

# *Lil'***BUDDY**

ORIGINAL OPERATING MANUAL

*Lil'***BUDDY**

*Manufacturer:*

***RUFF ⚡ CYCLES®***

**RUFF CYCLES GmbH**

Im Gewerbepark B69  
93059 Regensburg  
Germany

[info@ruff-cycles.com](mailto:info@ruff-cycles.com)  
[www.ruff-cycles.com](http://www.ruff-cycles.com)

V2.0 February 2023

Layout, photographs and text: RUFF CYCLES GmbH, Regensburg, Germany  
Text passages are provided with courtesy of HNF GmbH

The mentioned brand names are subject to copyrights and are the property of their legitimate owners even without special indication. Any reprint or copy, even only in extracts, is only permitted with our expressed written consent. This manual is subject to misprints, errors and technical alterations. Please note that the illustrated product may be different from the delivery condition of the product.

# CONTENTS

<b>1.</b>	<b>Your Vehicle</b>	<b>7</b>		
1.1.	Intended Use	7		
1.2.	Vechile Overview	9		
1.3.	Delivery Scope	10		
1.4.	Assembly of Accessories	10		
<b>2.</b>	<b>Commissioning</b>	<b>10</b>		
2.1.	Handlebar Alignment	10		
2.2.	Pedal Assembly	11		
2.3.	Removal/Installation of the Battery	12		
2.4.	Switching ON/OFF the Drive	12		
2.5.	Adjusting Support Level	12		
2.6.	Switching ON/OFF the Lamp	13		
2.7.	Initial Engagement of Brake Discs	13		
<b>3.</b>	<b>Before Each Ride</b>	<b>14</b>		
3.1.	Checking the Tires	14		
3.2.	Checking the Brake System	14		
3.3.	Checking the Chain	15		
3.4.	Battery: Checking the Fixation and Charging Status	15		
3.5.	Checking the Fork	15		
3.6.	Checking the Screw Connections	16		
3.7.	Checking the Lights	16		
<b>4.</b>	<b>Operating the Bike</b>	<b>17</b>		
4.1.	Gear Deraillleur	17		
4.2.	Drive Unit	17		
4.2.1.	Chain Drive Unit	17		
4.3.	Brake System	18		
4.4.	Side Stand	18		
<b>5.</b>	<b>Ergonomic Setting</b>	<b>19</b>		
5.1.	Brake Lever	19		
5.1.1.	Adjusting Brake Lever Position	19		
5.1.2.	Brake Grip Angle	19		
5.1.3.	Adjusting Brake Lever Distance	20		
<b>6.</b>	<b>Maintenance</b>	<b>20</b>		
6.1.	Wear Parts List	21		
6.2.	Recommended Maintenance Intervals	21		
6.3.	After an Accident	22		
6.4.	Battery	22		
6.5.	Tires	23		
6.6.	Changing Tires/Tubes	23		
6.6.1.	Dismounting the Front Wheel	23		
6.6.2.	Dismounting the Rear Wheel	24		
6.6.3.	Changing Tires/Tubes	25		
6.6.4.	Installing the Front Wheel	26		
6.6.5.	Installing the Rear Wheel	26		
6.7.	Chain Gear Settings	27		
6.8.	Brakes	27		
6.8.1.	Wear of Brake Pads and Discs	27		
6.8.2.	Checking the Brake Pads	28		
6.9.	Setting the Headlight Range	28		
<b>7.</b>	<b>Cleaning and Maintenance</b>	<b>29</b>		
<b>8.</b>	<b>Transport on/by Car</b>	<b>29</b>		
<b>9.</b>	<b>Technical Data</b>	<b>31</b>		
9.1.	Component List	31		
9.2.	Weights	32		
9.3.	Torque of Screws	32		
<b>10.</b>	<b>Liability for Material Defects</b>	<b>33</b>		
<b>11.</b>	<b>EC Declaration of Conformity</b>	<b>34</b>		
<b>12.</b>	<b>Disposal</b>	<b>35</b>		

## Content and Symbols in this User Manual

This User Manual contains important information for enhancing safety and prolonging service life of the Pedelec as well as lasting 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](http://www.ruff-cycles.com/manuals) for any modifications. Here you can also download the updated manual in PDF format.



In the following text, your Lil'Buddy is called "Pedelec"

## 1. YOUR VEHICLE

We congratulate you on the purchase of a Pedelec with BOSCH driving technology. You have decided for a state-of-the-art means of transport, which allows you brand-new mobility options. We put greatest importance on the technical quality of the single components of your Pedelec<sup>1</sup>, ensuring that you will enjoy your bike for many years.

