

The 3 sprockets are shifted via the Shimano twist shifter located on the left side of the handlebar. The shifting handle has 3 shifting positions, which are marked with the numbers 1, 2 and 3.

	**Heaviest gear: Gear position 1 (sprocket with 7 teeth)** **Lightest gear: Gear position 3 (sprocket with 9 teeth)** Please note: This assignment is reversed to the assignment of bicycle derailleurs.

⚠ **Be careful! When you turn the twist grip to shift to another gear, you must pedal lightly to ensure that the shifting process runs smoothly.** If you do not pedal, the sprockets may jam. In the worst case, the gears will be damaged and you could fall. If you pedal too hard, the chain may jump over the sprockets and the crank may slip a little. This can also damage the gears and lead to a fall.

6-speed speeddrive gearbox

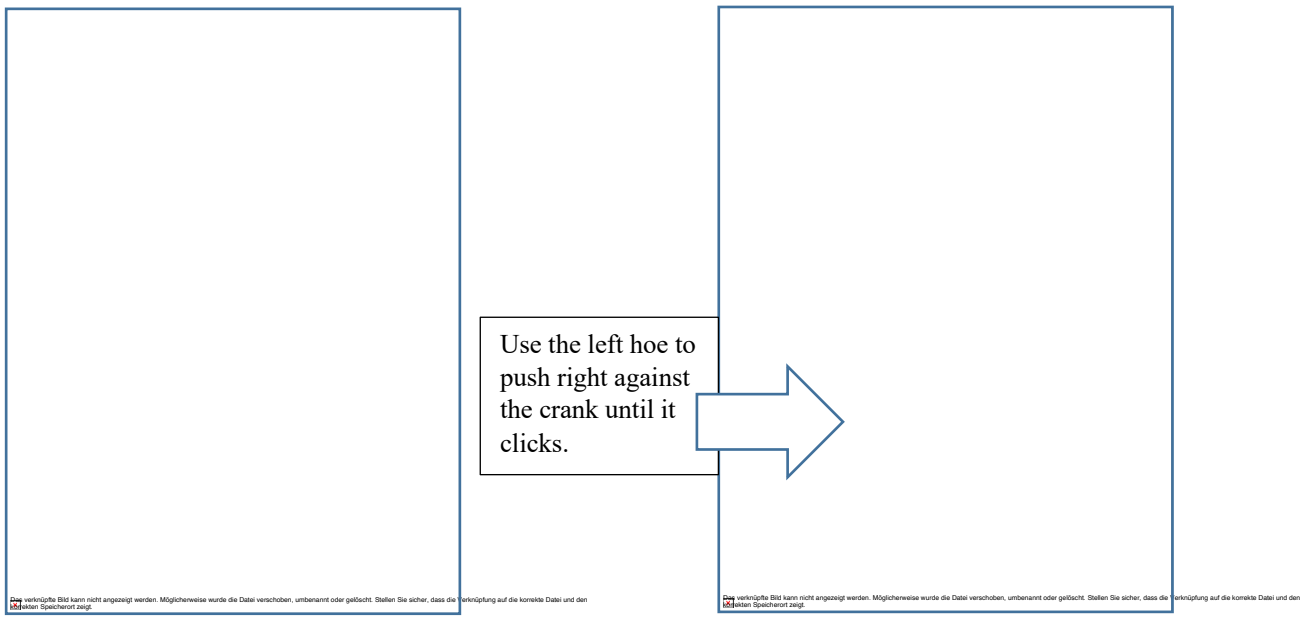
To the right of the bottom bracket is a planetary gearbox that produces a ratio of 1:1.65.

When the light gears are engaged, the ratio is 1 : 1,

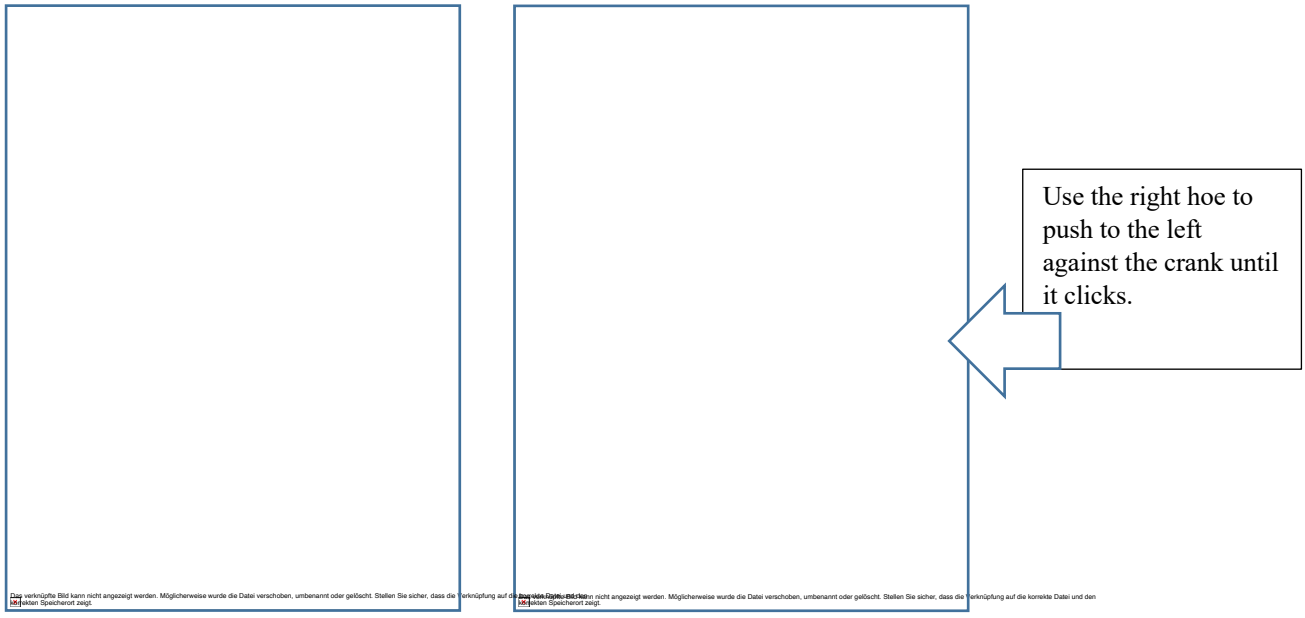
If the heavy gears are shifted, the ratio is 1 : 1.65

