

RUFF·CYCLES®

*Lil'***BUDDY**

ORIGINAL OPERATING MANUAL



Lil'BUDDY

Manufacturer:

RUFF CYCLES®
ELECTRIFYING ROAD ADVENTURES

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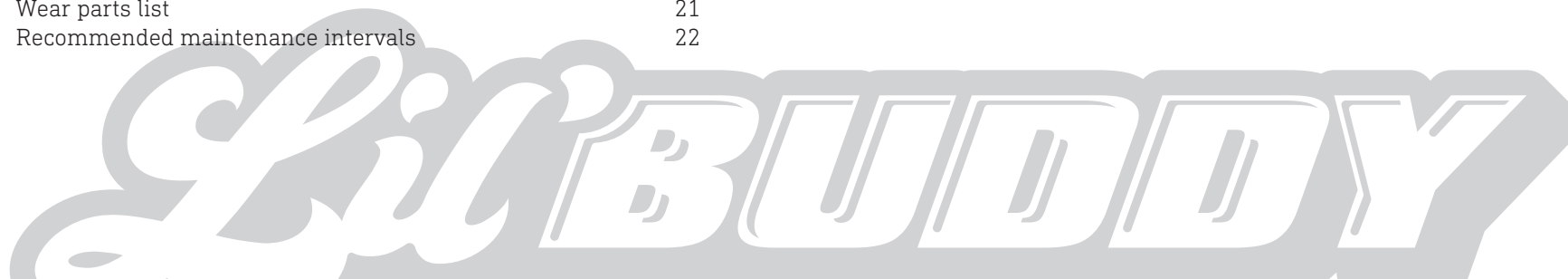
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Lil'BUDDY

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Index and symbols in this User Manual

This User Manual contains important information for the enhanced safety and prolonged service life of the Pedelec for an each time greater fun with your Lil'Buddy.

Any neglect of the contents of this User Manual may lead to damages to the vehicle as well as injuries.

The following symbols are used in the User Manual:



Warning!

This symbol indicates a possible danger. Please observe the safety instructions!



Information

Here, you will find useful information on the maintenance of the product.

Important information!



The User Manual of your Lil'Buddy is constantly checked and updated. This instruction corresponds to our level of knowledge at the time of publication. We recommend you to visit our website www.ruff-cycles.com/manuals, for any modifications. Here you can also download the updated manual in PDF format.

1. YOUR VEHICLE

We congratulate you to the purchase of the Lil'Buddy with BOSCH driving technology.

You have decided for a state-of-the-art means of transport, which allows you brand-new mobile options. We have attached the greatest importance¹ to the technical quality of the single components of your Pedelec, ensuring that you will enjoy your Lil'Buddy for many years.

The Lil'Buddy is a bicycle with electrical power assistance for the driver. This aid is adjusted via a controller that evaluates the data through three sensors (speed, step rate and torque), regulating the motor according to the selected support level. When reaching a speed of 15.53 miles/h (25 km/h), the electrical motor switches off. But driving at a speed of 15.53 miles/h (25 km/h) by oneself is also possible.

In Germany, the Pedelec is lawfully equivalent to the bicycle². No permit or license plate are required. The driver does not need a driver license. We do recommend that you wear an appropriate helmet and goggles for your own safety.

1.1. INTENDED USE

Your Lil'Buddy is intended for the transport of one person on asphalt roads and rideable forest and land routes. The additional allowable load (Driver + Accessory + Baggage) amounts to 150kg.

The Lil'Buddy is not intended for:

- » *Racing/Competition*
- » *Cleaning with a water jet*
- » *Transport in the rain by a car without covering the motor and dismantling the battery and display*
- » *Charging the Pedelec outdoors in a wet environment*



¹ Pedal Electric Cycle
² § 1 Par.3 StVG (Street traffic act)

Intended use is also limited by:

- » *The safety instructions in this User Manual*
- » *The „Technical data“ chapter in this User Manual*
- » *The national regulations for street transport (StVO)*
- » *The national regulations for the street transport permit ordinance (StVZO)*

The following user groups should not use the Pedelec:

- » *Persons with a limited physical, sensory or mental capacity.*
- » *Persons who due to their body size, cannot safely drive the bicycle.*



Any changes to your Lil'Buddy increasing the motor output or maximum support speed, will endanger your driving safety and convert the vehicle from a Pedelec into a small motorcycle. You will be exposed to sanctions in accordance with traffic, licence and safety regulation with penal consequences!



Rotating parts such as wheels, chain ring, sprocket, pedal crank or pedals may draw into clothing, carried objects and even body parts, e.g. your shawl or a bag attached to the handlebar may get caught into the spokes during driving. When you slip your feet from the pedals, they can get caught into the spokes. This may lead to severe accidents!

