User manual for the Model Year 2020

TWENTY E-POWER

TWENTYFOUR-SIX E-POWER

TWENTYFOUR E-POWER PRO

TWENTYSIX E-POWER PRO

TWENTYSEVEN5 E-POWER PRO

ben-e-bike

Dear parents,

This part of the manual is primarily for you because it describes in detail the most important basics of using the BEN-E-BIKE, which you should definitely explain to your child.

PLEASE NOTE!

Please read all warnings and cautions in this manual carefully before your child uses the BEN-E-BIKE for the first time. Explain to your child the contents of this manual and do not allow it to use the BEN-E-BIKE until it has fully understood all the safety-related aspects. Keep this user manual ready to hand so that it is always available. If you pass on your BEN-E-BIKE to third parties, hand over this manual as well.

VALIDITY

This instruction manual is valid for BEN-E-BIKE's of model year 2020. The safety instructions for proper battery use are explained at the end of this manual.

MARKING OF SAFETEY ADVICE

The purpose of warnings is to draw your attention to possible dangers. These warnings require your full attention and understanding of the statements. Failure to follow a warning may result in injury to your child or others. The warnings alone do not prevent hazards. You and your child should follow all warnings to avoid risks when using the BEN-E-BIKE.

There are warnings in these instructions in the following classifications::

WARNING

The word "WARNING" indicates a hazard with a medium or high degree of risk, which, if not avoided, may result in death or serious injury..

The Word „CAUTION“ indicates a hazard with a low level of risk which, if not avoided, may result in minor or moderate injury.

ADVICE
Risk of damage!

The word „NOTE“ warns of possible material damage.

NOMENCLATURE

The following figure shows an example of the most important components of a BEN-E-BIKE:

This is just a schematic illustration - the respective model may differ slightly!

Your child is exposed to great danger, if it does not know the rules of road traffic.

- **Explain the traffic rules to your child (see chapter "Notes >> Road Traffic").**
- **Explain to your child the necessity of defensive behaviour on the road.**
- **Do not leave your child on the road with the BEN-E-BIKE until he or she has understood the traffic rules.**

Your child is exposed to danger if he or she does not know how to handle a BEN-E-BIKE.

- **Explain to your child how to operate this bike.**
- **Do not leave your child on the road with the BEN-E-BIKE until he or she is able to handle it properly.**

Danger for children and for people with insufficient knowledge or skills! Incorrect use of a BEN-E-BIKE may result in an accident or injury.

- **Do not allow a BEN-E-BIKE to be used by persons with reduced physical, sensory or mental abilities or lack of experience and knowledge.**
- **Do not allow cleaning, care and maintenance to be carried out by children under the age of 8 years.**

Read these instructions thoroughly and explain all contents to your child.

Practice driving on the road with your child and do not let him or her drive alone unless you can answer for it.

Check your child's seating position regularly and have the settings adjusted by your specialist dealer..

SAFETY ADVICE FOR USE

The braking distance may be prolonged or the BEN-E-BIKE could slip away in corners, e.g. in the wet or if the track is covered by leaves, dirt or snow.

- **Explain to your child that he or she has to adapt his or her driving style and speed to the weather and road conditions.**

Clothes can catch in rotating or moving parts. If your child wears the wrong footwear, it may slip off the pedals.

- **Let your child use the BEN-E-BIKE only when wearing tight-fitting clothing.**
- **Let your child use the BEN-E-BIKE only when wearing non-slip shoes with a stable sole.**

The BEN-E-BIKE may be damaged if is used the wrong way.

- **Do not allow your child to jump over ramps and mounds larger than 15 cm.**
- **Prevent your child from driving through deep water holes.**
- **Prevent your child from performing "wheelies" (riding on the rear wheel only) or "stoppies" (riding on the front wheel only).**

SAFETY INSTRUCTINS FOR ROAD TRAFFIC

Incorrect or improper use of the BEN-E-BIKE may lead to accidents.

- **Only use the BEN-E-BIKE on public roads if the equipment complies with the country-specific regulations for road traffic (see chapter "Notes> = Road Traffic") and has been retrofitted accordingly by you or your specialist dealer.**
- **Only use the BEN-E-BIKE in compliance with the country-specific road traffic regulations.**
- **Explain to your child the country-specific and regional regulations for using bicycle lanes and roads.**

With hardly visible clothing, other road users can poorly recognize your child, thereby reacting too late in dangerous situations.

- **Only allow your child to drive on the street with bright and eye-catching clothing, e.g. sportswear with reflective elements.**

If your child does not wear a helmet, severe head injuries may occur in the case of an accident.

- **Only allow your child to use the BEN-E-BIKE when wearing a bicycle helmet (see chapter "Notes >> Road Traffic >> Bicycle Helmets").**

If your child does not pay attention to the road traffic, it endangers himself/herself and other road users.

- **Explain to your child that he / she should not be distracted by other activities while driving.**
- **Prevent your child from using mobile devices while driving, e.g. smartphones.**
- **Prevent your child from using consumer electronics while driving, e.g. MP3 players.**

SAFETY INSTRUCTIONS FOR MODIFICATIONS OF A BEN-E-BIKE

Modifying the BEN-E-BIKE with improper accessories endangers the safety of your child. The use of unapproved accessories may cause severe malfunction of the BEN-E-BIKE.

- **no parts such as frame, fork, handlebars, stem, brakes or other fittings may be replaced by other components not approved by AMPERUM GmbH! On our website you will find among the menu item "SERVICE ->" DOWNLOADS "the guidelines for the component exchange on Ben-E-Bikes.**
- **bar ends must not be used under no circumstances. Carbon handlebars are not released for the use in combination with bar ends!**
- **defective parts must be replaced with original spare parts from AMPERUM GmbH!**
- **Only have accessories installed, which corresponds to the country-specific regulations for road traffic (see chapter "Notes >> Road Traffic")..**
- **Only install accessories that meet the specifications and quality of the original equipment.**

RESIDUAL RISKS

The use of a BEN-E-BIKE is subject to the following unpredictable residual risks despite the observance of all warnings:

Risk of accidents and injury

- Due to curiosity your child may become distracted and lose focus on the road traffic.
- Dangerous situations may occur due to misbehaviour of other road users.
- Due to the unpredictable road conditions, accidents and injuries are possible, e.g. in case of icy conditions.
- Unpredictable material defects or material fatigue may lead to component failures.
- Unpredictable manufacturing defects of components may cause components to fail or break.

INTENDED USE

Neither the manufacturer nor the retailer warrant for damages caused by improper or incorrect use.

The BEN-E-BIKE is intended for transporting a single person primarily on paved roads and paths. The BEN-E-BIKE can also be used on gravel and unpaved roads. Jumps and drops up to a height of max. 15cm are allowed.

Make sure that the maximum weight of the rider including baggage does not exceed the indicated weight on the top tube and seat tube. This maximum weight must be maintained under all circumstances!

Keep in mind that driving manoeuvres as shown on images on our website may look simple, but actually require a lot of training and experience.

Not all images on our website show a BEN-E-BIKE during intended use. We test our bikes in a controlled manner even in case of overloading, thereby accepting premature material fatigue. Under no circumstances should this lead to the same driving manoeuvres with your own BEN-E-BIKE!

- the warranty expires in the event of improper use of the BEN-E-BIKE (see chapter "Warranty“).
- a BEN-E-BIKE is intended for the exclusive use of children whose body size is set to the correct sitting position..
- a BEN-E-BIKE is intended for private use only. For commercial use, a reduced warranty period of 12 months applies.
- a BEN-E-BIKE is not intended for "abnormal" use, e.g. for racing and competition events (see chapter "Warranty").
- a BEN-E-BIKE is not intended for use in combination with a child seat.
- a BEN-E-BIKE is not intended for the installation of an optional luggage rack.
- bar ends must not be used under no circumstances. Carbon handlebars are not released for the use in combination with bar ends!
- the assembly of a child trailer or other trailer is not allowed.
- a BEN-E-BIKE may only be used for free rolling. Do not clamp the BEN-E-BIKE in an exercise machine or similar device.

For the intended use of a BEN-E-BIKE on the road, your child needs to know and understand the country-specific regulations. For the intended use of a BEN-E-BIKE in road traffic, it must comply with the country-specific regulations (see chapter "Notes >> Road Traffic"). Your child may only use the BEN-E-BIKE as described in this user manual. Any other use is considered as improper use and may cause accidents, personal injury or property damage.
Keep in mind: a BEN-E-BIKE is **not** a toy for children.

ADVICE FOR USE IN ROAD TRAFFIC

For the use of bicycles in general and pedelecs in particular special regulations apply in many countries. Please refer to the applicable traffic regulations of your country or region, e.g. in bicycle associations or the Ministry of Transport. Inform yourself constantly about changed contents of the valid regulations.

- Always explain to your child new contents of the current regulations.
- Only let your child drive alone in public road traffic, if it is permitted by the legal regulations and if you are convinced that your child can participate in the traffic.
- Explain to your child which lane it is allowed to use with a BEN-E-BIKE. In many countries this is the sidewalk for young children.
- Teach your child to drive defensively or cautiously and to consider other road users.
- Teach your child to drive so that nobody is harmed, endangered or unnecessarily disabled or harassed.

Many regions offer courses for children. Here, your child can playfully learn driving and correct behaviour in traffic.

Regulations for lighting

To ride on the road, bicycles must be equipped with headlamps, taillights, cat eyes on pedals and wheels, a white front reflector and a red rear reflector. All these lighting components must meet the country-specific requirements and be marked with an appropriate test mark.
We explicitly point out that all BEN-E-BIKES ex works are **not** equipped with the above-mentioned, required components and may not be used in public road traffic without prior retrofitting.

Further regulations

To ride on the road bicycles must be equipped with two independent brakes and a bell.

Bicycle helmet

- Have your child ride only with an appropriate bicycle helmet that has been tested in accordance with DIN EN 1078 and comes with a CE mark.

ADVICE FOR OFFROAD USE

Has your child ever ridden a mountain bike? Off-road driving requires special concentration, fitness and exercise. Your child should gradually familiarize himself with a BEN-E-BIKE in an inanimate place. In some regions special technical courses for children are offered, in which off-road driving can be practiced.

FURTHER ADVICE FOR PROPER USE

1 WEAR

Excessive wear and material fatigue as well as loosened screw joints increase the risk of accidents and injuries.

- **Regularly check the condition of all components (see chapter "Maintenance").**
- **If you detect any parts with cracks or colour changes you should contact your specialized dealer immediately**
- **Have your BEN-E-BIKE inspected regularly by your dealer, especially during heavy use.**
- **Do not let your child use the BEN-E-BIKE if you notice excessive wear or loosened screw joints.**

Like all mechanical components, bicycle components are wearing parts. High stress and incorrect use significantly increases wear. Different materials have individual characteristics in terms of wear.

- consult your dealer if you have any questions regarding wear parts of a BEN-E-BIKE.
- check the condition of all wear parts regularly (see chapter "Before every ride" and "Maintenance").
- Maintain wear parts regularly (see chapter "Cleaning and care").

Typical wear parts

The following wear parts wear out due to the intended use and are therefore excluded from warranty (see chapter "Warranty"):

- wheels, tubes and tyres
- chain drive (chain, chain sprocket, cassette, derailleur, etc.)
- bottom bracket
- head set
- gear shift cable and liner
- brake pads
- handlebar grips

Operational wear

The following wear parts can wear out due to aging or intensive stress:

- frame
- handlebar and stem
- fork
- the seat post may be scratched when being inserted or extracted, but this does not have any impact neither on functionality nor longevity

Brake wear

The brake pads are subject to constant wear. Maintain and check the brakes regularly (see chapter "Before each trip >> Inspection instructions" and "Maintenance >> Brakes").

Wear of spokes and gear shift cable

Spokes and gear shift cables expand with use and must be adjusted or replaced when worn.

- check the spokes regularly (see chapter „Maintenance ›› Rims and spokes“).
- check the gear shift regularly (see chapter „Maintenance ›› Gear shift“).

2 MAXIMUM DRIVER WEIGHT

The driver weight specified on the frame of the BEN-E-BIKES may under no circumstances be exceeded (not even briefly). See note on the seat tube and the top tube! The maximum allowed weight is based on the weight of the rider including clothing, protective clothing and possibly a backpack.