The 6-speed Speeddrive gear is shifted at the crank arms as follows:

Shift into the easy gears:



Shift into the heavy gears:



So remember: light on the left, heavy on the right.

The chain gradations of the light and heavy gears

With the rotary switch on the handlebars are then switched the small sprocket gradations (7, 8, and 10 teeth rear) of the derailleur.

It should be noted that the first gear is always the heaviest of the three chain gears.

Indeed, we have installed a rotary switch, which is normally used for a front derailleur. These switches are much more robust than those for the rear chain gears. But this has the consequence that the order of the gears is the other way around.

So remember: The first chain gear (shift position 1) is always the heaviest with the Kwiggle.

The gear sequence is thus:

Aisle	Shift position crank	Switching position Rotary switch	Teeth rear pinion	m/crank rotation
1 (heaviest gear)	Heavy gears = shift bar of the right crank pressed to the left	1	7	7,2
2		2	8	6,3
3		3	10	5,1
4	Light gears = shift bar of the left crank pressed to the right	1	7	4,4
5		2	8	3,8
6 (lightest gear)		3	10	3,1

When folded, the light gears are shifted.

Safety Notice:

The lighter the gears become, the more sensitive is the already described tilting moment to the rear when (inadmissibly) pulling on the handlebars while sitting on the saddle and pedaling.

At the beginning of each ride, you should therefore always first press in the shift bar on the right crank (preferably also by hand) so that the heavy gears are engaged first for starting off.

With practice, you can then use the easy gears to start off.

How switching works in operation,

you can see in the following video

watch on youtube:

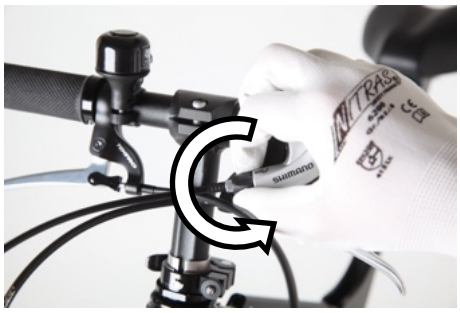
https://youtube.com/shorts/heUhaciOnds

You can find more information about the bottom bracket gear here:

http://www.schlumpfdrive.com/index.php/technical-documents.html

Adjusting the 3-speed derailleur

The 3-speed derailleur is adjusted using the adjustment screw on the left twist grip shifter on the handlebars.

	
Turning in brings the chain further in the direction of the small sprockets or in the direction of heavy gears.	Unscrewing brings the chain further in the direction of the large sprockets or in the direction of the lighter gears.

The black adjustment screw turns 1/4 of a turn further. If the adjustment screw is turned in clockwise, as seen in the direction of the shift lever, the shift lever moves in the direction of the heavier gears, i.e. in the direction of the smaller sprockets away from the frame.

If the black adjustment screw is unscrewed counterclockwise, as seen in the direction of the shift lever, the shift lever moves in the direction of lighter gears, i.e. in the direction of larger sprockets towards the frame.

If the shifting does not run smoothly or the chain rattles over the sprockets while riding, adjust the shifting as follows:

Either mount the Kwiggle on a suitable mounting stand by clamping the lower front frame section, or ride the Kwiggle slowly.

Shift the shifting handle to shift position 2 (sprocket with 8 teeth) while continuing to turn the crank. While cranking, turn the adjustment screw until the chain runs easily on the middle sprocket (with 8 teeth) without making any noise. Now shift into the heavier gear (shift position 1, 7 tooth sprocket) and back again and check whether the shifting process runs smoothly. If necessary, adjust the adjustment screw again slightly to achieve a smooth shifting process to the 7th sprocket and back in addition to the noiseless running of the chain on the 8th sprocket.

Now shift to the 9th sprocket (shift position 3) and also check whether the shifting process runs smoothly and the chain does not rattle on the 9th sprocket.

If necessary, readjust using the adjustment screw on the twist shifter.

Chain maintenance

The chain as well as the sprockets on the rear wheel of the Kwiggle are very wear resistant. The very flexible chain links and the sprockets on the rear wheel are also made of stainless steel and are therefore less susceptible to rust and squeaking.

The chain needs little grease to run well.

The most important goal of the Kwiggle's chain maintenance is a chain that is always clean and lubricated with as little grease as possible.

Clean the chain frequently with a dry cloth to remove dirt and oil. Especially after riding in the rain, you should clean the chain with a dry cloth.
To apply as little grease as possible to the chain, proceed as follows:
Apply a few drops of chain oil, grease, or wax to the rear sprocket, which is enclosed by the chain, where the chain does not enclose the sprocket. At best, use chain grease that absorbs little dirt.

Then turn the chain through several revolutions. Repeat this process until the chain no longer squeaks and runs as smoothly as possible. Then leave your Kwiggle for a few minutes so that the lubricant can penetrate the chain. Finally, you can rub off the excess lubricant with a cloth so that it does not splash away or attract dirt when riding.