- > Always wear tight-fitting clothes.
- > Wear shoes with non-slip, flat soles.
- > Do not attach objects onto the handlebar, as they may swing into the front wheel.



A Pedelec always accelerates faster than a bicycle. Be always aware that other traffic participants cannot always predict your acceleration performance.

- > Exercise your new Lil'Buddy first at a quiet location, before riding in the busy streets.
- > Exercise the brakes. Please see also chapter 4.3. „Brake system“.

The required active and passive illumination devices have been installed according to the safety regulations applicable in Germany (StVZO). The technical design safety must be regularly checked and eventually be repaired by a specialist.

1.2. VEHICLE OVERVIEW

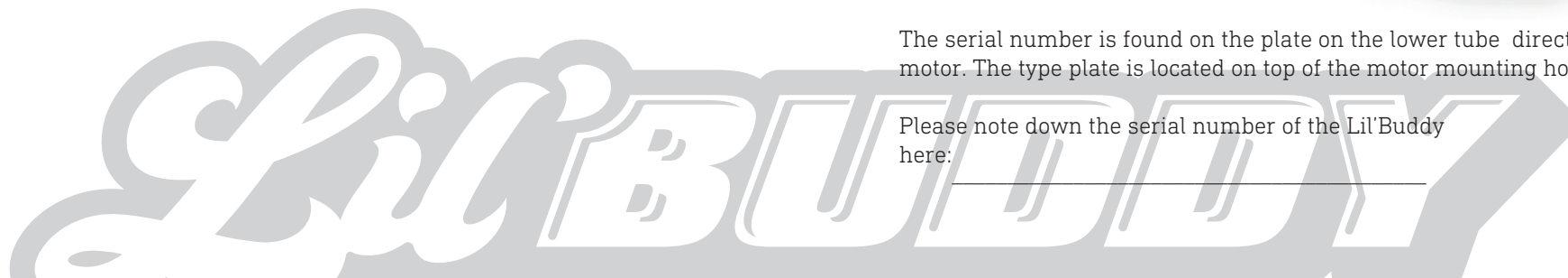


- | | |
|------------------------|-----------------|
| 1 Shimano BL-MT201 | 6 Engine |
| 2 Shimano Altus 7-Gear | 7 Battery |
| 3 Chain tensioner | 8 Fork |
| 4 Kickstand | 9 Type Plate |
| 5 Chain | 10 Control Unit |



The serial number is found on the plate on the lower tube directly below the motor. The type plate is located on top of the motor mounting holder.

Please note down the serial number of the Lil'Buddy here:



1.3. DELIVERY SCOPE

- » Bosch charging device
- » 2 keys for securing the battery to the Pedelec
- » 2 transport fixations for the Shimano BL-MT201 brakes
- » Bosch hazardous material package for battery shipment (please store and when appropriate, use this for the disposal or return of the defect battery)
- » Delivery package (please store if you consider to cancel the purchase within two weeks)


User manuals of different component manufacturers

1.4. ASSEMBLY OF ACCESSORIES

When installing accessories like child seat or trailer, please check the compatibility with the Pedelec through the accessory manufacturer or a bicycle dealer.

2. COMMISSIONING

This chapter explains how to prepare your Lil'Buddy for the ride. Inflate the tires first. The air pressure volume is described in chapter 3.1.

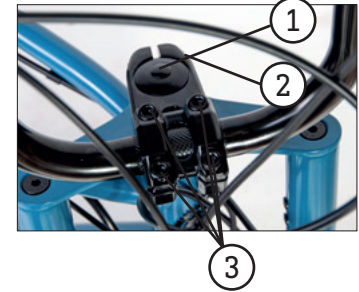
-  Your Lil'Buddy is supplied as a part assembly and as a full assembly. In the latter case, you can skip items 2.1. and 2.2. If it is not a standard delivery, please read the following items for „handlebar alignment“ and „Pedal assembly“.

2.1. HANDLE BAR ALIGNMENT



The stem is a significant safety component. When tightening the bolts, ensure that you use the torque as defined in the torque table under 9.3. Otherwise, there is a hazard of accident!

- » Lift the vehicle by the front frame, so that it no longer touches the ground. Turn the fork leftwards and rightwards. The front wheel must follow the movement. This simulated steering operation should not be difficult.
- » If the steering is not rotated easily, the ahead bolt is tightened too fast (1). Loosen it by releasing the 2 screws (2) of the stem. Now you can adjust the compression of the steering bearing with the ahead bolt. Retighten the stem screw with a torque of 6-7 Nm.
- » Finally, clamp the handlebar in the middle by tightening the bolts (3) at the cross on the stem. Ensure a uniform front and rear gap between stem and cover.