3 LUGGAGE RACK

All Ben-E-Bikes of the model year 2020 have mounts for a luggage rack on the rear dropouts and on the seat stays. Please note that luggage on the luggage rack moves the centre of gravity of the bicycle upwards and can therefore have a significant impact on driving behaviour.

The maximum permissible load on a retrofitted luggage rack must not exceed 5 kg!

4 LUGGAGE

Incorrectly transported luggage can get into the spokes while driving and lead to falls. Incorrectly secured luggage can fall and endanger your child and other road users..

- Explain to your child that there are no objects to hang on the handlebar, e.g. shopping bags
- Explain to your child that it is not allowed to attach objects to the frame.
- Have your child only transport items in a suitable backpack
- Explain to your child that it is necessary to adapt the driving style while riding with luggage.

5 THEFT PROTECTION

- Explain to your child how a BEN-E-BIKE can be effectively protected against theft.
- Give your child a sturdy chain- or U-lock that allows the BEN-E-BIKE to be fastened to a fixed object, such as a bicycle stand.

6 TRANSPORT

If you cannot safely transport the BEN-E-BIKE in the boot of your car, please use a suitable bicycle carrier.

Incorrect mounting or the use of unsuitable bicycle carriers may damage the BEN-E-BIKE.

- Only use approved bicycle carriers that allow the BEN-E-BIKE to be transported upright.
- Inform yourself about the use of bicycle carriers, e.g. contact your dealer.
- Secure the BEN-E-BIKE carefully so that it cannot slip.

7 DISPOSAL

- Read the explanation of the symbols printed on the BEN-E-BIKE.
- If you have any questions about disposal, please contact your specialist dealer.

Packaging

- Dispose of the packaging according to type.

Lubricants and care products

Lubricants and care products must not be disposed together with household waste or in the sewage water system or in nature.

- Dispose of lubricants, cleaning agents and care products via a collection point for special waste.
- Read the instructions printed on the packaging of the products used.

Tires and tubes

Tires and tubes are no household waste. Dispose them at a collection station in your city or community.

Bike

- Dispose the BEN-E-BIKE as electronic waste at a collection station in your city or community.

Battery

- Never dispose a no longer usable battery in the household waste. Batteries in general and lithium-ion batteries in particular must be disposed separately. The battery can be easily returned to your dealer, who then takes care of the disposal for you free of charge.

NOTES ABOUT THE BRAKES

Each BEN-E-BIKE is equipped with independent brakes on the front and rear wheels. All BEN-E-BIKE models are exclusively equipped with disc brakes.

Disc brake:
The braking force is transferred by pulling the brake lever via a hydraulic hose to the callipers. When air enters the system, the braking force can be reduced or lost completely.

- Check the disc brakes regularly for wear and function (see chapter "Before every ride" and "Maintenance").

Worn brake pads can lead to fusing of the brake pad and brake rotor during heavy braking. The wheel can thereby block and cause an accident. Have the disc brakes checked by your dealer at least once a year.

- Wetness changes the braking behaviour of the disc brake. Let your child practice braking in wet conditions apart from road traffic. Explain to your child that it has to drive slowly when wet.

NOTES ON CHAIN DRIVE

The chain drive consists of a chainring on the crank and a cassette with ten sprockets on the rear wheel. The gears are switched via a trigger switch on the right side of the handlebar (see chapter "Operation >> Gearshift"). The smaller the sprocket on the rear wheel, the higher the gear you choose and your child will experience a low cadence. The larger the sprocket on the rear wheel, the smaller the gear you choose and your child will pedal at a higher cadence. Explain to your child that on ascents, he / she needs to shift to a larger sprocket to be able to pedal more easily and choose a smaller sprocket in the plane or on descents.

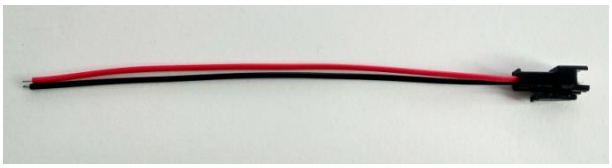
- If you are unsure about operating the gear shift, consult your dealer.
- Explain to your child the correct operation.
- Try to get your child accustomed to high cadences (90 - 100 rpm). A high cadence tires muscles much less than a low cadence. Additionally the risk of "muscle soreness" decreases significantly.

In some gears, the inevitable skew of the chain leads to increased wear on the chainring, sprockets and chain. It is likely possible that in 1st gear the chain touches the chain guard ring on the front chainring.

NOTES ON THE LIGHTING

The motor controller of the BEN-E-BIKE is equipped ex-factory with a 6 volt output, which can be used to power an optional lighting system. So It is therefore not mandatory to use battery-powered headlamps or to install a dynamo. The 6Volt output is switched on / off by pressing the rocker (arrow up) on the OLED display (see "OPERATING THE OLED DISPLAY" in a later chapter of this manual).

A 2-pin connection cable with a length of 15cm is also included in the BEN-E-BIKE accessory pack. The "positive pole" of the cable is the red cable.



BEN-E-BIKE also offers lighting kits, consisting of a front and a rear light which you can order together with the bike.

BEFORE EVERY RIDE

The BEN-E-BIKE is exposed to constant vibration during use. As a result, excessive wear can occur or it can loosen screw joints.

- If in doubt, ask your dealer to show you how to test the BEN-E-BIKE.
- Check the BEN-E-BIKE before each ride according to the test instructions.
- Use the BEN-E-BIKE only if you do not notice any damage.
- Only use the BEN-E-BIKE if there is no excessive wear and all screw joints are fastened properly.
- Thoroughly check the BEN-E-BIKE for damage and excessive wear before your child uses the bike (see chapter "Test Instructions").
- Explain to your child that the BEN-E-BIKE should not be used if it is damaged.

TEST INSTRUCTIONS

Check before every ride:

- that the quick release on the front wheel is closed and the front wheel is properly fixed.
- whether the tires are in good condition and sufficiently inflated. Let both wheels turn to check the concentricity.
- the condition of the frame and components.
- look at all components and watch out for deformations, cracks and discoloration.
- Grasp the handlebar, pedals and saddle one at a time and check that all components are properly fixed.
- the function of the brakes by pulling the brake levers and making sure that the wheel cannot be spun if the brake is applied. It should be impossible to pull the brake levers completely to the handlebars. Watch out that there is neither any brake fluid on the brake levers nor callipers.
- the function of the lighting and bell (if retrofitted).

If the front quick release skewer is not properly tightened and thus the clamping force is too low, the front wheel may come off. There is then acute danger of an accident!

The quick release skewer basically consists of the lever with eccentric for closing the quick release and the opposite clamping nut, with which the preload is adjusted.

PROCEDURE FOR SAFELY FASTENING THE FRONT WHEEL

- Open the quick release.
- Move the lever towards the final clamping position. At the beginning of the closing travel to about half of the lever travel, you hardly need any force to move the lever.
- During the second half of the closing travel, the closing force has to increase significantly. For the "last centimetre", you will need a lot of force to completely close the lever.
- The final position of the lever should be parallel to the wheel. The lever must rest against the fork so that it cannot be opened unintentionally.
- Check the seat by trying to turn the closed lever.
- If the tension lever can be turned, the secure attachment of the front wheel is not ensured. You have to open it again and increase the preload. To do this, turn the nut on the opposite side in a clockwise direction.
- Repeat the above mentioned procedure and check the seat again. If the clamping lever can no longer be turned, the tensioner clamps correctly.

PRIOR YOUR FIRST RIDE

In the event of unexpected behaviour of the BEN-E-BIKE, your child may not be able to concentrate on the road traffic, e.g. when braking or shifting the gears. There is an increased risk of accidents and injury.

- Do not leave your child on the road with the BEN-E-BIKE unless he/she is familiar with the behaviour of the bike and its operation.

After the first kilometres with a new bike, gear cables and spokes can extend or screw joints may loosen. Therefore the function of individual components on the BEN-E-BIKE could be affected. Contact your dealer for a short inspection after the first 200 km.

Your BEN-E-BIKE should have been fully assembled and adjusted by your dealer. If you have mounted the BEN-E-BIKE by yourself and do not have the appropriate technical knowledge and tools, this may have an effect on the warranty. **BEN-E-BIKEs have been explicitly made ready for the final assembly by a specialist dealer.**

The final assembly and adjustment by a specialized dealer is a precondition for full warranty (see chapter "Warranty").

- If the BEN-E-BIKE has not been set up for your child, have it adjusted by your specialist dealer (see chapter "Settings >> Seating position").
- Get yourself familiar with the BEN-E-BIKE before you drive together with your child for the first time and explain all features of the bike to your child.
- Practice with your child away from road traffic so that he / she can get used to the driving characteristics of the BEN-E-BIKE
- Have your child practice braking at low speed (see chapter "Notes >> Brake" and "Operation >> Brake"). All BEN-E-BIKES are delivered so that the front brake is operated with the left brake lever. This may be differ from other children's bicycles. Your child may not have to get used to the new arrangement, as careless operation of the front brake can lead to a fall (by blocking the front wheel or a rollover).
- Disc brakes need to be used several times before they deliver maximum brake force.
- Finally the brakes of the BEN-E-BIKES may deliver way stronger brake force than the brake of a previously used children's bicycle. Your child may need some time to get used to this extra of brake power.

- Have your child practice emergency braking.
- Practice with your child how to handle the gear shift until he / she can operate the gear shift so that its attention is not affected (see chapter "Operation >> Gear Shift").
- Do not allow your child to drive alone unless you can answer for it..

AFTER A FALL

After a fall or accident it hidden damage to the BEN-E-BIKE may arise, e.g. hairline cracks. Components made of carbon, which have suffered a shock impact, as well as bent parts made of aluminium can break suddenly. It is not allowed to straighten bent parts because those are then prone to break or fail. This is especially true for the fork, the handlebar, the brake levers, the crank, the seat post and the pedals. When in doubt, replacing these parts is always a better choice because your child's safety is of paramount importance.

- Have the BEN-E-BIKE inspected by your specialist dealer for possible damage after a serious fall or accident.
- Do not straighten bent components.
- Damaged or bent components should be immediately replaced for original replacement parts by your specialized dealer.
- Don't use the BEN-E-BIKE if any defect can be detected
- After minor falls, check all components of the pedelec, e.g. when the BEN-E-BIKE has toppled
- Make sure the chain is still in proper position on the front chainring and the sprockets of the rear cassette. If the wheel has toppled to the right side, you should check the functionality of the derailleur. A bent rear derailleur or a bent hanger can cause the rear derailleur (or the chain) to get into the spokes. There is then acute danger of falling!
- In case of any doubt, contact your specialized dealer!

SPECIAL FEATURES OF CARBON MATERIALS

The carbon material of the handlebar offers some special features compared to other lightweight materials. It is of major importance to be aware of these characteristics so that you can always rely on it. Carbon - if treated properly - allows for extremely strong and highly resilient components with very low weight. A very special feature, however, is its brittleness. Components made from carbon typically do not deform under heavy load, although the internal structure may already be damaged. The fibres can in extreme cases separate from one another, means the so-called delamination occurs, whereby the strength of the component decreases significantly. Any overstressing that has already damaged the internal fibres is not indicated by any residual bending as this happens with steel or aluminium components. For this reason, a carbon part can fail after an overload in subsequent use, which can lead to the fall with unpredictable consequences. Have the affected component inspected by your specialized dealer after a heavy fall!

- Pay attention while driving - if the carbon handlebar makes any crackling noises, this can be an indication of an imminent material defect. Stop using the BEN-E-BIKE and contact your specialized dealer.
- For your child's safety - never have the carbon handlebar repaired!
- Immediately replace a damaged component.
- Carbon components must never come into contact with high temperatures (> 100 ° C), such as those are required for powder coating or similar. The heat could destroy the component. Also avoid storage of the BEN-E-BIKE near sources of heat.
- Never mount so-called "bar ends" on the carbon handlebar.
- Do not shorten the carbon handlebar.
- Always pay attention to the correct torque of all screws of the stem or the brake handles (max 3 Nm). Too high torques can damage the handlebar. In combination with carbon mounting paste, even very low clamping forces are sufficient for secure fastening.