Chain and/or sprocket wear

Every chain and every sprocket is a wearing part, even on your Kwiggle. Sprockets with fewer teeth are generally more susceptible to wear than sprockets with many teeth. The sprocket material of your Kwiggle is equipped with the highest wear resistance. Even compared to high-quality derailleurs on the market, the Kwiggle materials have a significantly higher wear resistance.

You can also influence the life of the sprockets and the chain.

Keep the chain as clean as possible and make sure that the chain is lubricated regularly but with as little grease as possible, especially after riding in the rain.

Raise chain

The chain tension is produced by a switching rocker, which is pulled backwards by a tension spring.

To mount the chain safely, proceed as follows:

Detach the chain from the front sprocket. First feed the chain around the sprockets and the swingarm. Then guide the chain onto the front sprocket and turn the crank until the chain is wound up.

Attention! Never pull the chain onto the sprocket first.

If you put the chain on the sprocket first, you won't be able to put the chain on the rear sprockets and thread it through the shifters.

Chain change

The chain and sprockets can be purchased as spare parts from us.
You can also send your Kwiggle to us for service. Then we change the pinions in the service.

The chain is designed as an endless chain without a lock link. The entire chain is guided on the right side of the rear frame section, as seen in the direction of travel, and can therefore be easily dismantled.
Proceed as follows: Shift the chain to the heaviest gear (7-pinion, shift position 1 on the twist grip shifter).

Pull the chain off the front sprocket to the inside by turning the crank. The chain then lies without tension between the chain wheel and the rear frame part.	
Remove the chain from the sprockets.	
Release the chain from the two shifting wheels of the swing arm and remove the chain from the swing arm with it.	 

Guide the chain around the front sprocket to the outside.	

Mounting the chain

Place the chain between the front sprocket and the rear frame part.	
Thread the chain with the upper chain part between the two sprockets.	
Now guide the chain around the upper shifting wheel and then around the small chain sprocket connected to the rear wheel shaft.	
Finally, guide the chain onto the front sprocket from below.	

Turn the crank counterclockwise to wind the chain onto the front sprocket.	
Finally, check that the gearshift is working properly (see Adjusting the gearshift).	

7.3 Wheels: tubes, tires and air pressure

The wheels on your Kwiggle make contact with the road. They are heavily loaded by the weights of rider and luggage as well as by bumps in the road.

The wheels are manufactured with a very high running accuracy, which makes it possible to ride the Kwiggle very fast without the handlebars getting fidgety.

The tire in which the tube is inserted is mounted on the rim.
If you want to mount a new tire, use only the tire intended for the Kwiggle:

12-inch tires: Schwalbe Big Apple - 50-203 with reflective stripes

Attention. Only use original Schwalbe Big Apple 50-203 tires with reflective stripes Other tires, including other 12-inch tires, carry the risk of not having the appropriate tread or the required load capacity: This means risk of accident.

You can buy spare tires in bicycle shops or also in our online shop.

A tire only works well if it is inflated with the correct air pressure. The correct air pressure of 4 bar also provides better resistance to punctures. If the air pressure is too low, the tube can be crushed by the rim when riding over edges, the so-called "snake bite".

The air pressure recommended by the manufacturer can be found on the side of the tire or on the type label. We recommend an air pressure of 4 bar for the intended tire for the Kwiggle.

The tire and rim alone are not airtight. To keep the pressure inside, the tube is inserted into the tire. It is inflated through a valve.

Kwiggle uses the Schrader valve (like car valves). The valve is protected from dirt by a plastic cover cap.

⚠ Caution! Never inflate your tires above the maximum permissible pressure!
The tire could jump off the rim or burst while riding. Risk of falling and injury!

Always ride with the prescribed tire pressure and check
this at regular intervals, at least once a week.

Tires with worn tread or brittle sidewalls should be replaced. The structure of the tire inside can be damaged if moisture or dirt gets inside.

⚠ Caution! Damage to the tires can, in extreme cases, lead to sudden bursting of the inner tube resulting in an accident.

Repairing a flat tire

A flat tire can happen to every Kwiggler. However, a flat tire does not have to mean the end of the Kwiggle tour if you have taken the necessary tools for changing the tire and tube and a spare tube or repair kit with you.

Attention! Never remove the rear wheel of the Kwiggle.

There are sensitive gear parts installed here that can be damaged by removal. The rear wheel of the Kwiggle is only connected to the frame on one side. The rear wheel of the Kwiggle does not need to be removed for patching and changing tires.

Attention! Never clamp the lower frame parts near the welding seams.

You must never clamp the lower frame parts near their ends and near their weld seams. You must never clamp the lower frame parts between their side walls. Always clamp the top and bottom together and always keep a distance of at least 5 cm from the weld seams.

We will show you how to do this in the following.

Preparations for repairing a puncture on the rear wheel or for changing a tube or tyre

Mount the Kwiggle on a suitable mounting stand.	
Clamp the Kwiggle in the unfolded state with its lower front frame part in the assembly stand.	

Loosen the brake nut on the rear wheel and let the air out of the rear wheel.	 
Pull the brake out of the tire until the brake hangs free. Make sure you don't lose any slices. Now the tire can be disassembled or patched. Then fill the tire again with an air pressure of 4 bar.	

Preparations for repairing a puncture on the front wheel or for changing a tube or tyre

Mount the Kwiggle on a suitable assembly stand. Clamp the Kwiggle in the unfolded state with its lower front frame part in the assembly stand.

Loosen the bolt on the front wheel axle with the Allen key under the saddle.	
If not already done, deflate the front tire. Pull the front wheel down out of the fork.	

For your information: The bolt head of the front wheel axle should always be mounted so that it is on the right side of the Kwiggle.

