# TRANSLATION OF THE ORIGINAL OPERATING INSTRUCTIONS

**IMPORTANT**

READ CAREFULLY BEFORE USE

KEEP SAFE TO CONSULT AT A LATER DATE

BULLS

brose


E-Stream EVA 1, E-Stream EVA 2, E-Stream EVA TR2, E-Stream Evo 1 27,5″, E-Stream Evo 1 29″, E-Stream Evo 2, E-Stream Evo 2 29″, E-Stream Evo 2 Street 27.5″, E-Stream Evo 3, E-Stream Evo 3 29, E-Stream Evo AM3, E-Stream Evo TR1, E-Stream Evo AM 5 27.5″ (RAINBOW edition), E-Stream Evo AM 6 27.5″ (Chrome Polish edition)

21-18-1097, 21-18-1099, 21-18-1103, 21-21-1094, 21-21-1095,21-21-1096, 21-21-1097, 21-21-1100, 21-21-1105, 21-21-1106, 21-21-1107, 21-21-1109, 21-21-1110, 21-21-1112, 21-21-1115, 21-21-1140

MY21B02 - 22 • 1.00 • 26. October 2020

# Contents

**Thank you for your trust!**

BULLS *pedelecs* are premium quality bicycles. You have made an excellent choice. Your specialist dealer will provide you with guidance and instruction and assemble your product. Your specialist dealer will also be happy to assist you in the future, whether you require maintenance, conversion or repair.

**Notice**

These *operating instructions* are not a substitute for personal instruction by the supplying specialist dealer.

These operating instructions are an integral part of the pedelec. Therefore, if it is re-sold at a later time, they must be handed over to the subsequent owner.

You are receiving these operating instructions with your new pedelec. Please take time to become familiar with your new pedelec. Use the tips and suggestions in the operating instructions. They will help you to enjoy your pedelec for a long time to come. We hope you have fun and wish you well on all of your rides!

The operating instructions are mainly designed for the rider and the operator. They aim to ensure that non-professionals can use the pedelec safely.

Sections are also designed especially for the specialist dealer. These sections aim to ensure that specialist dealers complete initial assembly and maintenance safely and reliably. The sections for specialist dealers are highlighted in grey and marked with a spanner symbol.

Download the operating instructions onto your phone at the following link, so that you can use them when you are out riding:

www.bulls.de/service/downloads.



**Editing**

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# 1 About these operating instructions

## 1.1 Manufacturer

The pedelec manufacturer is:

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Subject to internal changes

The information contained in these *operating instructions* are the approved technical specifications at the time of printing. Any significant changes are included in a new published version of the *operating instructions*. You will find any modifications to these *operating instructions* at:
www.bulls.de/service/downloads.

## 1.2 Language

The *original operating instructions* are written in German. A translation is invalid without the *original operating instructions*.

## 1.3 Laws, standards and directives

The *operating instructions* comply with the essential requirements specified in:

- Machinery Directive 2006/42/EC
- Electromagnetic Compatibility Directive 2014/30/EU
- ISO 20607:2018 Safety of machinery – Instruction handbook – General drafting principles
- EN 15194:2018 Cycles – Electrically power assisted cycles – pedelec bicycles
- EN 11243:2016, Cycles – Pannier racks for bicycles – Requirements and test methods
- ISO 17100:2016-05 Translation Services – Requirements for translation services.

## 1.4 For your information

Different markings are used in the operating instructions to make them easier to read.

### 1.4.1 Warnings

Warnings indicate hazardous situations and actions. You will find warnings in the *operating instructions*:

**DANGER**

Will lead to serious or even fatal injuries if ignored. High-risk hazard.

**WARNING**

May lead to serious or even fatal injuries if ignored. Medium-risk hazard.

**CAUTION**

May lead to minor or moderate injuries if ignored. Low-risk hazard.

**Notice**

May lead to material damage if ignored.

### 1.4.2 Markups

Instructions for specialist dealers are highlighted in grey. They are indicated by a screwdriver symbol. Information for specialist dealers does not require non-professionals to take any action.

You will find stylised forms of typeface in the *operating instructions*:

| Stylised form | Use |
|---|---|
| *Italics* | Glossary term |
| Underlined in blue | Link |
| Underlined in grey | Cross references |
| ✓ Check marks | Requirements |
| ▶ Triangle | Instruction for action with a specific sequence |
| **1** Instruction for action | Several instructions for action in specified order |
| ⇨ | Result of the action |
| SPACED | Indicators on the display screen |
| • | Bulleted lists |
| Only applies to pedelecs with this equipment | Each type has a different kind of equipment. A note beneath the heading indicates components which can be used as an alternative. |

**Table 1: Markups**

## 1.5 Nameplate

The nameplate is situated on the frame. You can see the exact position of the nameplate in Figure 2. You will find thirteen pieces of information on the nameplate.

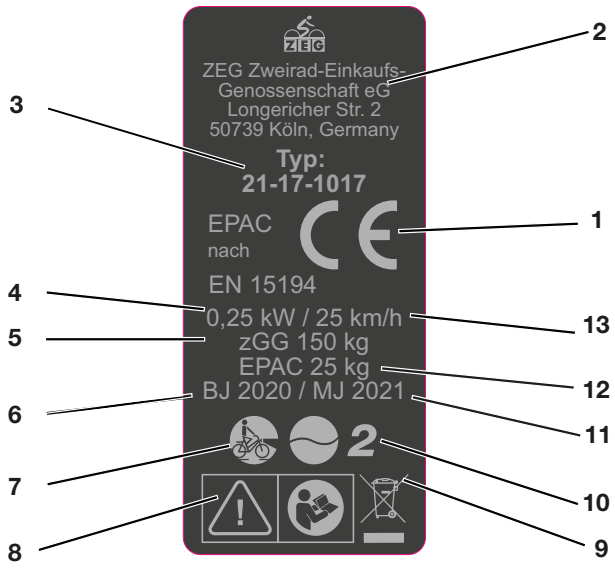



**Figure 1: Nameplate, example**

| No. | Designation | Description |
|---|---|---|
| 1 | CE marking | The manufacturer uses the CE marking to declare that the pedelec complies with applicable requirements. |
| 2 | Manufacturer's contact details | You can contact the manufacturer at the address. You can find more information in Section 1. |
| 3 | Type number | All pedelec models have an eight-digit type number, which is used to specify the design model year, the type of pedelec and the version. You can find more information in Section 1. |
| 4 | Maximum continuous power | The maximum continuous power is the greatest possible power for the electric motor output shaft over 30 minutes. |
| 5 | Maximum permitted total weight | The maximum permitted total weight is the weight of the fully assembled pedelec with the rider and baggage. |
| 6 | Year of manufacture | The *year of manufacture* is the year in which the pedelec was manufactured. The production period is from August 2020 to July 2021. |
| 7 | Pedelec type | You can find more information in Section 3.2. |
| 8 | Safety markings | You can find more information in Section 1.4. |
| 9 | Disposal instructions | You can find more information in Section 10. |
| 10 | Area of use | You can find more information in Section 3.2. |
| 11 | Model year | The model year refers to the first production year that the series-manufactured pedelec was produced in the version concerned. The year of manufacture is different to the model year in some cases. |
| 12 | Weight of the ready-to-ride pedelec | The weight of the ready-to-ride pedelec is specified as a weight of 25 kg or above and refers to its weight at the time of purchase. You must add each additional accessory to the weight. |
| 13 | Shut-off speed | The speed that the pedelec reaches at the moment when the current has dropped to zero or to the no-load current value. |

**Table 2: Nameplate details**

## 1.6 Type number and model

These operating instructions are an integral part of pedelecs with the type numbers:

| Type no. | Model | Pedelec type |
|---|---|---|
| 21-18-1097 | E-Stream Evo 3 | Mountain bike |
| 21-18-1099 | E-Stream Evo 3 29″ | Mountain bike |
| 21-18-1103 | E-Stream Evo AM3 | Mountain bike |
| 21-21-1094 | E-Stream Evo 1 27.5″ | Mountain bike |
| 21-21-1095 | E-Stream Evo 1 27.5″ | Mountain bike |
| 21-21-1096 | E-Stream Evo 2 | Mountain bike |
| 21-21-1097 | E-Stream Evo 2 29″ | Mountain bike |
| 21-21-1100 | E-Stream Evo TR1 | Mountain bike |
| 21-21-1105 | E-Stream EVA 1 | Mountain bike |
| 21-21-1106 | E-Stream EVA 2 | Mountain bike |
| 21-21-1107 | E-Stream EVA TR2 | Mountain bike |
| 21-21-1109 | E-Stream Evo 2 Street 27.5″ | Mountain bike |
| 21-21-1110 | E-Stream Evo 2 Street 27.5″ | Mountain bike |
| 21-21-1112 | E-Stream Evo AM 5 27.5″ (RAINBOW edition) | Mountain bike |
| 21-21-1115 | E-Stream Evo 1 29″ | Mountain bike |
| 21-21-1140 | E-Stream Evo AM 6 27.5″ (Chrome Polish edition) | Mountain bike |
| 21-18-1097 | E-Stream Evo 3 | Mountain bike |
| 21-18-1099 | E-Stream Evo 3 29″ | Mountain bike |
| 21-18-1103 | E-Stream Evo AM3 | Mountain bike |
| 21-21-1094 | E-Stream Evo 1 27.5″ | Mountain bike |
| 21-21-1095 | E-Stream Evo 1 27.5″ | Mountain bike |
| 21-21-1096 | E-Stream Evo 2 | Mountain bike |

**Table 3: Type number, model and pedelec type**

## 1.7 Identifying the operating instructions

The Identification number position is located on bottom left-hand side on each page. The identification number is composed of the document number, the version number and the release date.

| | |
|---|---|
| **Identification number** | MY21B02 - 22_1.0_26.10.2020 |

# 2 Safety

## 2.1 Residual risks

### 2.1.1 Risk of fire and explosion

#### 2.1.1.1 Rechargeable battery

The safety electronics may fail if the batteries are damaged or faulty. The residual voltage can cause a short circuit. The battery may self-ignite and explode.

- ▶ Only use and charge the battery and accessories if they are in perfect condition.
- ▶ Never open or repair the battery.
- ▶ Batteries with external damage must be removed from service immediately.
- ▶ If a battery is dropped or struck, remove it from service and observe it for at least 24 hours.
- ▶ Faulty batteries are hazardous goods. Dispose of faulty batteries in the correct manner. Store battery in a dry place until disposal. Never store in the vicinity of flammable substances.

The battery is only protected from spray water. Penetration by water can cause a short circuit. The battery may self-ignite and explode.

- ▶ Never immerse the battery in water.
- ▶ Put battery out of service if you suspect water has penetrated it.

Temperatures over 60 °C can also cause liquid to leak from the battery and the battery will become damaged. The battery may self-ignite and explode.

- ▶ Protect the battery against heat.
- ▶ Never store next to hot objects.
- ▶ Never expose the battery to sustained direct sunlight.
- ▶ Avoid wide temperature fluctuations.

Chargers with excessive voltage damage batteries. This may result in fire or an explosion.

- ▶ Only use batteries approved for the pedelec. Clearly label the supplied charger.

#### 2.1.1.2 Overheated charger

The charger heats up when charging the battery. In case of insufficient cooling, this can result in fire or burns to the hands.

- ▶ Never use charger on a highly flammable surface.
- ▶ Never cover the charger during charging.
- ▶ Never leave the battery unattended during charging.

#### 2.1.1.3 Hot components

The brakes and the motor may become very hot during operation. There is a risk of burns or fire in case of contact.

- ▶ Never touch the brakes or the motor directly after a ride.
- ▶ Never place the pedelec on a flammable surface, such as grass or wood, directly after use.

### 2.1.2 Electric shock

#### 2.1.2.1 Damage

Damaged chargers, cables and plug connectors increase the risk of electric shock.

- ▶ Check the charger, cable and plug connector before each use. Never use a damaged charger.

#### 2.1.2.2 Water penetration

If water penetrates into the charger, there is a risk of electric shock.

- ▶ Never charge the battery outdoors.

#### 2.1.2.3 Bridging

Metal objects may interconnect the battery's electrical terminals. The battery may self-ignite and explode.

- ▶ Never insert paper clips, screws, coins, keys and other small parts into the battery.

### 2.1.3 Risk of a crash

#### 2.1.3.1 Incorrect quick release setting

Excessively high clamping force will damage the quick release and cause it to lose its function. Insufficient clamping force will result in unfavourable transmission of force. This can cause components to break. This will cause a crash with injuries.

- ▶ Never fasten a quick release using a tool (e.g. hammer or pliers).
- ▶ Only use the clamping lever with the specified set clamping force.

#### 2.1.3.2 Incorrect tightening torque

If a screw is fastened too tightly, it may break. If a screw is not fastened enough, it may loosen. This will cause a crash with injuries.

- ▶ Always observe the indicated torque on the screw or in the *operating instructions*.

### 2.1.4 Risk of amputation

The brake disc in disc brakes is so sharp that it can cause serious injuries to fingers if they are inserted into the brake disc openings.

- ▶ Always keep fingers well away from the rotating brake discs.

### 2.1.5 Key breaking off

If you leave a key inserted when riding or transporting the pedelec, it may break off or the locking system may open accidentally.

- ▶ Remove the key to the battery lock.

## 2.2 Toxic substances

### 2.2.1 Brake fluid

Brake fluid may leak out after an accident or due to material fatigue. Brake fluid can be fatal if swallowed or inhaled.

- ▶ Never dismantle the brake system.
- ▶ Avoid contact with skin.
- ▶ Do not inhale vapours.

### 2.2.2 Suspension oil

Suspension oil in the fork and the rear frame damper is toxic to the touch, irritates respiratory tracts and causes cancer, sterility and mutation in germ cells.

- ▶ Never dismantle the rear frame damper or the suspension fork.
- ▶ Avoid contact with skin.

### 2.2.3 Defective battery

Liquids and vapours may leak from damaged or faulty batteries. Excessively high temperatures may also cause liquids and vapours to leak from the battery. Such liquids and vapours can irritate the airways and cause burns.

- ▶ Never dismantle the battery.
- ▶ Avoid contact with skin.
- ▶ Do not inhale vapours.

## 2.3 Requirements for the rider

The rider must demonstrate adequate physical, motor and mental abilities to ride on public roads. A minimum age of 14 years is recommended.

## 2.4 Vulnerable groups

Keep batteries and charger away from children and people with reduced physical, sensory or mental capabilities or lacking in experience and knowledge.

If minors use the pedelec, a legal guardian must should provide them with comprehensive instructions.

## 2.5 Personal protective equipment

Wear a suitable cycling helmet, sturdy footwear and typical close-fitting clothing to provide protection.

## 2.6 Safety markings and safety instructions

The nameplate contains these safety markings and safety instructions:

| Symbol | Explanation |
|---|---|
|  | General warning |
|  | Adhere to the instructions for use |

**Table 4: Meaning of safety markings**

| Symbol | Explanation |
|---|---|
|  | Read the instructions |
|  | Separate collection of electrical and electronic devices |
|  | Separate collection of ordinary and rechargeable batteries |
|  | Must not be thrown into fire (burning prohibited) |
|  | It is forbidden to open any batteries |
|  | Device of protection class II |
|  | Only suitable for use indoors |
|  | Fuse (device fuse) |
|  | EU conformity |
|  | Recyclable material |
|  | Protect from temperatures above 50 °C and direct sunlight |

**Table 5: Safety instructions**

## 2.7 What to do in an emergency

### 2.7.1 Dangerous situation in road traffic

▶ In the event of any hazards or dangers in road traffic, apply the brakes on the pedelec until it comes to a halt. The brake acts as an emergency stop system in such cases.

### 2.7.2 Leaked brake fluid

▶ Remove those affected from the danger area to fresh air.

▶ Never leave those affected unattended.

▶ Immediately remove any clothing items contaminated with brake fluid.

▶ Never inhale vapours. Ensure sufficient ventilation.

▶ Wear gloves and safety gloves as protective equipment.

▶ Keep unprotected persons away.

▶ Take care with leaked brake fluid as it poses a slip hazard.

▶ Keep leaked brake fluid away from naked flames, hot surfaces and sources of ignition.

▶ Avoid contact with skin and eyes.

**After inhalation**

▶ Take in fresh air. Immediately consult a doctor in case of any discomfort.

**After skin contact**

▶ Wash affected skin with soap and water and rinse well. Remove contaminated clothing. Consult doctor in the event of pain or discomfort.

**After contact with eyes**

▶ Rinse eyes under flowing water for at least ten minutes with the lids open; also rinse under lids. Immediately consult a doctor in case of any pain or discomfort.

**After swallowing**

- ▶ Rinse out mouth with water. Never induce vomiting. Risk of aspiration!
- ▶ If a person is lying on their back and vomiting, place them in the recovery position. Seek medical advice immediately.

**Environmental protection measures**

- ▶ Never allow brake fluid to flow into the sewage system, water courses or groundwater.
- ▶ Notify the relevant authorities if fluid penetrates the ground, water courses or the sewage system.
- ▶ Consult a doctor immediately in the event of any pain or discomfort caused by combustion gas or leaking fluids.

### 2.7.3 Battery vapours emitted

Vapours may be emitted if the battery is damaged or used improperly. The vapours may cause respiratory tract irritation.

- ▶ Get into fresh air.
- ▶ Consult doctor in the event of pain or discomfort.

**After contact with eyes**

- ▶ Carefully rinse eyes with plenty of water for at least 15 minutes. Protect unaffected eye. Seek medical advice immediately.

**After skin contact**

- ▶ Remove any solid particles immediately.
- ▶ Rinse the affected area with plenty of water for at least 15 minutes. Then dab the affected skin gently. Do not rub dry.
- ▶ Remove contaminated clothing immediately.
- ▶ Immediately consult a doctor if there is any redness, pain or discomfort.

### 2.7.4 Battery fire

The safety electronics may fail if the battery is damaged or faulty. The residual voltage can cause a short circuit. The battery may self-ignite and explode.

1. Keep your distance if the battery becomes deformed or starts to emit smoke.
2. If charging, remove the plug connector from the socket.
3. Contact the fire service immediately.

- ▶ Use Class fire extinguishers to put out the fire.
- ▶ Never extinguish damaged batteries with water or allow them to come into contact with water.

Inhaling vapours can cause intoxication.

- ▶ Stand on the side of the fire where the wind is blowing from.
- ▶ Use breathing apparatus if possible.

### 2.7.5 Leaked brake fluid

The brake system must be repaired immediately if brake fluid leaks out. Dispose of leaking brake fluid in an environmentally responsible way in accordance with statutory regulations.

- ▶ Contact your specialist dealer.

### 2.7.6 Oil and lubricant leaks from the fork

Dispose of oils and lubricants which have leaked from the rear frame damper in an environmentally responsible way in compliance with statutory regulations.

- ▶ Contact your specialist dealer.

### 2.7.7 Oil and lubricant leaks from the rear frame damper

Dispose of oils and lubricants which have leaked from the rear frame damper in an environmentally responsible way in accordance with statutory regulations.

- ▶ Contact your specialist dealer.

# 3 Overview


**Figure 2: Pedelec viewed from the right, E- Stream EVO AM3**

| | | | |
|---|---|---|---|
| 1 | *Front wheel* | 8 | Saddle |
| 2 | *Fork* | 9 | Rear wheel |
| 3 | *Handlebars* | 10 | Chain |
| 4 | *Stem* | 11 | *Motor* |
| 5 | Frame | 12 | *Pedal* |
| 6 | Rear frame damper | *13* | *Battery and type number* |
| 7 | Seat post | | |

## 3.1 Description

### 3.1.1 Wheel

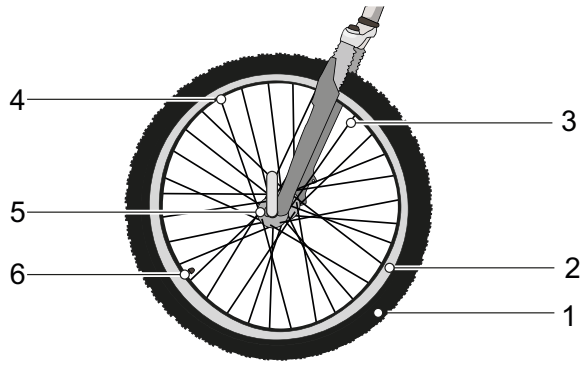



**Figure 3: Visible wheel components**

1 Tyres
2 Rim
3 Spoke
4 Spoke nipples
5 Hub
6 *Valve*

The wheel comprises the *wheel* itself, an inner tube with a valve and a tyre.

#### 3.1.1.1 Valve

Each wheel has a valve. It is used to fill the *tyre* with air. There is a valve cap on each valve. The screw-on valve cap keeps out dust and dirt.

The pedelec either has a conventional Dunlop valve, a Presta valve or a Schrader valve.

### 3.1.2 Suspension

Both forks and suspension forks are fitted in this model series.

#### 3.1.2.1 Rigid fork

Rigid forks do not feature suspension. They transfer the used muscle and motor power to the road to optimum effect. Pedelecs with rigid forks consume less energy on steep roads and have a greater range than pedelecs with adjusted suspension.

#### 3.1.2.2 Suspension fork

A suspension fork is based either on a steel spring or air suspension.

Unlike a rigid fork, a suspension fork has two functions which improve floor contact and comfort: suspension and damping. The suspension prevents an impact, such as one caused by a stone lying in the pedelec's path, from being channelled directly into the rider's body via the fork. The impact is absorbed by the suspension system instead. This causes the suspension fork to compress.


**Figure 4: Without suspension (1) and with suspension (2)**

After compressing, the suspension fork returns to its original position. If there is a damper, it decelerates movement, preventing the suspension system from springing back in an uncontrolled manner and stopping the fork from vibrating up and down. Dampers which dampen compressive deflection movements, i.e. a compression load, are called compression dampers or compression dashpots.

Dampers which dampen rebound deflection movements, i.e. a rebound load, are called rebound dampers or dashpots.

The compression can be disabled in any suspension fork. A suspension fork will then behave like a rigid fork.

### Negative deflection

Sag is the percentage of total deflection that is compressed by the rider's weight, including equipment (such as a backpack), their seating position and frame geometry. Sag is not caused by riding.

The pedelec rebounds at a controlled speed if it is optimally adjusted. The wheel stays in contact with the ground when passing over bumps (blue line).

The fork head, handlebars and rider broadly follow the terrain when riding over bumps. The suspension motion is predictable and controlled.

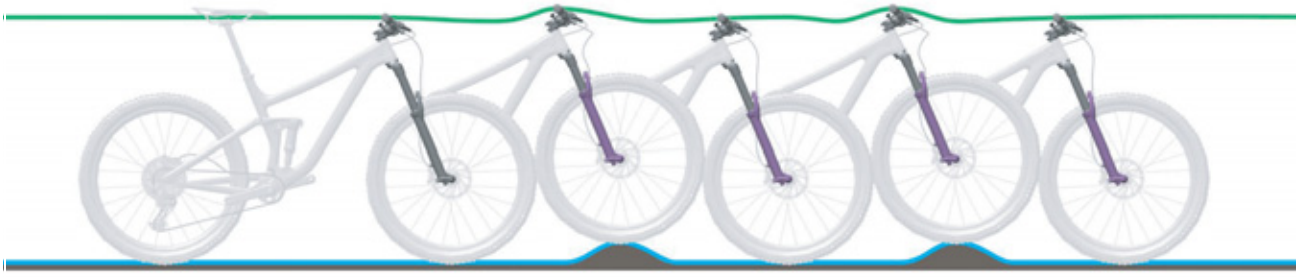


**Figure 5: Optimum fork riding performance**

When optimally adjusted, the fork counteracts deflection, stays higher in its deflection range and helps the rider to maintain speed while riding on hilly parts of terrain.

**Figure 6: Optimum fork riding performance on hilly terrain**

When optimally adjusted, the fork deflects quickly and unhindered when the bike hits bumps and absorbs a bump. Traction is retained (blue line).

The fork responds quickly to the bump. The headset and handlebars rise slightly when absorbing a bump (green line).

**Figure 7: Optimum fork riding performance over bumps**

## Steel suspension fork

The stem and handlebars are fastened to the fork steerer. The wheel is fastened to the axle.

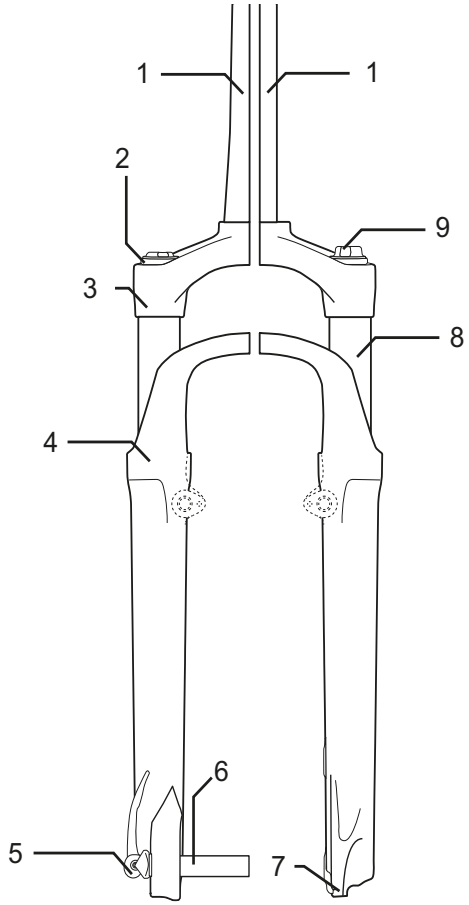



**Figure 8: Suntour steel suspension fork as an example**

| | |
|---|---|
| 1 | Fork steerer |
| 2 | Sag setting wheel |
| 3 | Crown |
| 4 | Dust seal |
| 5 | Q-Loc |
| 6 | Axle |
| 7 | Fork end |
| 8 | Stanchion |
| 9 | Compression setting |

## Air suspension fork

The air suspension fork features an air suspension assembly (orange), a compression damper assembly (blue) and, in some cases, a rebound damper assembly (red).