OPERATION OF THE BRAKES

If there is insufficient grip, the braking distance will be extended and the tires may become blocked, e.g. in frost, rain, sandy roads or leaves on the track.

- Explain to your child that it is necessary to adapt the driving style to road conditions.
- Explain to your child that he / she has to drive slowly if there is insufficient grip.
- Explain to your child that locked wheels (especially the front wheel) due to heavy braking should be avoided at any time.
- Explain to your child that heavy use of the front brake may lead to a lifting rear wheel which could even cause a rollover.

The rear wheel tends to lock at the same braking force earlier than the front wheel.

PULLING THE BRAKE LEVERS

- Pull the hand brake lever with your fingers in the direction of the handlebar for braking.
- Modulate the braking force with the force with which you pull the handbrake lever.
- To release the brake, release the handbrake lever.
- The front brake is operated with the left lever and the rear brake with the right lever.

OPERATIN OF THE GEAR SHIFT

Distraction and incorrect use of the gear shift may lead to accidents.

- Familiarize yourself and your child with the function of the gearshift (see chapter "Before the first ride").
- Explain to your child that it is only allowed to use the gearshift if this does not affect the attention to the traffic.

The gearshift may be damaged due to wrong operation.

- Explain to your child that pedalling with force should be avoided when shifting gears.
- Explain to your child that it is not allowed to pedal reverse when shifting gears.
- If you or your child feel insecure when operating the gearshift, contact your dealer for further explanation.

TRIGGER SHIFT LEVER

- To shift down one gear (= larger rear sprocket and therefore higher pedalling cadence), press the front gear lever.
- To shift up one gear (= smaller rear sprocket and thus lower pedalling cadence), push or pull the rear gear lever.
- Several gears can be skipped simultaneously when switching down the gears.

NOTES ABOUT THE SETUP

An improper setup of the bikes can lead to component damage or material failure.

- If you have no experience in adjusting bicycle components, contact your specialized dealer.

Incorrect tightening of screws can lead to material fatigue. Bolts may soften when tightened too heavy and can break.

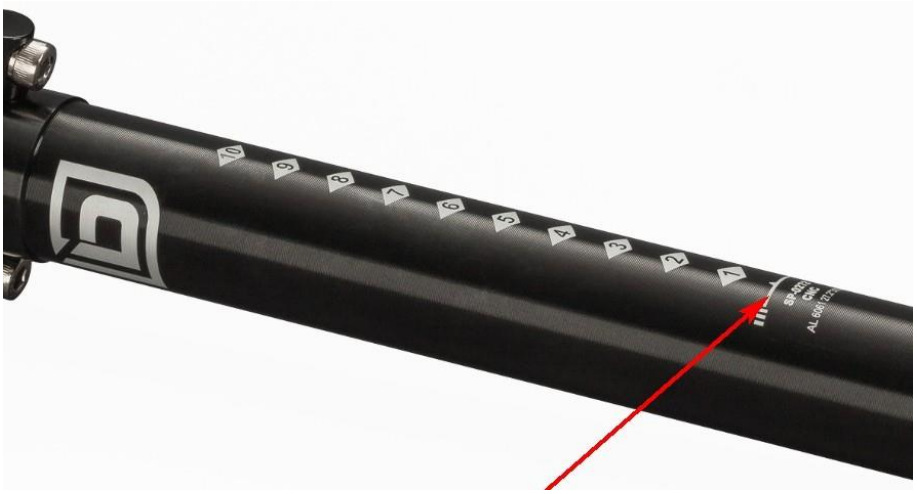
- If you detect loose screw joints, have them tightened by your dealer with a torque wrench.
- If you tighten screws by yourself, check the corresponding torques. A list of the most important torques can be found in the appendix to this manual.

Your dealer will take care of the complete assembly of your BEN-E-BIKE and adjust the handlebar, callipers and brake lever settings individually for your child (see chapter "Before the first ride" or "Warranty"). When handing over the BEN-E-BIKE, check that your child can ride comfortably and safely with the bike and that all settings are adapted to your child. If you make adjustments by yourself, consult your dealer for the tightening torques or check the appendix of this manual, and always use a torque wrench when screwing. If you adjust the settings by yourself, check the settings thoroughly and professionally before using the BEN-E-BIKE!

SETTING THE SEAT POSITION

WARNING
Risk of accident and injury!

The seat post may break during use due to improper mounting. If you adjust the seat post, make sure that the lower mark on the seat post (minimum insertion depth) is not visible (see arrow).



The saddle height should be adjusted so that your child can still reach the ground with the toes. The leg must then not be maximally stretched in the lowest position of the crank. If the saddle is too high, it won't be easy to overcome this lowest point. If the saddle is too deep, knee pain can be the result. In addition, the leverage will be unfavourable, which will result in a faster fatigue of your child.

- To adjust the seat height, loosen the screw of the seat post clamp by turning it counter clockwise (required tool: Allen key 4)
- Do not pull the seat post beyond the "minimum insertion depth mark on the shaft.
- As a general rule, the seat post must be inserted at least 90mm into the seat tube.
- The released seat post can now be shifted in height. Make sure that the part of the seat post that is inside the seat tube is always well greased (for example, with silicone oil).
- If the seat post does not slide easily in the seat tube, do not use force.
- Align the saddle straight by aiming over the saddle tip along the top tube.
- Retighten the seat post clamp. To do this, turn its screw clockwise and fix it with a torque of max. 5 Nm.
- Check if the seat post is properly tightened. Hold the saddle with your hands and try to twist it. If this is impossible, the post is correctly fixed.

SEAT LENGTH AND SADDLE ADJUSTMENT

The distance between the grips of the handlebar and the saddle as well as the tilt of the saddle have an influence on the back tilt and thus on the ride comfort. Via the seat rails (see arrow) this distance can be changed to a small extent. However, moving the saddle rails in the seat post also affects the pedalling process. Depending on whether the saddle is positioned further forward or backward, your child will pedal more or less from behind. If the saddle is not positioned horizontally, your child can not pedal with ease and needs to constantly support on the handlebar so as not to slip off the saddle.

WARNING
Risk of accident and injury!

- Make sure that the screw connections on the seat post are tightened with the specified torque (5 Nm). Use a torque wrench and do not exceed the maximum screw torque!
- Never clamp the saddle in the arches of the saddle rails, but always in the straight area.

! ADVICE

The saddle of the BEN-E-BIKE may look "uncomfortable" at first glance, but has been rated in various test drives as significantly more comfortable compared to conventional saddles. The seat allows much more "travel" than conventional upholstery due to its very flexible structure.

ADJUSTMENT OF THE TIRE PRESSURE

If the air pressure is too high or too low or if there is no profile, the tires lose grip. Tires with damages may burst while driving.

- To inflate the tires, use an air pump with pressure gauge.
- Fill tires only with the allowed air pressure (2 - 4 bar).
- Do not let your child drive with tires that have a too low tread depth, cracks or any other damage (e.g. due to foreign objects).
- Let your dealer check and adjust the air pressure if necessary.

The correct air pressure is essential for the rolling resistance of the BEN-E-BIKE.

- Read the permissible minimum and maximum air pressure on the side walls of the tire.
- To check or adjust the air pressure, unscrew the cap from the valve.
- Place an air pressure gauge or air pump with pressure gauge on the valve and read off the pressure.
- Note that you are using the correct adapter for your valve type (AV car valve). Ask your dealer for suitable air pumps or adapters for your valve type.
- If the air pressure is too low, inflate the tire with an air pump.
- If the air pressure is too high, drain air.
- Choose an air pressure within the upper and lower limits specified on the tire that matches your child's body weight (approx. 2.5 bar).
- Screw the cap back onto the valve after adjusting the air pressure. Do not apply excessive force..

ADJUSTMENT OF THE GEAR SHIFTER

ADVICE
Risk of damage!

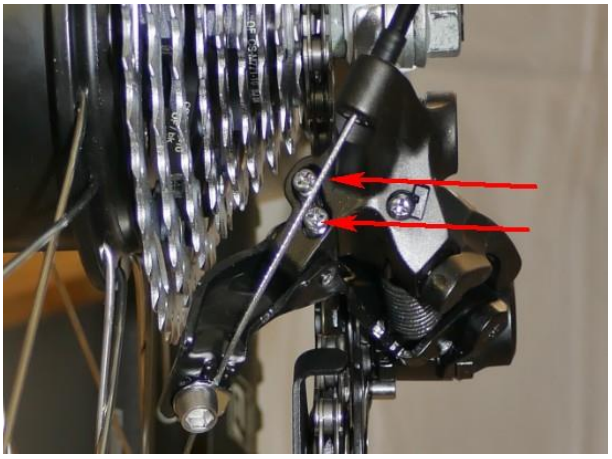
An incorrectly adjusted derailleur can damage the gearshift. For adjustments of the derailleur, contact your dealer.

The derailleur on the BEN-E-BIKE was carefully adjusted before shipment. Within the first few kilometres, however, the shifting cable can lengthen, making the switching operations imprecise. The chain climbs reluctantly on the next larger sprocket on the cassette.

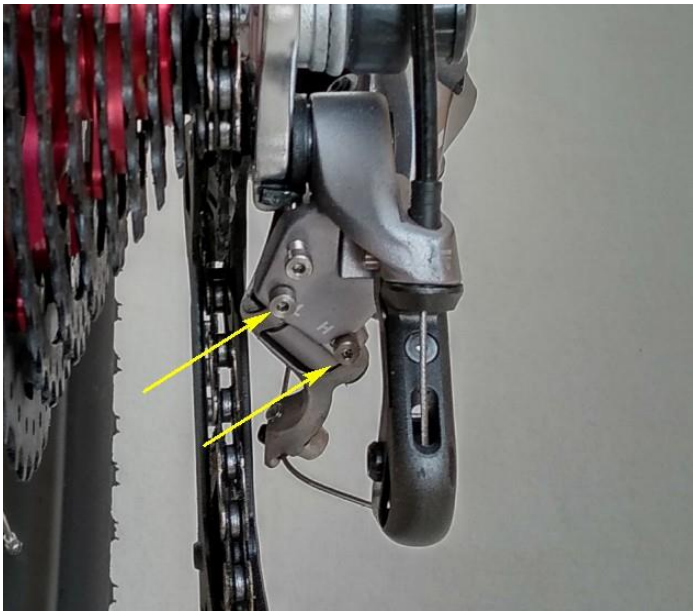
- Tension the shifting cable with the adjusting screw, through which the cable runs into the gearshift lever.
- After each tightening, check whether the chain properly climbs to the next larger sprocket. To do this, you have to turn the cranks by hand.
- If the chain climbs slightly, you will need to check if the chain will still move easily to the smaller sprockets when downshifting. It may take several attempts before you'll find the right adjustment.

ADJUSTING THE END STOPS SCREWS

To avoid that the chain or the derailleur runs into the spokes or that the chain falls from the smallest sprocket, the pivoting range of the derailleur is limited by so-called end stop screws. These are properly adjusted ex works and typically do not need any readjustment.



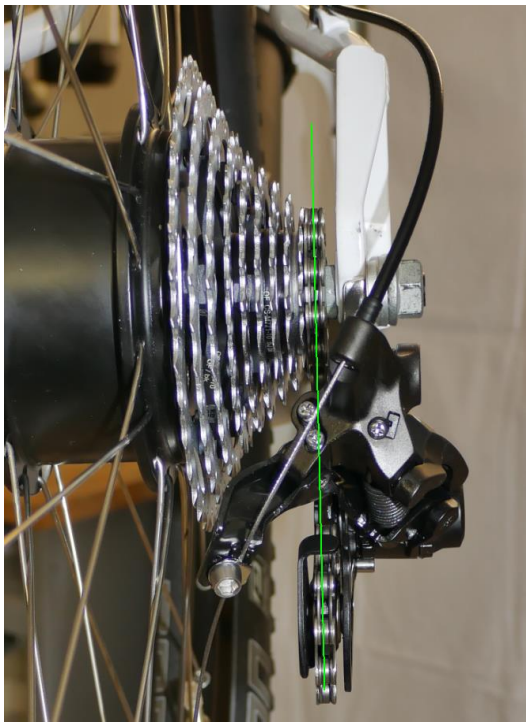
TWENTY E-POWER:
Upper arrow: (H) End stop of 10th gear
Lower arrow: (L) End stop of the 1st gear



from TWENTYFOUR-SIX E-POWER upwards:
The adjusting screw marked with an "L" is for the end stop of the 1st gear
The adjusting screw marked with a "H"is for the end stop of the 10th gear.