Disassembly of the clincher

1. Unscrew the valve cover and the fixing nut from the valve and let the air escape completely by operating the pin of the valve.
2. Press the tire from the rim flank to the center of the rim. It facilitates the disassembly if you do this over the entire circumference.
3. Place the mounting lever approx. 5 cm to the right and left of the valve on the lower edge of the tire and lift the tire sidewall over the rim flange. Hold the lever in this position.
4. Push the second lever at a distance of about 10 centimeters from the first between the rim and the tire and lift the flank over the rim again.
5. After part of the tire flank has been levered over the horn, the flank can usually be completely released by moving the mounting lever around the circumference.
6. Now you can pull out the tube. Make sure that the valve does not get stuck in the rim and that the tube is not damaged.
7. Mend the tube according to the patch manufacturer's instructions.

If the fabric of the tire is destroyed by a penetrated object, replace the tire to be on the safe side.

Also observe the operating instructions of the brake manufacturer.

The second tire sidewall can simply be pulled off the rim if necessary.

Mounting of the clincher tire

⚠ Caution! When mounting the tire, make sure that no foreign bodies such as dirt, sand, metal or the like get inside and that you do not damage the tube.

Otherwise, the tire can blow out while riding and you could lose control of your Kwiggle and fall.

⚠ Caution! Make sure that you mount the tire so that the direction of rotation indicated on the tire is correct.

Otherwise, the tread pattern is misaligned and the water drainage in the rain is disturbed. This can lead to you slipping away more easily in the rain.

1. Place the rim with a horn in the tire. Press this flank with your thumbs completely over the horn of the rim. This process should be possible without tools. Insert the valve of the tube into the valve hole of the rim.
2. Pump up the tube only slightly so that it takes on the round shape and place it completely inside the tire. Make sure that it does not wrinkle.
3. Start the final assembly on the opposite side of the valve. Press the tire as far as possible with your thumbs over the rim flank.
4. Make sure that the tube is not squeezed between the tire and the rim. Therefore, always push the tube inside the tire with your index finger.
5. Work evenly along the circumference of the tire on both sides. Towards the end you have to pull the tire downwards so that the already mounted area slides into the deep rim base. This makes mounting the last few centimeters noticeably easier.
6. Check the fit of the tube again and press the tire over the horn with the heel of your hand.
7. If this does not work, you must use assembly levers. Make sure that the blunt side faces the hose and that you do not damage the hose.
8. Press the valve inside the tire so that the tube is not trapped under the tire core. Is the valve straight? If not, you need to remove one side of the tire again and realign the tube.
9. If you want to be sure that the tube is not crushed under the sidewall, you should roll the tire half inflated back and forth over the entire circumference of the wheel, i.e. move it transverse to the rolling direction.
10. Now inflate the tube until the tire just touches the rim. Make sure that the inner, finely ribbed edge of the tire is evenly spaced from the outer edge of the rim on both sides of the tire. If not, correct the distance by flexing the tire in the appropriate direction. An even distance of the grooved edge ensures that the wheel turns as round as possible and that deflections are avoided. This is very important especially with such small tires at the speeds ridden with the Kwiggle.
11. Now pump up the tube to the desired tire pressure of 4 bar.

12. Check the fit of the tire again using the control ring on the rim flank. It is important that the ring has an even distance to the rim flange on the entire tire.

If you have a puncture on the road, you can try to fix it without removing the wheel and the tube. Inflate the tube, leave the valve in the rim and first look for the hole through which the air escapes. Run the tube close to your ear and listen for hissing noises. Once you have found the hole, look for the corresponding spot on the tire and examine it as well. Often the foreign body is still in the tire. Remove it.

Installation of the rear brake

First put the first ribbed spacer washer on the rear brake bolt, then the eyelet of the wheel protector and then the second ribbed spacer washer. Then put the rear brake bolt through the brake mount on the frame and tighten it again with the elongated brake nut.

Installation of the front wheel

The front wheel is installed in the reverse order to removal.

Make sure the front wheel is positioned correctly: axle bolt on the right in the direction of travel and axle nut on the left.

Pay attention to the running direction of the tires. The running direction is marked with an arrow and the word "rotation" on the tire.

Put the front wheel into the fork from below.

⚠ Caution! The axle must be fully seated in the top of the front fork and the axle bolt must be tightened.

Otherwise the front wheel will not sit firmly in the fork after mounting. Then there is a risk that you lose the front wheel while riding and fall. There is also the risk that the front wheel wobbles in the fork and you lose control of your Kwiggle and fall.

Make sure that the front wheel axle touches the top of the fork and then tighten the axle bolt.

Pump up the tire

Pump up the tire and make sure that it protrudes evenly from the rim.

However, if the fabric of the tire is destroyed by a penetrated object, replace the tire to be on the safe side.

Incorrect installation can lead to malfunctions or even failure of the brake.

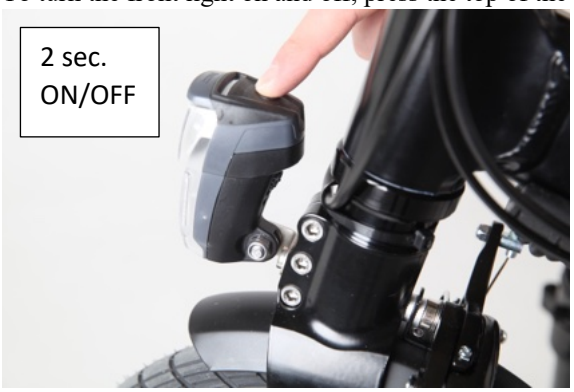
7.4 Lighting

We have deliberately mounted the front light only 40 cm above the ground.