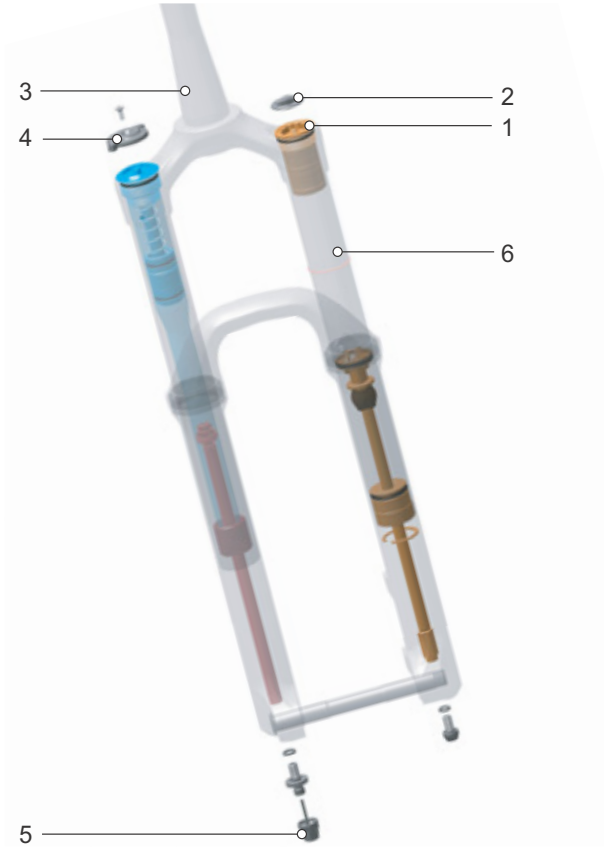



**Figure 9: Example showing RockShox Lyrik Select fork**

| | |
|---|---|
| 1 | Air valve |
| 2 | Air valve cap |
| 3 | Fork steerer |
| 4 | Sag setting wheel |
| 5 | Rebound setting |
| 6 | Stanchion |

### 3.1.2.3 Rear frame damper

The rear frame damper rebounds at a controlled speed if it is optimally adjusted. The rear wheel does not bounce off rough surfaces or the ground; it stays in contact with the ground instead (blue line).

The saddle is raised slightly if the bump is compensated and gently sinks downwards when the suspension deflects as soon as the wheel touches the ground after the bump. The rear frame damper rebounds in a controlled way, so that the rider remains sitting in a horizontal position when the next bump is absorbed. The suspension motion is predictable and controlled and the rider is not thrown upwards or forwards (green line).

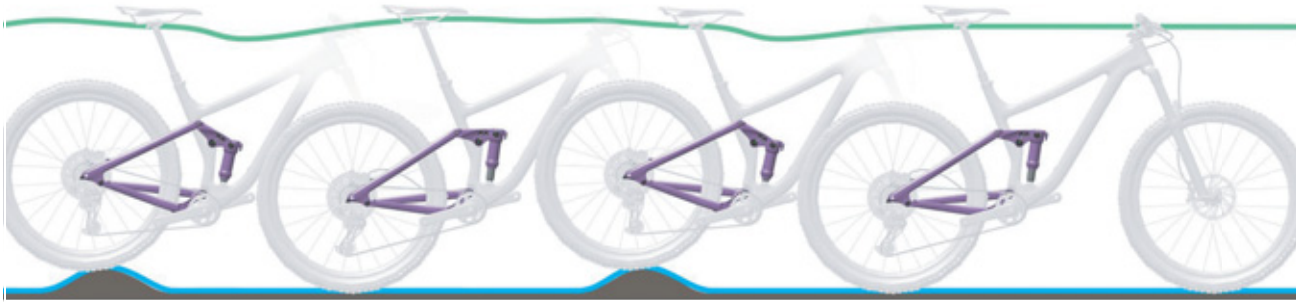


**Figure 10: Optimum rear frame damper riding performance**

When optimally adjusted, the rear frame damper counteracts deflection, stays higher in its deflection range and helps the rider to maintain speed when riding on hilly parts of terrain.

**Figure 11: Optimum rear frame damper riding performance on hilly terrain**

When optimally adjusted, the rear frame damper deflects quickly and unhindered when the bike hits bumps and absorbs a bump. Traction is retained (blue line).

The saddle rises slightly when absorbing a bump (green line).

**Figure 12: Optimum rear frame damper riding performance over bumps**

### 3.1.2.4 Suntour rear frame damper

The rear frame damper features air suspension, a compression damper and a rebound damper.

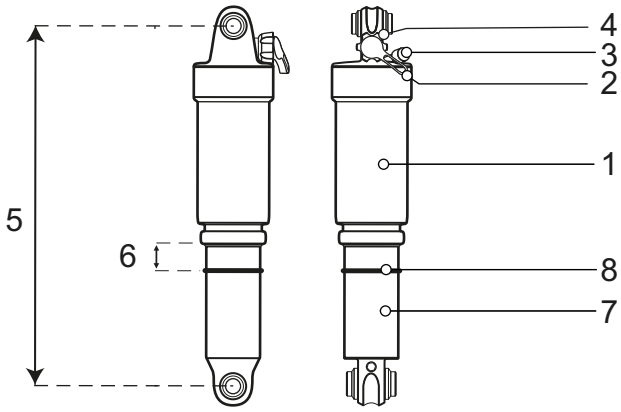



**Figure 13: Example showing Suntour rear frame damper I**

| | |
|---|---|
| 1 | Air chamber |
| 2 | Rebound lever (rebound setting) |
| 3 | Air valve |
| 4 | Lockout lever |
| 5 | Total damper length |
| 6 | Negative deflection in the rear frame damper |
| 7 | Damper unit |
| 8 | O-ring |

### 3.1.2.5 RockShox rear frame damper

The rear frame damper features air suspension, a compression damper and a rebound damper.


**Figure 14: Monarch RL as an example**

| | |
|---|---|
| 1 | Threshold lever |
| 2 | Rebound damper adjuster |
| 3 | Air valve |
| 4 | O-ring |
| 5 | Scale |

### 3.1.3 Brake system

Every pedelec has a hydraulic brake system. The brake fluid is in a closed hose system. If the rider pushes the brake lever, the brake fluid activates the brake on the wheel.

The pedelec has either:

- a rim brake on the front and rear wheels
- a disc brake on the front and rear wheels or
- a rim brake on the front and rear wheels and an additional back-pedal brake.

The mechanical brakes are used as an emergency stop system and bring the bicycle to a halt quickly and safely in the event of an emergency.

#### 3.1.3.1 Rim brake

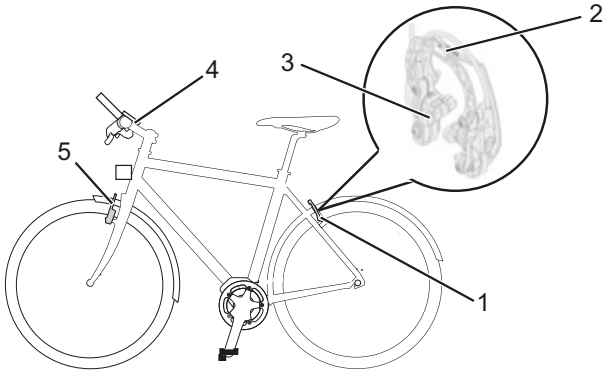



**Figure 15: Brake system with rim brake in detail – Magura HS22 used as an example**

1 Rear wheel rim brake
2 Brake booster
3 Brake lining
4 *Handlebars* with *brake lever*
5 Front wheel rim brake

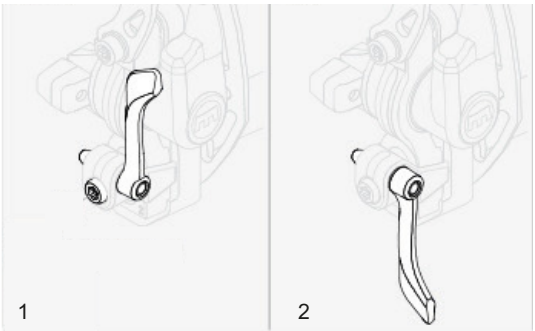



**Figure 16: *Rim brake locking lever,* closed (1) and open (2)**

The rim brake stops the wheel moving when the rider pushes the *brake lever*, causing two brake linings, positioned opposite one another, to be pressed onto the *rims*. The hydraulic rim brake features a locking lever. The rim brake locking lever is not marked with any lettering. Only a specialist dealer may adjust the rim brake locking lever.

#### 3.1.3.2 Disc brake

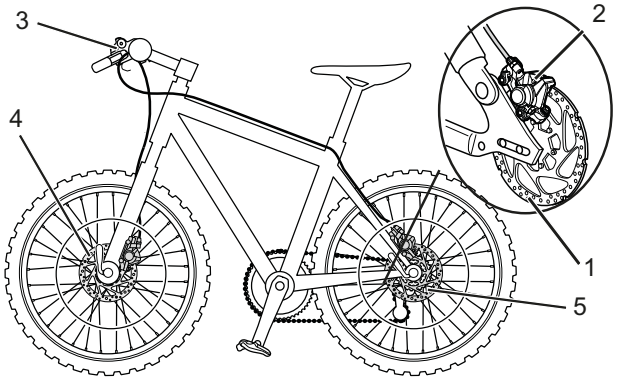



**Figure 17: Brake system with disc brake – example**

1 Brake disc
2 Brake calliper with brake linings
3 *Handlebars with brake lever*
4 Front wheel brake disc
5 Rear wheel brake disc

On a pedelec with a disc brake, the brake disc is screwed permanently to the wheel *hub*.

The *brake lever* is pushed to increase brake pressure. The brake fluid is used to transfer pressure through the brake cables to the cylinders in the brake calliper. The braking force is boosted by a speed reduction and applied to the brake linings. These apply the brake disc mechanically. If the *brake lever* is pushed, the brake linings are pressed against the brake disc and the wheel movement is decelerated until it comes to a stop.

### 3.1.3.3 Back-pedal brake


**Figure 18: Brake system with a back-pedal brake – example**

1 Rear wheel rim brake
2 *Handlebars* with *brake lever*
3 Front wheel rim brake
4 *Pedal*
5 Back-pedal brake

The back-pedal brake stops the movement of the rear wheel when the rider pedals in the opposite direction to the direction of travel.

### 3.1.3.4 ABS

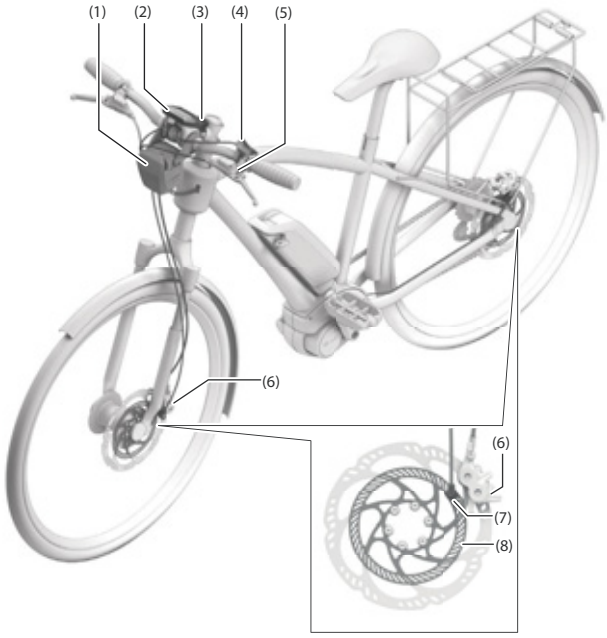



**Figure 19: BOSCH ABS**

1 ABS control unit with housing
2 Display
3 ABS indicator lamp
4 Control panel
5 Front wheel brake lever
6 Brake calliper
7 Bike speed sensor
8 Sensor disc

ABS is an added function in some pedelecs.

**BOSCH ABS**

The rear wheel brake function does not depend on the *anti-blocking system (ABS)* functioning correctly.

When the brakes are applied, the ABS function detects critical *slippage* thanks to the wheel speed sensors on the front and rear wheels. *The ABS* limits slippage on the front wheel by reducing brake pressure there, thus stabilising the wheel. Once the wheel has been stabilised, the wheel is brought to the blocking limit by building up pressure selectively.

If the wheel blocks again, the pressure is reduced again. This process is repeated to keep the wheel at its limit of traction, thus making optimum use of the coefficient of friction between the tyres and the road surface.

The ABS stops when one of the following events occurs:

- The buffer chamber in the ABS control unit is filled completely.
- The pedelec is stationary.
- The rider releases the brake.

Besides slippage, the ABS also detects when the rear wheel is raised during full braking. The ABS thus counteracts a flip-over during extremely hard braking manoeuvres.

If the battery is low, the ABS deactivates the motor assistance first. However, the electric drive system, including the display, lighting and ABS, will remain active until the battery is empty. The electric drive system the ABS will not switch off until the battery has almost fully discharged. The brake system itself remains functional. The ABS is not active if there is no battery on the pedelec or the battery is empty.

The indicator lamp lights up for about 5 seconds before the system switches off completely. The ABS indicator lamp will go out if the ABS is unavailable.

### 3.1.4 Electric drive system

The pedelec is driven by muscle power applied to the chain drive. The force which is applied by pedalling in the direction of travel drives the front chain wheel. The chain transmits the force onto the rear chain wheel and then onto the rear wheel.

You can ride the pedelec like a normal bike at any time, either by switching off the electric drive system or changing the level of assistance to Off. The same applies when the battery is empty.

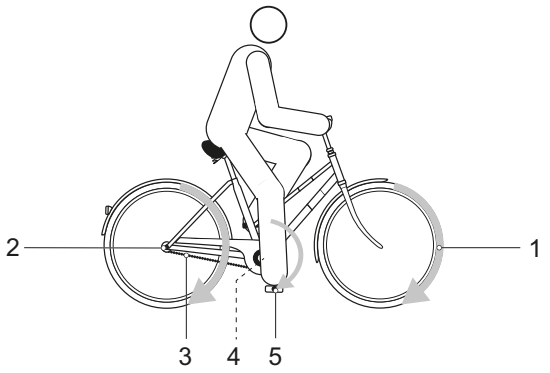



**Figure 20: Diagram of drive system**

1 Direction of travel
2 Chain
3 Rear chain wheel
4 Front chain wheel
5 Pedal

The pedelec also has an integrated electric drive system in addition to its drive system propelled by muscle power. The electric drive system is made up of 7 components:

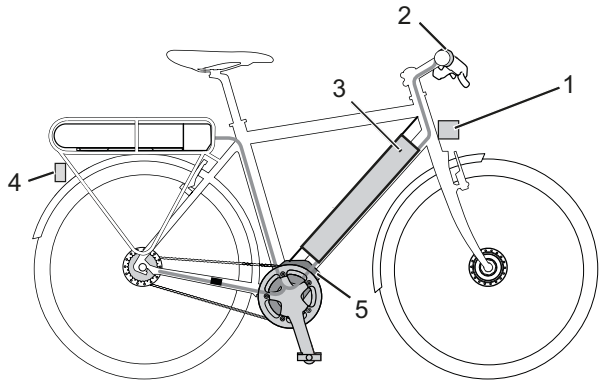



**Figure 21: Diagram of electric drive system**

1 *Headlight*
2 *Display*
3 *Operating element*
4 Rechargeable battery
5 Rear light
6 Motor
7 a charger which is designed for the battery.

### 3.1.5 Motor

As soon as the required muscle power from the rider pedalling passes a certain level, the motor is activated gently and assists the rider’s pedalling motion. The motor force is determined by the set level of assistance. The assistance depends on the force applied to the pedals by the rider. Drive system assistance is therefore only activated when the rider pedals. This applies irrespective of the selected level of assistance. The motor switches off automatically as soon as the rider no longer pedals, the temperature is outside the permitted range, there is an overload or the shut-off speed of 25 km/h has been reached. If the speed falls below 25 km/h, the assistance is automatically activated again.

A push assist system can be activated. The push assist continues to drive the pedelec as long as the rider pushes the plus button on the *handlebars*. The speed can be a maximum of 6 km/h in this case.

### 3.1.6 Rechargeable battery

The lithium ion battery has an internal electronic protection circuit, which is specifically designed for the charger and the pedelec. The battery temperature is monitored at all times. The battery is protected against deep discharge, overcharging, overheating and short circuit. In the event of a hazard, a protective circuit switches the battery off automatically. The battery also switches to sleep mode for self-protection when not used for a longer period. The battery's service life can be extended if it is well maintained and, above all, stored at the correct temperatures. The charging capacity will decrease with age, even if the battery is maintained properly. If the operating time is severely shortened after charging, this is a sign that battery has reached the end of its useful life.

| | |
|---|---|
| **Transportation temperature** | 5 °C - 25 °C |
| **Ideal transportation temperature** | 10 °C - 15 °C |
| **Storage temperature** | 5 °C - 25 °C |
| **Ideal storage temperature** | 10 °C - 15 °C |
| **Charging ambient temperature** | 10 °C - 30 °C |

**Table 6: Rechargeable battery technical data**

The pedelec has a SuperCore 555 battery.

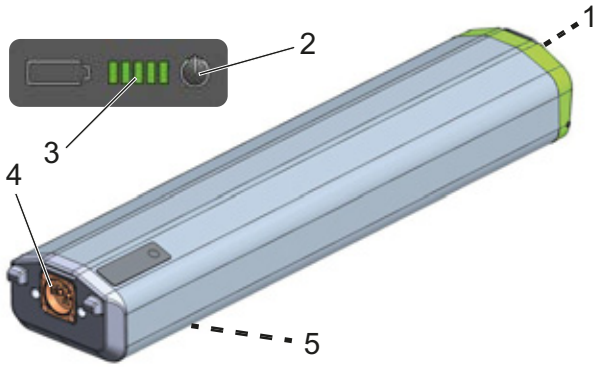



**Figure 22: Details of SuperCore 555 battery**

1 Handle lever
2 On/off switch
3 Battery level indicator
4 Charging and discharging socket
5 Label on the rear

#### 3.1.6.1 Range

The range is influenced by many factors, such as:

- level of assistance: the higher the selected level of assistance, the lower the range
- gear switching habits
- tyre type
- tyre pressure
- the age, condition and charge level of the battery
- route profile (slopes) and route quality (road surface)
- weather conditions (e.g. opposing winds, ambient temperature, etc.)
- e-bike weight and
- load

### 3.1.7 Riding light

When the riding light is activated, the *headlight* and the rear light are switched on.

### 3.1.8 On-board computer

The on-board computer controls the drive system and shows the journey data. The pedelec's battery powers the display screen when a sufficiently charged battery is inserted into the pedelec and the drive system is switched on.

| | |
|---|---|
| **Storage temperature** | 5 °C - 25 °C |
| **Charging ambient temperature** | -10 °C - +60 °C |

**Table 7: Display technical data**

## 3.2 Proper use

The pedelec must only be used in perfect, fully functional condition. National requirements may apply to the pedelec which the standard equipment may not meet. For riding on public roads, some special regulations apply in relation to the riding light, reflectors and other components.

The general laws and the regulations for the prevention of accidents and environmental protection in the respective country of use must be adhered to. All check lists and instructions for actions in these *operating instructions* met. Approved accessories can be installed by specialist staff.

The rechargeable batteries are designed to supply power to the pedelec motor only and must not be used for other purposes.

Each pedelec is assigned a pedelec type, which determines its proper use, function and area of use.

| City and trekking bicycles | Child's bicycles/ bicycles for young adults | Mountain bikes | Racing bicycle | Cargo bike | Folding bicycle |
|---|---|---|---|---|---|
|  |  |  |  |  |  |
| City and trekking bicycles are designed for daily, comfortable use. They are suitable for riding on public roads. | The legal guardians of minor riders must read and understand these *operating instructions* before commissioning.<br><br>The contents of these *operating instructions* must be communicated to the riders in an age-appropriate manner.<br><br>The cycles for children and young adults are suitable for riding on public roads. The size of the pedelec must be checked regularly for orthopaedic reasons.<br><br>A check must be made at least every three months to make sure that the maximum permitted total weight is being observed. | Mountain bikes are designed for sporting use. The design characteristics include a short wheelbase, a sitting position with the rider inclined towards the front, and a brake requiring low actuation force.<br><br>A mountain bike is a piece of sporting equipment. It requires an adaptation period and the rider must be physically fit. Use requires the appropriate training; in particular riding in bends and braking should be practised.<br><br>The strain on the rider, in particular the hands and wrists, arms, shoulders, neck and back, is accordingly high. Inexperienced riders tend to brake excessively and lose control as a result. | A racing bicycle is designed for fast rides on roads and paths with a good, undamaged road surface.<br><br>A racing bicycle is a piece of sporting equipment and not a means of transport. A racing bicycle is characterised by its lightweight structure and a design which is stripped to the minimum parts required for riding.<br><br>The frame geometry and the layout of the operating elements are designed in such a way that the bicycle can be ridden at high speeds. The frame design requires practice to ensure the ride is able to ride slowly, apply the brakes and get on and off the bike safely.<br><br>The sitting position is athletic. The strain on the rider, in particular the hands and wrists, arms, shoulders, neck and back, is accordingly high. The sitting position therefore requires physical fitness. | The cargo bike is suitable for daily transportation of loads on public roads.<br><br>The transportation of loads requires skill and physical fitness in order to balance the additional weight. The very varied loading conditions and weight distributions require special practice and skill when braking and riding in bends.<br><br>A longer period is required to adaptation to the length, width and turning circle. You need to be cautious when riding a cargo bike. You must pay attention to the traffic on public roads and the condition of the route accordingly. | The folding bicycle is suitable for use on public roads.<br><br>A folding bicycle can be folded up and is thus suitable for space-saving transportation, for example on public transport or in a car.<br><br>The folding function of the folding bicycle makes it necessary to use smaller wheels and longer brake cables and Bowden cables. Therefore, in case of an increased load, a reduction in riding stability and braking power, diminished comfort and reduced durability are to be expected. |

**Table 8: Proper use for each pedelec type**

## 3.3 Improper use

Failure to adhere to the proper use poses a risk of personal injury and material damage. It is prohibited to use the pedelec in the following ways:

- when the electrical drive system has been manipulated
- riding with a damaged or incomplete pedelec
- riding over steps
- riding through deep water
- charging with an incorrect charger
- lending the pedelec to untrained riders
- carrying other people
- riding with excessive baggage
- riding with no hands
- riding on ice and snow
- improper servicing
- improper repair
- tough areas of use, such as professional competitions
- stunt riding or acrobatics.

| City and trekking bicycles | Child's bicycles/ bicycles for young adults | Mountain bikes | Racing bicycle | Cargo bike | Folding bicycle |
|---|---|---|---|---|---|
|  |   |  |  |  |  |
| City and trekking bicycles are not sports bicycles. If used for sports, the rider can expect reduced riding stability and diminished comfort. | Cycles for children and young adults are not toys. | Mountain bikes must be retrofitted with lighting, a bell and other fittings as specified by national laws and regulations before they are used on public roads. | Racing bikes must be retrofitted with lighting, a bell and other fittings as specified by national laws and regulations before they are used on public roads. | A cargo bike is not a touring bicycle or a sports bicycle. | The folding bicycle is not a sports bicycle. |

**Table 9: Information on improper use**

### 3.3.1 Maximum permitted total weight

The pedelec may only be loaded to its maximum permitted total weight (PTW). The maximum permitted total weight is the weight of the fully assembled pedelec with the rider and baggage.

| Type no. | Model | PTW |
|---|---|---|
| 21-18-1097 | E-Stream Evo 3 | 130 kg |
| 21-18-1099 | E-Stream Evo 3 29″ | 130 kg |
| 21-18-1103 | E-Stream Evo AM3 | 130 kg |
| 21-21-1094 | E-Stream Evo 1 27.5″ | 130 kg |
| 21-21-1095 | E-Stream Evo 1 27.5″ | 130 kg |
| 21-21-1096 | E-Stream Evo 2 | 130 kg |
| 21-21-1097 | E-Stream Evo 2 29″ | 130 kg |
| 21-21-1100 | E-Stream Evo TR1 | 130 kg |
| 21-21-1105 | E-Stream EVA 1 | 130 kg |
| 21-21-1106 | E-Stream EVA 2 | 130 kg |
| 21-21-1107 | E-Stream EVA TR2 | 130 kg |
| 21-21-1109 | E-Stream Evo 2 Street 27.5″ | 130 kg |
| 21-21-1110 | E-Stream Evo 2 Street 27.5″ | 130 kg |
| 21-21-1112 | E-Stream Evo AM 5 27.5″ (RAINBOW edition) | 130 kg |
| 21-21-1115 | E-Stream Evo 1 29″ | 130 kg |
| 21-21-1140 | E-Stream Evo AM 6 27.5″ (Chrome Polish edition) | 130 kg |

## 3.4 Technical data

### 3.4.1 Pedelec

| | |
|---|---|
| Transportation temperature | 5 °C - 25 °C |
| Ideal transportation temperature | 10 °C - 15 °C |
| Storage temperature | 5 °C - 25 °C |
| Ideal storage temperature | 10 °C - 15 °C |
| Operation temperature | 5 °C - 35 °C |
| *Work environment* temperature | 15 °C - 25 °C |
| Charging temperature | 10 °C - 30 °C |
| Power output/system | 250 W (0.25 kW) |
| Shut-off speed | 25 km/h |

**Table 10: Pedelec technical data**

### 3.4.2 SuperCore 555 battery

| | |
|---|---|
| Voltage | 36 V |
| Maximum charge voltage | 42.0 V |
| Energy | 750 W |
| Nominal capacity | 20 Ah |
| Maximum discharging current (continuous) | 25 Ah |
| Maximum charging current (continuous) | 5 Ah |
| Weight | 3.79 kg |
| Dimensions (mm) | 130 x 60 x 450 |
| Recommended temperature | 22 - 26 °C |
| Working temperature | 0 - +50 °C |
| Charging ambient temperature | 10 °C - 30 °C |

**Table 11: SuperCore 555 battery technical data**

### 3.4.3 Display and control panel

| | |
|---|---|
| Dimensions (mm) | Display: 44 x 62.5 x 8<br>Control panel: 18 x 46 x 19.75<br>Display area: 38 x 50 |
| Weight (g) | Display unit: 67 |
| Nominal voltage | 36 V DC |
| Protection class | IP65 |
| Working temperature | -10 - +60 °C |
| Storage temperature range | -20 - +85 °C |

**Table 12: Operating element technical data**

### 3.4.4 Brose S-MAG motor

| | |
|---|---|
| Dimensions (mm) | 213 x 150 x 128 |
| Weight | 3400 g |
| Nominal voltage | 36 V DC |
| Protection class | IP56 |
| Max. torque | 90 Nm |
| Continuous power rating | 250 W |
| Assistance up to | 25 km/h |
| Working temperature | -10 - +50 °C |

**Table 13: S-MAG motor technical data**

### 3.4.5 Emissions

| | |
|---|---|
| A-weighted emission sound pressure level | < 70 dB(A) |
| Total vibration level for the hands and arms | < 2.5 m/s² |
| Highest effective value of weighted acceleration for the entire body | < 0.5 m/s² |

**Table 14: Emissions from the pedelec***

*The safety requirements as per Electromagnetic Compatibility Directive 2014/30/EU have been met. The pedelec and the charger can be used in residential areas without restriction.