The Pedelec 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 engine according to the selected support level. When reaching a speed of 15.53 mph (25 km/h), the electrical engine switches off. But driving at a speed over 15.53 mph (25 km/h) by oneself is also possible.

The Pedelec is lawfully equivalent to the bicycle. 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 Pedelec is intended for the transport of one person on asphalt roads and rideable forest and land routes. The admissible total weight (bike + driver + accessory + baggage) amounts to 150 kg.

The Pedelec is not intended for:


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

Intended use is also limited by:


- The safety instructions in this User Manual
- The “Technical Data” chapter in this User Manual
- Your local regulations for street transport

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 ride the bicycle



Any changes to your Pedelec increasing the engine output or maximum support speed, can endanger your driving safety and convert the vehicle from a Pedelec into a small motorcycle. You could 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 in 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 your feet slip from the pedals, they can get caught in 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 accelerates faster than a bicycle. Be aware that other traffic participants cannot always predict your acceleration performance.

→ First, get acquainted to your new Pedelec on a traffic free location, before riding in the busy streets.

→ Exercise the brakes. Please also see chapter 4.3. “Brake System”.

Check if required active and passive illumination devices have been installed according to the safety regulations applicable in your country. Required illumination devices can be purchased on our official website. The technical design safety must be checked regularly and eventually be repaired by a specialist.

1.2. VEHICLE OVERVIEW



- |                           |                  |
|---------------------------|------------------|
| 1. Hydraulic Disc Brakes  | 7. Battery       |
| 2. 7-Gear Shifting System | 8. Fork          |
| 3. Chain Tensioner        | 9. Type Plate    |
| 4. Side Stand             | 10. Control Unit |
| 5. Chain                  |                  |
| 6. Engine                 |                  |



The frame number is found on the engine mount. The type plate is located under the seatbench.

Please note down the serial number of the Pedelec here: \_\_\_\_\_

### 1.3. DELIVERY SCOPE

- Charging device
- 2 keys for securing the battery to the Pedelec
- 2 transport fixations for the hydraulic disc brakes
- Keychain
- Bicycle bell
- Reflectors set
- 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 a 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 Pedelec for the ride. Inflate the tires first. The air pressure volume is described in chapter 3.1.



Your Pedelec 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. HANDLEBAR 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. Re-tighten 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 into place by hand loosely. 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 Nm



## 2.3. REMOVAL/INSTALLATION OF THE BATTERY

### Removing the battery:

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



### Inserting the battery:

- Insert the battery with its contacts on the lower bracket and, while sliding it in, tilt it up to the upper bracket, until the lock snaps in audibly



## 2.4. SWITCHING ON/OFF THE DRIVE

The Pedelec system can be switched on/off in the following ways:

- Press the on/off button of your board computer when the battery is installed
- Press the on/off button of the Pedelec 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 ON/OFF THE LAMP

- Make sure that the engine is on
- By pressing the button “+” for a few seconds, front and back light will turn on
- To turn the lights off, press the “+” button for a long time



## 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 mph (25 km/h)
- Brake the Pedelec by both brakes until standstill (avoid blocking the wheels!)
- Repeat this procedure as often as required in order to achieve an optimal brake performance



If you put too much force on 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 on the left brake lever, or fully release the brake lever, when you notice that the rear wheel is lifting.

### 3. BEFORE EACH RIDE

#### 3.1. CHECKING THE TIRES

**Tire pressure:** The allowed pressure range of the Tyron 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 to 1.5 bar.



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



With a tire pressure too low, 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 play too strong 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 two thirds 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, have the brake system bled by a specialist workplace
- The brake discs must be oil-free. Any oil on the brake discs can be 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 their functions.

#### 3.3. CHECKING THE CHAIN

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

- 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 FIXTATION 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 firmness of 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 up slightly and let it fall to the ground on its 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 your local regulations. See chapter 6.9.

## 4. OPERATING THE BIKE

---

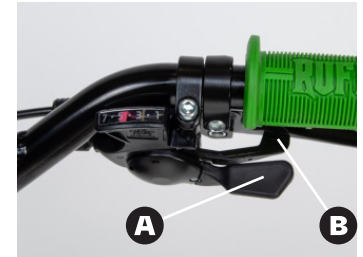
### 4.1. CHAIN GEAR DERAILLEUR

---

With the 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 one gear lower on the sprocket, press the front shift lever on the right side of the handlebar (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 UNIT

---

#### 4.2.1. CHAIN DRIVE UNIT

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 engine 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, since a worn-out chain will damage the chain ring and sprocket.