However, once the BEN-E-BIKE tips over on the gear side, there is a risk that the rear derailleur or its attachment (derailleur hanger) will be bent. After such incidents, you should check the swivel range of the derailleur.

- Turn the gear lever to the smallest sprocket. The cable is then completely relaxed, the chain runs automatically on the smallest pinion. Look at the cassette from behind and check that the derailleur guide pulleys are just below the tips of the smallest sprocket.



- If this is not the case, you must correct the position with the "H" end stop screw.
- Turn the screw clockwise as the rollers move further inward, or in the opposite direction when the rollers are to move farther out.
- Switch to the largest sprocket. Care must be taken so that the rear derailleur does not get into the spokes immediately.
- Turn the rear wheel - if the guide roller cage touches the spokes or if the chain climbs over the largest sprocket, you should limit the swivel range.
- Turn the "L" end stop screw until the collision is reliably prevented.

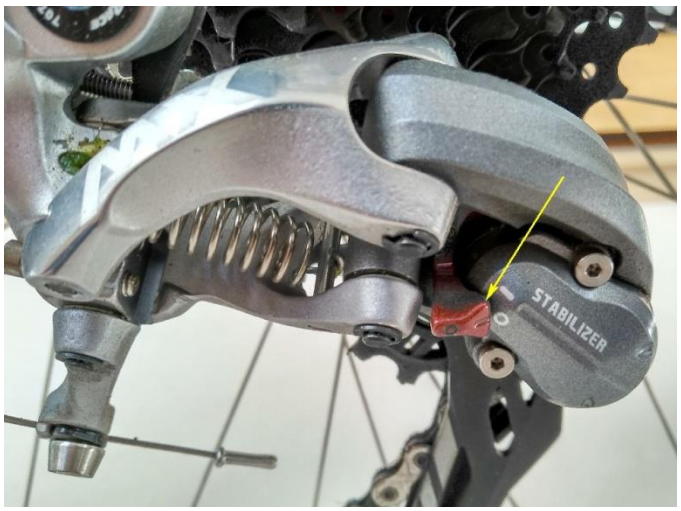
WARNING
Risk of accident and injury!

Incorrectly adjusted end stops or a bent derailleur hanger may cause the rear wheel to block and provoke a fall.

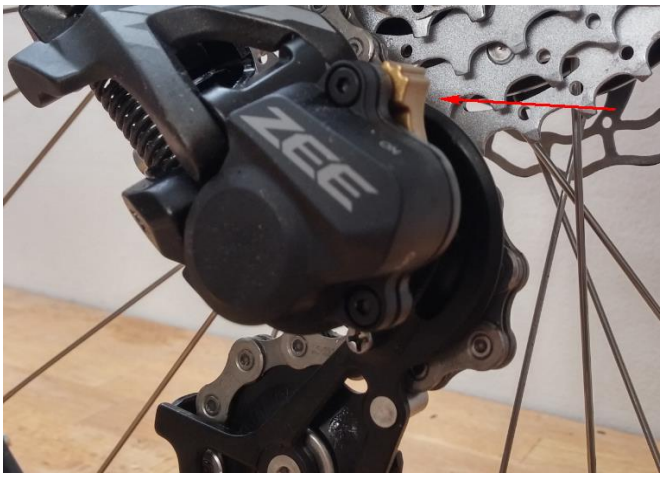
ACTIVATION OF THE DERAILLEUR DAMPER

Bouncing movements of the chain often lead to strong noise when the chain strikes the chainstay from above or from below. Under extreme conditions the chain may even jump off the front chain wheel. The Sunrace derailleur offers an additional damper / stabilizer for the derailleur cage, which can be activated via a small lever.

In this position the damper is not activated:



In this position the damper is activated:



The lever causes a damping of the derailleur cage and thus a reduction in the chain movement for a quieter and more stable driving. With the lever in the OFF position, the rear derailleur facilitates the installation and removal of the rear wheel by relaxing the derailleur spring.

ADJUSTMENT OF THE BRAKES

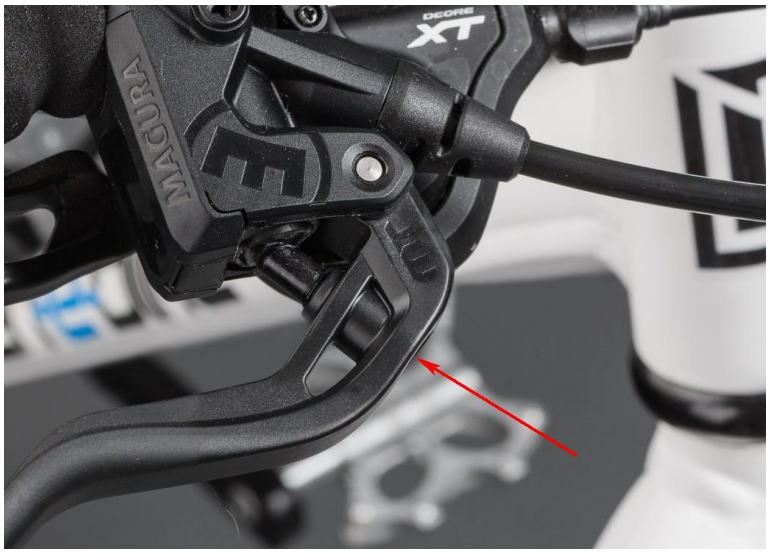
WARNING
Risk of accident and injury!

Incorrectly adjusted brakes can lead to reduced or excessive braking power or even failure of the brake. Only adjust the brakes by yourself if you are familiar with the setup of bicycle brakes. If necessary, contact your specialized dealer for assistance.

REACH ADJUSTMENT

Adjusting the reach puts the brake lever closer to the handle.

The reach is adjusted via a screw in the brake levers - see red arrow (required tool Torx T25):



- Turn the adjusting screw only carefully and without significant force.
- Adjust the reach so that your child can grasp the brake levers without having to take the hands off the handlebar.
- Adjust the reach so that your child can **not** pull the brake levers all the way to the handlebar!

! ADVICE

New brake pads require a "run-in" before they reach the maximum braking force! Let your child brake 10x to 20x from approx. 20 km/h to zero.

Disc brakes can extremely heat up while braking. Therefore, do not touch the brake rotor or the brake calliper if you have frequently used the brakes just before.

A leaky brake hose or open fitting may lead to a complete failure and therefore zero brake force!
In the event of system leaks or kinks in the pipes, contact your dealer immediately and do not use the BEN-E-BIKE until then!

! ADVICE

When removing the wheels, never pull on the brake levers. The pads will otherwise be pushed together and the brake rotor can then no longer be mounted easily. After disassembling the wheels, insert the supplied yellow transport locks into the callipers.

ADJUSTMENT OF THE SUSPENSION FORK

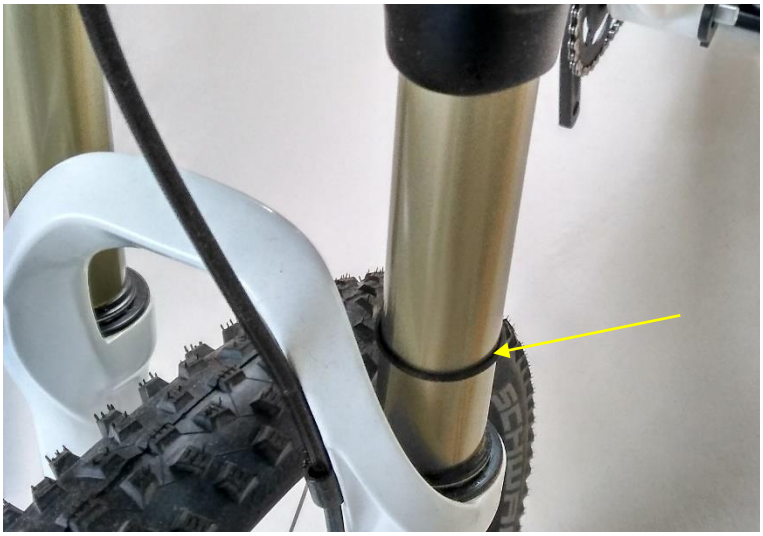
If your BEN-E-BIKE is not equipped with a rigid but an air suspension fork, the stiffness of the fork can be adapted to the driver's weight by changing the air pressure in the air chamber of the left fork leg.

ADVICE
Risk of damage!

If you want to change the spring stiffness of the suspension fork, you need a so-called "damper pump". If you do not have such a pump, contact your dealer for help. Never use an ordinary tire pump or even a compressor to pump up the suspension fork. Irreparable damage to the seals is pre-programmed in this case!

Please note that the fork should be already compressed slightly when sitting on the BEN-E-BIKE - this is the so-called negative spring travel ("SAG"). If the air pressure is too high, you sacrifice a lot of riding comfort as the front wheel loses contact to the ground more quickly. Useful is a negative spring travel of about 15 - 20%, which in the case of the "SMOOTHER" fork means a compression of about 15 - 20mm.

For convenience the fork has a rubber ring on the left stanchion tube to facilitate the proper adjustment of the air pressure:



- Push the rubber ring all the way down and place the BEN-E-BIKE in the unloaded state vertically.
- Now lift your child onto the saddle so that it does not touch the ground with the feet, but instead loads the BEN-E-BIKE with all its weight, thereby compressing the suspension fork.
- If the air pressure in the fork is correct, it should be compressed by about 15 mm.

- If this is not the case, change the air pressure in the left fork leg accordingly. Remove the silver cap at the top of the left fork leg. Underneath you will find the valve:

- Ex works the fork of the BEN-E-BIKE is set to a driver's weight of about 30 kg (air pressure 25 psi).

! ADVICE
Risk of damage!

The fork must be tuned so that it bottoms only in extreme cases. You can detect a too soft spring (too little air pressure) by knocking noises when riding in rough terrain or when heavily using the front brake. If a suspension fork bottoms frequently, this may damage the fork (and the frame), leading to a permanent failure. The BEN-E-BIKE must not be driven if the air has been completely discharged from the fork!

! ADVICE

If you have found the ideal value for the air pressure inside the fork, make a note of this value for later checks.

ADJUSTMENT OF THE COMPRESSION DAMPING

The damping is regulated by valves inside the right fork leg. The flow of oil through these valves slows down the speed at which the suspension fork travels in and out and prevents the suspension from oscillation. The "SMOOTHER" suspension fork has a variable rebound and a variable compression damping with a so-called LockOut function.

The compression damping as well as the "LockOut" will be adjusted via the blue lever on top of the right fork leg:

If the lever is set to the maximum left position (counter clockwise - CCW), the damping is low. If you turn the lever clockwise to the right, the compression damping will increase until the front fork is completely blocked ("LockOut"). Typically it is not necessary to choose another position than the maximum CCW position, especially If you have adjusted the negative suspension travel as described before and the fork works properly during a normal test drive. Excessive compression damping causes the suspension to harden, thus reducing the ride comfort significantly. If the fork bottoms in extreme situations although the air pressure is set correctly, then you can increase the compression damping slightly.

- Increase the compression damping carefully by rotating the blue lever clockwise step by step. A too high compression damping prevents the suspension fork from taking full advantage of its travel.
- In most cases, leaving the blue lever on the left stopper is sufficient.
- Only when driving off-road, it may be useful to increase the compression damping slightly.

ADJUSTMENT OF THE REBOUND DAMPING

At the bottom of the right fork leg there is a red knurled screw with which the rebound damping can be adjusted:

If the knurled screw is completely turned to the left (counter clockwise - CCW), the damping is low (delivery condition). If you turn the knurled screw clockwise to the right, the damping will increase during rebound.