2.2. PEDAL ASSEMBLY



The right pedal has a right thread, the left pedal has a left thread on the pedal axis. The right pedal is mounted clockwise and the left pedal is mounted counter-clockwise. The pedals are marked with R and L.



Pedals are important safety components. Make sure that you tighten the pedal axis firmly, according to the manual. Otherwise, there is a hazard of accident!

- » Apply a thin layer of grease onto the thread of the pedal axis and the crank. Next, screw the pedal by hand loosely into place. Consider the correct assembly angles in order to avoid tilting.
- » Place the crank in a horizontal position, the right pedal oriented towards the front wheel.
- » Tighten the pedal with an SW 15 open end wrench at 30 - 35 Newton meter.



Lil'BUDDY

2.3. REMOVE THE BATTERY

1. Before removing the battery, ensure that the system is disconnected. Turn the key in the lock by 90° rotation while tilting the battery from the upper bracket.
2. Pull the battery from the bracket.



» **Installing the battery:**

Install the battery with its contacts onto the lower bracket and tilt it up to the stop into the upper bracket, until the lock snaps in audibly.



2.4. SWITCHING THE DRIVE ON OR OFF

- » you have different ways how you can switch the eBike-System on and off:
- » press the on/off button of your board computer when the battery is installed
- » press the on/off button of the eBike battery (see battery manual)



2.5. ADJUSTING SUPPORT LEVEL

For the adjustment of the support level, press the „+“ button on the control unit until the required support level is shown on the display. To lower it, press the „-“ button.

2.6. SWITCHING THE LIGHT ON OR OFF

- » Make sure that the Bosch Motor is on.
- » By pressing the button + for a few seconds, front and backlight will be turned on.
- » To turn the lights off, press the + button for a long time.



Detailed information on the operation of the board computer is found under 4.1.1. Purion board computer.

2.7. INITIAL ENGAGEMENT OF BRAKE DISCS

Your brake system is delivered with a weak break function, because the surfaces of the brake discs and pads have not been engaged yet. With a new Pedelec, and also when changing the brake discs and pads, you should engage the brake discs as follows:

- » Accelerate the Pedelec to approx. 15.53 miles/h (25 km/h)
- » Brake the Pedelec by both brakes until standstill (avoid to block the wheels!)
- » Repeat this procedure as often as required in order to achieve an optimal brake performance.



If you force too much the front wheel brake, a hazard of tipping over exists. Your rear wheel might lift and have you fall over the handlebar. -> Pull a little less at the left brake lever, or fully release the brake lever, when you notice that the rear wheel is lifted.


3. BEFORE EACH RIDE


3.1. CHECK TIRES


Tire pressure:

The allowed pressure range of the 20" 98-406 is between 1 and 1.5 bar.

The following applies: The higher your weight, the higher the air pressure to be used.
If you are not a light-weight person, set the pressure of your rear tire at 1.5 bar.


 We recommend to check the pressure every 2 - 4 weeks, since there is an inevitable constant pressure loss of the inner tubes.


 With a too low tire pressure, a puncturing hazard exists (snakebites). This will result in a flat tire.

 A tire that is damaged by tears or punctured by a sharp object may lose its pressure. A hazard of accident exists!
-> Check that your tires are without tears or any foreign objects.

3.2. CHECKING THE BRAKE SYSTEM

- » *Before each ride, check your brakes at standstill. For this purpose, pull the brake lever towards the handlebar with two fingers for a normal braking force. The brake lever must not touch the handlebar grip*
- » *Move the Pedelec while pulling the front and rear brakes. A too strong a play is not allowed. If you notice any play, identify the cause. The brake calliper or brake disc may not be tightened firmly. Tighten according to the torques in the torque table in chapter 9.3.*
- » *If hydraulic brake discs are used, the pressure point must be stable at the brake lever. If the pressure point is not reached after 2/3 travel of the lever, pull the lever several times in a row ("pumping"). Check whether the pressure point has stiffened. If so, or when the pressure point changes during the ride, bleed the brake system by a specialist workplace.*
- » *The brake discs must be oil-free. Any oil on the brake discs is removed with alcohol. Do not use a conventional brake disc cleaning solution!*

 The pressure point is the lever position of the travel at which the brake is engaged. If brakes function smoothly - there are no air bubbles in the hydraulic line - the pressure point is situated at the same lever position at each braking action.

 Do not touch the brake discs with your hands. The thin grease film on your skin is transmitted to the brake discs and affects its functions.