### 3.4.6 Tightening torque

| | |
|---|---|
| Axle nut tightening torque | 35 Nm - 40 Nm |
| Handlebars clamping screw maximum tightening torque* | 5 Nm - 7 Nm |

**Table 15: Tightening torque values**

*if there is no other data on the component

## 3.5 Description of controls and screens

### 3.5.1 On-board computer

The on-board computer consists of an LCD display, 2 rocker switches and 3 buttons.


**Figure 23: Display details**

| | |
|---|---|
| 1 | Plus button |
| 2 | On-Off button |
| 3 | Light button |
| 4 | Settings button |
| 5 | LCD display |
| 6 | Minus button |

#### 3.5.1.1 On-board computer display screen

The on-board computer display screen has six elements:

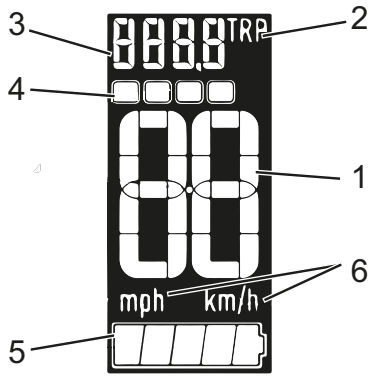



**Figure 24: Overview of on-board computer display screen**

| | |
|---|---|
| 1 | Speed indicator |
| 2 | Selected journey information indicator |
| 3 | DST or range indicator |
| 4 | Level of assistance indicator |
| 5 | Selected unit of measure for speed indicator |
| 6 | Battery level indicator |

#### 3.5.1.2 Speed indicator

The current speed is displayed on the speed indicator. You can select whether the speed is displayed in kilometres or miles in the settings. The selected unit of measure is displayed on the speed indicator.

#### 3.5.1.3 Level of assistance indicator

The higher the selected level of assistance, the more the drive system assists the rider when pedalling. The following levels of assistance are available.

| Indicator | Level of assistance |
|---|---|
|  | Level 4:<br>Highest level of assistance with the most power, battery empties fastest. |
|  | Level 3: The second-highest level of assistance |
|  | Level 2: The second-lowest level of assistance |
|  | Level 1: The lowest level of assistance, the battery charge is maintained the longest. |
|  | Level 0 (off): If you ride without assistance, the pedelec functions like a normal bicycle. |

**Table 16: Levels of assistance screen**

#### 3.5.1.4 Journey information indicator

The screen shows three pieces of journey information: The displayed journey information can be switched.

| Indicator | Function |
|---|---|
| TRP | Trip distance |
| R | Remaining pedelec range |
| T | Total trip distance completed by pedelec |

**Table 17: Journey information**

The screen shows up to 9,999 kilometres or 6,213 miles. If the odometer reaches more than 9,999 kilometres, it will be reset to 0 again.

### 3.5.1.5 Battery level indicator (on-board computer)

The battery level indicator consists of 5 segments. Every segment shows 20% of the battery level.

If the battery level drops to 10% or less, the last segments will start to flash to indicate the low battery level. Battery level indicator (battery):

| Indicator | Charge level of the battery |
|---|---|
|  | 81 - 100% |
|  | 61 - 80% |
|  | 41 - 60% |
|  | 21 - 40% |
|  | 11 - 20% |
|  | (Indicator flashes) <10% |

**Table 18: Battery level indicator**

The battery level indicator is on the battery:

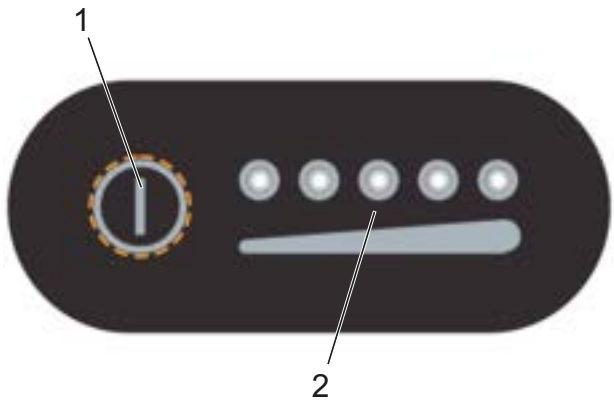



**Figure 25: Overview of battery level indicator and switches (battery)**

1 On-Off button (battery)
2 Battery level indicator (battery)

| Symbol | Meaning |
|---|---|
| ● | LED on |
| ○ | LED off |
| ✸ | LED flashing |

**Table 19: Battery level indicator**

The battery level is displayed if you press the on-off button briefly.

| LED 1,2,3,4,5 | Battery level |
|---|---|
| ●●●●● | 100 - 80% |
| ●●●●○ | 79 - 60% |
| ●●●○○ | 59 - 40% |
| ●●○○○ | 39 - 20% |
| ●○○○○ | 19 - 10% |
| ✸○○○○ | 9 - 0%<br>Recharge within two days at the latest to prevent permanent damage. |

**Table 20: Battery level indicator**

## 3.6 Environmental requirements

You can be ride the pedelec within a temperature range between 5 °C and 35 °C. The electric drive system is limited in its performance outside this temperature range.

| | |
|---|---|
| **Optimal operating temperature** | 22 °C - 26 °C |

**Table 21: Optimum temperatures**

During winter use, especially at temperatures below 0 °C, we recommend that you don't insert a battery charged and stored at room temperature into the pedelec until just before setting off. We recommend using thermal protection sleeves when riding longer distances in the cold.

Temperatures under -10 °C and over +40 °C must be avoided.

You must also keep within the following temperature ranges:

| | |
|---|---|
| Transportation temperature | 10 °C - 40 °C |
| Storage temperature | 10 °C - 40 °C |
| *Work environment* temperature | 15 °C - 25 °C |
| Charging temperature | 10 °C - 40 °C |

**Table 22: Pedelec technical data**

The nameplate contains symbols for the pedelec's area of use. Check what roads and paths you may use before you ride the bicycle for the first time.

| Area of use | City and trekking bicycles | Child's bicycles/ bicycles for young adults | Mountain bikes | Racing bicycle | Cargo bike | Folding bicycle |
|---|---|---|---|---|---|---|
| |  |   |  |  |  |  |
|  1 | Suitable for tarmacked and paved roads. | Suitable for tarmacked and paved roads. | | Suitable for tarmacked and paved roads. | Suitable for tarmacked and paved roads. | Suitable for tarmacked and paved roads. |
|  2 | Suitable for tarmacked roads, cycle paths and firm gravel paths and roads, and longer sections with moderate slopes and jumps up to 15 cm. | Suitable for tarmacked roads, cycle paths and firm gravel paths and roads, and longer sections with moderate slopes and jumps up to 15 cm. | Suitable for tarmacked roads, cycle paths and firm gravel paths and roads, and longer sections with moderate slopes and jumps up to 15 cm. | Suitable for tarmacked roads, cycle paths and firm gravel paths and roads, and longer sections with moderate slopes and jumps up to 15 cm. | | |
|  3 | | | Suitable for tarmacked roads, cycle paths and easy to demanding off-road riding, sections with moderate slopes and jumps up to 61 cm. | | | |
|  4 | | | Suitable for tarmacked roads, cycle paths and easy to demanding off-road riding, limited downhill use and jumps up to 122 cm. | | | |

**Table 23: Area of use**

The pedelec is unsuitable for the following areas of use:

| Area of use | City and trekking bicycles | Child's bicycles/ bicycles for young adults | Mountain bikes | Racing bicycle | Cargo bike | Folding bicycle |
|---|---|---|---|---|---|---|
| |  |   |  |  |  |  |
|  1 | Never drive off-road or perform jumps. | Never drive off-road or perform jumps. | | Never drive off-road or perform jumps. | Never drive off-road or perform jumps. | Never drive off-road or perform jumps. |
|  2 | Never drive off-road or perform jumps over 15 cm. | Never drive off-road or perform jumps over 15 cm. | Never drive off-road or perform jumps over 15 cm. | Never drive off-road or perform jumps over 15 cm. | | |
|  3 | | | Never ride downhill or perform jumps over 61 cm. | | | |
|  4 | | | Never traverse extremely difficult off-road terrain or perform jumps over 122 cm. | | | |

# 4 Transporting and storing

## 4.1 Physical transport characteristics

Weight and dimensions during transportation

| Type no. | Frame | Box dim. [cm] | Weight** [kg] | Shipping weight [kg] |
|---|---|---|---|---|
| 21-18-1097 | 53 cm | t.b.a. | t.b.a. | t.b.a. |
| | 57 cm | t.b.a. | t.b.a. | t.b.a. |
| | 61 cm | t.b.a. | t.b.a. | t.b.a. |
| 21-18-1099 | 45 cm | t.b.a. | t.b.a. | t.b.a. |
| | 49 cm | t.b.a. | t.b.a. | t.b.a. |
| | 53 cm | t.b.a. | t.b.a. | t.b.a. |
| | 57 cm | t.b.a. | t.b.a. | t.b.a. |
| 21-18-1103 | 53 cm | t.b.a. | t.b.a. | t.b.a. |
| | 57 cm | t.b.a. | t.b.a. | t.b.a. |
| | 61 cm | t.b.a. | t.b.a. | t.b.a. |
| 21-21-1094 | 45 cm | t.b.a. | t.b.a. | t.b.a. |
| | 49 cm | t.b.a. | t.b.a. | t.b.a. |
| | 53 cm | t.b.a. | t.b.a. | t.b.a. |
| 21-21-1095 | 45 cm | t.b.a. | t.b.a. | t.b.a. |
| | 49 cm | t.b.a. | t.b.a. | t.b.a. |
| | 53 cm | t.b.a. | t.b.a. | t.b.a. |
| | 57 cm | | | |
| 21-21-1096 | 53 cm | t.b.a. | t.b.a. | t.b.a. |
| | 57 cm | t.b.a. | t.b.a. | t.b.a. |
| | 61 cm | t.b.a. | t.b.a. | t.b.a. |
| 21-21-1097 | 53 cm | t.b.a. | t.b.a. | t.b.a. |
| | 57 cm | t.b.a. | t.b.a. | t.b.a. |
| | 61 cm | t.b.a. | t.b.a. | t.b.a. |
| 21-21-1100 | 53 cm | t.b.a. | t.b.a. | t.b.a. |
| | 57 cm | t.b.a. | t.b.a. | t.b.a. |
| | 61 cm | t.b.a. | t.b.a. | t.b.a. |
| 21-21-1105 | 53 cm | t.b.a. | t.b.a. | t.b.a. |
| | 57 cm | t.b.a. | t.b.a. | t.b.a. |
| | 61 cm | t.b.a. | t.b.a. | t.b.a. |

**Table 24: Type number, model and pedelec type**

| Type no. | Frame | Box dim. [cm] | Weight** [kg] | Shipping weight [kg] |
|---|---|---|---|---|
| 21-21-1106 | 53 cm | t.b.a. | t.b.a. | t.b.a. |
| | 57 cm | t.b.a. | t.b.a. | t.b.a. |
| | 61 cm | t.b.a. | t.b.a. | t.b.a. |
| 21-21-1107 | 53 cm | t.b.a. | t.b.a. | t.b.a. |
| | 57 cm | t.b.a. | t.b.a. | t.b.a. |
| | 61 cm | t.b.a. | t.b.a. | t.b.a. |
| 21-21-1109 | 53 cm | t.b.a. | t.b.a. | t.b.a. |
| | 57 cm | t.b.a. | t.b.a. | t.b.a. |
| | 61 cm | t.b.a. | t.b.a. | t.b.a. |
| 21-21-1110 | 53 cm | t.b.a. | t.b.a. | t.b.a. |
| | 57 cm | t.b.a. | t.b.a. | t.b.a. |
| | 61 cm | t.b.a. | t.b.a. | t.b.a. |
| 21-21-1112 | 53 cm | t.b.a. | t.b.a. | t.b.a. |
| | 57 cm | t.b.a. | t.b.a. | t.b.a. |
| | 61 cm | t.b.a. | t.b.a. | t.b.a. |
| 21-21-1115 | 53 cm | t.b.a. | t.b.a. | t.b.a. |
| | 57 cm | t.b.a. | t.b.a. | t.b.a. |
| | 61 cm | t.b.a. | t.b.a. | t.b.a. |
| 21-21-1140 | 53 cm | t.b.a. | t.b.a. | t.b.a. |
| | 57 cm | t.b.a. | t.b.a. | t.b.a. |
| | 61 cm | t.b.a. | t.b.a. | t.b.a. |
| 21-18-1097 | 53 cm | t.b.a. | t.b.a. | t.b.a. |
| | 57 cm | t.b.a. | t.b.a. | t.b.a. |
| | 61 cm | t.b.a. | t.b.a. | t.b.a. |
| 21-18-1099 | 53 cm | t.b.a. | t.b.a. | t.b.a. |
| | 57 cm | t.b.a. | t.b.a. | t.b.a. |
| | 61 cm | t.b.a. | t.b.a. | t.b.a. |
| 21-18-1103 | 53 cm | t.b.a. | t.b.a. | t.b.a. |
| | 57 cm | t.b.a. | t.b.a. | t.b.a. |
| | 61 cm | t.b.a. | t.b.a. | t.b.a. |
| 21-21-1094 | 53 cm | t.b.a. | t.b.a. | t.b.a. |
| | 57 cm | t.b.a. | t.b.a. | t.b.a. |
| | 61 cm | t.b.a. | t.b.a. | t.b.a. |

**Table 24: Type number, model and pedelec type**

| Type no. | Frame | Box dim. [cm] | Weight** [kg] | Shipping weight [kg] |
|---|---|---|---|---|
| 21-21-1095 | 53 cm | t.b.a. | t.b.a. | t.b.a. |
| | 57 cm | t.b.a. | t.b.a. | t.b.a. |
| | 61 cm | t.b.a. | t.b.a. | t.b.a. |
| 21-21-1096 | 53 cm | t.b.a. | t.b.a. | t.b.a. |
| | 57 cm | t.b.a. | t.b.a. | t.b.a. |
| | 61 cm | t.b.a. | t.b.a. | t.b.a. |

**Table 24: Type number, model and pedelec type**

*** Vehicle weight without battery. The vehicle's total weight depends on the battery used.**

| Battery type | Weight |
|---|---|
| **UltraCore 750 battery** | 3.79 kg |
| **UltraCore 555 battery** | 3.3 kg |

## 4.2 Designated handles/lifting points

The box does not have any handles.

## 4.3 Transportation

**CAUTION**

**Crash caused by unintentional activation**

There is a risk of injury if the drive system is activated unintentionally.

▶ Remove the battery.

### 4.3.1 Using the brake transport securing system

**Applicable for pedelec disc brakes only**

**CAUTION**

**Oil leak if no transport securing device**

The brake securing device prevents the brakes from being applied accidentally during transportation or shipment. This could cause irreparable damage to the brake system or an oil leak, which will harm the environment.

▶ Never push the brake lever when the wheel has been dismounted.

▶ Always use the transport securing system when transporting or shipping.

▶ Insert the **transport securing devices** between the brake linings.

⇨ Transport securing device is squeezed between the two linings and prevents undesired sustained braking which can cause brake fluid to leak out.

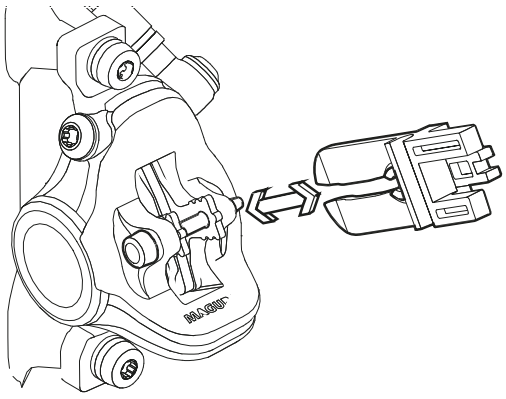


**Figure 26: Fastening the transport securing device**

### 4.3.2 Transporting the pedelec

Bicycle racks which use the handlebars or frame to hold the pedelec in an upside-down position exert inadmissible forces on its components during transportation. This can cause the supporting parts to break.

▶ Never use bicycle racks which use the pedelec's handlebars or frame to hold it in an upside-down position. The specialist dealer will advise you on how to select a suitable rack system properly and how to use it safely.

▶ Take into account the weight of the ready-to-use pedelec when transporting it.

▶ Protect the electrical components and connections on the pedelec from the weather conditions with suitable protective covers.

▶ Transport the battery in a dry, clean position where it is protected from direct sunlight.

### 4.3.3 Shipping a pedelec

▶ When shipping the pedelec, we recommend that you have the specialist dealer partially dismantle the pedelec and place it in the proper packaging.

### 4.3.4 Transporting the battery

*Batteries* are subject to hazardous goods regulations. Undamaged batteries may be transported by private persons in road traffic.

Commercial transport requires compliance with regulations concerning packaging, labelling and the transportation of hazardous goods. Open contacts must be covered and the battery securely packaged.

### 4.3.5 Shipping the battery

The battery is considered a hazardous good and only trained persons may pack and ship a battery. Contact your specialist dealer.

## 4.4 Storing

**⚠CAUTION**

**Accident after storage**

The brake system is not designed for use on a pedelec which is placed on its side or turned upside down. The brake may not function correctly as a result. This can cause a crash, which may result in injuries.

▶ If the pedelec is placed on its side or turned upside down, apply the brake a couple of times before setting off to ensure that it works as normal.

▶ Store pedelec, on-board computer, battery and charger in a clean, dry place where they are protected from sunlight. Do not store outdoors to ensure a long service life.

| | |
|---|---|
| Optimum pedelec storage temperature | 10 °C - 20 °C |

**Table 25: Storage temperature for batteries and the pedelec**

✓ Temperatures under -10 °C or over +40 °C must generally be avoided.

✓ Storage at about 10 °C to 20 °C is beneficial to a long battery life.

✓ Store pedelec, on-board computer, battery and charger separately.

### 4.4.1 Storage mode

The on-board computer features a power-saving storage mode, which minimises discharge from the on-board computer battery. The date and time are eliminated during storage mode.

#### 4.4.1.1 Activating

The display will no longer start up when you press the **on-off button (on-board computer)** briefly once in storage mode.

▶ Press and hold the **On-Off button (on-board computer)** for at least 8 seconds.

⇨ Storage mode is activated if the on-board computer does not start after the **On-Off button (on-board computer)** is pressed briefly.

#### 4.4.1.2 Deactivating

▶ Press and hold the **On-Off button (on-board computer)** for at least 2 seconds.

⇨ Storage mode is deactivated.

### 4.4.2 Break in operation

**Notice**

The battery discharges when not in use. This can cause irreparable damage to the battery.

▶ The battery must be recharged every 6 months.

The battery may become damaged if it is connected permanently to the charger.

▶ Never connect the battery to the charger permanently.

The on-board computer battery discharges when it is not in use. This can cause irreparable damage to the on-board computer.

▶ The battery must be recharged every 3 months.

▶ Remove the on-board computer from its mount if the pedelec is not going to be used for four weeks. Store the on-board computer away safely in a dry environment at room temperature.

▶ If the pedelec is removed from service for longer than four weeks, you need to prepare it for a break in operation.

#### 4.4.2.1 Preparing a break in operation

✓ Remove the rechargeable battery from the pedelec.

✓ Charge battery to around 30% - 60%.

✓ The pedelec needs to be cleaned with a damp cloth and preserved with wax spray. Never wax the friction surfaces of the brake.

✓ Before longer periods without use, it is recommendable to have your specialist dealer carry out an inspection and basic cleaning and apply preservative agent.

#### 4.4.2.2 Carrying out a break in operation

1. Store the pedelec, battery and charger in a dry, clean environment. We recommend storing them in uninhabited rooms with smoke alarms. Dry locations with an ambient temperature of about 10 °C to 20 °C are ideal.
2. Recharge the on-board computer battery for at least 1 hour every 3 months.
3. Check the battery level after 6 months. If only one LED on the battery level indicator lights up, recharge the battery to around 30% - 60%.

# 5 Assembly

**WARNING**

**Risk of eye injury**

Problems may arise if the settings are not made to components correctly and you may sustain serious injuries as a result.

▶ Always wear safety glasses to protect your eyes during assembly.

**CAUTION**

**Crash and crushing hazard caused by unintentional activation**

There is a risk of injury if the drive system is activated unintentionally.

▶ Remove the battery.

✓ Assemble the pedelec in a clean, dry environment.

✓ The *work environment* temperature should be between 15 °C and 25 °C.

✓ The fitting stand used must be approved for a maximum weight of at least 30 kg.

## 5.1 Required tools

The following tools are required to assemble the pedelec:

- Knife
- Hexagon socket spanner 2 (2.5 mm, 3 mm, 4 mm, 5 mm, 6 mm and 8 mm)
- Torque wrench with working range between 5 and 40 Nm
- Twelve-point square socket T25
- Ring spanner (8 mm, 9 mm, 10 mm), 13 mm, 14 mm and 15 mm) and
- Cross, flat head and ordinary screwdriver.

## 5.2 Unpacking

The packaging material consists mainly of cardboard and plastic film.

▶ The packaging has to be disposed of in accordance with the regulations of the authorities.

### 5.2.1 Scope of delivery

Pedelecs are fully assembled in the factory for test purposes and then dismantled for transportation.

The pedelec is 95 - 98% pre-assembled. The scope of delivery includes:

- the pre-assembled pedelec
- the front wheel
- the pedals
- quick release (optional)
- the charger
- the *operating instructions*.

The battery is supplied separately from the pedelec.

## 5.3 Commissioning

**CAUTION**

**Burns from hot drive**

The drive cooler can become extremely hot during use. Touching it may cause burns.

▶ Leave the drive unit to cool before assembly.

Only trained specialist staff may perform initial commissioning since initial commissioning of the pedelec requires special tools and specialist knowledge.

Experience has shown that a pedelec which has not yet been sold is automatically handed to customers as soon as it appears ready to ride.

▶ Complete an assembly report for quality assurance.

▶ The assembly report (see Section 11.2) describes all safety-relevant inspections, tests and maintenance tasks. All assembly work must be completed to ensure the pedelec is ready to ride.

## 5.4 Preparing the battery

### 5.4.1 Checking the battery

The battery must be checked before it is charged for the first time.

1 Press the **On-Off button (battery)**.

⇨ If none of the LEDs on the battery level indicator light up, the battery may be damaged.

⇨ The battery may be fully charged if at least one, but not all, of the LEDs on the battery level indicator lights up.

### 5.4.2 Retrofitting the battery locking lever

The battery locking lever can be retrofitted to SuperCore or UltraCore batteries if they do not have one.