LOCKOUT

If you drive uphill for a long time standing up, it may be advisable in this particular case to block the front fork via the "LockOut". Simply turn the blue lever on the right fork leg to the right stop. When driving downhill on uneven ground, the LockOut must be deactivated again.

MAINTENANCE

Suspension forks are complex components that require regular maintenance and care. Contact your dealer for regular inspection (for example, annually, depending on the application) so that he can arrange for a service to be provided by the manufacturer of the suspension fork (Spinner USA).

! ADVICE

The maintenance of a suspension fork by the manufacturer is not included in the two-year warranty!

AMPERUM GmbH
Stuttgarter Str. 72
D-78628 Rottweil

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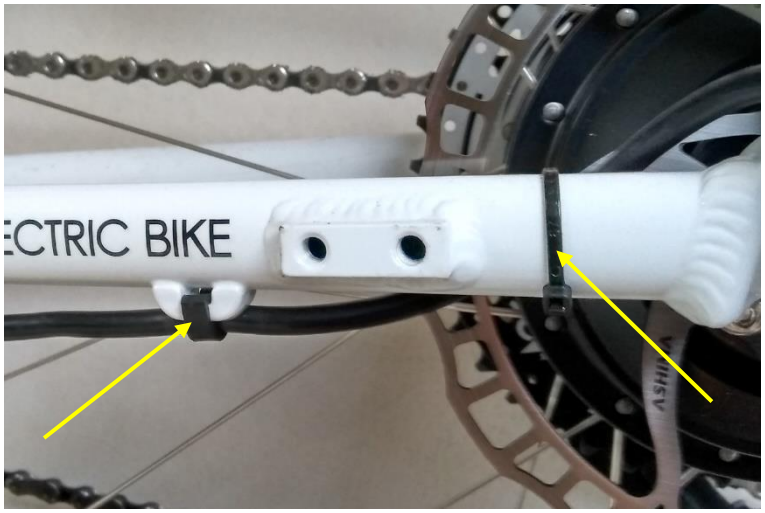
info@ben-e-bike.com

REMOVAL OF THE REAR WHEEL

Unlike the front wheel, the rear wheel is not attached with a quick release on the rear end, but by two nuts (wrench size 17mm). The solid fixation is required to support the torque of the hub motor against the frame. If you want to remove the rear wheel, then please proceed as follows:

- Loosen the rear plastic clip that secures the cable from the motor to the controller on the left chainstay and remove the cable tie:



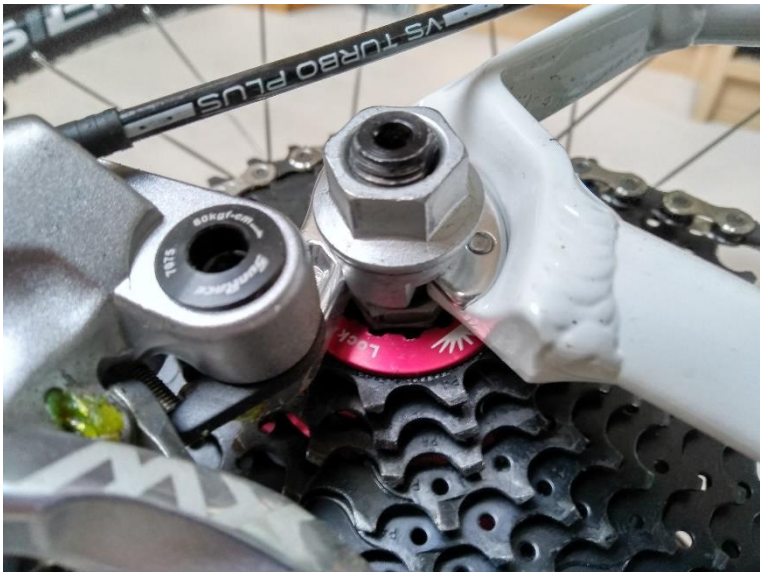
- Disconnect the connector of the cable from the motor to the controller. This connector requires a lot of force to unplug:

- Remove the plastic caps from the nuts of the rear wheel axle.
- Deactivate the rear derailleur damping if necessary (red lever in the OFF position)
- Loosen the two nuts with an open-end wrench (17 mm SW)
- Then carefully pull the rear wheel downwards, being careful not to damage the derailleur or chain on the drive side when removing it.

REFITTING THE REAR WHEEL

When reinstalling the rear wheel, proceed in the reverse order as for removal. The following points have to be considered additionally:

- When inserting the rear wheel, make sure that the brake rotor does not touch the left chainstay and scratch it.
- Make sure that the rotor is inserted exactly into the calliper.
- The "lugs" for torque support must be properly inserted into the dropouts on both sides as shown in the following picture:



- Tighten the two nuts with a torque of 35 Nm.
- Close the plug connection between the motor and the controller. **Make sure that the arrows on the plug and the coupling are aligned and the plug is fully inserted:**

- It is essential to replace the cable tie and fix the cable additionally to the chainstay to avoid contact with the brake disc!

If the two wheel nuts are not properly tightened and the clamping force is too low, the rear wheel may come loose, which may result in an accident!
If you don't replace the cable tie then the motor cable may get in touch with the brake rotor and therefore be cut through!

CLEANING AND MAINTENANCE

In the case of lack of expertise or incorrect behaviour during cleaning or care, you may be injured during the maintenance.

- Make sure that your fingers do not get in touch with rotating components (chain, cassette, chain wheel, etc.)
- Wear protective gloves.

Improper cleaning of the BEN-E-BIKE can lead to damage of the bike.

- Never use aggressive cleaning agents, sharp or metallic cleaning items such as knives, hard spatulas or similar.
- **Do not use a "hard" water jet for cleaning.**
- **Never use a high pressure washer for washing.**

Oil or grease can pollute the environment. Excess oil or grease could get in touch with your clothes or other objects while driving, causing them to become dirty.

- Be careful when handling oil and grease, take care not to drip oil or grease.
- Immediately wipe up spilled oil or grease with a cloth.
- Do not dispose of oil or grease residues in household waste, but only at suitable collection points.
- Wipe off excess oil or grease with a clean cloth.

! ADVICE

If you trust your child to clean and care, explain how it has to clean and maintain the BEN-E-BIKE. Explain to your child the risk of injury when cleaning and maintaining.

REQUIRED TOOLS

- cleaning cloths
- mild, warm soapy water
- a soft cleaning sponge
- a soft brush
- care and preservative agent and universal oil.

If necessary, consult your specialist dealer for suitable care and preservatives.

CLEANING

- Regularly clean the BEN-E-BIKE.
- Wipe all surfaces and components with a damp cloth.
- To moisten the cloth, use a mild soapy water or just water.
- After cleaning, wipe all surfaces and components dry.
- Preserve painted surfaces and metallic surfaces on the frame at least every six months.

CARE INSTRUCTIONS FOR THE CHAIN

! ADVICE
Risk of damage!

Incorrectly selected greases, oils and care products can damage the components.

- Consult your dealer for the use of grease, oil and conditioners for the chain.
- Do not use water or a chemical brake cleaner or thinner to clean the chain.
- Do not use gun oil or rust remover spray.
- Remove dirt on the bicycle chain with a clean, slightly oiled cleaning cloth.
- Remove dirt on the sprockets and chainrings with a small, soft brush.
- Oil the bicycle chain after cleaning, after driving in the rain or after 250 km with some silicone oil.
- For removing persistent stain, contact your dealer.

CARE INSTRUCTIONS FOR THE BRAKES

WARNING
Risk of accident and injury!

Soap residues as well as oil, grease or care products on the rotors (brake discs) or on the brake pads can lead to a failure of the brakes or at least reduced brake power.

- Protect the brake rotors and brake pads from grease and oil.
- Carefully remove cleaning agent residues from the rims, the brake rotors and the brake pads.
- Check the brakes for proper operation after cleaning.
- Remove any dirt on the brake components and rims immediately with a damp cloth.
- Brake disc brakes dry when you have cleaned the BEN-E-BIKE with water.

CARE INSTRUCTIONS FOR THE SUSPENSION FORK (if installed)

- Immediately remove any dirt on the sliding surfaces of the stanchion tubes with a clean, slightly oiled cloth.

- Lubricate the sliding surface after cleaning with a little lubricant, e.g. B. silicone oil.
- Compress the suspension fork several times. Then remove excess lubricant with a clean cloth.

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CARE INSTRUCTIONS FOR THE GEAR SHIFT

- Clean the gearshift lever with a damp cloth.
- Clean all moving parts with a damp cloth or soft brush, if accessible.
- Lubricate the moving parts after cleaning with a little lubricant, e.g. silicone oil (see arrows)

- Finally remove excess lubricant with a clean cloth.

ADVICE FOR MAINTENANCE

WARNING
Risk of accident and injury!

Incorrect or inadequate maintenance and inspection can lead to malfunction, e.g. failure of the brakes.

- Have the BEN-E-BIKE inspected by your specialized dealer at least once a year.
- If you do not have the necessary knowledge and tools for maintenance, contact your dealer for the service.

Your BEN-E-BIKE should be inspected by a specialized dealer in the following intervals:

After 200 km or 2 months.
After 1.000 km or 6 months.
Then after every 1.000 km or annually.

Have all performed maintenance and repairs documented by your dealer.

CAUTION
Risk of injury!

In case of lack of expertise or incorrect maintenance behaviour, you may be injured during maintenance work. Be careful not to let your fingers get into rotating components. You should wear protective gloves.

REGULAR MAINTENANCE

- Perform the following checks once a month.
- Perform the following checks after a fall.
- If your child heavily uses the BEN-E-BIKE in tough conditions or drives more than 1,000 km per year, shorten the maintenance intervals and have your dealer inspect every 6 months.
- If you notice any damage during maintenance, do not use the BEN-E-BIKE before you have it checked or repaired by your dealer.

GENERAL MAINTENANCE WORK

Incorrect tightening of screws can lead to material fatigue. Bolts may soften or even break if the torque is too high.

- If you detect loose screw connections, have them tightened by your dealer with a torque wrench.
- If you tighten screws by yourself, check the corresponding torques. An overview of the most important torques can be found in the appendix to this manual.

SCREW CONNECTIONS

- Lift the BEN-E-BIKE approx. ten centimetres and let it drop gently to the ground. Pay attention to noises.
- If you hear noticeable noises (except from the chain and the rear derailleur), get the appropriate screw connections tightened immediately.

FRAME

- Check that the frame and the fork are not cracked or deformed (visual inspection).
- If the frame or fork shows cracks or deformation, contact your dealer immediately.

SUSPENSION FORK

- Compress the fork and check for unexpected noises.
- If you hear unusual noises ("slurping" noises from the oil damping are normal) or the fork releases without resistance, consult your dealer.
- If there is any excessive oil leakage on the fork, contact your dealer.
- Clean and lubricate the suspension fork (see chapter "Cleaning and care").

SADLE

- Grasp the saddle and check that it cannot be twisted, tilted or moved in any direction.
- If you can twist, tilt or shift the saddle, have it adjusted again or tighten the corresponding screws with the appropriate torque.

HANDLEBAR

- Look at the handlebar from above and check that it is aligned perpendicular to the front wheel. Have the handlebar adjusted by your dealer if the handlebar is not perpendicular to the front wheel.
- Fix the front wheel against lateral twisting, e.g. in a bicycle rack. Grasp the handlebar with both hands and check that the handlebar does not twist against the front wheel. If you notice any play on the head tube or handlebar when moving up or down, when tilting or twisting the handlebar, have the handlebar adjusted by your dealer.
- Check that the handlebar and the stem are free of deformations or cracks (visual inspection).
- If the handlebar or stem is cracked or deformed, contact your dealer immediately and stop using the BEN-E-BIKE.

WHEELS

- While holding the BEN-E-BIKE, grasp the front and rear wheels and try to move the wheel sideways. Check that the front quick release or the rear wheel nuts do not move.
- If you can move the wheel sideways or the wheel nuts move, contact your dealer immediately.
- Lift the BEN-E-BIKE slightly and turn the front or rear wheel. Check that the wheel does not have any significant lateral or radial deflection.
- If any of the wheels have a significant axial or radial side-out, contact your dealer.