This is especially important so that you can also see the ground structure very well in the dark and avoid obstacles on the way. On the one hand, the path directly in front of you is well illuminated. On the other hand, obstacles can be better recognized due to their shadows.

Optionally, you can attach a small additional light to the handlebar if you want to be seen even better and you feel safer with it.

To turn the front light on and off, press the top of the light for about 2 seconds.



If a blue dot is lit on the top of the lamp, the lamp is shining at full power. If a red dot is lit, the light is in energy-saving mode. To switch the mode, briefly press the top of the lamp once.

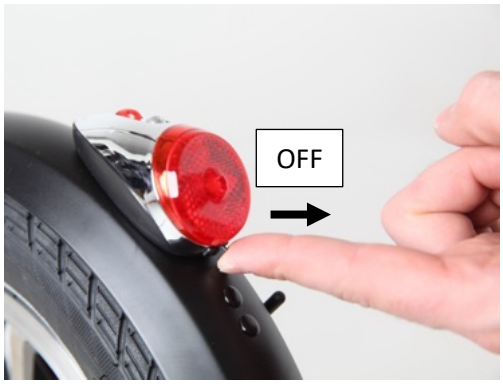
The light of the front light is removable and can be charged via a Mirco USB cable.

To remove the lamp, press the back into the recess until it clicks. Then you can pull the light upwards. Inside you will see the Mirco USB connector.

To install the lamp, push the lamp on from above until it clicks again

More detailed information on the front light can be found in the operating instructions supplied by the front light manufacturer.

The tail light is attached to the rear wheel guard. The rear light is switched on and off with the slide switch, which is located below the rear light. To switch it on and off, slide the switch to the left (to switch it on) or to the right (to switch it off).



The rear light is operated with two AAA batteries. If the small red light on the rear light is also illuminated, the batteries should be replaced soon. To replace the batteries, unscrew the cover of the rear light with a Phillips screwdriver, replace the batteries, making sure that the batteries are in the correct position, and screw the cover back on.

7.5 Steering bearing

The fork, the steering tube and the front wheel are rotatably mounted in the frame with the steering bearing, also called headset. In order for your Kwiggle to stabilize itself and ride straight, this steering area must be able to rotate easily. Shocks caused by bumpy roads put a lot of stress on the steering bearing.

This can cause it to become loose and misaligned.

Checking and adjusting

Check the play by placing your fingers around the upper steering bearing cup.

Put weight on the saddle with your upper body, pull the front brake with your other hand and push your Kwiggle hard back and forth.

If the bearing has play, the upper shell shifts noticeably in relation to the metal ring on the steering tube.

To check the smooth running of the bearing, lift the frame with one hand until the front wheel is no longer in contact with the ground. Move the handlebar from left to right. The front wheel should swivel very smoothly from the far left to the far right without locking. When the handlebars are lightly tapped, the wheel should automatically rotate out of the middle position.

Attention! If you ride with a loose steering bearing, the loads on the fork and bearing become very high. Bearing damage or fork breakage with serious consequences can be the result! Risk of falling.

Adjusting the steering bearings requires a certain amount of experience, so this work should be carried out by a professional. If you want to try it yourself, proceed as follows:

If the steering **bearing is too loose:**

Lean your upper body on the handlebars so that you exert pressure on the handlebars from above during the following work.

Open the 3 fixing screws of the fork and tighten them again immediately afterwards.

Then retighten all 3 fixing screws to the prescribed tightening torque.

Check again the play of the steering bearing and the ease of movement of the steering.

If the steering bearing is **too tight:**

Lean only slightly with your upper body on the handlebars.

Open the 3 fixing screws of the fork and tighten them again immediately afterwards.

Then retighten all 3 fixing screws to the prescribed tightening torque.

Check again the play of the steering bearing and the ease of movement of the steering.

7.6 General care instructions and inspections

Your Kwiggle is a quality product. Nevertheless, as with other vehicles, you must maintain your Kwiggle regularly and have the regular maintenance work carried out by a specialist.

Only do work for which you have the necessary expertise and the right tools.

Important components must also be replaced after a certain period of time (see chapter "Service and maintenance intervals"). Only then can the permanent and safe function of all parts be guaranteed.

Washing and care of your Kwiggle

Many parts on the Kwiggle are made of stainless steel or aluminum. However, there are also a few parts where a stainless-steel design was not possible. Aluminum can also react corrosively in aggressive media.

Dirt and salt from winter use or from the sea air will damage your Kwiggle. Therefore, regular cleaning and protection against corrosion of all components of your Kwiggle should be part of your mandatory exercises.

Especially if your Kwiggle is very dirty after a rainy ride, you should clean it with a soft water jet and/or a bucket of water, with the help of a sponge or a large brush, so that you get the chain, the sprockets and the bearing seals free of sand and dust grains again.

Attention! Do not clean your Kwiggle at short distance with a very strong water jet or with the steam jet. The very sharp water jet coming out under high pressure can push past the seals and penetrate into the inside of the bearings. In the long term, this leads to destruction of the bearing running surfaces and soft running of the bearings. It is not uncommon for steam jets to also detach stickers.

After your Kwiggle has dried again, you can preserve the paint and the metallic surfaces with hard wax from time to time (exception: rims). Less flat parts can simply be sprayed with a hand sprayer. Polish the waxed surfaces with a soft cloth so that they shine beautifully and water runs off.

After completing the cleaning work, you should check the chain and lubricate it if necessary (see in the section "Chain care").

Storage of your Kwiggle

If you maintain your Kwiggle regularly, you do not need to take any special precautions when parking it for a short time, apart from protecting it against theft. It is recommended that you park your Kwiggle in a dry, well-ventilated area.