#### 5.4.2.1 Preparing the frame

1 Cut out the drilling template in Section 11.4 along the blue dotted line.

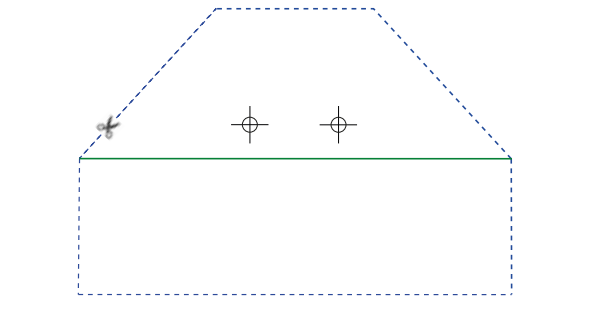


**Figure 27: Cutting out along the blue line**

2 Fold drilling template along green dotted line.

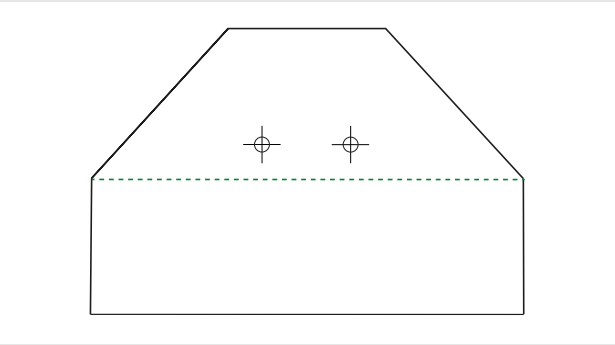


**Figure 28: Folding along the green line (line 1)**

3 Place and position drilling template on frame.

4 Stick drilling template to frame.

5 Make hole mark.

6 Pre-drill hole 3.3 mm in diameter (M4).

7 Cut M4 thread.

#### 5.4.2.2 Fitting the locking lever

1 Insert the countersunk screws (1) into the base plate (2).

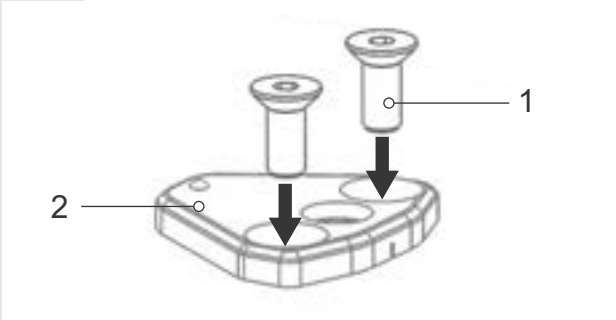



**Figure 29: Inserting countersunk screws into base plate**

2 Join the locking lever to the base plate using the chainring screws. Use a thread locker.

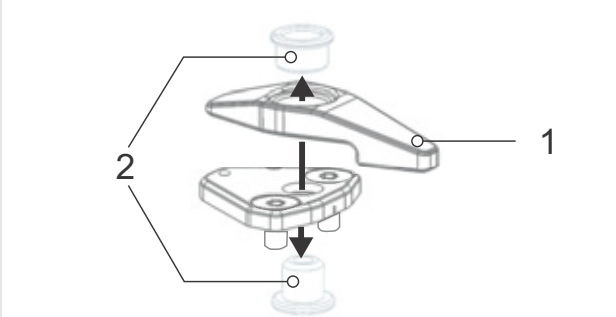



**Figure 30: Connect locking lever with base plate**

3 Fasten countersunk screws into the frame using a M4 Allen key. Use a thread locker.

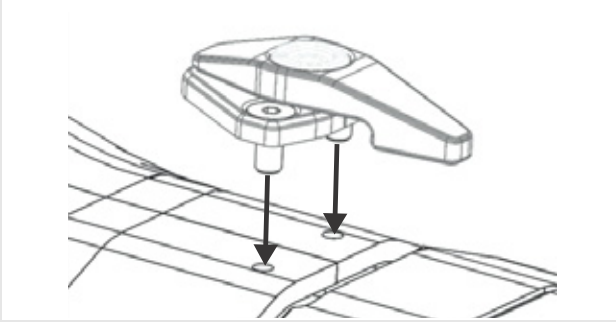


**Figure 31: Screwing lever to frame**

### 5.4.3 Installing the wheel in the Suntour fork

**1** Before installing, ensure that the quick release flange is extended. Open the lever fully.

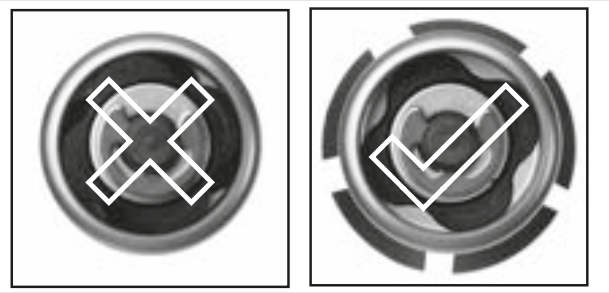


**Figure 32: Open and closed flange**

**2** Push in the quick release until you can hear a click. Make sure that the flange is extended.

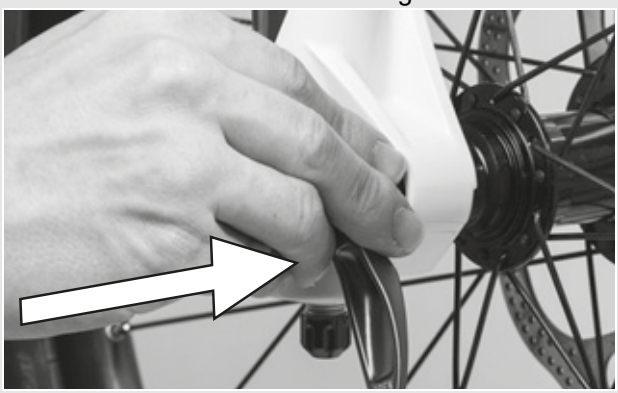


**Figure 33: Pushing the quick release in**

**3** Adjust tensioning with half-open clamping lever until the flange reaches the fork end.

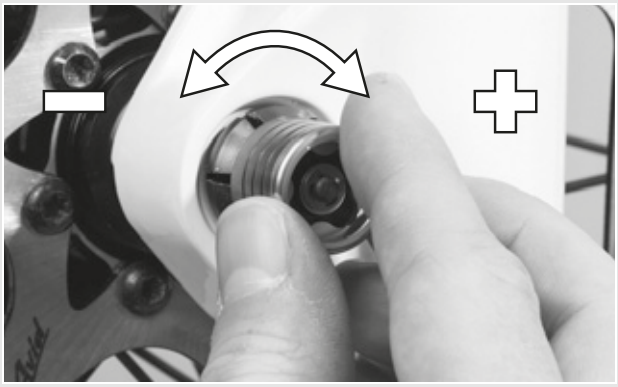


**Figure 34: Adjusting the clamping**

**4** Fully close the quick release. Check that the quick release is firmly in place and adjust it on the flange if necessary.

⇨ The lever is secured.

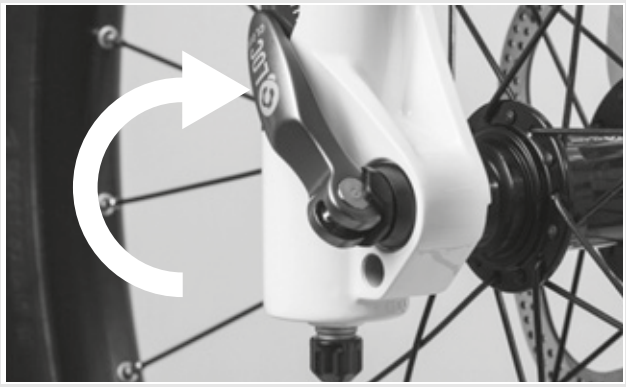


**Figure 35: Closing the quick release**

### 5.4.4 Checking the stem and handlebars

#### 5.4.4.1 Checking the connections

**1** Stand in front of the pedelec to check whether the handlebars, stem and fork steerer are firmly attached to one another. Clamp the front wheel between your legs. Grasp the handlebar grips.

**2** Try to twist the handlebars towards the front wheel.

⇨ The stem must not move or twist.

#### 5.4.4.2 Firm hold

**1** Place your entire body weight on the handlebars with the quick release lever closed to check that the stem is firmly in place.

⇨ The handlebars shaft must not move downwards in the fork steerer.

**2** If the handlebars shaft should move in the fork steerer, increase the quick release lever tensioning. To do so, turn the knurled nut slightly clockwise with the quick release lever open.

**3** Close the lever and check the stem is firmly in position.

#### 5.4.4.3 Checking the headset backlash

**1** To check the handlebar headset backlash, close the quick release lever on the stem.

**2** Place the fingers of one hand on the upper headset cup. Pull the front wheel brake with the other hand and try to push the pedelec backwards and forwards.

**3** The headset cup halves must not move towards one another while you are doing this. Note that there may be noticeable backlash due to worn-out bearing bushes or brake lining backlash in suspension forks and disc brakes.

**4** If there is headset backlash in the steering headset, you must adjust it as soon as possible; otherwise, the headset will become damaged. You must make the adjustment as described in the stem manual.

## 5.5 Pedelec sale

▶ Complete Pedelec pass on the operating instructions envelope.

▶ Note down the manufacturer and the number of the battery key.

▶ Adjust the pedelec to the rider; see Section 6.5.

▶ Adjust the stand and shifter.

▶ Instruct the operator or rider on how to use all the pedelec's functions.

# 6 Operation

## 6.1 Risks and hazards

**⚠WARNING**

**Injuries and death caused by other road users**

Other road users, trucks, cars or pedestrians often underestimate the speed of pedelecs. Likewise, other road users frequently do not see pedelecs. This may cause a crash with serious injuries or even death.

- ▶ Wear a cycling helmet and high-visibility, reflective clothing.
- ▶ Always take a defensive approach to riding.
- ▶ Avoid the blind spots of vehicles turning off. Reduce speed as a precaution when other road users turn right.

**Injuries and death caused by riding incorrectly**

A pedelec is not a bicycle. Incorrect riding and underestimated speeds soon result in hazardous situations. This may cause a fall with serious injuries or even death.

- ▶ If you haven't ridden on a pedelec for some time, get accustomed to the speed first before you ride at speeds over 12 km/h. Increase the levels of assistance gradually.
- ▶ Practice braking hard on a regular basis.
- ▶ Take and complete a riding safety course.

**Injuries and death caused by distraction**

A lack of concentration while riding increases the risk of an accident. This may cause a crash with serious injuries.

- ▶ Never allow yourself to be distracted by the display or your mobile phone.
- ▶ Stop bicycle if you want to make inputs on the display other than a change in level of assistance. Only enter data when the bicycle is stationary

**⚠CAUTION**

**Crash caused by loose clothing**

Shoe laces, scarves and other loose items may become entangled in the spokes on the *wheels* and on the *chain drive*. This may cause a crash with injuries.

- ▶ Wear sturdy footwear and close-fitting clothing.

**Crash caused by difficult-to-spot damage**

If the pedelec topples over or you have a fall or an accident, there may be difficult-to-spot damage to components such as the brake system, quick releases or *frame*. This may cause a crash with injuries.

- ▶ Take the pedelec out of service and have a specialist dealer carry out an inspection.

**Crash caused by material fatigue**

Intensive use can cause material fatigue. A component may suddenly fail in case of material fatigue. This may cause a crash with injuries.

- ▶ Remove the pedelec from service immediately if there are any signs of material fatigue. Have the specialist dealer check the state.
- ▶ Have the specialist dealer carry out a basic inspection regularly. During the inspection, the specialist dealer will inspect the pedelec for any signs of material fatigue on the frame, fork, suspension element mountings (if there are any) and components made of composite materials.

Carbon becomes brittle when exposed to heat radiation such as heating. This can cause the carbon part to break and result in a crash with injuries.

- ▶ Never expose carbon parts on the pedelec to strong sources of heat.

**⚠ CAUTION**

**Crash caused by poor road conditions**

Loose objects, such as branches and twigs, may become caught in the wheels and cause a crash with injuries.

- ▶ Be aware of the road conditions.
- ▶ Ride slowly and brake in good time.

The *tyres* may slip on wet roads. In wet conditions you must also expect a longer braking distance. The braking sensation differs from the usual sensation. This can cause loss of control or a crash, which may result in injuries.

- ▶ Ride slowly and brake in good time when it is raining.

**Crash caused by soiling**

Heavy soiling can impair pedelec functions, such as braking. This may cause a crash with injuries.

- ▶ Remove coarse soiling before riding.

**Notice**

Heat or direct sunlight can cause the *tyre pressure* to increase above the permitted maximum pressure. This can destroy the *tyres*.

- ▶ Never park the pedelec in the sun.
- ▶ On hot days, regularly check the *tyre pressure* and adjust it as necessary.

When riding downhill, high speeds may be reached. The pedelec is only designed to exceed a speed of 25 km/h for short intervals. The *tyres* in particular can fail if exposed to a continuous load.

- ▶ Use the brakes to decelerate the pedelec if you reach speeds greater than 25 km/h.

**Notice**

Moisture penetrating at low temperatures may impair individual functions due to the open structural design.

- ▶ Always keep the pedelec dry and free from frost.
- ▶ If the pedelec is to be used at temperatures below 3 °C, the specialist dealer must carry out an inspection and prepare it for winter use.

Off-road riding subjects the joints in the arms to severe strain. Take a break from riding every 30 to 90 minutes, depending on the road surface conditions and your physical fitness

## 6.2 Personal protective equipment

It is recommended that you wear a suitable cycling helmet, sturdy footwear and typical, close-fitting, reflective sports clothing.

## 6.3 Tips for a greater range

The pedelec's range depends on many influencing factors. A single battery charge may only last fewer than 20 kilometres but much more than 100 is also possible. There are a few tips which will generally help you maximize range.

**Suspension elements**

- ▶ Only open suspension fork and damper when necessary on terrain or gravel paths. Block suspension fork and damper on tarmacked roads or on hills.

**Pedalling frequency**

- ▶ Ride using pedalling frequencies of over 50 revolutions per minute. This optimises the electric drive's efficiency.
- ▶ Avoid pedalling very slowly.

**Weight**

- ▶ Minimise the total weight of pedelec and baggage.

**Stopping and starting**

- ▶ Ride long distances at a constant speed.
- ▶ Avoid stopping and starting frequently.

**Level of assistance**

- ▶ the higher the selected level of assistance, the lower the range

**Gear shift**

- ▶ Use a low gear and a low level of assistance on hills and when setting off.
- ▶ Switch up a gear depending on the speed and terrain.
- ▶ 50-80 crank rotations are optimal.
- ▶ Avoid high stress loads on the crank during a gear change.
- ▶ Switch gear back in good time, e.g. before inclines.

**Tyres**

- ▶ Always select the right tyres for the surface type.
- ▶ Always use the maximum permitted tyre pressure.

**Rechargeable battery**

Electrical resistance increases as the temperature drops. Battery performance is reduced. As a result, you should expect the range to be shorter than normal in winter.

- ▶ Use a thermal protection sleeve on the battery in winter.

The range also depends on the battery's age, charge level and state of repair.

- ▶ Maintain the battery and replace older batteries where necessary.

## 6.4 Error messages

### 6.4.1 Error message display

Parts of the electronic drive system are permanently monitored during use and charging. If an error is detected, the error code detected appears on the display screen.

Press any button on the control panel to switch the display screen back to the default screen.

| Code | Description | Method of resolution |
|---|---|---|
| 10 | Low battery voltage (<27 V) | ▶ Charge battery with battery charger. |
| 11 | Excess battery voltage (> 45 V) | 1 Re-start the system.<br>2 Contact your specialist dealer if the problem persists. |
| 12 | Battery discharge detected | ▶ Charge the battery. |
| 20 | ADC test failed | 1 Re-start the system.<br>2 Contact your specialist dealer if the problem persists. |
| 21 | Unlikely temperature detected by the upper side sensors | 1 Re-start the system.<br>2 Contact your specialist dealer if the problem persists. |
| 23 | Unlikely temperature detected by the lower side sensors | 1 Re-start the system.<br>2 Contact your specialist dealer if the problem persists. |
| 24 | Voltage drop of 12 V detected (<11 V) | ▶ Charging the battery |
| 25 | Excess current in motor (>24 A) | 1 Re-start the system.<br>2 Contact your specialist dealer if the problem persists. |
| 26 | Reset detected in two unknown systems | 1 Re-start the system.<br>2 Contact your specialist dealer if the problem persists. |
| 30 | Communication error | 1 Re-start the system.<br>2 Contact your specialist dealer if the problem persists. |
| 31 | Light: Low output voltage/failure detected | ▶ Check cables and connectors on all the electric drive system components. |

**Table 26: List of display screen error messages**

| Code | Description | Method of resolution |
|---|---|---|
| 40 | The measured current exceeds the maximum permitted level (20 A) | ▶ Reduce the load on the motor by pedalling less or reducing the levels of assistance. |
| 41 | Hardware overcurrent protection active | ▶ Reduce the load on the motor by pedalling less or reducing the levels of assistance. |
| 42 | Error detected in the angled sensor | 1 Re-start the system.<br>2 Contact your specialist dealer if the problem persists. |
| 43 | The measured current does not fall beneath the max. permitted value (2 A) after motor assistance | 1 Re-start the system.<br>2 Contact your specialist dealer if the problem persists. |
| 44 | Max. temperature exceeded | ▶ Reduce the load on the motor by pedalling less or reducing the levels of assistance. |
| 45 | Angled sensor reset detected | 1 Re-start the system.<br>2 Contact your specialist dealer if the problem persists. |
| 46 | No motor movement detected, although current measured (>2A) | 1 Re-start the system.<br>2 Contact your specialist dealer if the problem persists. |
| 60 | HMI CAN timeout message detected | ▶ Check cables and connectors on all the electric drive system components. |
| 70 | Torque sensor reading outside the permitted range ([230 ... 450 HZ]) | 1 Re-start the system.<br>2 Contact your specialist dealer if the problem persists. |
| 71 | Pedalling rate sensor short circuit | 1 Re-start the system.<br>2 Contact your specialist dealer if the problem persists. |
| 72 | No signal from the torque sensor | 1 Re-start the system.<br>2 Contact your specialist dealer if the problem persists. |

**Table 26: List of display screen error messages**

| Code | Description | Method of resolution |
|---|---|---|
| 73 | The difference in torque between two measurements exceeds the permitted value (± 166). | 1 Re-start the system.<br>2 Contact your specialist dealer if the problem persists. |
| 74 | RAM test failed | 1 Re-start the system.<br>2 Contact your specialist dealer if the problem persists. |
| 75 | Invalid pedal sensor signal detected | 1 Re-start the system.<br>2 Contact your specialist dealer if the problem persists. |
| 76 | 12 V out excess current | 1 Re-start the system.<br>2 Contact your specialist dealer if the problem persists. |
| 80 | No offset angle calibration carried out (EOL) | 1 Re-start the system.<br>2 Contact your specialist dealer if the problem persists. |
| 81 | No interruption in the speed sensor detected | 1 Re-start the system.<br>2 Contact your specialist dealer if the problem persists. |
| 82 | ROM test failed | 1 Re-start the system.<br>2 Contact your specialist dealer if the problem persists. |
| 83 | Stack test failed | 1 Re-start the system.<br>2 Contact your specialist dealer if the problem persists. |
| 84 | No serial number detected | 1 Re-start the system.<br>2 Contact your specialist dealer if the problem persists. |
| 85 | Accelerator handle CAN timeout message detected. | ▶ Check cables and connectors on all the electric drive system components. |
| 86 | Accelerator handle voltage outside the permitted range ([0.5 V ... 4.2 V]) | 1 Re-start the system.<br>2 Contact your specialist dealer if the problem persists. |
| 87 | Accelerator handle has not yet reached off position (torque requirement: zero) (~0.5 V) | 1 Re-start the system.<br>2 Contact your specialist dealer if the problem persists. |

**Table 26: List of display screen error messages**

| Code | Description | Method of resolution |
|---|---|---|
| 90 | Error detected in the program start-up. | 1 Re-start the system.<br>2 Contact your specialist dealer if the problem persists. |
| 91<br>92<br>93 | The torque sensor has transmitted incorrect data | 1 Re-start the system.<br>2 Contact your specialist dealer if the problem persists. |
| 94 | The high-side drive has detected an error (excess current or temperature) | 1 Re-start the system.<br>2 Contact your specialist dealer if the problem persists. |
| 95 | Brake light current detected (>0.3 A) | ▶ Check cables and connectors on all the electric drive system components. |

**Table 26: List of display screen error messages**

## 6.5 Instruction and customer service

Your supplying specialist dealer will provide customer service. Contact details can be found on the pedelec pass for these operating instructions. The specialist dealer will explain all the pedelec functions to you in person, this being when the specialist dealer hands over the pedelec at the latest. These operating instructions are provided to you with every pedelec, so that you can consult them at a later stage.

Your specialist dealer will also be happy to assist you in the future whether you require maintenance, conversion or repair.

## 6.6 Adjusting the pedelec

**⚠ CAUTION**

**Crash caused by incorrectly adjusted torques**

If a screw is fastened too tightly, it may break. If a screw is not fastened enough, it may loosen. This will cause a crash with injuries.

▶ Always observe the indicated torques on the screw and in the *operating instructions*.

Only a correctly adjusted pedelec will guarantee the desired ride comfort and health-promoting activity. Therefore adjust the *saddle*, the *handlebars and the suspension* to your body and your preferred riding style before the first ride.

### 6.6.1 Adjusting the saddle

#### 6.6.1.1 Adjusting the saddle tilt

The saddle tilt must be adjusted to the seat height, the saddle and handlebar position, and the saddle shape to ensure an optimum fit. The seating position can be optimised in this way if needed. First adjust the handlebars, then the saddle.

▶ Adjust the saddle tilt to horizontal.

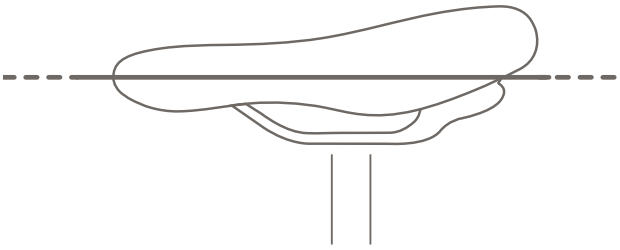


**Figure 36: Horizontal saddle tilt**

#### 6.6.1.2 Determining the seat height

✓ To adjust the seat height safely, either

- push the bike near to a wall, so that the rider can lean on the wall to support themselves or
- ask another person to hold the pedelec.

**1** Climb onto the bicycle.

**2** Place your heel on the pedal and extend your leg, so that the pedal is at the lowest crank rotation point.

⇨ The rider sits straight on the saddle if the seat is at an optimum height. If this is not the case, adjust the length of the seat post to your needs.

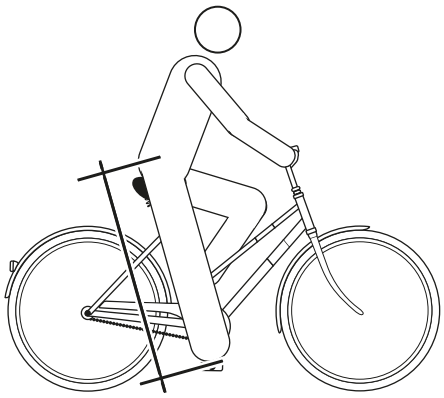


**Figure 37: Optimal saddle height**

#### 6.6.1.3 Adjusting the seat height with quick release

**1** Open the quick release on the seat post to change the seat height (1). To do so, push the clamping lever away from the seat post (3).

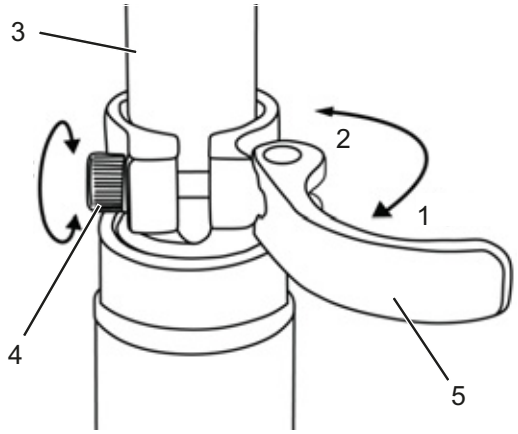



**Figure 38: Opening the seat post quick release**

**2** Set the seat post to the required height.

**CAUTION**

**Crash caused by an excessively high seat post setting**

A *seat post* which is set too high will cause the *seat post* or the *frame* to break. This will cause a crash with injuries.

▶ Do not pull the seat post out of the frame beyond the minimum insertion depth marking.

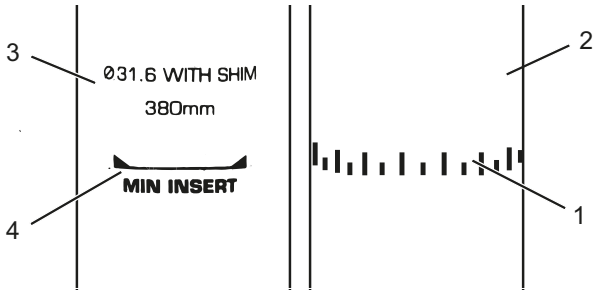



**Figure 39: Detailed view of the seat post – examples of the minimum insertion depth marking**

**3** To close it, push the *seat post clamping lever* as far as it will go into the *seat post* (2).

**4** Check the *clamping force of quick releases*.

#### 6.6.1.4 Adjusting the seat position

The saddle can be shifted on the saddle frame. The right horizontal position ensures an optimal leverage position for legs. This prevents knee pain and painful incorrect pelvis positions. If you have displaced the saddle more than 10 mm, you need to adjust the saddle height again since both settings affect one another.

✓ To adjust the seat position safely, either push the pedelec near to a wall, so that you can lean on the wall to support yourself or ask another person to hold the pedelec for you.

**1** Climb onto the bicycle.

**2** Place the pedals into the vertical position with your feet.

The rider is sitting in the optimal sitting position if the perpendicular line from the kneecap runs through the pedal axle.

**3.1** If the perpendicular line crosses behind the pedal, bring the saddle further forward.

**3.2** If the perpendicular line crosses in front of the pedal, bring the saddle further back.

**4** Move the saddle within its permitted displacement range only (marked on the saddle stay).

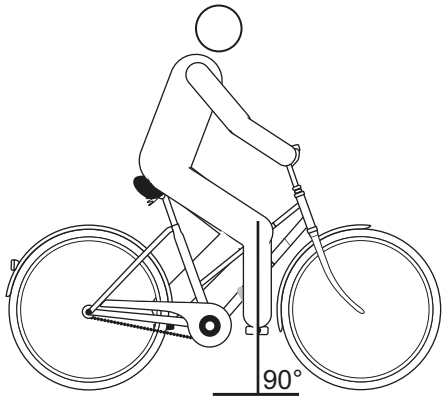



**Figure 40: Knee cap perpendicular line**

✓ The handlebar settings must only be adjusted while the bicycle is stationary.

▶ Unfasten and adjust the designated screw connections, and clamp them with the maximum tightening torque for the clamping screws of the handlebars.

### 6.6.2 Adjusting the handlebars

**CAUTION**

**Crash caused by incorrectly set clamping force**

Excessively high clamping force will damage the quick release and cause it to lose its function. Insufficient clamping force will result in unfavourable transmission of force. This can cause components to break. This will cause a crash with injuries.

- ▶ Never fasten a quick release using a tool (e.g. hammer or pliers).
- ▶ Only use the clamping lever with the specified set clamping force.

### 6.6.3 Adjusting the stem

**CAUTION**

**Crash caused by loose stem**

Incorrectly fastened screws may come loose due to impact. The stem may no longer be firmly fixed in its position as a result. This will cause a crash with injuries.