3.3. CHECKING THE CHAIN

The chain is a product subject to wear. Please check regularly the following items:

- » *Are there any foreign objects (twigs) between the chain links?
-> If so: Remove them.*
- » *Is the chain very dirty?
-> If so: Rinse it with water or a proper cleaning solution. Then use a first class chain lubricant.*
- » *Lubricate the chain at regular intervals, even when it is not dirty, in order to prevent it from significant wear.*

3.4. BATTERY: CHECKING THE FIXATION AND CHARGING STATUS

Check whether the battery is secured in the lock and see whether the charging status is sufficient for your planned ride.

3.5. CHECKING THE FORK

Before each ride, check the fork for:

- » *Breakage and deformations*
- » *Secure fixation of the protective plate*
- » *Firm screwing connection of the fork bridge*

3.6. CHECKING THE SCREW CONNECTIONS

Before each ride, check the firm screw connections for

- » *Quick release of the front wheel*
- » *Thru axle of the rear wheel*

Also check that the following parts do not rotate:

- » *Seatbench*
- » *Handlebar*
- » *Stem*

Lift the vehicle slightly up and let it fall onto the ground by the tires. Check whether you see or hear any loose parts. Identify the cause of any loose parts and check if their torque is correct. If required, consult a specialist dealer.

3.7. CHECKING THE LIGHTS

Before each ride, check the function of the lights. Ensure that the headlamp is directed according to the lighting range defined by the national regulations. See chapter 6.9.

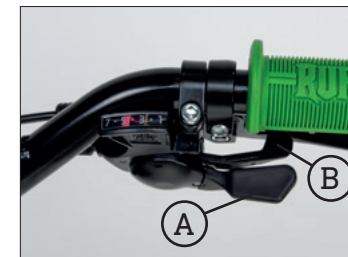
4. OPERATION

4.1. SHIMANO DERAILLEUR GEARS

With the Shimano shifting system, you can adjust the gear ratio using a shifter lever.

Changing gears during the ride

- » *The front shift lever (A) has two levels.*
- » Release the gearshift lever after shifting so that the gearshift lever can automatically return to the starting position.
- » To go lower a gear on the sprocket, press on the right side of the handlebar the front shift lever (A) until it snaps into place for the first time.
- » To lower down two gears on the sprocket, press the front shift lever (A) on the right side of the handlebar until it engages a second time.
- » To shift up a gear on the sprocket, press the rear shift lever (B) on the right side of the handlebar.



4.2. DRIVE UNITS

4.2.1. CHAIN DRIVE UNITS


At delivery, the chain is optimally tensioned and must not be re-tensioned, neither after the prolonged use of the drive. The chain is continuously submitted to tensile load by muscle and motor power. This will extend it over time. Optimal chain tension is maintained by the chain tensioner which also prevents the chain from sagging. However, check the chain at a specialist worksite at regular intervals by, since a worn-out chain will damage the chain ring and sprocket.





4.3. BRAKE SYSTEM

Your Lil'Buddy is equipped with hydraulic brake discs for a fast and safe stopping action. Use both brakes simultaneously for an optimal and safe braking. The left brake lever has an effect on the front wheel brake, the right brake lever has an effect on the rear wheel brake.

The brake system is provided with a fully automated lining compensation. This offsets the wear of the brake pads, while the brake pressure point remains equal.


 The front wheel brake has a stronger delay effect than the rear wheel brake. Exercise the purposeful use of the front wheel brake, so that you become familiar with its force.


 If you force too much the front wheel brake, a hazard of tipping over exists. Your rear wheel might lift and have you fall over the handlebar. -> Pull a little less at the left brake lever, or fully release the brake lever, when you notice that the rear wheel is lifted.

 After braking, specially after long rides down the hill, the brake discs, brake calliper and quick release and axis nuts can become very hot. -> Do not touch the brake discs after intense braking action. You could burn yourself.

4.4. KICKSTAND

When manipulating your side stand, observe the following:

 Riding with unfolded side stand may lead to falling. Moving the Pedelec backwards with an unfolded side stand may lead to the clamping of the stand onto the crank. -> Fold in the stand before starting the ride.

 If you sit on the Pedelec while the sides stand is folded out, it may fail. -> Do not sit on the vehicle if the side stand is folded out.

5. ERGONOMIC SETTINGS

5.1. BRAKE LEVER

You can adjust the brake lever position on the handlebar, along with the brake lever angle and lever width.

5.1.1. ADJUSTING BRAKE LEVER POSITION

For a firm holding onto the handlebars when braking, take the brake lever by your index and middle finger.

To achieve this position, eventually move the lever sideways, so that both fingers can grip the brake lever as shown in the picture.