If you are going to winterize your Kwiggle or if you are not going to use your Kwiggle for a longer period of time, there are some things to consider:

1. During a long period of standing, the tubes gradually lose air. If your Kwiggle stands on flat tires for a long time, the body can get damaged. Therefore, fold the Kwiggle and put it on the trolley wheels and check the tire pressure after a longer storage time.
2. Clean your Kwiggle and protect it against corrosion.
3. Store your Kwiggle in a dry room.
4. Shift to the smallest sprocket at the rear (shift position 1 on the twist grip shifter). This way the cables and springs are relaxed as much as possible.

⚠ **Caution!** Do not apply any care products or chain oil to the brake pads and the braking surfaces of the rims There is a risk of brake failure and this could cause an accident.

Maintenance and inspection

First inspection:
During the first few kilometers, the shift and brake cables may, in rare cases, become slightly elongated, so that the shifting system cannot work properly. Here, something would then have to be readjusted. Also, depending on the mileage, wear and tear repairs may be due. Please contact us in this case.

Regular annual maintenance:
After a long Kwiggle season we recommend to have your Kwiggle completely checked in our service workshop. Who better to do this than the people who built your Kwiggle?
The annual inspection is carried out by our qualified personnel according to a fixed maintenance schedule.

Attention! If you need to pack your Kwiggle to send it to our service workshop, please pack it exactly as described in the packing instructions "Shipping the Kwiggle". If possible, use the same box that the Kwiggle was delivered in. Otherwise there is a risk that the Kwiggle will be damaged during transport.

Attention. Particularly lightweight components can have a shortened service life.

Therefore, for your own safety, have the components listed in the chapter "Service and maintenance intervals" checked regularly and replaced if necessary.

Attention! Regular maintenance of your Kwiggle increases its service life, as with any bicycle. The times given in the table in the chapter "Service and maintenance intervals" are intended as a guide for Kwigglers who ride between 1,000 and 2,500 km per year. If you regularly drive more or very much on bad roads, the inspection intervals will be shortened according to the harder use. This also applies to frequent riding in the rain and generally in humid climates.

If you use your Kwiggle significantly less than 1000 km per year, the maintenance effort is correspondingly lower. However, it is always advisable to have a safety check carried out at the beginning of a new Kwiggle season or before a planned Kwiggle holiday, so that you can get started without worries. To keep the turnaround time of your Kwiggle as short as possible, we ask you to make an appointment in advance.

7.7 Packing Kwiggle for shipment

Please see these youtube videos how the Kwiggle is packed.

First, you need to attach the cable ties to secure it for transport:

https://youtu.be/RjF1i0kb3_0

Please use the supplied red cable ties for this purpose.

Then the inserts must be correctly inserted into the box and the Kwiggle placed between these inserts:

https://youtube.com/shorts/1gPCKbEKaUs

7.8 Service and maintenance intervals

After the running-in phase you must have your Kwiggle serviced at regular intervals by a specialist.
let. The times given in the table below are intended as a guide for Kwigglers who ride between 1,000 and 2,500 km (approx. 40 to 100 hours) per year. If you regularly cycle more or very much on bad roads, the inspection intervals will be shortened according to the harder use.

On our website www.kwiggle-bike.de you will find numerous service films to help you with minor repair and maintenance work. However, please do not expect too much from yourself when carrying out this work! If you are not absolutely sure or have any questions, please contact our service workshop:
Phone +49 (0) 511 228 442 60
Email: service@kwiggle-bike.de

Service and maintenance intervals

Component	Activity	Before each trip	Monthly	Annual	Otherwise. Intervals
Lighting	Check functionality	●			
Tires	Check air pressure	●			
	Check profile height and side walls		●		
Bolts of the seat equipment (4 pieces)	Put 1-2 drops of oil on the center of the bolts				Every six months or when it cracks or squeaks.
Brakes (rims)	Check lever travel, pad thickness and position relative to rimBrake test at standstill	●			
Brake cables/lines	Visual inspection for damage		●		
Rims (aluminium)	Rim surface smooth?		●		
Rims (aluminium)	Check rim width and replace if necessary (minimum rim width 30.5 mm).				x if rim is no longer smooth at the latest after the second set of brake pads
Fork (Aluminium)	Check			x	or after fall
Inner bearing	Check bearing clearance		●		
Inner bearing	Regrease			x	
Chain	Check chain tension, check chain lubrication and relubricate if necessary.	●●			
Chain	Check or change				x from 1.000 km
Both folding levers	Check whether firmly closed	●			
Crank	Check or retighten			x	
Lacquer	Preserve				● At least every six months
impellers/	Check concentricity		●		
Impellers	Check bearing clearance		●		
Handlebar	Check whether firmly closed	●			
	Check and replace if necessary			x	or after fall
Steering bearing (2 pieces)	Check bearing clearance, retighten if necessary		●		
Metallic surfaces	Preservation (exception: rim flanks)				● At least every six months
Pedals	Engaged in pedal socket?	●			
Pedals	Check bearing clearance		●		
Pedals	Clean latching mechanism		●		
	Lubricate				
Frame	Check for cracks		●		
Rear derailleur	Clean		●	x	
Nuts and bolts	Check or retighten		●		
Trains: Gearshift/ Brakes	Disassemble and grease			x	

You can carry out the checks marked ● yourself if you have manual dexterity, some experience and suitable tools, e.g. a torque wrench. If defects are detected during the checks, take appropriate measures immediately. If you have any questions or doubts, we will be happy to help you: Service number 0511 22844260 or email to: service@kwiggle-bike.de.

The work marked with x should be carried out by
us, otherwise by a specialist experienced in bicycle technology in a master bicycle mechanic's workshop.

Spare parts

Only use original spare parts when replacement is necessary.