- ▶ Check the handlebars and the quick release system are firmly in position after the first two hours of riding.

#### 6.6.3.1 Adjusting the height of the handlebars

**1** Open the stem clamping lever.

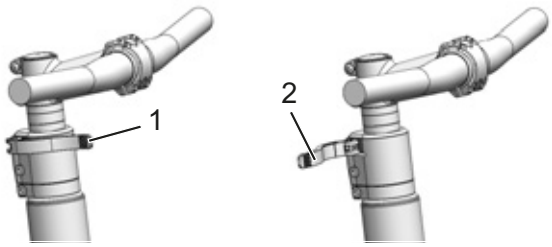



**Figure 41: Open (2) and closed (1) stem clamping lever; All Up used as an example**

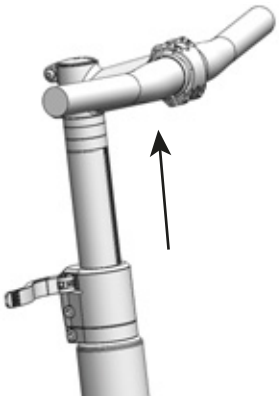


**Figure 42: Pulling the locking lever upwards; All Up used as an example**

**2** Pull out the handlebars to the required height. Observe minimum insertion depth.

**3** Close the stem clamping lever.

#### 6.6.3.2 Adjusting the quick release clamping force

- ▶ If the *handlebar clamping lever* stops before reaching its end position, unscrew the *knurled nut*.
- ▶ Tighten the *knurled nut* on the seat post if the *seat post clamping lever's* clamping force is not effective enough.
- ▶ If you are unable to set the clamping force, the specialist dealer will need to check the quick release.

### 6.6.4 Adjusting the brake

The brake lever grip distance can be adjusted to ensure that it can be reached more easily. The pressure point can also be adjusted to the rider's preferences.

Contact your specialist dealer if there is no description of your brake below.

#### 6.6.4.1 Retracting the brake linings

Disc brakes require wearing-in time. The braking force increases over time. You therefore need to be aware that the braking force may increase during the wearing-in period. The same happens after brake pads or discs are replaced.

1 Accelerate pedelec to about 25 km/h.

2 Brake pedelec until it comes to a halt.

3 Repeat process 30–50 times.

The disc brake is retracted and provides optimal braking power.

#### 6.6.4.2 Adjusting the grip distance for a Magura disc brake

Only applies to pedelecs with this equipment

**WARNING**

**Crash caused by incorrectly set grip distance**

If brake cylinders are set incorrectly or installed wrongly, the braking power may be lost at any time. This may cause a crash with injuries.

▶ Ensure that the fully applied brake lever is at a minimum distance of 20 mm from the handlebars (4).

You can adjust the brake lever position (grip distance) to your requirements. Such adjustment does not affect the pressure point or the position of the brake linings.

✓ Use a T25 TORX® wrench to turn the setting screw (1) to adjust the grip distance.

**Figure 43: Adjusting the grip distance on a Magura disc brake lever**

▶ Turn the setting screw/twist knob (5) anti-clockwise towards minus (–).

⇨ The brake lever moves closer to the handlebar grip.

▶ Turn the setting screw clockwise towards plus (+).

⇨ The brake lever moves away from the handlebar grip.

#### 6.6.4.3 Adjusting the pressure point for a Magura

**WARNING**

**Brake failure due to incorrect setting**

If the pressure point is set with brakes where the brake linings and brake disc have reached their wear limit, the brakes may fail and cause an accident with injury.

▶ Before you adjust the pressure point, ensure that the brake linings and brake disc have not reached their wear limit.

The pressure point setting is adjusted using the twist knob.

▶ Turn the twist knob towards the plus (+) symbol.

⇨ The *brake lever* moves closer to the handlebar grip. Re-adjust the grip distance as necessary.

⇨ The lever pressure point activates sooner.

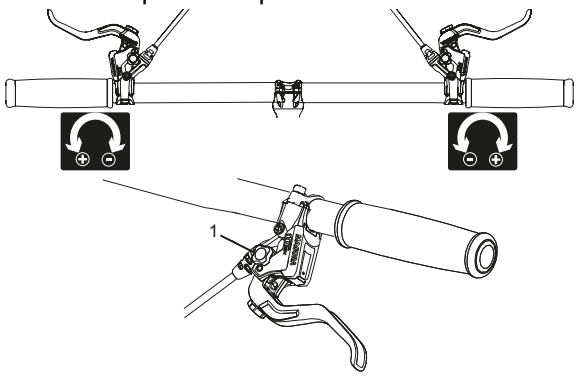



**Figure 44: Using the twist knob (1) to adjust the pressure point**

### 6.6.5 Adjusting the damping sag

**CAUTION**

**Crash caused by incorrectly set suspension**

If the suspension is set incorrectly, the fork may become damaged, meaning problems may occur when steering. This will cause a crash with injuries.

- ▶ Never ride the bicycle without air in the air suspension fork.
- ▶ Never use the pedelec without adjusting the suspension fork to the rider's weight.

**Notice**

Settings on the chassis change riding performance significantly. You need to get used to the bicycle and break it in to prevent accidents.

Sag is the percentage of total deflection that is compressed by the rider's weight, including equipment (such as a backpack), their seating position and frame geometry. Sag is not caused by riding.

The sag depends on the rider's position and weight and should be between 15% and 30% of the maximum fork deflection, depending on preferences and on how the pedelec is used.

**Greater sag (20% to 30%)**

A greater sag increases sensitivity to bumps, thus producing greater suspension motion. A greater sensitivity to bumps ensures more comfortable ride performance and is used on pedelecs with a longer deflection.

**Decreased sag (10% to 20%)**

A decreased sag reduces sensitivity to bumps, thus producing less suspension motion. A lower sensitivity to bumps ensures a firmer, more efficient ride and is generally used on pedelecs with a shorter deflection.

The adjustment shown here represents a basic setting. The rider should change the basic setting to suit the surface and his/her preferences.

It is advisable to make a note of the basic setting. This way, it can be used as the starting point for subsequent, optimised settings and to safeguard against unintentional changes.

#### 6.6.5.1 Adjusting the Suntour fork steel suspension

Only applies to pedelecs with this equipment

1 You will find the **sag setting wheel** beneath the plastic cover on the crown. Remove the plastic cover.


**Figure 45: Sag setting wheel on the suspension fork crown**

▶ Turn the **sag setting wheel** clockwise to increase the spring pre-tensioning.

▶ Turn the **sag setting wheel** anti-clockwise to decrease the spring pre-tensioning.

⇨ You will have made the ideal setting if the shock absorber deflects 3 mm when bearing the rider's weight.

3 Replace the plastic cover on the crown after making the setting.

#### 6.6.5.2 Adjusting the Suntour fork air suspension

Only applies to pedelecs with this equipment

▶ The **air valve** is located beneath the **air valve cap** on the crown. Twist off the **air valve cap**.


**Figure 46: Screw caps in different designs**

1 Attach a high-pressure damper pump to the **air valve**.

2 Pump air suspension fork to the required pressure. Observe the levels in the Suntour filling pressure table. Never exceed the recommended maximum air pressure**.**

| Rider weight | AION, NEX | XCR 32, XCR 34 |
|---|---|---|
| < 55 kg | 35 - 50 psi | 40 - 55 psi |
| 55 - 65 kg | 50 - 60 psi | 55 - 65 psi |
| 65 - 75 g | 60 - 70 psi | 65 - 75 psi |
| 75 - 85 kg | 70 - 85 psi | 75 - 85 psi |
| 85 - 95 kg | 85 - 100 psi | 85 - 95 psi |
| < 100 kg | + 105 psi | + 100 psi |
| **Maximum air pressure** | **150 psi** | **180 psi** |

**Table 27: Suntour filling pressure table for air forks**

3 Detach high-pressure damper pump.

4 Measure the distance between the crown and the dust seal. This distance is *total deflection* of the fork.

5 Push a temporarily attached cable tie downward against the dust seal.

6 Put on your normal cycling clothing, including luggage.

7 Sit on the pedelec in your usual riding position and support yourself against an object, such as a wall or tree.

8 Get off the pedelec without allowing it to deflect.

9 Measure distance between the dust seal and the cable tie.

⇨ This measurement is the sag. The recommended value is between 15% (hard) and 30% (soft) of the total fork deflection.

10 Increase or reduce air pressure until you have reached the desired sag.

11 If the sag is correct, turn the **air valve cap** clockwise.

12 If you are unable to achieve the required sag, an internal adjustment may be needed. Contact your specialist dealer.

#### 6.6.5.3 Adjusting the Suntour rear frame damper

Only applies to pedelecs with this equipment

**Notice**

If the air pressure in the rear frame damper is exceeded or undershot, the damper can be permanently damaged.

Do not exceed the maximum air pressure of 300 psi (20 bar).

✓ When adjusting the sag, ensure that the compression adjuster is in an open position, i.e. the **lockout lever** is in the OPEN position.

1 Remove the valve cap from the **air valve**. Attach a high-pressure damper pump. Adjust the rear frame damper air pressure to the rider's weight. Detach high-pressure damper pump.

2 Measure the distance between the air chamber seal and the end of the rear frame damper. This distance is the *total rear frame damper deflection*.

3 Put on your normal cycling clothing, including luggage. Sit on the pedelec in your usual riding position and support yourself against an object, such as a wall or tree.

4 Push the O-ring downwards against the air chamber seal.

5 Get off the pedelec without the suspension fork deflecting.

⇨ Measure the distance between the air chamber seal and the O-ring. This measurement is the sag. The recommended value is between 25% (hard) and 30% (soft) of the *total rear frame damper deflection*.

6 Increase or reduce the air pressure until you have reached the desired sag.

▶ If the sag is correct, fasten the **valve cap** onto the valve.

#### 6.6.5.4 Adjusting the FOX fork air suspension

Only applies to pedelecs with this equipment

✓ When adjusting the sag, ensure that each compression adjuster is in an open position, i.e. each compression adjuster has been turned anti-clockwise until it goes no further.

✓ The pressure is to be measured at an ambient temperature of 21 to 24 °C.

**1** The **air valve** is located beneath a blue **valve cap** on the **crown** of the left-hand shock absorber. Unscrew the **valve cap** in an anti-clockwise direction.

**2** Attach a high-pressure damper pump to the **air valve**.

**3** Pump the suspension fork to the required pressure. Observe the levels in the FOX filling pressure table. Never exceed the **maximum air pressure** or fall below the **minimum air pressure** recommended in the table.

| Rider weight | Rhythm 34 | Rhythm 36 |
|---|---|---|
| **Minimum air pressure** | **40 psi (2.8 bar)** | **40 psi (2.8 bar)** |
| 54 - 59 kg | 58 psi | 55 psi |
| 59 - 64 kg | 63 psi | 59 psi |
| 64 - 68 kg | 68 psi | 63 psi |
| 68 - 73 kg | 72 psi | 67 psi |
| 73 - 77 kg | 77 psi | 72 psi |
| 77 - 82 kg | 82 psi | 76 psi |
| 82 - 86 kg | 86 psi | 80 psi |
| 86 - 91 kg | 91 psi | 85 psi |
| 91 - 95 kg | 96 psi | 89 psi |
| 95 - 100 kg | 100 psi | 93 psi |
| 100 - 104 kg | 105 psi | 97 psi |
| 104 - 109 kg | 110 psi | 102 psi |
| 109 - 113 kg | 114 psi | 106 psi |
| **Maximum air pressure** | **120 psi (8.3 bar)** | **120 psi (8.3 bar)** |

**Table 28: FOX filling pressure table for air fork**

**4** Detach high-pressure damper pump.

**5** Measure the distance between the crown and the fork's dust wiper. This distance is *total deflection* of the fork.

**6** Push the O-ring downwards against the fork's dust wiper. If there is no O-ring, attach a cable tie to the stanchion temporarily.

**7** Put on your normal cycling clothing, including luggage.

**8** Sit on the pedelec in your usual riding position and support yourself against an object, such as a wall or tree.

**9** Get off the pedelec without the suspension fork deflecting.

**10** Measure the distance between the dust wiper and the O-ring and cable tie.

⇨ This measurement is the sag. The recommended value is between 15% (hard) and 20% (soft) of the *total fork deflection*.

**11** Increase or reduce the air pressure until you have reached the desired sag.

**12** If the sag is correct, turn the blue **valve cap** clockwise.

**13** If you are unable to achieve the desired sag, internal settings may need to be changed. Contact your specialist dealer.

### 6.6.5.5 Adjusting the FOX rear frame damper

Only applies to pedelecs with this equipment

**Notice**

If the air pressure in the rear frame damper is exceeded or undershot, the damper can be permanently damaged.

Do not exceed the maximum air pressure of 350 psi (24.1 bar). The minimum air suspension pressure of 50 psi (3.4 bar) must be complied with.

**1** Turn the compression adjuster to the OPEN position.

**2** Attach a high-pressure damper pump to the air valve.

**3** Adjust the rear frame damper air pressure to the rider's weight.

**4** Slowly compress the damper to over 25% of the deflection 10 times until you have reached the desired pressure.

⇨ This equalises the air pressure between the positive and negative air chambers. The high-pressure damper pump pressure gauge changes.

**5** Remove the high-pressure damper pump.

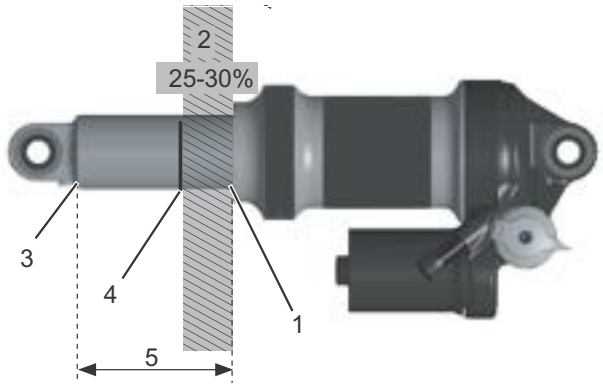



**Figure 47: FOX rear frame damper**

**6** Measure the distance between the air chamber seal (1) and the end of rear frame damper (3). This gap is the *total deflection* for the rear frame damper (5).

**7** Sit on the pedelec in your usual riding position and support yourself against an object, such as a wall or tree.

**8** Push the O-ring (4) downwards against the air chamber seal (1).

**9** Get off the pedelec without the suspension fork deflecting.

⇨ Measure the distance between the air chamber seal (1) and the O-ring (4). This measurement is the *sag* (2). The recommended value is between 25% (hard) and 30% (soft) of the *total deflection* for the rear frame damper (5).

**10** Increase or reduce the air pressure until you have reached the desired sag.

### 6.6.6 Adjusting the rebound damping

Rebound damping in the suspension fork and the rear frame damper determines the speed at which the rear frame damper rebounds after being subjected to load. Rebound damping controls the suspension fork extension and rebound speed, which, in turn, has an impact on traction and control.

Rebound damping can be adjusted to the rider's weight, spring stiffness, deflection, the terrain and the rider's preferences.

If the air pressure or spring stiffness increases, the extension and rebound speeds also increase. Rebound damping may need to be increased to achieve an optimal setting if the air pressure or spring stiffness are increased.

The damper rebounds at a controlled speed if the fork is optimally adjusted. The wheel stays in contact with the ground when passing over bumps (blue line).

The fork head, handlebars and rider broadly follow the terrain when riding over bumps. The suspension motion is predictable and controlled.

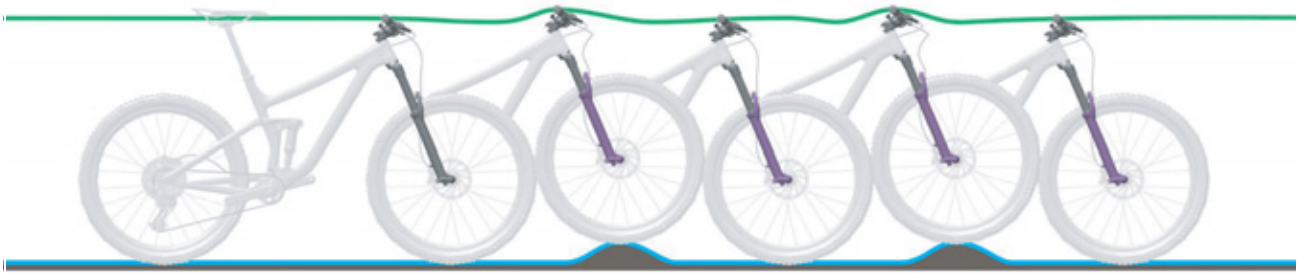


**Figure 48: Optimum fork riding performance**

The rear frame damper rebounds at a controlled speed if it is optimally adjusted. The rear wheel does not bounce off rough surfaces or the ground; it stays in contact with the ground instead (blue line).

The saddle is raised slightly if the bump is compensated and gently sinks downwards when the suspension deflects as soon as the wheel touches the ground after the bump. The rear frame damper rebounds in a controlled way, so that the rider remains sitting in a horizontal position when the next bump is absorbed. The suspension motion is predictable and controlled and the rider is not thrown upwards or forwards (green line).

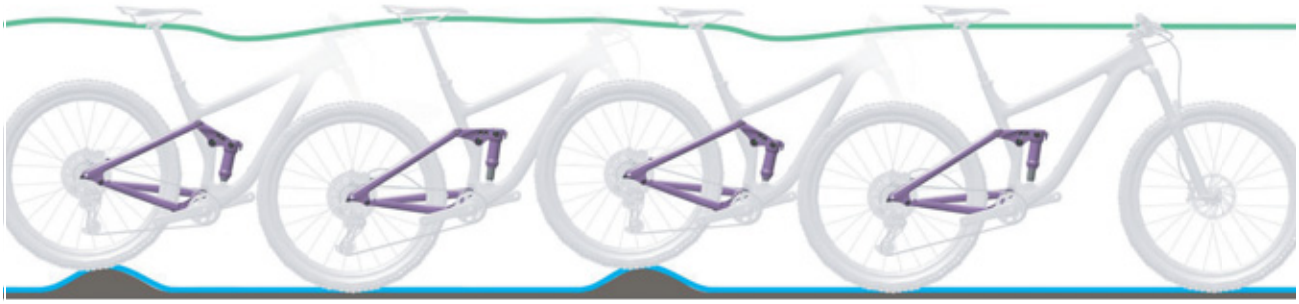


**Figure 49: Optimum rear frame damper riding performance**

#### 6.6.6.1 Adjusting the Suntour air suspension fork

Only applies to pedelecs with this equipment

1 Turn the **Suntour rebound screw** in a clockwise direction to the closed position until it stops.

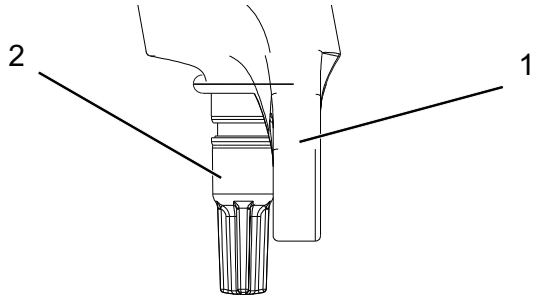



**Figure 50: Suntour rebound screw (2), fork (1)**

2 Turn the **Suntour rebound screw** slightly in an anti-clockwise direction.

3 Adjust the rebound in such a way that the fork rebounds quickly, but without bottoming out upward. Bottoming out refers to when the fork rebounds too quickly and stops moving abruptly once it has reached the full rebound distance. You can hear and feel a slight impact when this happens.

#### 6.6.6.2 Adjusting the Suntour rear frame damper

Only applies to pedelecs with this equipment


**Figure 51: Suntour rebound adjuster wheel (1) on the rear frame damper**

▶ Turn the rebound adjuster wheel in the – direction to increase rebounding.

▶ Turn the rebound adjuster wheel in the + direction to reduce compressive deflection movements.

### 6.6.6.3 Adjusting the FOX suspension fork

Only applies to pedelecs with this equipment

1 Turn the **FOX rebound adjuster** clockwise towards the closed position until it stops.

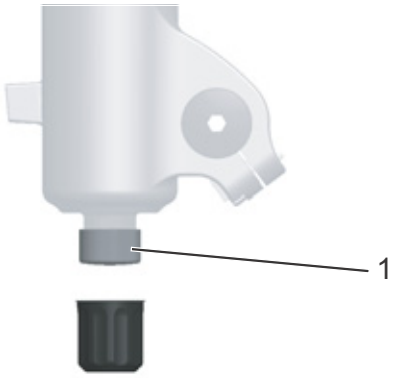



**Figure 52: FOX rebound adjuster (1) on the fork end**

2 Turn the **FOX rebound adjuster** slightly anti-clockwise.

3 Adjust the rebound in such a way that the fork rebounds quickly, but without bottoming out upward. Bottoming out refers to when the fork rebounds too quickly and stops moving abruptly once it has reached the full rebound distance. You can hear and feel a slight impact when this happens.

### 6.6.6.4 Adjusting the FOX rear frame damper

Only applies to pedelecs with this equipment

1 Attach a high-pressure damper pump to the air valve.

2 Read the air pressure.

3 Remove the high-pressure damper pump.

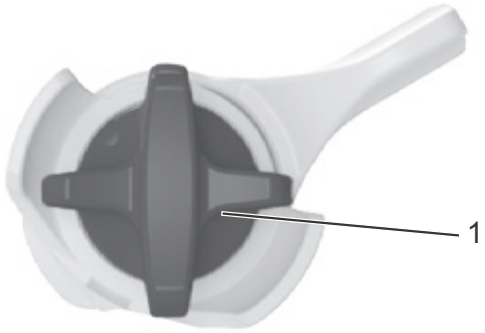



**Figure 53: FOX rebound adjuster wheel (1) on the rear frame damper**

4 Turn the rebound adjuster clockwise towards the closed position until it stops.

5 Adjust the rebound setting based on the air pressure reading. Turn the rebound adjuster back anti-clockwise by the number of clicks specified in the table below.

| Air pressure (psi) | Recommended rebound setting |
|---|---|
| **< 100** | **Open (anti-clockwise)** |
| 100 - 120 | 11 |
| 120 - 140 | 10 |
| 140 - 160 | 9 |
| 160 - 180 | 8 |
| 180 - 200 | 7 |
| 200 - 220 | 6 |
| 220 - 240 | 5 |
| 240 - 260 | 4 |
| 260 - 280 | 3 |
| 280 - 300 | 2 |

**Table 29: Filling pressure table for the FOX air fork**

### 6.6.7 Rear frame damper compression adjuster

The compression adjuster controls the compression lifting speed or the rate at which the rear frame damper deflects in response to slow impacts. The compression adjuster influences the absorption of bumps and its efficiency when the rider's weight shifts or during transitions, cornering, uniform impacts caused by bumps and when braking.

When optimally adjusted, the rear frame damper counteracts deflection, stays higher in its deflection range and helps the rider to maintain speed when riding on hilly parts of terrain.

**Figure 54: Optimum rear frame damper riding performance on hilly terrain**

#### Compression adjuster set to hard

- Allows the rear frame damper to move higher in the deflection range. This makes it easier for the rider to improve efficiency and maintain momentum over uniformly hilly terrain, around bends and when pedalling.
- Deflection may feel somewhat harder on more rugged terrain.

#### Compression adjuster set to soft

- Allows the damper to deflect quickly and easily. This may make it easier for the rider to maintain speed and momentum when riding over more rugged terrain.
- Deflection may feel somewhat less hard on more rugged terrain.

**Figure 55: Optimum rear frame damper riding performance over bumps**

When optimally adjusted, the rear frame damper deflects quickly and unhindered when the bike hits bumps and absorbs a bump. Traction is retained (blue line).

The saddle rises slightly when absorbing a bump (green line).

### 6.6.7.1 Adjusting the Suntour rear frame damper

Only applies to pedelecs with this equipment

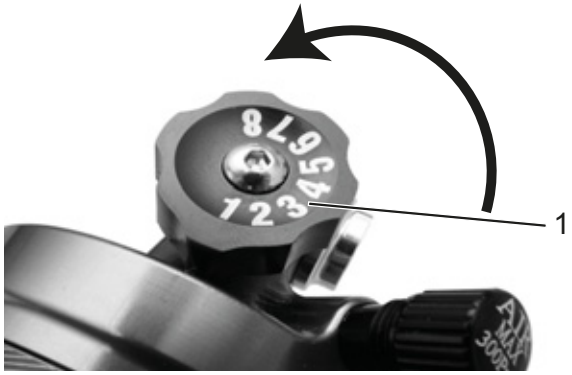



**Figure 56: Suntour compression adjuster on the rear frame damper**

- ▶ Turn the compression adjuster towards – to increase rebounding.
- ▶ Turn the compression adjuster towards + to reduce deflection movement.

## 6.7 Accessories

We recommend a parking stand into which either the front wheel or rear wheel can be inserted securely for pedelecs which do not have a kickstand. The following accessories are recommended:

| *Description* | *Article number* |
|---|---|
| Protective cover for electrical components | 080-41000 ff |
| Panniers, system component* | 080-40946 |
| Rear wheel basket, system component* | 051-20603 |
| Bicycle box, system component* | 080-40947 |
| Parking stand universal stand | XX-TWO14B |

**Table 30: Accessories**

*System components are matched to the pannier rack and provide sufficient stability due to special transmission of force.
**System components are matched to the drive system.

### 6.7.1 Child seat

**WARNING**

**Crash caused by incorrect child seat**

The pannier rack and down tube are unsuitable for mounting child seats and may break. Such an incorrect position may cause a crash with serious injuries for the rider and the child.

▶ Never attach a child seat to the saddle, handlebars or down tube.

**CAUTION**

**Crash caused by improper handling**

When using child seats, the pedelec's handling characteristics and stability change considerably. This can cause a loss of control, a crash and injuries.

▶ You should practice how to use the child seat safely before using the pedelec in public spaces.

**CAUTION**

**Risk of crushing due to exposed springs**

The child may crush his/her fingers on exposed springs or open mechanical parts of the saddle and the seat post.