You can move the brake grip on the handlebar, by loosening the hexagon socket screw on the handlebar clip. If required, first use an appropriate Allen wrench for the loosening and shifting of the Bosch operating unit or gear unit.



Once you have found the correct position, tighten the grips just as much as to allow their rotation.

In the next step, adjust the brake grip angle.



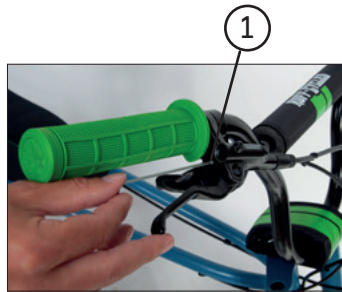
5.1.2. BRAKE GRIP ANGLE

Adjust the brake grip angle so that with extended arm, your fingers rest on the brake levers when seated on the Pedelec. Your wrist should be stretched out as much as possible. After adjusting the angle, retighten the lever clamping bolt on the brake lever.



5.1.3. ADJUSTING BRAKE LEVER DISTANCE

The brake lever distance setting should allow to operate the brake lever by the first phalanges of both fingers positioned on the lever. The lever width is adjusted with a 2mm Allen Key wrench. For this purpose, adjust the screw at the marked position 1.



6. MAINTENANCE

For a fully operational and secure Pedelec, regular maintenance must be performed. Before maintenance, please observe the following instructions.

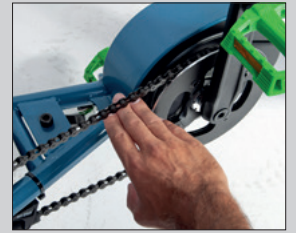


Maintenance requires technical skills. You are responsible for the correct maintenance of your Pedelec.
-> If you do not know how to perform this task, take your bike to a specialist for maintenance.



A hazard of injury exists when the drive system is switched on during maintenance works! Your hands may get caught between the chain and chain ring during running operation.

-> Remove the battery before performing maintenance works. This ensures that the drive systems out of function.



During maintenance works a trapping and crushing risk exists. Your fingers can get caught by moving parts.

-> Be careful with your hands when you work.

6.1. WEAR PARTS LIST

The following parts of your Pedelec are subject to wear according to their use. This wear is not covered by the warranty.

- » *Battery*
- » *Tires and tubes*
- » *Brake pads, brake discs*
- » *Chain, chain ring and sprocket*
- » *Rubber gaskets and rings*
- » *All moving parts (e.g. bearing/pedals)*
- » *Shift cables, shift cable housing*
- » *Lubricant*
- » *Handlebar grips*
- » *Painting and all surfaces*

Details on wear of some parts are found in the following chapters. Most parts suffer wear due to friction.

6.2. RECOMMENDED MAINTENANCE INTERVALS

Maintenance of your Pedelec is required according to its use and it cannot be precisely indicated. Take your bike at least once a year to a specialist dealer for inspection and maintenance.

In principle, we propose the following maintenance intervals:

One-time after 62 - 186 miles (100 - 300 km)

- » Check tightening torques of brake levers, saddle, saddle support, stem, handlebar
- » Check spoke tension, re-center if required
- » or readjust shift cables

every 310 miles (500 km)

- » Check bearing clearance of steering
- » Check bearing clearance of hubs
- » Check bearing clearance of pedals
- » Check tight-fitting crank seat
- » Check wheel concentricity and spoke tension
- » Check headlamp inclination
- » Check brake pad wear condition (first time after 621 miles (1,000 km))

Every 1242 miles (2,000 km) (or once a year)

- » Check brake disc wear condition
- » Check tightening torques of brake levers, saddle, saddle support, stem, handlebar
- » Check chain wear condition and exchange it, if required
- » Chain ring and sprocket wear condition

6.3. AFTER AN ACCIDENT



If due to an accident, parts of the drive system are visibly damaged (cable, motor, battery), a hazard of electric shock exists.
 -> Immediately remove the battery in such case. Check the drive system by a qualified dealer.



Any damages caused to the carrying parts of your Pedelec due to an accident may lead to a breakage hazard.
 -> After an accident, contact your specialist dealer to check all damaged parts such as frame, fork, handlebar, stem, saddle support, pedal crank and pedals, and exchange any parts if required.

6.4. BATTERY

The battery has a guaranteed service life of two years (warranty term) and 500 charging cycles, with a remaining capacity of 60% after this period. A charging cycle means a complete charge of the battery with one single charge or several partial charges (e.g. two half charges).

A battery is a wear part, as it ages over time or wear is accelerated rate by its use. The battery life depends on the following factors:

Stress

Battery life is reduced by a high demand on the motor output (strong stepping up, high supporting levels).