Only Kwiggle authorized spare parts may be used as spare parts, which you can also buy from our shop on request:
12 inch tire: Schwalbe Big Apple Black-Reflex 50-203

Tube: Continental Compact 10/11/12

Brake pads: Tektro P205(0°) - grey shoes

For reasons of safety and proper functioning of the Kwiggle, all other spare parts must be original spare parts which can be ordered directly from us.

7.9 Recommended tightening torques

Attention! If the tightening torques are noted on the component itself, adhere to the values on the stickers or imprints.

Attention! To ensure the operational safety of your Kwiggle, the screw connections of the components must be tightened carefully and checked regularly. The best way to do this is to use a torque wrench that switches off when the desired tightening torque is reached. Always approach the maximum torques from the lower value and check the secure fit of the components as described in the corresponding chapters. For parts where there is no torque tension, tighten the bolts gradually and check the tightness of the component in between. Never exceed the maximum torque.

Attention! On some components the tightening torques are written on the component itself. Adhere to the values on the stickers or imprints.

If necessary, also refer to the enclosed instructions of the component manufacturers or check our website www.kwiggle-bike.de.

Recommended tightening torques

Component	Screw connection	Tightening torque
Brake lever	Fastening screw	5 Nm
Luggage rack	Fastening screws	5 Nm
Gripping wire at the swivel joint	Fastening screws	4 Nm
Front light	Fastening screws	4 Nm
Rear wheel guard	Fixing nuts on the wheel guard	6 Nm
	Fastening screws on the frame	5 Nm
Rear wheel sprocket	Pinion locking screw	10 Nm
Inner bearing	Housing	35-50 Nm
Cable clamps Frame	Fastening screw	3 Nm
Folding joint frame	Upper fixing screw in rubber buffer	4 Nm
Folding lever on the steering tube	tension adjusting screw	Folding lever should cock in open position
Folding lever on the frame	tension adjusting screw	Folding lever should be able to close with tension
Crank conter	Fastening screw	4 Nm
Crank stop	Fastening screw	4 Nm
Crankset	Chainring attachment	8-11 Nm
	Crank bolt (grease-free square)	35-50 Nm
Handlebar	Fastening screws	5 Nm
Handlebar grips	Fastening screw	3 Nm
Handlebar clamp	Adjusting nut	when closed, handlebar must not slide in under vertical load
Pedal	Pedal axle	35-55 Nm
Saddle	Mounting bolt Saddle tilt	5-6 Nm
	Fastening screws	5-6 Nm
Switch handle Rotary switch	Fastening screw	3 Nm
Gearshift	Attachment to the frame	4-5 Nm
	Fixing the shaft screw to the frame	4-5 Nm
	Fastening lower shift pinion	4-5 Nm
Shift cable	Tension clamp	2 Nm
Side-pull brakes front and rear	Fixing bolt of the screw	8-10 Nm
	Brake shoe fixing screw	8 Nm
	Tension clamp screw	6-8 Nm
Seat equipment	Bolt fastening screws	4-5 Nm
Seat tube	Fastening screw for closure strap	4-5 Nm
Trolley wheels	Fastening screws	2 Nm
Front wheel guard	Fastening screws	5 Nm
Front wheel axle	Fastening screw	6 Nm
Front fork	3 Tighten the fastening screws several times	10 Nm

7.10 Malfunctions

To make the Kwiggle suitable for every body size on the one hand and as compact as the hand luggage in the airplane on the other hand, some joints and parts have to be moved.

We have tried to make this as simple and robust as possible.

Especially in the beginning, however, there may be some disturbances.

The chain jumps off when folding in or out

When folding and unfolding, the Kwiggle is placed on the side of the chain facing away from the body. If the folding or unfolding is too robust, it can happen from time to time, especially in the beginning, that the chain jumps off.

To avoid jumping off, practice folding and unfolding carefully and slowly until you have mastered the movements.

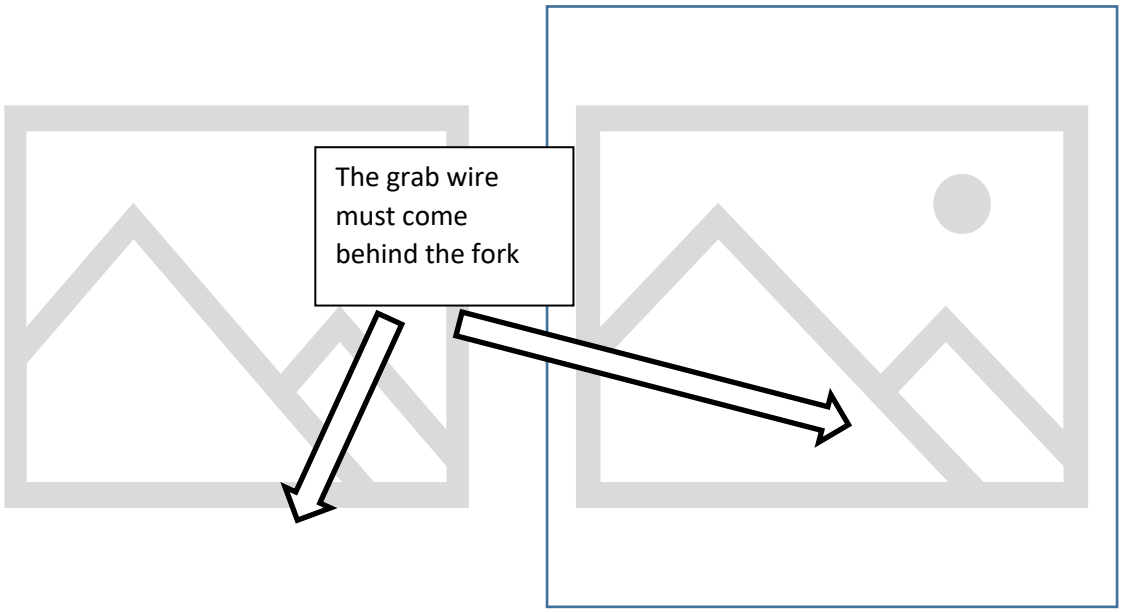
If the chain has come off the lower sprocket, first detach it from the sprocket and thread it back into the sprocket. Then put it back on the lower sprocket and turn the crank backwards to tighten the chain onto the entire sprocket.