▶ Never install saddles with exposed springs if a child seat is being used.

▶ Never install seat posts with suspension with open mechanical parts and exposed springs if a child seat is being used.

**Notice**

▶ Observe the legal regulations on the use of child seats.

▶ Observe the operating and safety instructions for the child seat system.

▶ Never exceed the maximum permitted total weight.

The specialist dealer will advise you on choosing a suitable child seat system for the child and the pedelec.

The specialist dealer must install the child seat the first time to ensure that it is safely fitted.

When installing a child seat, the specialist dealer makes sure that the seat and the fastening mechanism for the seat are suitable for the pedelec and that all components are installed and firmly fastened. They will also ensure that shift cables, brake cables, hydraulic lines and electrical cables are adjusted as necessary, the rider has optimum freedom of movement and the pedelec's maximum permitted total weight is complied with.

The specialist dealer will provide instruction on how to handle the pedelec and the child seat.

### 6.7.2 Trailer

**CAUTION**

**Crash caused by brake failure**

The braking distance may be longer if the trailer is carrying excessive load. The long braking distance can cause a crash or an accident and injuries.

▶ Never exceed the specified trailer load.

**Notice**

▶ The operating and safety instructions for the trailer system must be observed.

▶ The statutory regulations on the use of bicycle trailers must be observed.

▶ Only use type-approved coupling systems.

A pedelec which is approved for towing a trailer will bear an appropriate adhesive label. You may only use trailers with a tongue load and weight which do not exceed the permitted values.

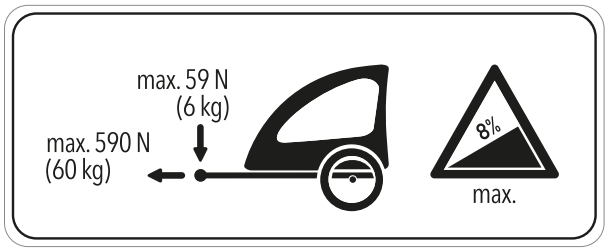



**Figure 57: Trailer sign**

The specialist dealer will advise on choosing a suitable trailer system for the pedelec. The specialist dealer must install the trailer the first time to ensure that it is safely fitted.

#### 6.7.2.1 Trailer approval for ENVIOLO hub gear

Only compatible bicycle trailers are approved for ENVIOLO hub gears.

**KETTLER**

KETTLER QUADRIGA child trailer

**Burley**

| Trailer | Adapter |
|---|---|
| Minnow Bee | Item no. 960038 |
| Honey Bee | |
| Encore | |
| solo | |
| Cub | |
| D'Lite | |
| Normad | |
| Flatbed | |
| Tail Wagon | |

**Croozer**

| Trailer | Adapter |
|---|---|
| Croozer Kid | Item no. 122003516,<br>XL: +10 mm Item no. 122003716<br>Item no. 12200715<br>Croozer axle nut adapter with Thule coupling |
| Croozer Kid Plus | |
| Croozer Cargo | |
| Croozer Dog | |

**Thule**

| Trailer | Adapter |
|---|---|
| Thule Chariot Lite | Item no. 20100798 |
| Thule Chariot Cab | |
| Thule Chariot Cross | |
| Thule Chariot Sport | |
| Thule Coaster XT | |

### 6.7.3 Pannier rack

The specialist dealer will advise on choosing a suitable pannier rack.

The specialist dealer must install the pannier rack the first time to ensure that it is safely fitted.

When installing a pannier rack, the specialist dealer makes sure that the fastening mechanism is suitable for the pedelec and that all components are installed and firmly fastened. They will also ensure that shift cables, brake cables, hydraulic lines and electrical cables are adjusted as necessary, the rider has optimum freedom of movement and the pedelec's maximum permitted total weight is not exceeded.

The specialist dealer will provide instruction on how to handle the pedelec and the pannier rack.

### 6.7.4 Mobile holder

**Only applies to pedelecs with this equipment**

A holder for SP Connect mobile case is fitted to the stem.

- ✓ Observe the operating instructions for the mobile and the SP Connect mobile case.
- ✓ Use on tarmacked roads only.
- ✓ Protect mobile from theft.
- ▶ To attach: insert the SP Connect mobile case in the holder and turn 90° to the right.
- ▶ To release: turn the SP Connect mobile case 90° to the left and remove.

### 6.7.5 Suspension fork coil spring

If the desired suspension fork sag cannot be achieved after adjustment, the coil spring assembly must be replaced with a softer or harder spring.

A softer coil spring assembly must be installed to increase the sag.

A harder coil spring assembly must be installed to decrease the sag.

### 6.7.6 Tubeless and airless

Riding a bike without tyre tubes reduces the risk of tyre punctures and even avoids them completely.

The specialist dealer will advise you on choosing a suitable tyre system for the pedelec.

The conversion to tubeless or airless tyres must be carried out by a specialist dealer to ensure the safety.

## 6.8 Check list before each ride

▶ Check the pedelec before each ride.

⇨ Take the pedelec out of service if you spot any anomalies.

| | |
|---|---|
| ☐ | Check that the pedelec is complete. |
| ☐ | Check the battery is firmly in place. |
| ☐ | Check that the lighting, reflector and brake, for instance, are sufficiently clean. |
| ☐ | You must check that the mudguards, the pannier rack and the chain guard are securely installed. |
| ☐ | Check that the front and rear wheels run true. This is particularly important if the pedelec been transported or secured with a lock. |
| ☐ | Check the valves and the tyre pressure. Adjust as necessary before each ride. |
| ☐ | If the bicycle has a hydraulic rim brake, check whether the locking levers are fully closed in their final positions. |
| ☐ | Check the front and rear wheel brakes to make sure that they are working properly. To do so, push the brake levers while stationary to check whether resistance is generated in the usual brake lever position. The brake must not lose any brake fluid. |
| ☐ | Check that the riding light is working. |
| ☐ | Check for unusual noises, vibrations, smells, staining, deformation, cracks, scores, abrasion and wear. This indicates material fatigue. |
| ☐ | Inspect suspension system for cracks, dents, bumps, parts or leaking oil. Look at concealed sections on the pedelec's lower surface. |
| ☐ | If quick releases are used check them to make sure that they are fully closed in their end position. |
| ☐ | Be alert to any unusual operating sensations when braking, pedalling or steering. |

## 6.9 Raising the kickstand

▶ Use your foot to raise the kickstand completely before setting off.

## 6.10 Using the pannier rack

**⚠ CAUTION**

**Crash caused by loaded pannier rack**

The pedelec is handled differently with a loaded *pannier rack*, in particular when the rider needs to steer and brake. This can lead to a loss of control. This may cause a crash with injuries.

▶ You should practice how to use a loaded *pannier rack* safely before using the pedelec in public spaces.

**Crushing the fingers in the spring flap**

The spring flap on the *pannier rack* operates with a high clamping force. There is a risk of crushing the fingers.

▶ Never allow the spring flap to snap shut in an uncontrolled manner.

▶ Be careful where you position your fingers when closing the spring flap.

**Crash caused by unsecured baggage**

Loose or unsecured objects on the *pannier rack*, e.g. belts, may become caught in the rear wheel. This may cause a crash with injuries.
Objects which are fastened to the pannier rack may cover the *reflectors* and the *riding light*. Other users may not see the pedelec on public roads as a result. This may cause a crash with injuries.

▶ Secure any objects which are attached to the *pannier rack* sufficiently.

▶ Objects fastened to the *pannier rack* must never cover the *reflectors*, the *headlight* or the *rear light*.

▶ Distribute the baggage as evenly as possible between the left- and right-hand side.

▶ We recommend the use of panniers and baggage baskets.

The maximum load bearing capacity is indicated on the *pannier rack*.

▶ Never exceed the maximum permitted *total weight* when packing the pannier.

▶ Never exceed the maximum load bearing capacity of the pannier rack.

▶ Never modify the pannier rack.

## 6.11 Using the saddle

▶ Do not wear studded jeans as these can damage the saddle covering.

▶ Wear dark clothes for your first few rides as new leather saddles can stain clothing.

## 6.12 Rechargeable battery

✓ Switch off the battery and the drive system before removing or inserting the battery.

### 6.12.1 Removing the battery

**1** Turn locking lever to left.

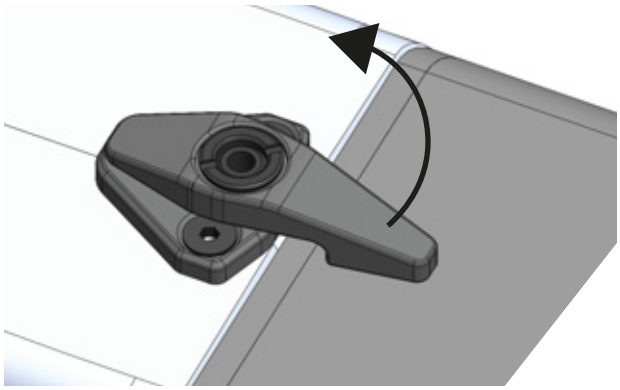


**Figure 58: Opening the locking lever**

**2** Use your right hand to push the battery up into the frame.

⇨ The lock hook is disengaged in the frame.

**3** Hold underneath the battery with your right hand. Press key towards the down tube.

⇨ The lock hook releases the battery.

**4** The battery will now fall out of the frame or can be pulled out of the down tube, depending on how much space there is between the battery and down tube.

**5** Remove the key from the lock.

### 6.12.2 Inserting the battery

**1** Place the battery into the lower mount with the contacts facing the front.

**2** Open the lock with the key.

**3** Press the key towards the down tube and hold.

⇨ The lock hook in the frame clears the way for the battery.

**4** Swivel the battery into the down tube. Apply a little pressure to push the battery into the frame.

**5** Release the key.

**6** The lock hook moves into the secure position and holds the battery.

**7** Close the lock. Remove the key.

**8** Turn locking lever to right.

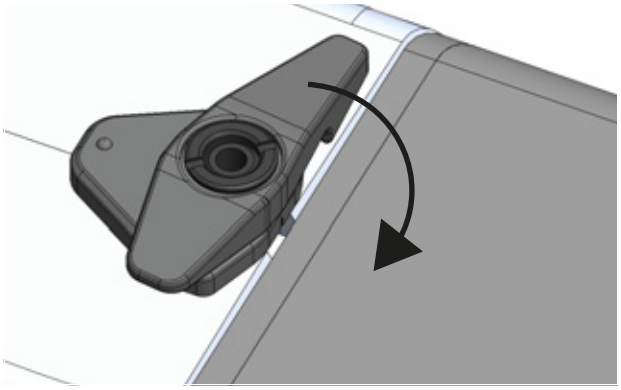


**Figure 59: Closing the locking lever**

**9** Check the battery is firmly in position.

### 6.12.3 Charging the battery

▶ If an error occurs during the charging process, a system message is displayed. Remove the charger and battery from operation immediately and follow the instructions.

✓ Contact your specialist dealer if you are unable to recharge the battery or it is damaged.

✓ The battery can remain on the pedelec or can be removed for charging.

**1** Remove the rubber cover from the battery.

**2** Connect the mains plug of the charger to a normal domestic, grounded socket.

**3** Connect the charging cable to the battery's charging port. Only use the charger supplied in the scope of delivery.

⇨ The charging process starts automatically.

The battery level indicator shows the charge level during charging.

| LED 1,2,3,4,5 | Battery level |
|---|---|
| ●●●●● | 100 - 80% |
| ●●●●○ | 79 - 60% |
| ●●●○○ | 59 - 40% |
| ●●○○○ | 39 - 20% |
| ●○○○○ | 19 - 10% |
| ✷○○○○ | 9 - 0% |

**Table 31: Battery level indicator on rechargeable battery**

When the drive system is switched on, the *display screen* will show the charging process.

| Symbol | Charging |
|---|---|
|  | 0 - 5% |
|  | 5 - 39% |
|  | 40 - 59% |
|  | 60 - 70% |
|  | 70 - 90% |
|  | 90 - 100% |

**Table 32: Battery level indicator on on-board computer**

⇨ The charging process is complete when the LEDs on the battery level indicator go out.

### 6.12.4 Waking the battery

✓ When not used for a longer period, the battery switches to sleep mode for self-protection. The LEDs on the battery level indicator do not light up.

▶ Press the **On-Off button (battery)**.

▶ The battery level indicator shows the charge level.

## 6.13 Electric drive system

### 6.13.1 Switching on the electric drive system

**CAUTION**

**Crash caused by lack of readiness for braking**

When it is switched on, the drive system can be activated by the application of force on the pedals. There is a risk of a crash if the drive is activated unintentionally and the brake is not reached.

▶ Never start the electric drive system, or switch it off immediately, if the brake cannot be reached safely and reliably.

✓ A sufficiently charged battery has been inserted into the pedelec.

✓ The battery is firmly positioned. The key has been removed.

▶ Press the **On-Off button (on-board computer)**.

**or**

▶ Press the **On-Off button (battery)** briefly.

⇨ The indicator will switch on after a few seconds.

⇨ If the drive system is switched on, the drive is activated as soon as the pedals are moved with sufficient force.

### 6.13.2 Switching off the drive system

The system switches off automatically several minutes after the last command. The following options are available to manually switch off the drive system:

▶ Press the **On-Off button (on-board computer)**.

**or**

▶ Press the **On-Off button (battery)** for a long time.

⇨ The display and LEDs on the battery level indicator will go out.

## 6.14 On-board computer

The on-board computer consists of an LCD display, 2 rocker switches and 3 buttons.


**Figure 60: Display details**

| | |
|---|---|
| 1 | **Plus button** |
| 2 | On-Off button |
| 3 | **Light button** |
| 4 | **Settings button** |
| 5 | LCD display |
| 6 | **Minus button** |

**Table 33: Display overview**

### 6.14.1 Using the riding light

✓ To switch on the *riding light*, the drive system needs to be switched on first.

▶ Press the **light button**.

⇨ The *riding light* is switched on. The display backlight is switched on.

**or**

▶ Press the **light button** again.

⇨ The *riding light* is switched off. The display backlight is switched off.

### 6.14.2 Using the push assist system

The push assist helps the rider to push the pedelec. The speed can be a maximum of 6 km/h in this case.

✓ The tractive power of the push assist and its speed can be influenced by the selection of gear. We recommend using first gear for cycling uphill to protect the drive.

**1** Press and hold the **plus button**.

⇨ The push assist system is activated.

**2** Release the **plus button** to switch off the push assist.

⇨ The push assist system switches off automatically as soon as the pedelec pedals are used or the speed exceeds 6 km/h.

### 6.14.3 Selecting the levels of assistance

▶ Press the **plus button**.

⇨ The level of assistance is increased.

**or**

▶ Press the **minus button**.

⇨ The level of assistance is reduced.

### 6.14.4 Changing the kilometre display unit

▶ Press and hold the **settings button**.

The kilometre display unit changes between metric units of measure (km/h) and imperial units of measure (mph).

### 6.14.5 Switching the journey information

The screen shows three pieces of journey information:

| Indicator | Function |
|---|---|
| TRP | Trip distance |
| R | Remaining pedelec range |
| T | Total trip distance completed by pedelec |

The standard setting for the display is the trip distance (TRP).

The displayed *journey information* can be changed and partially reset.

**1** Press the **settings button**.

⇨ The remaining pedelec range (R) is shown.

**2** Press the **settings button** again.

⇨ Total trip distance (T) completed by pedelec is shown.

**3** Press the **settings button** again.

⇨ The trip distance (TRP) is shown.

#### 6.14.5.1 Deleting the journey distance

▶ Press and hold the **minus button**.

⇨ The trip distance is reset to 0 km.

## 6.15 Brake

**⚠WARNING**

**Crash caused by brake failure**

If the brakes are applied continuously for a long time (e.g. while riding downhill for a long time), the fluid in the brake system may heat up. This may create a vapour bubble. Any air bubbles or water contained in the brake system may expand due to heat. This may suddenly make the lever travel wider. This may cause a crash with serious injuries.

- ▶ Release the brake regularly when riding downhill for a longer period of time.
- ▶ Never use the pedelec if the brakes don't work properly or you can feel no resistance when you grip the brake handle. Consult a specialist dealer.

The drive force of the motor is shut off during the ride as soon as the rider no longer pedals. The drive system does not switch off when braking.

Correct handling of the brake helps control the pedelec and prevents crashes.

- ▶ In order to achieve optimum braking results, do not pedal while braking.
- ▶ Shift your body weight backwards and down as far as possible.
- ▶ Practice braking and emergency braking before using the pedelec in public spaces.

### 6.15.1 Using the brake lever

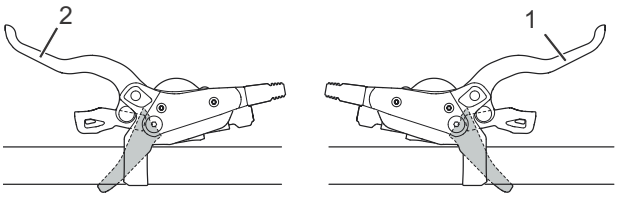



**Figure 61: Front (2) and rear (1) brake lever – Shimano brake used as an example**

- ▶ Push the left-hand *brake lever* to apply the *front wheel brake*.
- ▶ Push the right-hand *brake lever* to apply the *rear wheel brake*.

## 6.16 Suspension and damping

### 6.16.1 Suspension fork compression adjuster

The compression adjuster makes it possible to make quick adjustments to the fork's suspension behaviour to adapt to changes in terrain. It is intended for adjustments made during the ride. The compression adjuster controls the compression lifting speed or the rate at which the fork deflects slow impacts. The compression adjuster influences the absorption of bumps and its efficiency when the rider's weight shifts or during transitions, cornering, uniform impacts caused by bumps and when braking.

When optimally adjusted, the fork counteracts deflection, stays higher in its deflection range and helps the rider to maintain speed while riding on hilly parts of terrain. The fork deflects quickly and unhindered when the bike hits a bump and absorbs the bump. Traction is retained (blue line).

**Figure 62: Optimum performance on hilly terrain**

**Compression adjuster set to hard**

- Causes the suspension fork to move higher within the deflection range. This makes it easier for the rider to improve efficiency and maintain momentum over uniformly hilly terrain and around bends.
- Deflection may feel somewhat harder on more rugged terrain.

**Compression adjuster set to soft**

- Causes the fork to deflect quickly and easily. This may make it easier for the rider to maintain speed and momentum when riding over more rugged terrain.
- Deflection may feel somewhat less hard on more rugged terrain.

**Figure 63: Optimum performance over bumps**

When optimally adjusted, the fork deflects quickly and unhindered when the bike hits bumps and absorbs a bump. Traction is retained (blue line). The fork responds quickly to the bump.

The headset and handlebars rise slightly when absorbing a bump (green line).

**Threshold**

The damping threshold prevents deflection until a medium impact or downward force occurs. Threshold mode increases drive efficiency over level terrain.

The threshold setting can be used to improve pedalling efficiency over flat, hilly, level or slightly rugged terrain. In threshold mode, higher pedelec speeds lead to greater impact force when a pedelec hits a bump, causing the fork to deflect, and the bump is absorbed.

**The fork threshold**

- When the compression adjuster is in the open position (against the stop in an anti-clockwise direction), the suspension fork deflects quickly and unhindered through its entire deflection range when an impact or downward force occurs.
- When the compression adjuster is in the threshold position, the suspension fork counteracts deflection until a medium impact or downward force occurs.
- When the compression adjuster is in the blocked position (against the stop in a clockwise direction), the suspension fork counteracts deflection throughout its deflection range until a strong impact or downward force occurs.

### 6.16.1.1 Adjusting the Suntour compression adjuster


**Figure 64: Suntour compression adjuster in open (1) and closed (2) position**

▶ The compression adjuster is open in the OPEN position.

▶ The compression adjuster is blocked in the LOCK position.

▶ The positions between OPEN and LOCK provide fine adjustment of compression damping. We recommend setting the compression adjuster to the OPEN position first.

## 6.17 Gear shift

The selection of the appropriate gear is a prerequisite for a physically comfortable ride and making sure that the electric drive system functions properly. The ideal pedalling frequency is between 70 and 80 revolutions per minute.

▶ Stop pedalling briefly when changing gears. This makes it easier to switch gears and reduces wear on the drivetrain.

### 6.17.1 Using the derailleur gears

The speed and range can be increased while applying the same force if you select the right gear. Use the derailleur gears.

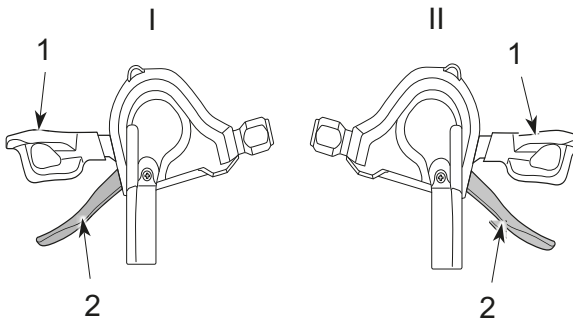



**Figure 65: Down shifter (1) and up shifter (2) on the left (I) and right (II) gear shift**

▶ Select the appropriate gear with the *shifter*.

⇨ The gear shift switches the gear.

⇨ The shifter returns to its original position.

▶ Clean and lubricate the rear derailleur if gear changes block.

## 6.18 Parking the pedelec

**Notice**

Heat or direct sunlight can cause the *tyre pressure* to increase above the permitted maximum pressure. This can destroy the *tyres*.

- ▶ Never park the pedelec in the sun.
- ▶ On hot days, regularly check the *tyre pressure* and adjust it as necessary.

Moisture penetrating at low temperatures may impair individual functions due to the open structural design.

- ▶ Always keep the pedelec dry and free from frost.
- ▶ If the pedelec is to be used at temperatures below 3 °C, the specialist dealer must carry out an inspection and prepare it for winter use.

The pedelec's force of weight may cause the kickstand to sink into soft ground, possible causing the pedelec to topple over as a result.

- ▶ Park the pedelec on firm, level ground only.

**1** Switch off the drive system (see Section 6.13.2).

**2** After getting off, use your foot to lower the kickstand completely before parking. Ensure that it is stable.

**3** Park the pedelec carefully and check that it is stable.

**4** Clean the suspension fork and pedals (see Section 7.1.)

**5** Protect the saddle with a saddle cover if you park the pedelec outside.

**6** Secure the pedelec with a bicycle lock.

**7** Remove the battery (see Section 6.12) and, where necessary, your mobile (see Section 6.7.4) to ensure protection against theft.

# 7 Cleaning and servicing

### Cleaning check list

| | | |
|---|---|---|
| ☐ | Clean the pedals | after each ride |
| ☐ | Clean the suspension fork and, if necessary, rear frame damper | after each ride |
| ☐ | Cleaning the battery | once a month |
| ☐ | Chain (mainly tarmacked road) | every 250–300 km |
| ☐ | Basic cleaning and preservation of all components | at least every six months |
| ☐ | Clean the charger | at least every six months |
| ☐ | Clean and lubricate the height-adjustable seat post | every six months |

### Maintenance check list

| | | |
|---|---|---|
| ☐ | Check USB rubber cover position | before each ride |
| ☐ | Check for tyre wear | once a week |
| ☐ | Check for rim wear | once a week |
| ☐ | Check tyre pressure | once a week |
| ☐ | Check brakes for wear | once a month |
| ☐ | Check electrical cables and Bowden cables for damage and ensure they are fully functional | once a month |
| ☐ | Check chain tension | once a month |
| ☐ | Check tension of the spokes | every three months |
| ☐ | Check the gear shift setting | every three months |
| ☐ | Check suspension fork and, if necessary, rear frame damper for wear and ensure fully functional | every three months |
| ☐ | Check for wear on brake discs | at least every six months |

**⚠ CAUTION**

**Crash and falling caused by unintentional activation**

There is a risk of injury if the drive system is activated unintentionally.

▶ Remove the battery before cleaning.

Servicing measures must be performed regularly. Contact your specialist dealer if you are unsure.

## 7.1 Cleaning after each ride

**Required tools and cleaning agents:**

- Cloth
- Air pump
- Brush
- Water
- Dish-washing liquid
- Bucket

### 7.1.1 Cleaning the suspension fork

▶ Remove dirt and deposits from the stanchions and deflector seals with a damp cloth.

▶ Check the stanchions for dents, scratches, staining or leaking oil.

▶ Check the air pressure.

▶ Lubricate the dust seals and stanchions.

### 7.1.2 Cleaning the rear frame damper

▶ Remove dirt and deposits from the damper body with a damp cloth.

▶ Check rear frame damper for dents, scratches, staining or leaking oil.

### 7.1.3 Cleaning the pedals

▶ Clean with a brush and soapy water after riding through dirt or rain.

⇨ Service the pedals after cleaning.

## 7.2 Basic cleaning

**CAUTION**

**Crash caused by brake failure**

The braking effect may be unusually poor temporarily after cleaning, servicing or repairs. This may cause a crash with injuries.

▶ Never apply care products or oil to the brake discs or brake linings, or the braking surfaces on the rims.

▶ After cleaning, servicing or repair, carry out a few test brake applications.

**Notice**

Water may enter the inside of the bearings if you use a steam jet. This dilutes the lubricant inside, the friction increases and, as a result, the bearings are permanently damaged in the long term.

▶ Never clean the pedelec with a pressure washer.

Greased parts, such as the seat post, the handlebars or the stem, may no longer be safely and reliably clamped.

▶ Never apply grease or oil to clamping sections.

**Required tools and cleaning agents:**

- Cloths
- Sponge
- Air pump
- Brush
- Toothbrush
- Paintbrush
- Watering can
- Bucket
- Water
- Dish-washing liquid
- Degreaser
- Lubricant
- Brake cleaner or spirit

✓ Remove battery before basic cleaning.