Environmental temperature at storage

Battery life is reduced when the bike is stalled at temperatures exceeding 30 °C or in the direct sunlight. Storage at temperatures between 0 and 20 °C increases the battery life.

Charging status during storage

The highest battery life is achieved when the battery is stored with a charging status of approx. 60%. But storage of the battery with a full or empty status will reduce the battery life.

If you do not use your Pedelec for a prolonged period (> 1 month), make sure that the battery is charged by approx. 60%, which corresponds to 3 LEDs on the display. Check the charging status after 3 months. If only one LED is lit on the charging status display, re-charge the battery up to approx. 60 %.

6.5. TIRES


Inevitably, tires are subject to wear due to friction. Wear of the side edges of the tire can be reduced, by using a sufficient amount of air pressure (see Chapter 3.1) and by giving up blocking the wheels during braking.

You should change your tires when the rubber wheel tread is used up as visualized by the mesh below, or when the tires have become porous due to ageing and frequent sun radiation. The following chapters describe the procedure for changing the tires.



6.6. CHANGING TIRES/TUBES

6.6.1. DISMOUNTING THE FRONT WHEEL


 The wheels are easily dismantled by hanging the Pedelec in a maintenance support or placing it upside down on the saddle and handlebar.
Before positioning the bike on the saddle and handlebar, remove the display and rotate the bell and remote control.

- » Open the quick release by turning over the handle.
- » Loosen the nut a few turns at the other end of the quick release. The front wheel is now slide out from the dropout of the fork.



- » Insert the transportation lock between the brake pads.



 When the wheel is dismantled, do not actuate the hydraulic brake discs. Otherwise, the calliper pistons may approach each other and touch.
-> Once you have dismantled the wheel, slide some colored transportation locks between the brake pads.

6.6.2. DISMOUNTING THE REAR WHEEL

- » Change into the lowest gear.
- » Loosen and remove the axle as shown in step 1, 2 and 3.
- » Pull the rear derailleur back and remove the wheel as shown in step 4 and 5.
- » You can now remove the chain and take out the rear wheel by moving and turning it backwards

①



②



③



④



⑤



6.6.3. CHANGING TIRES/TUBE

- » Unscrew the valve cap from the valve.
- » Release the air completely by pressing the valve pin halfway the valve.
- » Remove the tire at one side of the wheel rim with the aid of a tire lever. If required, use a rinsing agent and water for an easy lifting of the tire.
- » Pull off the tire and tube and perform the required changes.
- » Inflate the inner tube only moderately (diameter approx. 0.78 in (2 cm)) and relocate it in the tire.
- » Insert the valve into the valve opening of the rim and pull both tire and tube from one side onto the rim.
- » Observe the direction as indicated by the manufacturer, if available.
- » Next, lift the other side of the tire with the tire lever onto the rim.
- » Inflate the tire to maximum pressure as indicated on the rim, in order to install the tire evenly on the rim.
It is normal when you hear "Plop" sound.
- » Reduce then the pressure according to the required value (see Chapter 3.1.).
- » Screw the valve cap onto the valve.



6.6.4. FRONT WHEEL ASSEMBLY

- » Remove the transportation lock between the brake pads.
- » Thread the front wheel carefully into the fork. Make sure that the brake disc does not skid into the brake pads.
- » Insert the quick release axle into the fork and hub, then tighten the nut some turns, while you hold the quick release handle.
- » Flip up the quick release lever, in parallel position to the fork leg. The clamping force should increase during the locking. If this is not the case, re-open the quick release and retighten the nut.



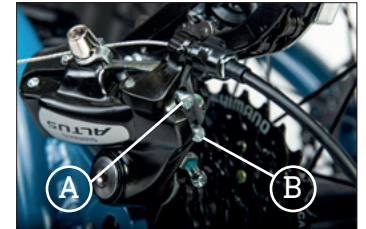
With a too low initial tension of the quick release, the wheel can come off during the ride. A hazard of accident exists!
-> Always tighten the quick release firmly so that when lifting up the tension lever, by its force it leaves an imprint on the palm of your hand.

6.6.5. REAR WHEEL ASSEMBLY

- » Remove the transportation lock between the brake pads.
- » Mount the rear wheel into the rear dropout on the frame and lift the chain again on the sprocket.
- » Make sure not to clamp the cables.
- » Pull the rear wheel backwards against the drive direction, insert the thru axle into the dropouts and tighten with a torque of 8-10 Newton meter.
- » For a chain drive: reposition the chain on the chain tensioner making sure that the sprocket flanges are positioned in between the chain links.