### 4.3. BRAKE SYSTEM

Your Pedelec 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 put too much force on 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 lifting.



After braking, especially after long rides down the hill, the brake discs, brake calliper, 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. SIDE STAND

When manipulating your side stand, be cautious of 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 side stand is folded out, it may fail.  
→ Do not sit on the vehicle if the side stand is folded out.

## 5. ERGONOMIC SETTING

### 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 grip on the handlebars when braking, take the brake lever by your index and middle finger. To achieve this position, moving the lever sideways, so that both fingers can grip the brake lever as shown in the picture, might be necessary.



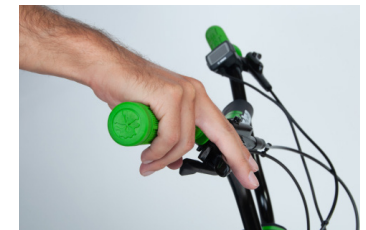
You can move the brake grip on the handlebar by loosening the hexagon socket screw on the handlebar clip. If required, first use an appropriate Allen wrench for the loosening and shifting of the engine operating unit or gear unit.

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 arms, 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, re-tighten the lever clamping bolt on the brake lever.



### 5.1.3. ADJUSTING BRAKE LEVER DISTANCE

The brake lever distance setting should allow you to operate the brake lever by the first phalanges of both fingers positioned on the lever. The lever width is adjusted with an Allen wrench (size depends on producer). 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! You hands may get caught between the chain and chain ring during running operation.

→ Remove the battery before performing maintenance work. This ensures that the drive system is 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 to a specialist dealer for inspection and maintenance at least once a year.

In principle, we propose the following maintenance intervals:

#### Once after first 62-186 miles (100-300 km)

- *Check tightening torques of brake levers*
- *Check tightening torques of stem, handlebar*
- *Check spoke tension, re-center if required*
- *Readjust shift cables if required*

### 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 or 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, engine, battery), a hazard of electric shock exists.  
→ Immediately remove the battery in such a case. Have the drive system checked 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 its wear rate accelerates by its use. The battery life depends on the following factors:

### Stress

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

### Environmental temperature at storage

Battery life is reduced when the bike is stored 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 so much that the mesh below becomes visible, 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.

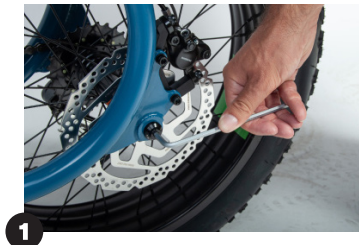
- Open the quick release by turning over the handle
- Loosen the nut a few turns at the other end of the quick release. The front wheel now slides out from the dropout of the fork
- Insert the transportation lock between the brake pads



When the wheel is dismounted, do not activate the hydraulic brake discs. Otherwise, the calliper pistons may approach each other and touch.  
→ Once you have dismounted 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 figure 1, 2 and 3
- Pull the rear derailleur back and remove the wheel as shown in figure 4 and 5
- You can now remove the chain and take out the rear wheel by moving and turning it backwards



## 6.6.3. CHANGING TIRES/TUBES

- Unscrew the valve cap from the valve
- Release the air completely by pressing the valve pin halfway into 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 or 2 cm) and relocate it in the tire
- Insert the valve into the valve opening of the rim and pull both tire and tube onto the rim from one side
- Observe the rotation direction as indicated by the manufacturer, if available
- Next, lift the other side of the tire onto the rim with the tire lever
- 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 a "plop" sound
- Reduce the pressure according to the required value (see chapter 3.1.)
- Screw the valve cap onto the valve





#### 6.6.4. INSTALLING THE FRONT WHEEL

- Remove the transportation lock between the brake pads
- Thread the front wheel into the fork carefully. Make sure that the brake disc skids between 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 re-tighten the nut



With 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 with 10-12 Nm.

#### 6.6.5. INSTALLING THE REAR WHEEL

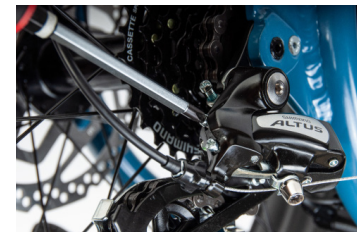
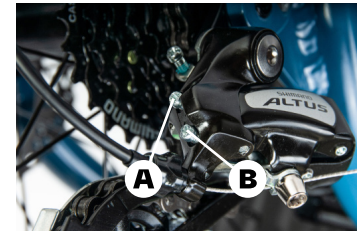
- Remove the transportation lock between the brake pads
- Mount the rear wheel into the rear dropout on the frame and lift the chain onto the sprocket again
- Make sure not to clamp the cables
- Pull the rear wheel backwards against the drive direction, insert the thru axle into the dropouts and tighten with a torque of 12 Nm
- For a chain drive: reposition the chain on the chain tensioner making sure that the sprocket flanges are positioned in between the chain links



Check the alignment of the markings as described in chapter 6.7.