RIMS AND SPOKES

- Check the rims for damage and cracks (visual inspection).
- If a rim is damaged or if cracks are visible, have the rim replaced immediately.
- If in doubt, have the rims checked by your dealer.
- Gently "squeeze" the spokes with your thumb and fingertips and check that the tension is approximately the same for all spokes.
- If the tension is very different or any spokes are loose, get the spokes to be tensioned by your dealer.

TIRES

- Check that the correct air pressure is set (see chapter "Settings >> Air pressure").
- Inspect the tires for cracks and damage from foreign objects.
- Check if the tires have sufficient tread depth.
- If a tire has cracks, is damaged, or the tread depth is too low, have the tire replaced by your dealer.
- Check the valves for tightness.
- Check that both valves have a protective cap.
- Replace missing protective caps to prevent dust and dirt from entering the valve.

PEDAL DRIVE

- Grasp the pedals and try to move them sideways outwards or inwards. Observe whether the crank arm and the pedal (inner) bearing are moving laterally.
- Grasp the pedals and try to move them vertically up or down. Observe whether the pedals or the crank arm are moving vertically in the bottom bracket bearing.
- If the pedals, crank arm or bottom bracket can be moved laterally or vertically, consult your dealer.

CHAIN TENSION

- The chain is tensioned by the rear derailleur of the gearshift.
- Check that the chain does not sag (visual inspection).
- Push the rear derailleur forward pressure and check that it returns to the initial position once you release it.

- If the chain sags or the rear derailleur does not return to its initial position by itself, consult your dealer.

BRAKES

- Check that all screws of the brakes are properly tightened.
- Check that the brake levers are properly fixed on the handlebars.
- If you find any loose screw connections, get those tightened by your dealer.
- Check that the brake levers are at least 8 - 10 mm away from the handlebar when the brake lever is pulled with maximum force.
- If the distance is clearly less than 10mm, adjust the brake (see chapter "Settings >> Brake").
- Check that the BEN-E-BIKE cannot be pushed forward when the brakes are applied.
- If you notice a too low braking force, adjust the brake (see chapter "Settings >> Brake"). Pay attention to unexpected noise when operating the brakes. If you hear noises (like squeal) have checked the brakes by your dealer.

GEAR SHIFT CABLE

- Check if the outer liner of the gear shift cable for any damages.
- Operate the gear shift and check if the gear shift cable does not stick nor any scraping noises occur. If you hear scraping noises or if the shift cable sticks, contact your dealer.

CHAINDRIVE

- Hang up the BEN-E-BIKE or have it lifted by a second person.
- Turn the crank wheel clockwise.

- Check that all gears are switched correctly and that no unusual noises occur. If the gears are not switched correctly or you hear unusual noises when changing the gears, consult your dealer.
- Lubricate the chain and derailleur (see chapter "Cleaning and Care").

TORQUE for screw joints

Maintaining the correct torque values for each individual screw joint is of major importance since otherwise either parts can become loose (= torque too low) or parts can be mechanically overstressed and damaged (= torque too high).

Below you find a list of the most important torque values for the individual screws:

- cover of the claw in the steerer tube 3 Nm
- rear wheel hub nuts 35 Nm
- battery holder (mounted to frame) 3 Nm
- brake lever (mounted to handlebar) 3 Nm
- brake calliper (mounted to frame or fork) 5 Nm (use "threadlocker"!)
- brake rotor (mounted to front hub) 5Nm (use "threadlocker"!)
- brake rotor (mounted to rear hub motor) 4Nm (use "threadlocker"!)
- display (mounted to handlebar) 1 Nm
- bottom bracket 40 Nm
- cassette lock ring 40 Nm
- cranks (mounted to bottom bracket) 35 Nm (use "threadlocker"!)
- **handlebar (mounted to stem) max. 3 Nm (use friction mounting paste)**
- pedals 35 Nm
- seat post clamp 5 Nm
- seat post (mounted to saddle) 5 Nm
- derailleur hanger (mounted to frame) 3 Nm (use "threadlocker"!)
- gear lever (mounted to handlebar) 3 Nm
- derailleur mounted to hanger 7 Nm (use "threadlocker"!)
- locking screw on derailleur for gear shift cable 5 Nm
- stem (mounted to fork steerer tube) 4 Nm

THE TFT COLOUR DISPLAY

The TFT colour display of the BEN-E-BIKE (for the TWENTY E-POWER only available as an option) controls all functions of the electric drive. The three pushbuttons switch on the motor and regulate its power output. The functions that are important for daily use are explained below.

WARNING
Risk of accident and injury!

Explain to your child that he or she should solely focus on the road traffic instead watching the display!

The push buttons and display features:

1. on/off push button
2. push button „+“
3. push button "-"
4. display of the assistance level („0" to "5“)
5. driving speed
6. Total distance
7. single trip distance
8. bar indicator for battery status

Features

a) Switching the display on and off

! ADVICE

It is necessary to switch on the battery first, before you can activate the display!

Press the red switch on the battery:

If the red switch on the battery was already switched on and the battery was not used for more than 30 minutes, the red switch must be switched off and on again after approx. two seconds!

To activate the display keep the middle push button pressed for more than 2 seconds:

Likewise, this button must be pressed for more than 2 seconds to turn off the system again. If the Ben-E-Bike is parked and no button is pressed on the display or the crank isn't spun for more than 5 minutes, the display automatically shuts off to save the battery.

b) Adjusting the motor power

With the two keys "+" and "-" you can set how strong the motor will support. The selected support level is shown in the top line of the display:

After switching on, the assistance level is always set to "0". This means that the motor is still off and the BEN-E-BIKE drives like a normal bike. Remember that a BEN-E-BIKE can be pedalled more easily than most children's bicycles, even without motor support. So you do not always have to choose one of the levels 1 - 5 to drive fast enough!
Now choose an appropriate support level depending on the path conditions. Here are some tips on which level is best for each situation:

- levels "0" and "1" are perfect for driving in the plane
- levels "2" and "3" are suitable for light to medium ascents or strong headwind
- level "4" should be sufficient even for steep ascents.
- the highest level "5" is only recommended for extreme "off-road" ascents.

Note: with our PC software, the strength of each support level can be customized!

! ADVICE

Always remember that the higher the motor assistance level is set, the quicker the battery will be discharged. So, if your child drives for comfort only at the highest level "5", the battery is discharged very quickly.

c) Turning the lights on

If your bicycle dealer has installed a front and tail light on your BEN-E-BIKE and connected it to the 6Volts output of the motor controller, you can turn it on or off via the display. To do this, press the "+" button for more than 1 second. A small icon on the display indicates when the light is turned on.

! ADVICE

LED headlights need so little power that the battery is therefore hardly charged. So you can confidently activate the light even during daylight conditions for better visibility.

d) Activating the "walk-assist"

Every BEN-E-BIKE is equipped with a so-called "walk-assist". This can be very convenient if the bike is needs to be pushed up a hill that is so steep that your child can not drive it anymore. To do activate the walk-assist, press the "-" button and keep it pressed. The walk-assist will be activated with a delay of approx. one second. The button must be kept pressed in any case - otherwise the walk-assist will stop immediately. The walk-assist supports up to a maximum speed of 6 km / h - if it is active, an icon on the display is shown instead of the assistance level.

The speed of the walk-assist can be adjusted via the PC software - the factory setting is 4 km/h.

e) Battery status

The display of the BEN-E-BIKE indicates the charging status of the battery. If all five segments are shown, the battery is fully charged:

If the battery is discharged while driving, the length of the bar is reduced and its colour also changes. When the battery is fully charged, the bar is shown in green, the colour changes to orange in the medium charge state and then to red when the battery is very flat. When the bar has completely disappeared, the battery is already so far discharged that only a few kilometres can be driven with motor support. As soon as the whole symbol starts to flash, the battery is completely discharged and the motor support is deactivated until the battery is recharged.

f) Display of the maximum speed, average speed and total driving time

If the maximum speed (**MAX**) shall be shown at the bottom left of the display, the on / off button needs to be pressed briefly once. When the on / off button is pressed again, the average speed (**AVG**) is shown at the bottom left. Pressing the on / off button again displays the total driving time (**Time)**.

The display can show a maximum of "999.9km" for the daily kilometres - afterwards this setting needs to be reset.

The values for average speed, maximum speed, daily mileage and daily travel time can be reset to "0" in the setup menu.

WARNING

Risk of accident and injury!

These display features should not be called while driving - this distracts your child too much. So please check the average speed and the maximum speed only when stationary!

g) "Display Setting" menu

With the display switched on, hold down the "+" and "-" buttons simultaneously to access the "Display Setting" menu. You can make the following settings there:

- Reset the trip display counter as well as the maximum and average speed display
- Switching the unit between "kilometres" and "miles"
- Setting the tire size
- Setting the battery type (24 volts or 36 volts)

Use the "+" and "-" buttons to select the desired menu item. Then briefly press the on / off button to edit the relevant menu item (this is then displayed in yellow instead of white font). Then use the "+" and "-" buttons to make the setting and confirm using the on / off button.

There are three ways to exit the setting menu:

- automatically after 30 seconds
- keep the on / off button pressed for longer than 2 seconds
- select the menu item "BACK" and confirm briefly with the on / off button.

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THE LED DISPLAY

The LED display of the BEN-E-BIKE (standard only with the TWENTY E-POWER) controls all functions of the electric drive. The three pushbuttons switch on the motor and regulate its power output. The functions that are important for daily use are explained below.

The push buttons and display features:

1. on/off push button
2. push button „+“
3. push button "-"
4. LED bar which indicates the status of the battery

Features

a) Switching the display on and off

! ADVICE

It is necessary to switch on the battery first, before you can activate the display!

Press the red switch on the battery:

If the red switch on the battery was already switched on and the battery was not used for more than 30 minutes, the red switch must be switched off and on again after approx. two seconds!

b) Adjusting the motor power

With the two keys "+" and "-" you can set how strong the motor will support. The selected support level is shown in right LED bar:

After switching on, the assistance level is always set to "0". This means that the motor is still off and the BEN-E-BIKE drives like a normal bike. Remember that a BEN-E-BIKE can be pedalled more easily than most children's bicycles, even without motor support. So you do not always have to choose one of the levels 1 - 5 to drive fast enough!
Now choose an appropriate support level depending on the path conditions. Here are some tips on which level is best for each situation:

- levels "0" and "1" are perfect for driving in the plane
- levels "2" and "3" are suitable for light to medium ascents or strong headwind
- level "4" should be sufficient even for steep ascents.
- the highest level "5" is only recommended for extreme "off-road" ascents.

Note: with our PC software, the strength of each support level can be customized!

! ADVICE

Always remember that the higher the motor assistance level is set, the quicker the battery will be discharged. So, if your child drives for comfort only at the highest level "5", the battery is discharged very quickly.

c) Turning the lights on

If your bicycle dealer has installed a front and tail light on your BEN-E-BIKE and connected it to the 6Volts output of the motor controller, you can turn it on or off via the display. To do this, press the "+" button for more than 1 second. A small icon on the display indicates when the light is turned on.

! ADVICE

LED headlights need so little power that the battery is therefore hardly charged. So you can confidently activate the light even during daylight conditions for better visibility.

d) Activating the "walk-assist"

Every BEN-E-BIKE is equipped with a so-called "walk-assist". This can be very convenient if the bike is needs to be pushed up a hill that is so steep that your child can not drive it anymore. To do activate the walk-assist, press the "-" button and keep it pressed. The walk-assist will be activated with a delay of approx. one second. The button must be kept pressed in any case - otherwise the walk-assist will stop immediately. The walk-assist supports up to a maximum speed of 6 km / h - if it is active, the LED's of the right bar are illuminated one after the other.

The speed of the walk-assist can be adjusted via the PC software - the factory setting is 4 km/h.

e) Battery status

The left LED bar of the display indicates the charging status of the battery. If all five LED's light up, the battery is fully charged:

If the battery is discharged while driving, the individual LEDs go out gradually. If only one LED lights up, the battery is already so far discharged that only a few kilometres can be driven with motor support. As soon as this last LED starts to flash, the battery is completely discharged and the motor support is deactivated until the battery is recharged.