If the chain has come off the sprocket, you can put it on the lower side of the sprocket and turn the crank backwards to tighten it onto the entire sprocket.

See also the chapter "Drive" under "Mounting the chain".

The seat equipment hangs too loosely after folding in

Please make sure that the gripping wire also reaches behind the fork when folding in before you close the closure strap.



The stainless-steel clip that holds the bolt of the saddle suspension slips out of the bolt when unfolded.

Please make sure that you pull up the seat slowly and carefully, especially when unfolding it, and let it lock into the swivel joint.

If you pull the seat assembly up too far or too fast without taking the handlebars with you, the bolt may push against the swivel and the stainless-steel clip may come loose from the bolt.

In this case, you must first slide the stainless-steel clasp back over the bolt,

before you unfold the saddle further.

8. Legal notice

If you want to take part in public traffic with your Kwiggle, your Kwiggle must be equipped in accordance with the regulations of your country! Ask for the valid regulations of the respective country.

When participating in traffic, cyclists are subject to the same rules as motor vehicle drivers. Familiarise yourself with the country-specific Road Traffic Regulations (StVO).

IN GERMANY

In Germany, the German Road Traffic Licensing Regulations (StVZO) specify the braking and lighting systems. and prescribes a bright-sounding bell. In addition, every bike rider is required to have his bike in a roadworthy and roadworthy condition.

The brake system

A wheel must have at least two independently functioning brakes, each one per front and rear wheel. The type of construction is not bindingly regulated. and disc brakes are used.

The lighting system

All lighting equipment on the bicycle must have an official test mark. Recognizable this is indicated by a serpentine line with the letter K and a five-digit number. Only officially tested Lighting devices may be used in road traffic.

Reflector with test mark
The § 67 StVZO prescribes the following lighting devices:

- A rear lamp for red light must be fitted at a height of at least 25 cm above the road surface. be attached.
- The centre of the beam of the front headlamp must not strike the ground more than 10 m in front of the bicycle.
- In addition to these light sources, the following reflectors must be permanently mounted on every bicycle:
- In front, a white spotlight with as large an area as possible, which may be combined with the headlamp.
- At the rear, a red rear reflector with Z marking. The rear lamp may be combined with the spotlight.
- Two lateral yellow reflectors per wheel, which must be securely attached. Optionally white reflective rings may also be used around the entire circumference of the wheel, in the spokes, on the side walls of the tires or on the rims.
- Two yellow pedal lamps per pedal, directed forwards and backwards.

⚠ **Caution!** For your own safety, switch on the lights as soon as dusk begins.

Riding without lighting equipment and reflectors in poor visibility conditions can lead to serious accidents with unforeseeable consequences for your life or limb.

⚠ **Caution!** Always ensure that the lighting system is clean and functioning properly. In particular, check the charge status of the front light battery and the batteries in the rear light before riding.

Liability for material defects

Your Kwiggle has been carefully manufactured and was delivered to you pre-assembled. According to the law, we are responsible, among other things, for ensuring that your Kwiggle is not afflicted with defects that nullify or significantly reduce its value or suitability. During the first 2 years after purchase you have full right to the legal warranty. Should a defect occur, you can contact us at the address given. In order to make the processing of your complaint as smooth as possible, it is necessary that you inform us of the order number of the purchased Kwiggle. Therefore, keep this number in a safe place.
In the interest of a long service life and durability of your Kwiggle, you may only use the Kwiggle for
in accordance with its intended use (see chapter "Intended use"). Also observe the permissible weights and the regulations for transporting luggage and children (in chapter "Intended use"). Furthermore, the manufacturer's assembly instructions (especially the torque for screws) and the prescribed maintenance intervals must be strictly observed. Please note the inspections and work listed in these operating instructions and in any other instructions enclosed (in the chapter "Service and maintenance intervals") or the replacement of parts that may be necessary. safety-relevant components such as handlebars, brakes, etc.

We wish you a safe journey with your Kwiggle. Should any questions arise, help
Our service will be happy to assist you.
Phone: +49 (0)511 22844260
Email: service@kwiggle-bike.de

Attention! Always use your Kwiggle according to its intended use.

Enclosed you will find the operating instructions of the component manufacturers. There you will find all the details on use, maintenance and care. These special and detailed instructions are referred to several times in this user manual. Make sure that you have the respective manuals for pedals, shifting and braking components as well as lights in your possession and keep them carefully together with this manual.

Notes on wear

Some components of your Kwiggle are subject to wear and tear due to their function, as is the case with bicycles. The amount of wear depends on the care and maintenance and the type of use of the Kwiggle (mileage, riding in the rain, dirt, salt, etc.). Kwiggles that are often parked outdoors may also be subject to increased wear due to weather conditions. These parts require regular maintenance and care, but sooner or later they will reach the end of their service life depending on the intensity and conditions of use.

The following parts must be replaced when they reach their wear limit:
- the chain,
- the trains,
- the handlebar grips,
- the sprockets,
- the pinions,
- the rear derailleur pulleys,
- the gearshift cables,
- the tires,
- the brake pads.

The pads of rim brakes wear out due to their function. Check the condition of the pads regularly and have them replaced by a specialist if necessary.