### 7.2.1 Cleaning the frame

1 Soak the entire frame with dish-washing detergent if the dirt is thick and ingrained.

2 After leaving it to soak for a short time, remove the dirt and mud with a sponge, brush and toothbrushes.

3 Use a watering can or your hand to rinse the frame.

4 Service the frame after cleaning.

### 7.2.2 Cleaning the stem

1 Clean stem with a cloth and soapy water.

2 Service the stem after cleaning.

### 7.2.3 Cleaning the wheel

**WARNING**

**Crash caused by braking hard on rims**

A rim can break and block the wheel if you brake hard. This may cause a crash with serious injuries.

Check rim *wear* on a regular basis.

1 Check the tyres, rims, spokes and spoke nipples for any damage while cleaning the wheel.

2 Use a sponge and a brush to clean the hub and spokes from the inside to the outside.

3 Clean the rim with a sponge.

### 7.2.4 Cleaning the drive elements

1 Spray the cassette, the chain wheels and the front derailleur with a degreasing agent.

2 Clean coarse dirt with a brush after soaking for a short time.

3 Wash down all parts with dish-washing detergent and a toothbrush.

4 Service the drive elements after cleaning.

### 7.2.5 Cleaning the rear frame damper

Only applies to pedelecs with this equipment

▶ Clean rear frame damper with a cloth and soapy water.

### 7.2.6 Cleaning the chain

**Notice**

- ▶ Never use aggressive (acid-based) cleaners, rust removers or degreasers when cleaning the chain.
- ▶ Never use chain cleaning devices or chain cleaning baths.

1 Slightly dampen a brush with dish-washing liquid. Brush both sides of the chain.

2 Dampen a cloth with soapy water. Place the cloth on the chain.

3 Hold and apply slight pressure while slowly turning the rear wheel, so the chain passes through the cloth.

4 If the chain is still dirty afterwards, clean with lubricant.

5 Service the chain after cleaning.

### 7.2.7 Cleaning the battery

**CAUTION**

**Risk of fire and explosion due to penetration by water**

The battery is only protected from simple spray water. Penetration by water can cause a short circuit. The battery may self-ignite and explode.

- ▶ Never clean the battery with a pressure washer, water jet or compressed air.
- ▶ Keep contacts dry and clean.
- ▶ Never immerse the battery in water.
- ▶ Never use cleaning agents.
- ▶ Remove the battery from the pedelec before cleaning.

**Notice**

- ▶ Never clean the battery with solvents, such as oil, thinners, alcohol or corrosion protection, or with cleaning agents.

- ▶ Clean the battery electrical connections with a dry cloth or paintbrush only.
- ▶ Wipe off the decorative sides with a damp cloth.

### 7.2.8 Cleaning the on-board computer

**Notice**

If water enters the on-board computer, it will be permanently damaged.

- ▶ Never immerse the on-board computer in water.
- ▶ Never clean with a pressure washer, water jet or compressed air.
- ▶ Never use cleaning agents.

- ▶ Carefully clean the on-board computer with a soft, damp cloth.

### 7.2.9 Cleaning the motor

**CAUTION**

**Burns from hot motor**

The motor cooler can become extremely hot during use. Touching it may cause burns.

- ▶ Leave the motor to cool before cleaning.

**Notice**

If water penetrates the motor, it will be permanently damaged.

- ▶ Never immerse the motor in water.
- ▶ Never clean with a pressure washer, water jet or compressed air.
- ▶ Never use cleaning agents.

- ▶ Carefully clean the motor with a soft, damp cloth.

### 7.2.10 Cleaning the brake

**WARNING**

**Brake failure due to water penetration**

The brake seals are unable to withstand high pressures. Damaged brakes can fail and cause an accident with injury.

- ▶ Never clean the pedelec with a pressure washer or compressed air.
- ▶ Take great care when using a hosepipe. Never point the water jet directly at the seal section.

- ▶ Clean brake and brake discs with a brush, water and dish-washing detergent.
- ▶ Clean brake discs thoroughly with brake cleaner or spirit.

## 7.3 Servicing

**Required tools and cleaning agents:**

- Cloths
- Toothbrushes
- Dish-washing liquid
- Care oil for frames
- Silicone or Teflon oil
- Acid-free lubricating grease
- Fork oil
- Chain oil
- Degreaser
- Spray oil
- Teflon spray

### 7.3.1 Servicing the frame

- ▶ Dry the frame.
- ▶ Spray with care oil.
- ▶ Clean off the care oil again after a short time.

### 7.3.2 Servicing the stem

- ▶ Apply silicone or Teflon oil to the stem shaft tube and the quick release lever pivot point.
- ▶ If you have speedlifter Twist, also apply oil to the unlocking bolt using the groove in the speedlifter body.
- ▶ Apply a little acid-free lubricant grease between the stem quick release lever and the sliding piece to reduce the quick release lever operating force.

### 7.3.3 Servicing the fork

- ▶ Treat the dust seals with fork oil.

### 7.3.4 Servicing the drive elements

1. Spray the cassette, the chain wheels and the front derailleur with a degreasing agent.
2. Clean coarse dirt with a brush after soaking for a short time.
3. Wash down all parts with dish-washing detergent and a toothbrush.
4. Treat front and rear derailleur articulated shafts and jockey wheels with Teflon spray.

### 7.3.5 Servicing the pedals

- ▶ Treat pedals with spray oil.

### 7.3.6 Servicing the chain

- ▶ Lubricate the chain thoroughly with chain oil.

## 7.4 Maintenance

**CAUTION**

**Crash and falling caused by unintentional activation**

There is a risk of injury if the drive system is activated unintentionally.

▶ Remove the battery before maintenance.

The following maintenance measures must be performed on a regular basis.

### 7.4.1 Wheel

**WARNING**

**Crash caused by braking hard on rims**

A rim can break and block the wheel if you brake hard. This may cause a crash with serious injuries.

▶ Check rim *wear* on a regular basis.

**Notice**

If the tyre pressure is too low in the tyre, the tyre does not achieve its load bearing capacity. The tyre is not stable and may come off the rim.

If the tyre pressure is too high, the tyre may burst.

▶ Check the tyre pressure against the specifications.

▶ *Adjust the tyre pressure* as necessary.

1 Check the *tyres* for wear.

2 Check the *tyre pressure*.

3 Check the *rims* for wear.

⇨ The rims of a rim brake with invisible wear indicator are worn as soon as the wear indicator becomes visible in the area of the rim joint.

⇨ The rims with visible wear indicator are worn as soon as the black, all-round groove on the pad friction surface is no longer visible. We recommend that you also replace the *rims* with every second brake lining replacement.

4 Check the tension of the spokes.

#### 7.4.1.1 Checking the tyres

▶ Check the tyre wear. The tyre is worn if the anti-puncture protection or the carcass cords are visible.

⇨ A specialist dealer will need to change the tyre if it is worn.

#### 7.4.1.2 Checking the rims

▶ Check the *rims* for wear. The rims are worn as soon as the black, all-round groove on the pad friction surface becomes invisible.

⇨ Contact your specialist dealer to have the rims replaced. We recommend that you also replace the *rims* at the same time as every second brake lining replacement.

#### 7.4.1.3 Checking and adjusting the tyre pressure – Dunlop valve

Only applies to pedelecs with this equipment

The tyre pressure cannot be measured on the simple Dunlop valve. The tyre pressure is therefore measured in the filling hose when pumping slowly with the bicycle pump.

It is recommendable to use a bicycle pump with a pressure gauge. The operating instructions for the bicycle pump must be adhered to.

1 Unscrew and remove the valve cap.

2 Connect the bicycle pump.

3 Pump up the tyre slowly and pay attention to the tyre pressure in the process.

4 Correct the tyre pressure according to specifications in the Pedelec pass.

5 If the tyre pressure is too high, unfasten the union nut, let air out and re-tighten the union nut.

6 Remove the bicycle pump.

7 Screw the valve cap tight.

8 Screw the rim nut gently against the rim with the tips of your fingers.

#### 7.4.1.4 Checking and adjusting the tyre pressure – Presta valve

Only applies to pedelecs with this equipment

✓ It is recommendable to use a bicycle pump with a pressure gauge. The operating instructions for the bicycle pump must be adhered to.

**1** Unscrew and remove the valve cap.

**2** Open the knurled nut around four turns.

**3** Carefully apply the bicycle pump so that the valve insert is not bent.

**4** Pump up the tyre slowly and pay attention to the tyre pressure in the process.

**5** Correct the tyre pressure as per the specifications on the tyre.

**6** Remove the bicycle pump.

**7** Tighten the knurled nut with your fingers.

**8** Screw the valve cap tight.

**9** Screw the rim nut gently against the rim with the tips of your fingers.

#### 7.4.1.5 Checking and adjusting the tyre pressure – Schrader valve

Only applies to pedelecs with this equipment


✓ It is recommendable to use a bicycle pump with a pressure gauge. The operating instructions for the bicycle pump must be adhered to.

**1** Unscrew and remove the valve cap.

**2** Attach the bicycle pump.

**3** Pump up the tyre slowly and pay attention to the tyre pressure in the process.

⇨ The tyre pressure has been adjusted as per the specifications.

**4** Remove the bicycle pump.

**5** Screw the valve cap tight.

**6** Screw the rim nut (1) gently against the rim with the tips of your fingers.

### 7.4.2 Brake system

**CAUTION**

**Crash caused by brake failure**

Worn brake discs and brake linings, as well as a lack of hydraulic fluid in the brake cable, reduce the braking power. This may cause a crash with injuries.

▶ Check the brake disc, brake linings and hydraulic brake system on a regular basis. Contact your specialist dealer if any of these components have become worn.

The maintenance interval for the brake depends on the weather conditions and how frequent the bicycle is used. If the pedelec is used under extreme conditions such as rain, dirt or high mileage, maintenance must be performed more frequently.

### 7.4.3 Checking the brake linings for wear

Check brake linings after brake has been fully applied 1,000 times.

**1** Check that the brake linings are no less than 1.8 mm wide at any point and no less than 2.5 mm between the brake lining and supporting plate.

**2** Push brake lever and hold. In doing so, check the transport safety wear gauge can fit between the brake lining supporting plates.

⇨ The brake linings have not reached their wear limit. Contact your specialist dealer if any of these components have become worn.

### 7.4.4 Checking the pressure point

▶ Pull brake lever and hold repeatedly several times.

⇨ If you are unable to clearly detect the pressure point and it changes, the brake needs to be vented. Contact your specialist dealer.

### 7.4.5 Checking the brake discs for wear

▶ Check that the brake disc measures no less than 1.8 mm in depth at any point.

⇨ The brake discs have not reached their wear limit yet; brake discs need to be replaced if they have. Contact your specialist dealer.

### 7.4.6 Checking the electrical cables and brake cables

▶ Check all visible electrical cables and Bowden cables for damage. If the sheathing is compressed, a brake is defective or a light does not work, the pedelec must be removed from service until the lines or cables have been repaired. Contact your specialist dealer.

### 7.4.7 Checking the gear shift

▶ Check the gear shift and the *shifter* or the *gear twist grip* setting and adjust as necessary.

### 7.4.8 Checking the stem

▶ The stem and quick release system must be inspected at regular intervals. The specialist dealer should adjust them if necessary.

▶ If the hexagon socket head screw is also loosened, the headset backlash also needs to be adjusted. Medium-strength thread locker, such as Loctite blue, then needs to be applied to the loosened screws and the screws tightened as per specifications.

▶ Contact your specialist dealer if there is any wear or signs of corrosion.

### 7.4.9 Checking the belt and chain tension

**Notice**

Excessive chain tension increases wear.

If the chain tension is too low, there is a risk that the *chain* or the *drive belt* will slip off the *chain wheels*.

▶ Check the chain tension once a month.

**1** Check the chain tension in three or four positions, turning the crank a full revolution.

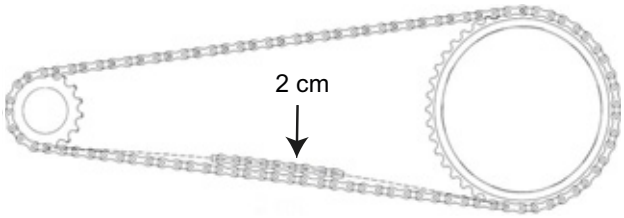



**Figure 66: Checking the chain tension**

**2** If the *chain* can be pushed more than 2 cm, the *chain* or *drive belt* will need to be tensioned again by the specialist dealer.

**3** If the *chain* or the *drive belt* can only be pushed up and down less than 1 cm, you will need to slacken the *chain* or the *drive belt*.

⇨ The optimum chain tension is achieved if the *chain* or the *drive belt* can be pushed a maximum of 2 cm in the middle between the pinion and the toothed wheel. The crank must also turn without resistance.

**4** If a hub gear is fitted, the rear wheel must be pushed backwards or forwards to tighten the chain. Contact your specialist dealer.

**5** Check the handlebar grip is firmly in position.

# 8 Maintenance

**WARNING**

**Injury due to damaged brakes**

Special tools and specialist knowledge are required to repair the brakes. Incorrect or unauthorised assembly can damage the brakes. This may lead to an accident with injuries.

- ▶ Only specialist dealers may carry out repairs on brakes.
- ▶ Only carry out work or changes, such as dismantling, sanding or painting, which are permitted and described in the brake operating instructions.

**Injury to the eyes**

Problems may arise if the settings are not made properly and you may sustain serious injuries as a result.

- ▶ Always wear safety glasses during maintenance work.

**CAUTION**

**Crash and falling caused by unintentional activation**

There is a risk of injury if the drive system is activated unintentionally.

- ▶ Remove the battery before inspection.

**Crash caused by material fatigue**

If the service life of a component has expired, the component may suddenly fail. This may cause a crash with injuries.

- ▶ Have the specialist dealer carry out basic cleaning of the pedelec every six months, preferably at the same time as the required servicing work.

**CAUTION**

**Hazard for the environment due to toxic substances**

The brake system contains toxic and environmentally harmful oils and lubricants. Such fluids will contaminate if they enter the sewers or groundwater.

- ▶ Dispose of lubricants and oils left over after repairs in an environmentally responsible way in accordance with statutory regulations.

**Notice**

The motor is maintenance-free and only qualified specialist personnel may open it.

- ▶ Never open the motor.

You must have the specialist dealer perform maintenance every six months as a minimum. This is the only way to ensure that the pedelec remains safe and fully functional. No matter whether disc brakes need replacing, brakes venting or wheels changing, many maintenance tasks require technical expertise, special tools and special lubricants. The pedelec may become damaged if the stipulated maintenance intervals and procedures are not carried out. That is why only specialist dealers may carry out maintenance.

- ▶ The retailer will check the pedelec based on the maintenance instructions in Section 11.3.
- ▶ The specialist dealer will inspect the pedelec for any signs of material fatigue during basic cleaning.
- ▶ The specialist dealer will check the software version of the drive system and update it. The electrical connections are checked, cleaned and preservative agent is applied. The electrical cables are inspected for damage.
- ▶ The specialist dealer will dismantle and clean the entire suspension fork interior and exterior. They will clean and lubricate the dust seals and slide bushings, check the torques and adjust the fork to the rider's preferred position. They will also replace the sliding collar if the clearance is too great (more than 1 mm on the fork bridge).

- ▶ The specialist dealer will fully inspect the interior and exterior of the rear frame damper, overhaul the rear frame damper, replace all air seals on air forks, overhaul the air suspension, change the oil and replace the dust wipers.
- ▶ They will pay particular attention to rim and brake wear. The spokes are re-tightened in accordance with the findings.

## 8.1 Suspension system

The correct execution of maintenance on the suspension system not only guarantees a long service life, but also ensures optimal performance. Each maintenance interval shows the maximum cycling hours for the corresponding type of recommended maintenance. Depending on terrain and environmental conditions, the performance can be optimised through shorter maintenance intervals.

### 8.1.1 Rear frame damper

**Only applies to pedelecs with this equipment**

**Maintenance intervals**

| | | |
|---|---|---|
| **RockShox rear frame damper** | | |
| ☐ | Service air chamber assembly | Every 50 hours |
| ☐ | Service damper and spring | Every 200 hours |
| **FOX rear frame damper** | | |
| ☐ | Complete maintenance (full interior and exterior inspection, damper overhaul, air spring overhaul, oil change and dust wiper replacement) | Every 125 hours or once a year |
| **Suntour rear frame damper** | | |
| ☐ | Complete shock absorber service including damper reassembly and air seal replacement | Every 100 hours |

**⚠WARNING**

**Injury due to explosion**

The air chamber is pressurised. If the air system is serviced in a rear frame damper, it can explode and cause serious injury.

- ▶ Wear safety goggles, protective gloves and safety clothing when assembling or servicing the vehicle.
- ▶ Release the air for the air chambers. Detach all air insert fitments.
- ▶ Never service or dismantle a rear frame damper if it has not completely rebounded.

**⚠WARNING**

**Intoxication from suspension oil**

Suspension oil irritates the respiratory tract, leads to germ cell mutations and sterility, causes cancer and is toxic to touch.

- ▶ Always wear safety goggles and nitrile gloves when working with suspension oil.
- ▶ Never perform maintenance when you are pregnant.
- ▶ Use an oil catchment tray under the section where the rear frame damper is serviced.

**⚠CAUTION**

**Hazard for the environment due to toxic substances**

The rear frame damper contains toxic and environmentally harmful oils and lubricants. Such fluids will contaminate if they enter the sewers or groundwater.

- ▶ Dispose of lubricants and oils left over after repairs in an environmentally responsible way in accordance with statutory regulations.

Special tools, special lubricants and knowledge of suspension components are required to maintain and repair the rear frame damper.

The rear frame damper may become damaged if the procedure is not followed as described. Only specialist dealers may carry out maintenance on rear frame damper.

### 8.1.2 Suspension fork

**Only applies to pedelecs with this equipment**

#### Maintenance intervals

| | | |
|---|---|---|
| **Suntour suspension fork** | | |
| ☐ | **Maintenance 1**<br>Functional check, fastening and wear test | Every 50 hours |
| ☐ | **Maintenance 2**<br>Maintenance 1 + cleaning entire fork interior and exterior / cleaning and lubrication of dust seals and guides/ plastic bushings / check torques | Every 100 hours |
| **FOX suspension fork** | | |
| ☐ | Full maintenance (complete interior/ exterior inspection, damper overhaul, replacement of air seals on air forks, air suspension overhaul, oil change and dust wiper replacement). | Every 125 hours or once a year |
| **RockShox suspension fork** | | |
| ☐ | Maintenance of stanchions for:<br>Paragon™, XC™ 28, XC 30, 30™, Judy®, Recon™, Sektor™, 35™*, Bluto™, REBA®, SID®, RS-1™, Revelation™, PIKE®, Lyrik™, Yari™, BoXXer | Every 50 hours |
| ☐ | Maintenance of spring and damper unit for:<br>Paragon, XC 28, XC 30,30 (2015 and earlier), Recon (2015 and earlier), Sektor (2015 and earlier), Bluto (2016 and earlier), Revelation (2017 and earlier), REBA (2016 and earlier), SID (2016 and earlier), RS-1 (2017 and earlier), BoXXer (2018 and earlier) | Every 100 hours |
| ☐ | Maintenance of spring and damper unit for:<br>30 (2016+), Judy (2018+), Recon (2016+), Sektor (2016+), 35 (2020+)*, Revelation (2018+), Bluto (2017+), REBA (2017+), SID (2017+), RS-1 (2018+), PIKE (2014+), Lyrik (2016+), Yari (2016+), BoXXer (2019+) | Every 200 hours |

**⚠ WARNING**

**Injury due to explosion**

The air chamber is pressurised. If the air system is serviced in a faulty suspension fork, it can explode and cause serious injury.

- ▶ Wear safety goggles, protective gloves and safety clothing when assembling or servicing the vehicle.
- ▶ Release the air for the air chambers. Detach all air insert fitments.
- ▶ Never service or dismantle a suspension fork if it has not completely rebounded.

**⚠ CAUTION**

**Hazard for the environment due to toxic substances**

The suspension fork contains toxic and environmentally harmful oils and lubricants. Such fluids will contaminate if they enter the sewers or groundwater.

- ▶ Dispose of lubricants and oils left over after repairs in an environmentally responsible way in accordance with statutory regulations.

Special tools, special lubricants and knowledge of suspension components are required to service and repair suspension forks.

The suspension fork may be damaged if procedures are not followed as described. Only specialist dealers may carry out maintenance on the suspension fork.

### 8.1.3 Suspension seat post

**Only applies to pedelecs with this equipment**

#### Maintenance intervals

| | | |
|---|---|---|
| **by.schulz seat post** | | |
| ☐ | Check all screws for correct tightening torques for:<br>G1 and G2 | After 250 km and every 1,500 km |
| **Suntour suspension seat post** | | |
| ☐ | **Maintenance 1** | Every 100 hours |
| **RockShox suspension seat post** | | |
| ☐ | Venting of remote control lever and/or maintenance of lower seat post unit for:<br>Reverb™ A1/A2/B1, Reverb Stealth A1/A2/B1/C1*, Reverb AXS™ A1* | Every 50 hours |
| ☐ | Venting of remote control lever and/or maintenance of lower seat post unit for:<br>Reverb B1, Reverb Stealth B1/C1*, Reverb AXS A1* | Every 200 hours |
| ☐ | Complete maintenance of seat post for:<br>Reverb A1/A2, Reverb Stealth A1/A2 | Every 200 hours |
| ☐ | Complete maintenance of seat post for:<br>Reverb B1, Reverb Stealth B1 | Every 400 hours |
| ☐ | Complete maintenance of seat post for:<br>Reverb AXS A1*, Reverb Stealth C1* | Every 600 hours |
| **All other suspension seat posts** | | |
| ☐ | Maintenance | Every 100 hours |

Special tools, special lubricants and knowledge of suspension components are required to service and repair suspension seat posts.

The suspension seat post may be damaged if procedures are not followed as described. Only specialist dealers may carry out maintenance on the suspension seat post.

## 8.2 Axle with quick release

**⚠ CAUTION**

**Crash caused by unfastened quick release**

A faulty or incorrectly installed quick release may become caught in the brake disc and block the wheel. This will cause a crash.

▶ Install the front wheel quick release lever on the opposite side to the brake disc.

**Crash caused by faulty or incorrectly installed quick release**

The brake disc becomes very hot during operation. Parts of the quick release may become damaged as a result. The quick release comes loose. This will cause a crash with injuries.

▶ The front wheel quick release lever and the brake disc must be situated on opposite sides.

**Crash caused by incorrectly set clamping force**

Excessively high clamping force will damage the quick release and cause it to lose its function.

Insufficient clamping force will cause a detrimental transmission of force. The suspension fork or the frame may break. This will cause a crash with injuries.

▶ Never fasten a quick release using a tool (e.g. hammer or pliers).

▶ Only use the clamping lever with the specified set clamping force.

### 8.2.1 Checking the quick release

▶ Check the position and clamping force of the quick release lever. The quick release lever must be flush with the lower housing. You must be able to see a slight impression on the palm of your hand when you close the quick release lever.

**Figure 67: Adjusting the quick release clamping force**

▶ Use a 4 mm hexagon socket spanner to adjust the clamping lever clamping force if required. Check the quick release lever position and clamping force.

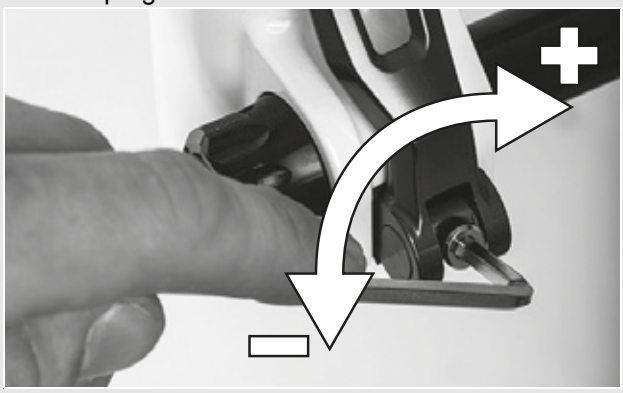


**Figure 68: Adjusting the quick release clamping force**

## 8.3 Maintaining the stem

Incorrectly fastened screws may come loose due to impact. The stem may no longer be firmly fixed in its position as a result. This will cause a crash with injuries.

▶ Check the handlebars and the stem's quick release system are firmly in position after the first two hours of riding.

## 8.4 Adjusting the gear shift

If you cannot select the gears effortlessly, you will need to adjust the setting for the shift cable tension.

▶ Carefully pull the *adjusting sleeve* away from the shifter housing, turning it as you do so.

▶ Check the gear shift function after each adjustment.

### 8.4.1 Cable-operated gear shift, single-cable

**Only applies to pedelecs with this equipment**

▶ For a smooth gear shift, adjust the adjusting sleeves on the shifter housing.

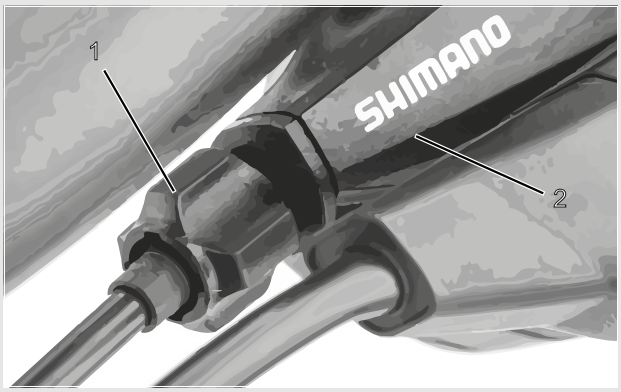



**Figure 69: Adjusting sleeve (1) for the single-cable, cable-operated gear shift with shifter housing (2), example**

### 8.4.2 Cable-operated gear shift, dual-cable

**Only applies to pedelecs with this equipment**

- ▶ For a smooth gear shift, set the adjusting sleeves underneath the chain stay on the frame.
- ▶ The shift cable has around 1 mm play when it is pulled out gently.