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THE PC SOFTWARE

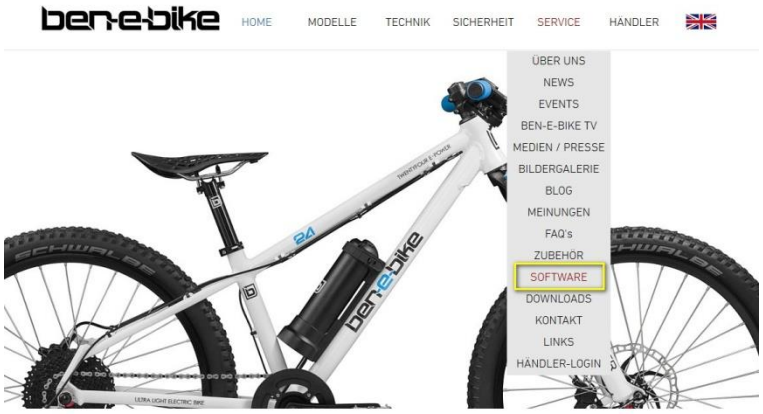
All parameters of the motor control of all BEN-E-BIKE's of the model year 2020 can be set via an easy-to-use PC software. The interface between the PC and the controller of the Ben E-Bike is a USB dongle which is included in delivery of each bike.

! ADVICE

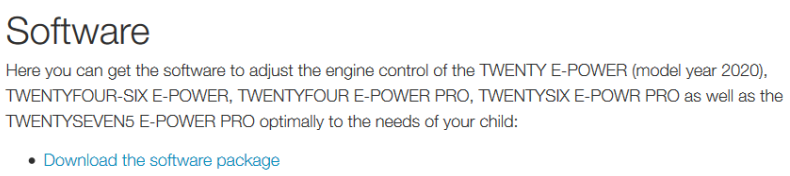
The software is solely available for download from our website. Please note that it only works in combination with Windows operating systems. MacOS will not be supported!

Download of the software "MControl"

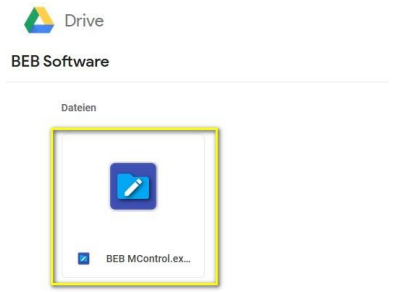
Visit our website "www.ben-e-bike.net" - here you will find under the menu item "SERVICE" the sub-item "SOFTWARE".".



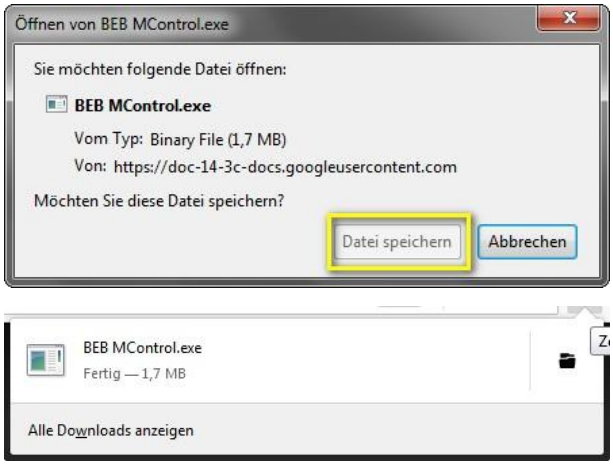
Click on the link provided there:



You will be routed directly to our server. Select the desired language and click on the respective installation file:

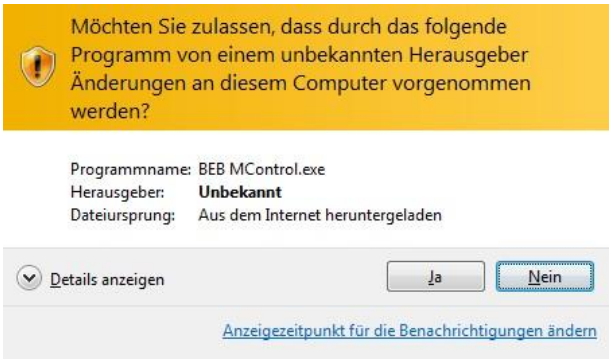


Download the file and save it on your PC:

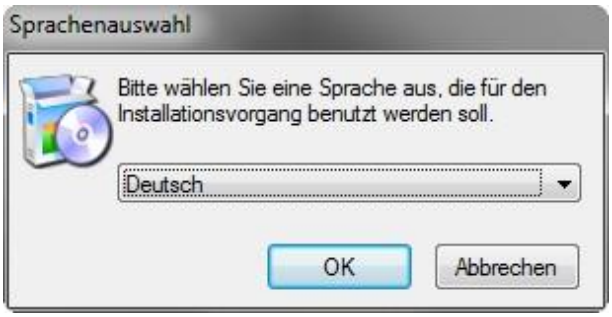


Installation of the software "MControl"

Run the installer by confirming the hint below:

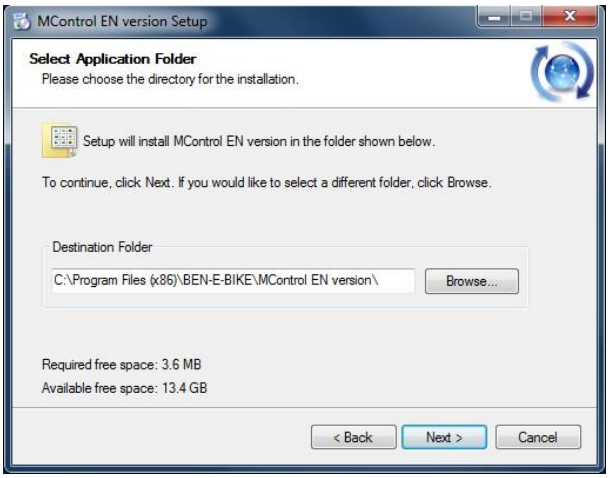


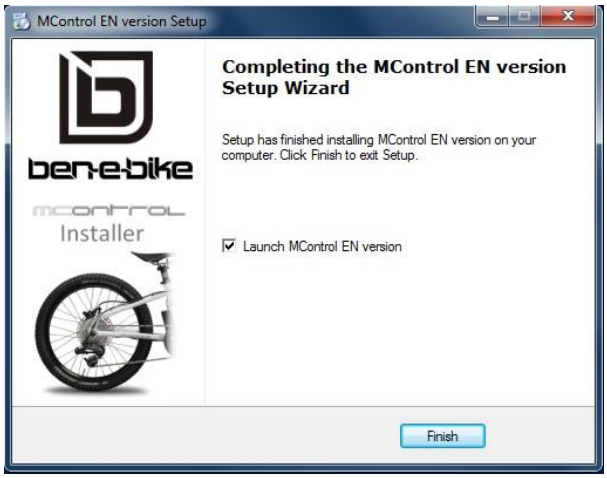
Select the language for the installation routine - this setting has no effect on the displayed language of the software HMI.



Confirm the license agreement:

Choose the location on the hard drive of your PC where the software shall be installed - this completes the installation process:





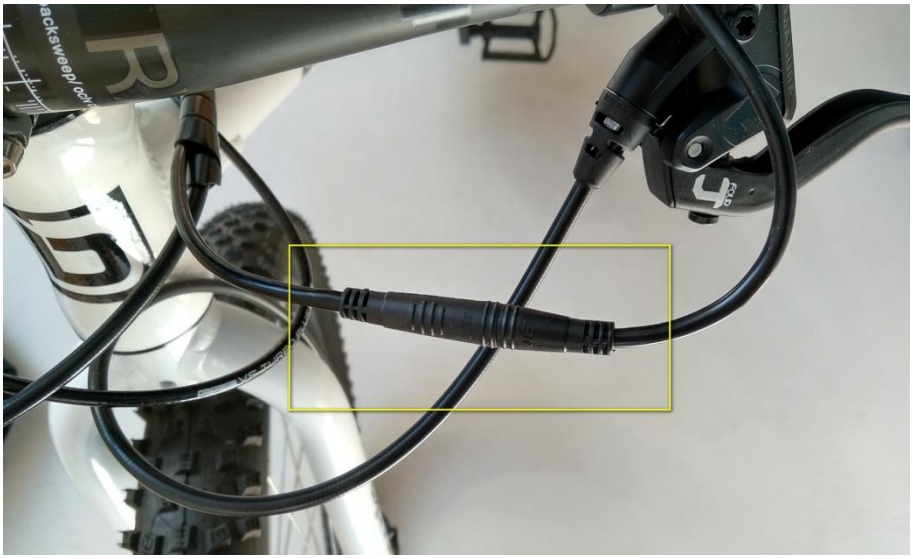
Connecting the USB interfaces to your PC

The following interface can be found in the accessory pack of your Ben-E-Bike:

Plug the USB connector into a free USB port of your PC. There's no need for any additional driver software as this interface uses a standard driver that is already included in the Windows operating system. As a result, it only takes a few seconds for the interface to be recognized once it has been connected to your PC.

Connecting the USDB interface to your Ben-E-Bike

Your Ben-E-Bike has a connector between the display and the motor control which you can disconnect (note: extraction force is rather high!):



Now hook up the USB interface instead of the display.

! ADVICE

All Ben-E-Bike's of the first generation with the larger LC-display have the same connector directly on the display.
The USB interface must not be connected to this LC-display!
Neither the USB interface nor the "MControl" software are suitable for the LC-display!

Starting the "MControl" software

The battery on the Ben-E-Bike must be switched on, so that the motor controller and the interface are supplied with power.

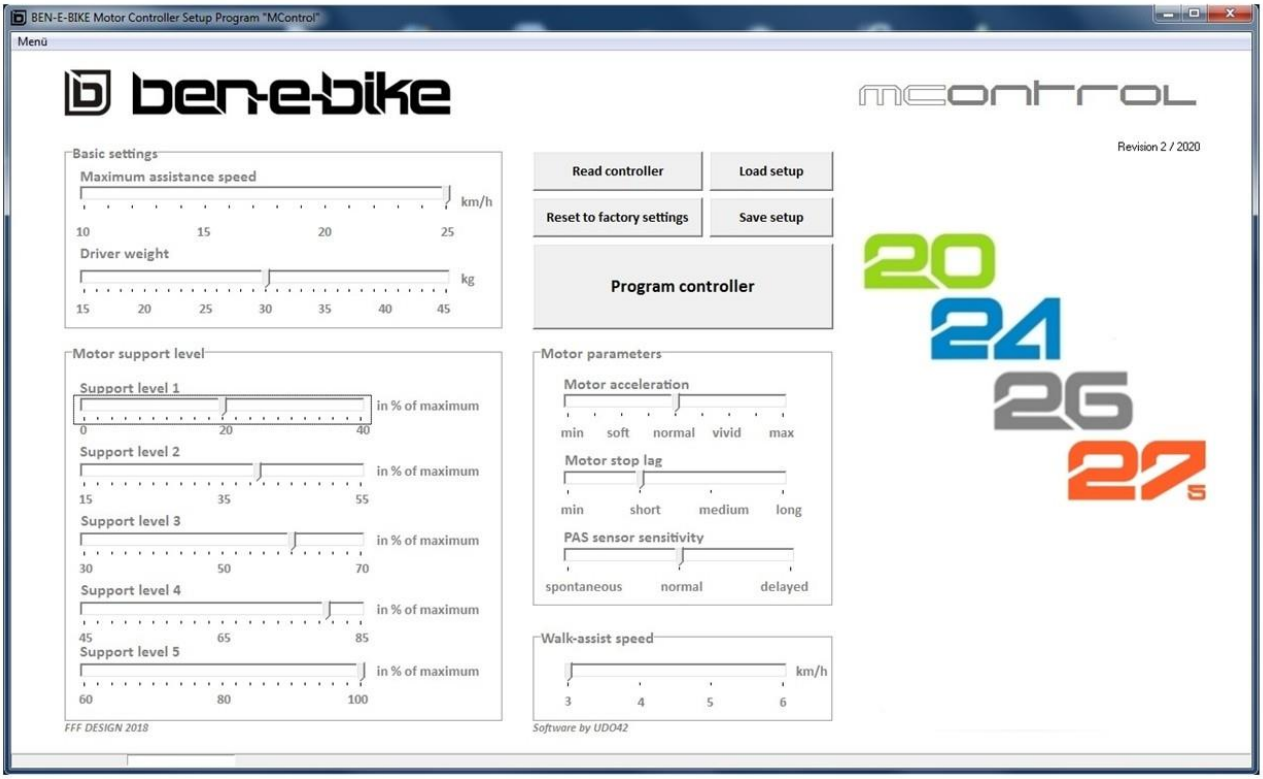
! ADVICE

If the red switch on the battery was already switched on and the battery was not used for more than 30 minutes, the red switch must be switched off and on again after approx. 2 seconds!