#### 6.7. CHAIN DERAILLEUR 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 caused by the friction between parts. Wear depends on driving style, terrain, weather and surface conditions, therefore 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 to 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)

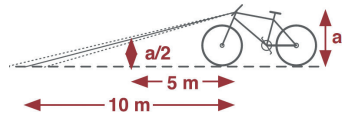


First check the brake pad width visually. If you suspect that the minimum width is exceeded, the pads must be dismantled and inspected with a calliper. Please consult a specialist workplace for this inspection.

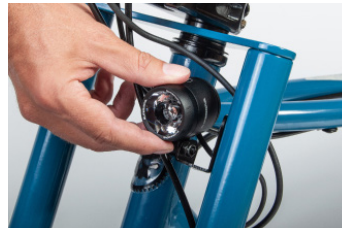
### 6.9. SETTING THE HEADLIGHT RANGE

Setting the headlight range is prerequisite for your own and all surrounding traffic participants' security.

We recommend to set the headlamp in such a way that, measured at 16.4 ft (5 m) from the lamp, the center of the light cone should be at half the height of the light source.



The inclination of the headlamp is set by releasing the screw connection on the lamp holder with an appropriate open-end wrench and Allen wrench repositioning it according to a new inclination. Then tighten the nut only to such extent you can still manually correct the lamp's inclination with a greater force.



## 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 corrosion protective film, e.g. with a spray wax



A water jet, e.g. from a garden hose, may lead to damages on the bearings, Gear Hub, battery, engine and display.  
The manufacturer does not accept any liability for damages.



Spray wax or oil leaking 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!

## 8. TRANSPORT ON/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 pose a risk for other traffic due to the amount of contained energy.  
→ 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 Pedelec during rain or at high speeds by or on the car, water may penetrate into the hub, the engine, the battery as well as into the display.  
→ Remove the battery.  
→ Use a protective cover for the Pedelec, hub and engine.



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 your Pedelec tightly!  
→ 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. 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	Double Down Crown Fork
Drive System	Engine	Bosch Active Line (optional: Performance Line CX)
	Battery	Bosch Battery 300 Wh (optional: 500 Wh)
	Display	Bosch Purion
Drive and Brakes	Gears	7 Gear Shifting System
	Cranks	155 mm
	Sprocket	Chainring 38T with Chain Guard
	Chain	TAYA TB-50 1/2 x 3/32
	Rear Sprocket	CS-HG 200-7
	Front Brakes	Hydraulic disc brakes, 180 mm
	Rear Brakes	Hydraulic disc brakes, 180 mm
Wheels	Rear Hub	Ruff Cycles Hub Rear Thru Axle
	Rims	Ruff Cycles Rim 20" x 100 mm
	Spokes	Butted (2 - 2.34 mm) Black
	Tires	20" 98-406 ETRTO
Human Interface	Stem	Lil'Buddy/Lil'Missy/BIGGIE 22.2 mm
	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
Admissible Total Weight (Bike + Driver + Equipment + Packing Bag)	150 kg

## 9.3. TORQUE OF SCREWS

Part	Moment/Nm
Bosch Display Mount	1
Fork Crown Screws	12
Stem on Fork Crown	20-25
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 on Rear Wheel Hub	12
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 B69  
93059 Regensburg  
Germany

We, the "RUFF CYCLES GmbH" declare that the design of **LIL'BUDDY** complies with the Machinery Directive 2006/42/EG

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 electrical and electronic equipment 2011/65/EU

The product has been designed and tested to meet the harmonized standard EN 15194:2017.

Authorized person for the edition of the document: "Petar Desnica, Im Gewerbepark B69, 93059 Regensburg"

RUFF CYCLES GmbH  
Regensburg,  
21.02.2022

  
Petar Desnica, CEO / RUFF CYCLES GmbH

  
Muzumir Trako, CTO / 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 national laws.

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 in for disposal in the hazardous waste packaging at RUFF CYCLES GmbH.

**RUFF CYCLES GmbH**  
- Disposal -  
Im Gewerbepark B69  
93059 Regensburg  
Germany



***RUFF + CYCLES®***

**RUFF CYCLES GmbH**

Im Gewerbepark B69  
93059 Regensburg  
Germany

info@ruff-cycles.com  
www.ruff-cycles.com