6.7. SHIMANO ALTUS CHAIN GEAR SETTINGS

- » In the first picture you can see the chain tail which has an upper (A) and lower (B) stop.
- » Use the upper stop (A) to set the sprocket which must be aligned in parallel.
- » With the lower stop (B) you set the upper limit so that the chain does not jump over. This should also run parallel to the upper sprocket.
- » The third screw on the chain tail serves to wrap the chain on the sprocket.
- » Fine adjustments can be made using the knurled nut of the bowden cable.
- » This should be used if there are any rattling noises when the train is elongating.



6.8. BRAKES

Since this is a hydraulic brake system, maintenance options are limited. Consult a specialist workplace for repair works on the hydraulics. Always contact the specialist when the brake pressure point oscillates.



6.8.1. WEAR OF BRAKE PADS AND DISCS

Brake pads and brake discs are subject to wear, which is originated by the frictioning of both parts together. Wear depends on driving style, terrain, weather and surface conditions, and wear of the brake pads cannot be predicted.

Since brake discs are made of a material with a higher resistance, they must be exchanged only after exchanging approx. 4 tot 5 brake pad pairs. A regular inspection of the brake pads every 310.6 miles (500 km) is recommended.

6.8.2. CHECKING THE BRAKE PADS

Brake pads must be changed when they have a width of

- » only 0.098 inches (2.5 mm) (height of friction lining incl. carrier plate).
- » are in contact with oil (leads to a lower braking performance)

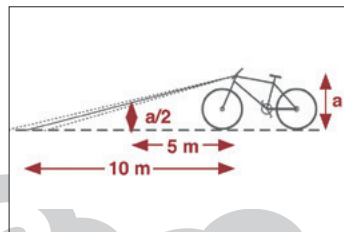
First check the brake pad width visually. If you suspect that the minimum width is exceeded, the pads must be dismantled and inspected with a calliper. Please consult a specialist workplace for this inspection.



6.9. SETTING THE HEADLIGHT RANGE

Setting the headlight range is subject to the German StVZO.¹

Set the headlamp in such a way that, measured at 16.4 feet (5 m) from the lamp, the center of the light cone is situated at a height equivalent to only half the distance between the ground and the centre of the lamp.



The inclination of the headlamp is set by releasing the screw connection on the lamp holder with an appropriate open-end wrench and repositioning it according to a new inclination. Tighten then the nut only to such extent allowing you to correct with a greater force manually the lamp according to its inclination.



7. CLEANING AND MAINTENANCE

- » If required, clean the Pedelec with water (but not a water jet!) using a soft cloth or soft brush.
- » You can also clean the chain with water or a non-abrasive cleaning agent. Then, lubricate it.
- » With a humid cloth, wipe off the contacts on the battery and the battery holder on the frame. Wait until the contacts are dry before refixing the battery.
- » To prevent corrosion, treat the screws on the Pedelec with a corrosive protective film, e.g. with a spray wax.



Do not use a water jet, e.g. from a garden hose, since this may lead to damages on the bearings, Altus 7-Gear Hub, Bosch battery, motor and display.
The manufacturer does not accept any liability for damages.



Leakage of spray wax or oil onto the brake discs or brake pads will decrease the braking function.
-> Make sure that spray wax or oil does not leak onto brake discs or brake pads!

¹ § 67par. 3 StVZO



8. TRANSPORT BY CAR

To avoid damages to the Pedelec during transport outdoors or on a car, pay attention to the following notes:



During the transport of the Pedelec, the battery can become loose and poses a risk for other traffic due to the contained energized power.
-> Dismantle the battery as well as any loose accessories from your Pedelec, before you transport it on a rear carrier or roof rack.



If you transport the Lil'Buddy during rain or at high speeds by or on the car, water may penetrate into the hub, the Bosch motor, the battery as well as into the display.
-> Remove the battery.
-> Use a protective cover for the Pedelec, hub and motor.



The weight of the Pedelec places high demands on a car rear carrier or roof rack. Inappropriate bicycle carriers may break during the ride or they may not fasten tightly your Pedelec!
-> Check the allowed roof load in the car manual and the support load as indicated in the manual for car bicycle carriers.



Li-ion batteries are subject to the requirements of the hazardous materials legislation. Private users may transport the battery in the streets without any limitations.
For commercial transport or transport by third parties (e.g. forwarding agent), national regulations on packaging and identification must be met (e.g. provisions of the ADR). If required, consult your specialist in hazardous materials for the correct preparation of the package.