Then you have to start the software - the installation routine should have created a "shortcut" on the desktop of your PC:

Simply press the shortcut with your computer mouse twice and you are ready to go.

The HMI of the "MControl" software



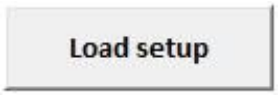
! ADVICE

By default, all values are already set meaningfully so that in most cases it is sufficient to adapt the basic settings "maximum assistance speed" and "driver weight". All other parameters are rather a "fine tuning" and can be determined empirically.

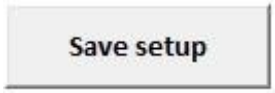
The individual function blocks of the "MControl" software

After starting the software, you should first read out the controller so you can see what values are stored there. At the same time, the software recognizes which type of battery is installed and adapts the HMI accordingly.

This button should be used when you have "misaligned" all settings so that you are no longer satisfied with the performance and want to start all over again.



If you have already saved your own settings on your PC, you can load them from your hard disk by pressing this button.



If you have found the perfect setup, then you should not only store it in the controller of the Ben E-bike, but also on the hard drive of your PC. After clicking the button, you can give the setup a name of your choice and, if necessary, change the memory location on your hard drive.

Important: Saving the settings via the "Save setup" button saves only the parameters on the hard disk of your PC - the values are not transferred to the controller at the same time during this process. To do this, use the button described below!

All settings made in the user interface of this software do not take effect until they have been transferred to the controller by pressing the "Program controller" button! If you quit the program before pressing this button, the previous parameters in the controller remain unchanged!

Maximum assistance speed
This parameter defines the maximum speed up to which the motor should support. This value does not depend on the support level setting on the display! The adjustable maximum value depends on the battery of the BEN-E-BIKE (20 km/h for all TWENTYFOUR models and 25 km/h for the TWENTYSIX) and is adjusted automatically as soon as the software recognizes the battery type. To do this, the button "Read Controller" must be pressed once.

Driver weight
Set the weight of your child with clothing (and luggage) - the software automatically defines the maximum possible engine power accordingly. Especially if your child is particularly lightweight, it makes sense to limit the maximum engine power. However, the setting only gives a guideline value based on experience - the optimal setting should therefore be determined empirically.

Assistance level 1 - 5
Based on the maximum engine power set via the "Driver weight", the motor power for each assistance level can be changed individually. By default, we have chosen the following settings for the small 175Wh battery: 20% - 40% - 60% - 80% - 100%. The larger 250Wh battery comes with the following pre-defined settings: 15% - 30% - 50% - 75% - 100%. Within certain limits, these specifications can be adapted to the personal needs.

Motor acceleration
Here you can define whether the engine should deliver its power more gently or equally powerful. Especially for light children, who still have little driving experience, it may be useful to choose a gentle power output.

Motor stop lag
This parameter defines how long the engine will run after the pedal has come to a stop. The setting "short" corresponds to a lag of 0.25 sec., "long" corresponds to a lag of approx. 0.45 sec.

PAS sensor sensitivity
The BEN-E-BIKE is equipped with a 12-pole pedal sensor. This parameter determines how many poles the sensor must "sweep" until the motor responds to the movement of the pedal.

Walk-assist speed
Here you can define the speed of the walk-assist speed. Experience has shown that the typical value of 6 km / h, which has become standard for e-bikes, is sometimes too fast for children. "4 km / h" has proven to be the best value for most purposes.

SAFETY INSTRUCTIONS FOR BATTERY USE

WARNING
Risk of accident and injury!

Lithium-ion batteries are classified as so-called "Dangerous Goods Class 9" - therefore it is mandatory to follow the subsequent instructions carefully!

TURNING THE BATTERY ON

The battery needs to be switched on via the red button before it provides power for the display, controller and motor at its output. When switched off, the battery terminals are powered-off. Always turn off the battery when the BEN-E-BIKE is not in use or before removing the battery. The battery also recognizes by itself whether it is in use or not. As soon as no current is drawn for more than 60 minutes, the battery output switches off automatically. To restart, you must then turn off the red switch once and turn it on again after approx. 2 seconds!

CHECK THE CHARGE CONDITION

Shortly press the small button to activate the LED charging indicator. This will show the current state of charge for about 5 seconds. However, this display does not reliably reflect the actual state of charge. The 4-digit display may differ from the 5-digit bar graph in the display. If in doubt, rely on the display on the handlebar!

CHARGING THE BATTERY

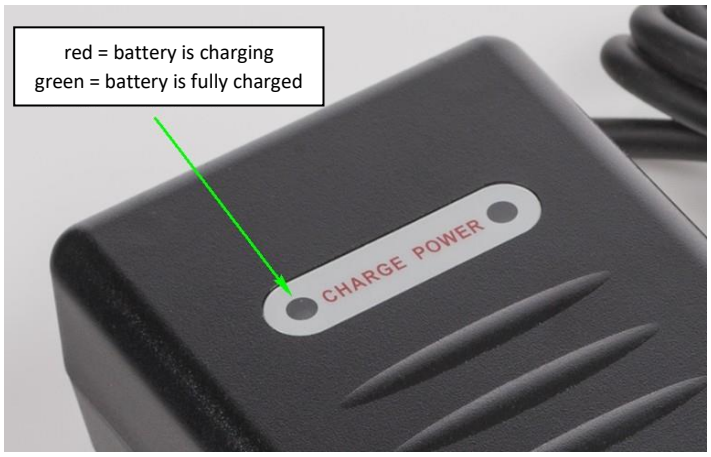
Solely use the charger supplied with the Ben E-Bike. The charging port is located under the rubber cover on the top of the battery:

Carefully open the cover and insert the plug of the charger. Then connect the charger to an AC power outlet.

Solely charge the battery in dry conditions and at ambient temperatures of 0 ° C to 40 ° C. When charging, make sure that the battery is not exposed to direct sunlight and that there are no combustible materials in the vicinity. In addition, the battery should not be charged unattended for a long time. During charging, it is normal that the battery heats up slightly - but if you realize that the battery gets so hot that you can hardly touch it, stop the charging process immediately and contact a specialist dealer for assistance.

Using a charger other than the one supplied with the BEN-E-BIKE can not only destroy the battery, but also set it on fire!

As soon as the charging indicator on the charger changes from "red" to "green", the battery is fully charged and charging is completed. Remove the plug of the charger from the battery and close the charging port again with the rubber cover!



! ADVICE

It is not mandatory to remove the battery for charging.

! ADVICE
Risk of damage!

Avoid exposing the battery to extreme temperatures. Lithium-ion batteries are sensitive to excessive heat, because this can lead to irreversible damage. The battery itself has an integrated temperature protection circuit, which prevents the battery from overheating during heavy discharge. However, this protection circuit is ineffective against excessive ambient temperatures. We recommend to park the BEN-E-BIKE always in the shade during summer. If that isn't possible, remove the battery, take it with you and keep it safe.

A lithium-ion battery also does not like cold temperatures below 0 ° C because its capacity is significantly reduced. However, there is no permanent damage as long as the battery **is not exposed to temperatures below -25 ° C.**

REMOVAL OF THE BATTERY

The battery is reliably fixed in its holder via the rubber strap. To remove simply loose the rubber strap and then carefully pull out the battery. When replacing the battery, make sure it is aligned with the connectors in the battery holder.

STORING THE BATTERY

If the BEN-E-BIKE isn't used for a long time, it is best to remove the battery and store this in a cool place (between 10 - 20 ° C). The battery gradually discharges even when not in use - so recharging every 6 months is highly recommended. The battery has a protection circuit against deep discharge. However, this protection circuit needs minimal power and still discharges the battery, even if it already prevents the battery from being switched on.

If you simply leave the battery for many months, without controlling its state of charge, you risk a permanent destruction of the battery cells. As a rule, a lithium-ion battery is already sustainably damaged after one single deep discharge and can then no longer provide sufficient capacity.

MECHANICAL DEFECTS OF THE BATTERY

The housing of a BEN-E-BIKE battery is largely made of aluminium and therefore extremely robust. Defects caused by mechanical impacts are therefore likely to occur very rarely. However, if you find a defect, you should not open the battery in any case. Bring the rechargeable battery immediately to your specialist dealer, who can then forward it to us for repair or inspection. Batteries with mechanical defects must not be shipped by post!

REPLACEMENT OF THE BATTERY

You can easily replace the battery by an identical BEN-E-BIKE battery.

CLEANING OF THE BATTERY

The battery is protected against splashing water - but it must not be sprayed with a high-pressure cleaner or a intense jet of water! Also dipping in water is not allowed!

Both on the charger and on the batteries the voltage is indicated in "Volt". Make sure that the battery and charger have the same values!

Never use batteries of other manufacturers even if those seem to have the same voltage and capacity - otherwise you will void your warranty claims.

DISPOSING THE BATTERY

Never dispose a no longer usable BEN-E-BIKE battery with general waste.

Batteries in general and lithium-ion batteries in particular must be disposed separately. You can simply return the battery to a specialist dealer, who will then take over the disposal for you free of charge. AMPERUM GmbH is registered in the "BattG" registry of the German Federal Environment Agency under the number 21006877

TAKING A BEN-E-BIKE ALONG IN PUBLIC TRANSPORTATION

You can transport a BEN-E-BIKE easily in the car or in buses and trains. However, taking a e-bike on board of an aircraft is in most cases prohibited because e-bike batteries* are classified as "Class 9 dangerous goods" and are therefore subject to the strictest airline safety regulations. Furthermore it is also not allowed to ship a e-bike battery by air freight, even if a suitable packaging according to the safety guidelines is used.

*BEN-E-BIKE batteries are approved according to UN38.3 for the transport in aircrafts.

ANY MORE QUESTIONS?

Visit our website www.ben-e-bike.net or send us a mail at info@ben-e-bike.com.

CE

EG - Konformitätserklärung

EC - Declaration of Conformity

Hersteller / manufacturer:	AMPERUM GmbH Stuttgarter Straße 72 D-78628 Rottweil-Neufra Tel.: +49 (0) 741 2067 0030
Produktbezeichnung / Product designation:	BEN-E-BIKE Pedelec Elektromotorisch unterstütztes Fahrrad / Electric power assisted cycle
Typbezeichnung / Type designation:	BEN-E-BIKE TWENTY E-POWER BEN-E-BIKE TWENTYFOUR-SIX E-POWER BEN-E-BIKE TWENTYFOUR E-POWER PRO BEN-E-BIKE TWENTYSIX E-POWER PRO BEN-E-BIKE TWENTYSEVEN5 E-POWER PRO BEN-E-BIKE TWENTYFOUR-SIX FS
Modelljahr / Model year:	2020

Der Hersteller erklärt hiermit, dass die oben aufgeführten Produkte den Bestimmungen der Maschinenrichtlinie 2006/42/EG sowie der Richtlinie für Elektromagnetische Verträglichkeit 2004/108/EG entsprechen.

Herewith the manufacturer declares that the above mentioned products comply with the Machinery Directive 2006/42/EG and the Directive for Electromagnetic Compatibility (EMC) 2004/108/EG

Folgende Norm wurde bei der Prüfung der Produkte zugrunde gelegt / The test of the products is based on the following standard :

DIN EN 15194:2017

Verantwortlich für die technische Dokumentation / Responsible for the technical documentation :

Hr./Mr. Robin Krichel
AMPERUM GmbH
Stuttgarter Straße 72
D-78628 Rottweil-Neufra

Rottweil, June 2019 Robin Krichel - Shareholder and CTO

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