9. TECHNICAL DATA

9.1. COMPONENT LIST

Chassis	Frame	Lil'Buddy Unisex
	Fork	Lil'Buddy Double Down Crown Fork

Drive system	Engine	Bosch Performance Active Line or Performance Line CX
	Battery	Bosch PowerPack Rack 300 Wh (Optional 500 Wh)
	Display	Bosch Purion

Drive and Brakes	Gears	Shimano Altus 7-Gear
	Cranks	165 mm
	Sprocket	Lil'Buddy Chainring 38T with chain guard
	Chain	TAYA TB-50 1/2 x 3/32
	Rear sprocket	Shimano HG CS-HG 200-7
	Front brakes	Shimano BL-MT201, 180 mm
	Rear brakes	Shimano BL-MT201, 180 mm

Wheels	Rear hub	Ruff Cycles Hub Rear Thru axle
	Rims	Ruff Cycles Rim 20" x 100 mm
	Spokes	Sapim butted (2,34 - 2,0 mm) black
	Tires equipped	Kenda 20" 98-406 ETRTO

Human Interface	Stem	Lil'Buddy 22,2mm
	Handle Bar	Ruff Cycles BMX Bar

Safety	Head light	Supernova V521S
	Rear light	Supernova E3

9.2. WEIGHTS

Battery weight 300 Wh	2,5 kg
Battery weight 500 Wh	2,7 kg
Tare weight incl. battery	25 kg
Allowed additional load (drive + equipment + packing bag)	150 kg

9.3. TORQUE OF SCREWS

Teil	Moment/Nm
Fork crown screws	12
Stem on fork crown	8
Top cap	5 - 6
Ahead Cap screw	3 - 7

Seatbench	7
Brake adapter on fork or frame	6
Brake caliper on fork or frame	6
Brake discs (6-Bolt)	5 - 7
Brake grip (clamping on handlebar)	max. 4
Lockring chain ring	20 - 25
Crank on Bosch-Axle	35
Axle screw on rear wheel hub	8 - 10
Pedals	30 - 35

10. LIABILITY FOR MATERIAL DEFECTS

A statutory liability for material defects is applicable for a period of 24 months as from the day of purchase.

The prerequisite for the assertion of material defects liability shall be the submission of the original invoice and proven inspections.

The assertion of material defects is subject to the following prerequisites:

- » *The presence of a manufacturing, material or information fault.*
- » *The claimed damage was already existent at the time of the transfer.*
- » *The product was not altered due to wear or ageing.*
- » *The damages were not originated by any use other than the intended use.*
- » *Battery: The battery has a remaining nominal capacity of less than 60% after a maximum of 500 charge cycles .*

The warranty shall not include:

- » *any wear parts as stated in the wear parts list, provided they are not production or material defects.*
- » *Damages caused by the non-intended use*
- » *Damages caused by the non-compliance of the procedures described in the "Maintenance" chapter*
- » *Damages caused by the neglectful use of repair tools and lacking maintenance.*
- » *Damages caused by the use of used parts*
- » *Damages caused by the additional mounting of standard features or due to technical retrofitting.*

11. EC DECLARATION OF CONFORMITY



- ORIGINAL -

EC DECLARATION OF CONFORMITY

RUFF CYCLES GmbH
 Im Gewerbepark D36
 93059 Regensburg
 Germany

We, the "RUFF CYCLES GmbH" declare that the design of

LIL'BUDDY

satisfies all the relevant requirements of the Machinery Directive 2006/42/EC

Furthermore, the machine satisfies the following directives:

- Directive on electromagnetic compatibility 2014/30/EU
- Directive on the restriction of the use of certain hazardous substances in electric and electronic equipment 2011/65/EU

The following technical norms were used:

- DIN EN 15194:2009+A1:2011 electrically power assisted cycles - EPAC-cycles
- DIN EN ISO 4210, part 1-9, bicycles - Safety related technical requirements for bicycles

Authorized person for the edition of the document: "Petar Desnica, Im Gewerbepark D36, 93059 Regensburg"

RUFF CYCLES GmbH
 Regensburg, 17.07.2019

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Petar Desnica, CEO RUFF CYCLES GmbH

12. DISPOSAL



This symbol on your Pedelec indicates that this product must not be discarded with household waste, under the terms of the WEEE directive (2012/19/EU; Waste Electrical and Electronic Equipment, Battery directive (2066/66/EC) and the national laws for the implementation of these directives.

Disposal of the Pedelec at the end of its service life should only be done through a public collection point. Packaging materials shall be collected separately and directly disposed of according to local collection schemes. Take the used battery to an E-bike dealer or send it for disposal in the hazardous waste packaging to RUFF CYCLES GmbH.

RUFF CYCLES GmbH

- Disposal -

Im Gewerbepark D36
 93059 Regensburg
 Germany

Lil'BUDDY

05111-2009-01/Lil'BUDDY-EN



RUFF CYCLES
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