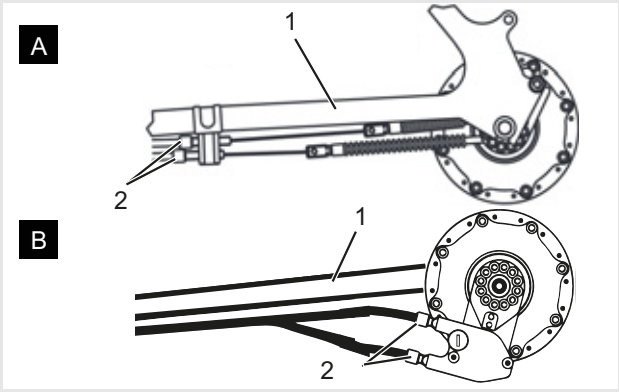



**Figure 70: Adjusting sleeves (2) on two alternative versions (A and B) of a dual-cable, cable-operated gear shift on the chain stay (1)**

### 8.4.3 Cable-operated twist grip, dual-cable

**Only applies to pedelecs with this equipment**

- ▶ For a smooth gear shift, set the adjusting sleeves on the shifter housing.
- ⇨ There is noticeable play of around 2–5 mm (1/2 gear) when twisting the twist grip.

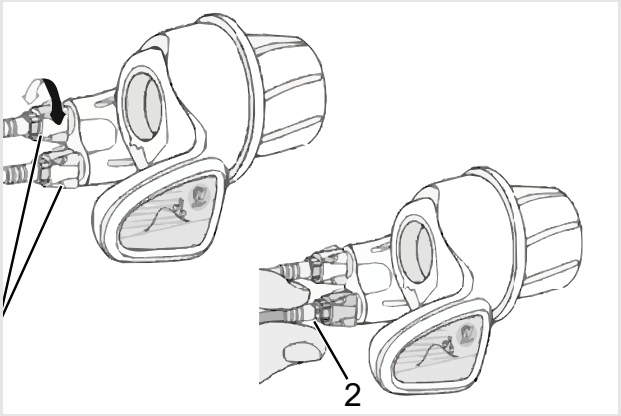



**Figure 71: Twist grip with adjusting sleeves (1) and play of the gear shift (2)**

# 9 Troubleshooting, fault clearance and repair

## 9.1 Troubleshooting and fault clearance

The components of the drive system are checked constantly and automatically. If an error is detected, an error message appears on the *display*. The drive may be shut off automatically, depending on the type of error.

### 9.1.1 The drive system or display do not start up

If the display and/or the drive system do not start up, proceed as follows:

**1** Check whether the battery is switched on. If not, start the battery.

⇨ Contact your specialist dealer if the battery level indicator LEDs do not light up.

**2** If the LEDs on the battery level indicator light up, but the drive system does not start up, remove the battery.

**3** Insert the battery.

**4** Start the drive system.

**5** If the drive system does not start up, remove the battery.

**6** Clean all the contacts with a soft cloth.

**7** Insert the battery.

**8** Start the drive system.

**9** If the drive system does not start up, remove the battery.

**10** Fully charge the battery.

**11** Insert the battery.

**12** Start the drive system.

**13** If the drive system does not start up, remove the display.

**14** Fasten the display.

**15** Start the drive system.

**16** Contact your specialist dealer if the drive system does not start up.

### 9.1.2 Error message

If an error message is displayed, run through the following actions:

**1** Make a note of the system message. There is a table of all error messages in Section 6.2.

**2** Shut off and re-start the drive system.

**3** If the system message is still displayed, remove the battery and then re-insert.

**4** Re-start the drive system.

**5** If the system message is still displayed, contact your specialist dealer.

### 9.1.3 Assistance function errors

| Symptom | Cause | Remedy |
|---|---|---|
| Assistance is not available. | Is the battery charged sufficiently? | **1** Check battery is charged.<br>**2** Recharge the battery if it is almost flat. |
| | Are you riding up long inclines in summer weather or have you been carrying a heavy load for a long time? The battery may be too hot. | **1** Switch off the drive system.<br>**2** Wait a moment and then check again. |
| | The rechargeable battery, the display or the assistance switch may be connected incorrectly or one or more of them may have a problem. | ▶ Contact your specialist dealer. |
| | Is the speed too high? | ▶ Check on-screen indicators. The electronic gear assistance only works up to a maximum speed of 25 km/h. |
| Assistance is not available. | Are the pedals being pushed? | ▶ The pedelec is not a motorbike. Push the pedals. |
| | Is the assistance mode set to [OFF]? | **1** Set the assistance mode to a different level of assistance than [OFF].<br>**2** Contact your specialist dealer if you still feel that the no assistance is being supplied. |
| | Is the system switched on? | ▶ Press the battery on-off button to switch it on again. |
| The assisted journey distance is too short. | The journey distance can be shorter depending on the road conditions, the gear level and the entire light usage time. | **1** Check battery is charged.<br>**2** Recharge the battery if it is almost flat. |
| | The battery does not perform as well in winter weather. | This does not indicate a problem. |
| | The battery is a consumable. Repeated charging and long periods of use cause the battery to degrade (loss of power). | ▶ If the distance you can cover with one single charge is very short, replace the battery with a new one. |
| | Is the battery fully charged? | ▶ If the distance covered with a fully charged battery has become shorter, the battery may be affected. Replace the battery with a new one. |
| It is difficult to pedal. | Are the tyres pumped to an adequate pressure? | ▶ Pump up tyres. |
| | Is the assistance mode set to OFF? | **1** Set level of assistance to [BOOST].<br>**2** Contact your specialist dealer if you still feel that the no assistance is being supplied. |
| | The battery charge might be low. | ▶ Check how powerful assistance is again after charging the battery. Contact your specialist dealer if you still feel that the pedelec does not provide assistance. |
| | Have you switched on the system with your foot on the pedal? | **1** Switch the system on again without applying pressure to the pedal. Contact your specialist dealer if you still feel that the pedelec does not supply assistance. |

**Table 34: Level of assistance error solution**

### 9.1.4 Battery error

| Symptom | Cause | Remedy |
|---|---|---|
| The battery discharges quickly. | The battery may be at the end of its useful life. | ▶ Replace the battery with a new one. |
| The battery cannot be recharged. | Is the charger mains plug firmly connected to the socket? | **1** Pull out the charger mains plug and reconnect it again.<br>**2** Try charging again.<br>**3** If the battery still won't recharge, contact your specialist dealer. |
| | Is the charger plug firmly inserted into the battery? | **1** Pull out the charger mains plug and reconnect it again.<br>**2** Try charging again.<br>**3** If the battery still won't recharge, contact your specialist dealer. |
| | Is the adapter firmly connected to the charger plug or the battery's charging port? | **1** Connect the adapter firmly to the charger plug or the battery's charging port.<br>**2** Re-start the charging process.<br>**3** Contact your specialist dealer if the battery still does not charge. |
| | Is the battery, the connection terminal for the battery charger, charger adapter or battery dirty? | **1** Wipe the connection terminal with a dry cloth to clean it.<br>**2** Try charging again.<br>**3** If the battery still won't recharge, contact your specialist dealer. |
| The battery does not start charging when the charger is connected. | The battery may be at the end of its useful life. | ▶ Replace the battery with a new one. |
| The battery and charger become hot. | The temperature of the battery or the charger may have exceeded the operating temperature range. | **1** Stop the charging process.<br>**2** Wait a while and then start charging again.<br>**3** If the battery is too hot to touch, there might be a problem with the battery. Contact your specialist dealer. |
| The charger is hot. | If the charger is used continuously to charge batteries, it may become hot. | ▶ Wait a while before using the charger again. |
| The LED on the charger does not light up. | Is the charger plug firmly connected to battery? | **1** Check the connection to the external body before inserting the charger plug again.<br>**2** If nothing changes, contact your specialist dealer. |
| | Is the battery fully charged? | The LED on the battery charger will go out when the battery is fully charged. This is not a malfunction.<br>**1** Pull out the charger mains plug and reconnect it again.<br>**2** Then try charging again.<br>**3** If the LED on the charger still does not light up, contact your specialist dealer. |
| The battery cannot be removed. | | ▶ Contact your specialist dealer. |
| The battery cannot be inserted. | | ▶ Contact your specialist dealer. |
| Fluid is leaking from the battery. | | ▶ Observe all the safety instructions in Section 2 Safety. |

**Table 35: Error solution for battery**

| Symptom | Cause | Remedy |
|---|---|---|
| There is an unusual smell. | | **1** Move away from the battery immediately.<br>**2** Contact the fire service immediately.<br>**3** Observe all the safety instructions in Section 2 Safety. |
| Fumes are emitted from the battery. | | **1** Move away from the battery immediately.<br>**2** Contact the fire service immediately.<br>**3** Observe all the safety instructions in Section 2 Safety. |

**Table 35: Error solution for battery**

### 9.1.5 Display errors

| Symptom | Cause | Remedy |
|---|---|---|
| No data are shown on the monitor if you press the on-off button on the battery. | The battery charge level may be insufficient. | **1** Charge the battery.<br>**2** Switch the power on. |
| | Is the power switched on? | ▶ Keep the battery on-off button pressed down to switch on the power again. |
| | Is the battery charged? | ▶ If the battery is fitted to the pedelec and is being charged, it cannot be switched on. Stop the charging process. |
| | Is the connector fitted to the power cable correctly? | ▶ Check that the power cable connector has not been disconnected. If you are not sure, contact your specialist dealer. |
| | A component may be connected which the system is unable to recognise. | ▶ Contact your specialist dealer. |
| The gear level is not shown on the display screen. | The gear level is only shown if the electronic gear shift is used. | ▶ Check whether the power cable pug has been disconnected. If you are not sure, contact your specialist dealer. |
| The settings menu cannot be opened while you are riding. | The product is designed in such a way that the settings menu cannot be opened if the system detects that someone is riding the pedelec. This is not a malfunction. | ▶ Stop the pedelec and then adjust the settings. |
| The time display is flashing "0:00". | The coin cell in the display has come to the end of its service life. | ▶ Replace the coin cell in the display. |

**Table 36: Display error solution**

### 9.1.6 Lighting does not work

| Symptom | Cause | Remedy |
|---|---|---|
| The front light or rear light does not go on, even when the switch is pressed. | The basic settings in the electric drive system have probably been configured incorrectly. The light is defective. | **1** Take the pedelec out of service immediately.<br>**2** Contact your specialist dealer. |

**Table 37: Error solution for battery**

### 9.1.7 Other errors

| Symptom | Cause | Remedy |
|---|---|---|
| Two beeps will sound if a switch is pressed but the switch cannot be operated. | Pressed switch mode has been deactivated. | ▶ This is not a malfunction. |
| Three beeps are sounded. | A fault or warning has occurred. | ▶ This occurs when a warning or an error is shown on the display screen. Follow the instructions for the code indicated on screen in Section 6.2 System Messages. |
| When you use an electronic gear shift, you can feel that pedal assistance becomes weaker when the gear is changed. | This is because the computer sets the pedal assistance to the optimum level. | ▶ This is not a malfunction. |
| A noise can be heard after switching. | | ▶ Contact your specialist dealer. |
| It is normal to hear a noise coming from the rear wheel when cycling as normal. | The gear shift setting may not have been made properly. | ▶ Contact your specialist dealer. |
| If you stop the pedelec, gear transmission does not switch to the position pre-configured in the functional feature. | You may have applied too much pressure onto the pedals. | ▶ It is easier to change gears if you press onto the pedals gently. |

**Table 38: Error solution for battery**

## 9.1.8 Suspension fork

### 9.1.8.1 Rebound too fast

The suspension fork rebounds too quickly, producing a “pogo stick” effect, where the wheel lifts from the ground in an uncontrolled way. This impairs traction and control (blue line).

Fork head and handlebars are deflected upwards if the wheel bounces back from the ground. The rider's weight may be shifted up and back in an uncontrolled way (green line).

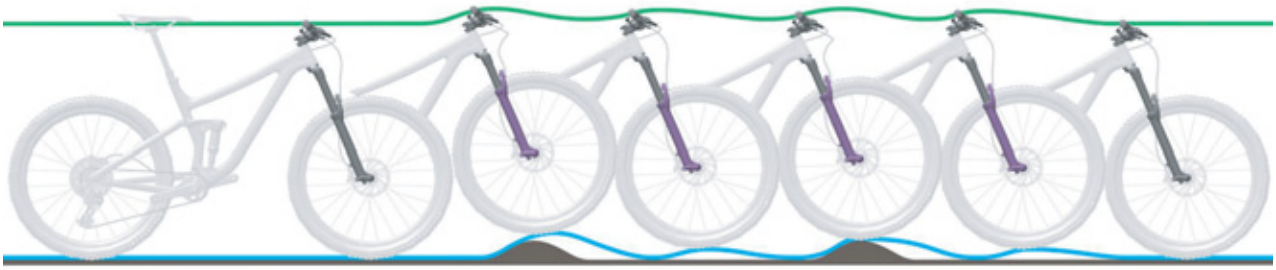


**Figure 72: Suspension fork rebounding too quickly**

**Solution**

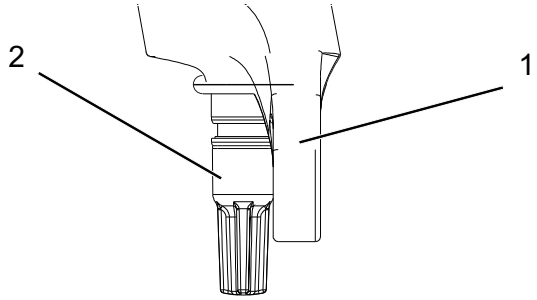



**Figure 73: Suntour rebound screw (2), fork (1)**

▶ Turn the rebound adjuster clockwise to reduce the rebound speed and increase traction and control.

### 9.1.8.2 Rebounding too slowly

The fork does not rebound quickly enough after absorbing a bump. The fork also remains deflected over subsequent bumps, which reduces deflection and increases the hardness of impacts. Available deflection, traction and control decrease (blue line).

The fork remains in a deflected state, causing the headset and handlebars to move to a lower position. The rider's weight is shifted forward after the impact (green line).

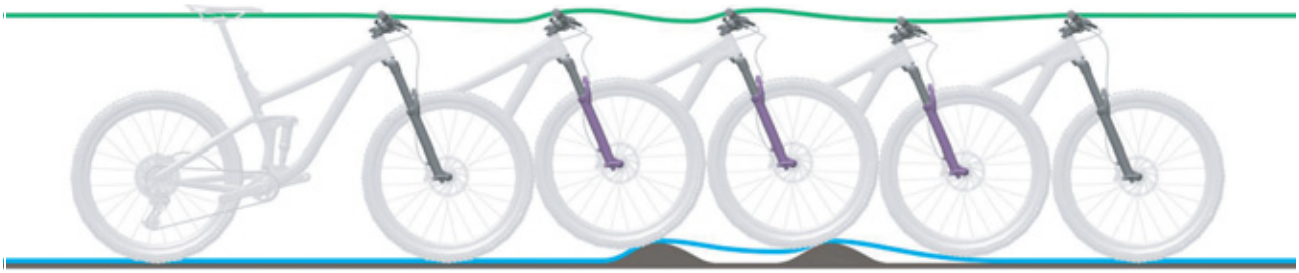


**Figure 74: Suspension fork rebounding too slowly**

**Solution**

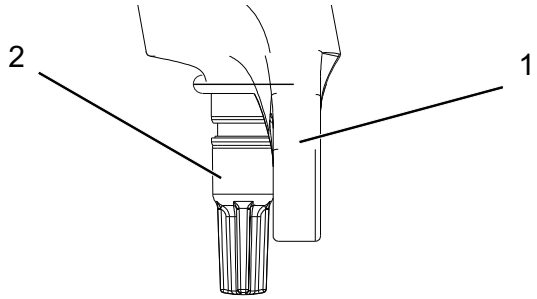



**Figure 75: Suntour rebound screw (2), fork (1)**

▶ Turn the rebound adjuster anti-clockwise to increase the rebound speed and improve performance when riding over bumps.

### 9.1.8.3 Suspension too soft on inclines

The fork deflects at a low point in the terrain. The deflection is quickly used up, the rider's weight may shift forward and the pedelec will possibly lose some momentum.

**Figure 76: Excessively soft suspension in the suspension fork on hilly terrain**

### Solution


**Figure 77: Suntour compression adjuster in open (1) and closed (2) position**

▶ To improve efficiency on hilly and flat terrain, turn the compression adjuster clockwise to increase compression damping and hardness and reduce the deflection speed.

### 9.1.8.4 Excessively hard damping on bumps

When the bike hits a bump, the fork deflects too slowly and the wheel lifts up from the bump. Traction decreases when the wheel no longer touches the ground.

The headset and handlebars are deflected upwards significantly, which can impair control.

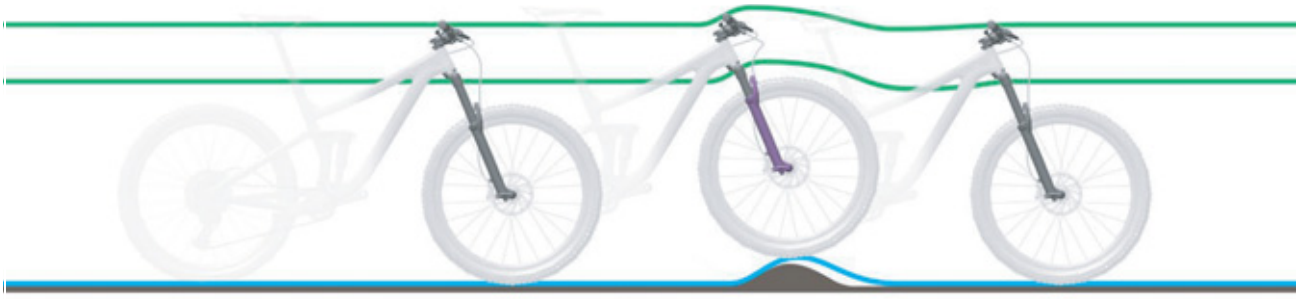


**Figure 78: Excessively hard damping in the suspension fork on bumps**

## Solution

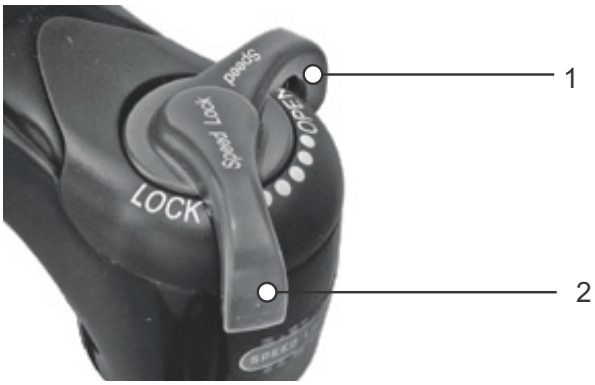



**Figure 79: Suntour compression adjuster in open (1) and closed (2) position**

▶ To increase sensitivity to small bumps, turn the compression adjuster anti-clockwise to decrease damping and hardness and increase the deflection speed.

## 9.1.9 Rear frame damper

### 9.1.9.1 Rebound too fast

The rear frame damper rebounds too quickly, producing a “pogo stick” effect and causing the bike to bounce after the wheel hits a bump and lands on the ground again. This impairs traction and control due to the uncontrolled speed at which the damper rebounds after deflecting (blue line).

Saddle and handlebars are deflected upwards when the wheel bounces back from the ground. The rider's weight may be shifted upwards and forwards if the damper fully rebounds too quickly (green line).

**Figure 80: Rear frame damper rebounding too quickly**

**Solution**


**Figure 81: Turning the rebound damper clockwise**

▶ Turn the rebound adjuster clockwise to reduce the rebound speed and increase traction and control.

### 9.1.9.2 Rebounding too slowly

The rear frame damper does not rebound quickly enough after a bump has been compensated and is not in the required initial position when the wheel hits the next bump. The rear frame damper remains compressed during successive bumps, thus reducing deflection and ground contact and increasing hardness on the next impact. The rear wheel bounces off the second bump since the rear frame damper does not rebound quickly enough to make contact with the ground and return to the initial position again. The available deflection and traction are reduced (blue line).

The rear frame damper remains in a deflected state after contact with the first bump. When the rear wheel hits the second bump, the saddle follows the path of the rear wheel instead of remaining in a horizontal position. The available deflection and potential absorption of bumps are reduced, which causes instability and loss of control during successive bumps (green line).

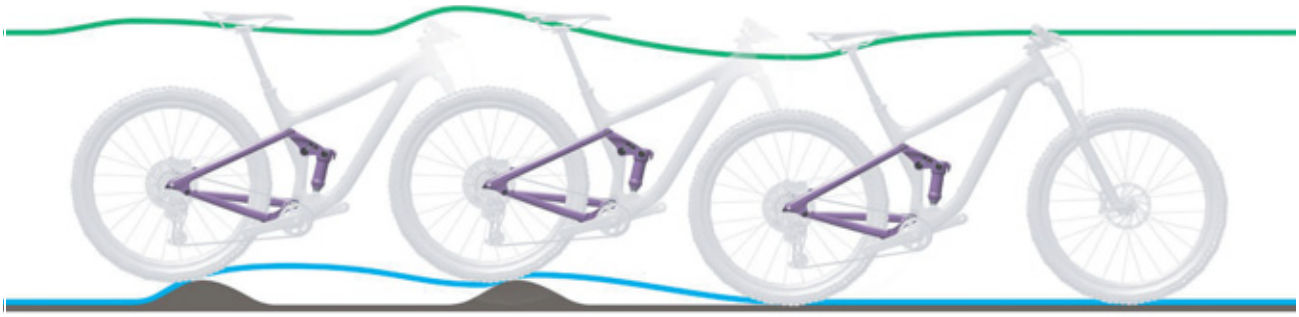


**Figure 82: Rear frame damper rebounding too slowly**

### Solution


**Figure 83: Turning the rebound damper anti-clockwise**

▶ Turn the rebound adjuster anti-clockwise to increase the rebound speed and improve performance when riding over bumps.

### 9.1.9.3 Suspension too soft on inclines

The rear frame damper deflects deeply through the deflection range The deflection is quickly used up, the rider's weight may shift downward and the pedelec will possibly lose some momentum.

**Figure 84: Excessively soft suspension in the rear frame damper on hilly terrain**

**Solution**

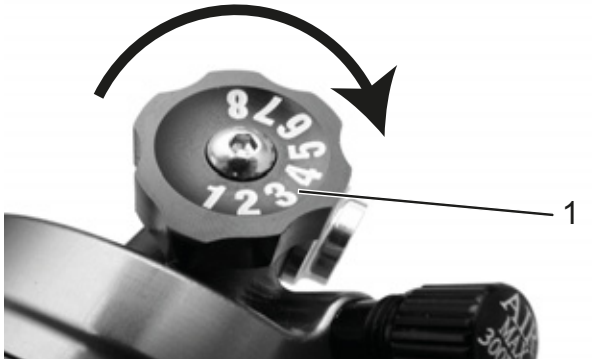



**Figure 85: Changing compression adjuster to a harder setting**

▶ To improve efficiency on hilly and flat terrain, turn the compression adjuster clockwise to increase compression damping and hardness and reduce the deflection speed.

### 9.1.9.4 Excessively hard damping on bumps

When the bike hits a bump, the damper deflects too slowly and the rear wheel lifts up from the bump. Traction is reduced (blue line).

Saddle and rider are deflected upwards and forwards, the rear wheel loses contact with the ground and control is reduced (green line).

**Figure 86: Excessively hard damping in the rear frame damper on bumps**

**Solution**

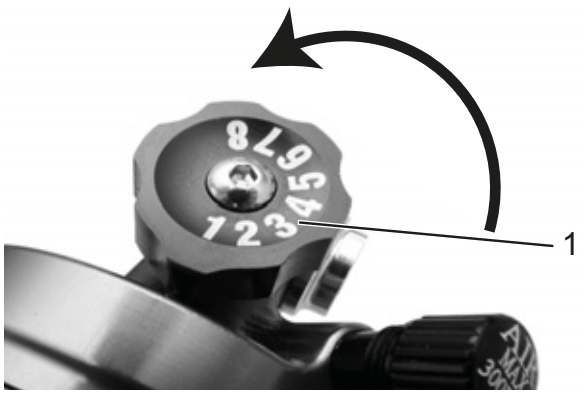



**Figure 87: Changing compression adjuster to a softer setting**

▶ To increase sensitivity to small bumps, turn the compression adjuster anti-clockwise to decrease damping and hardness and increase the deflection speed.

## 9.2 Repair

Special knowledge and tools are required for many repairs. That is why only a specialist dealer may perform repairs such as:

- Replacing tyres and rims
- Replacing rims and brake linings or brake discs
- Replacing and tensioning the chain.

### 9.2.1 Original parts and lubricants

The individual pedelec parts have been carefully selected and matched to one other.

Only original parts and lubricants must be used for maintenance and repair.

The constantly updated accessory approval and parts lists are in Section 11 Documents and Drawings.

Observe the operating instructions for the new components.

### 9.2.2 Replacing the lighting

▶ Only use components of the respective power class for replacement.

### 9.2.3 Adjusting the headlight

▶ The *headlight* must be set, so that its light beam shines on the road 10 m in front of the pedelec.

### 9.2.4 Tyre clearance check

The tyre needs to be checked each time a suspension fork tyre is changed to another size.

**1** Release pressure from the fork.

**2** Press fork together fully.

**3** Measure the gap between the top of the tyre and the crown's lower surface. The gap must not be less than 10 mm. If the tyre is too large, the tyre will touch the crown's lower surface if the fork is fully pressed together.

**4** Release pressure on fork and pump it up again if it is an air suspension fork.

**5** Take into account the fact that the gap will be smaller if there is a guard. Check again to ensure that there is sufficient clearance for the tyre.

# 10 Recycling and disposal

This device is marked according to the European Directive 2012/19/EU on waste electrical and electronic equipment – WEEE and the European Directive 2006/66/EC on accumulators. The directive provides the framework for the return and recycling of used devices across the EU. As a consumer, you are legally required to return all used batteries of any type. It is forbidden to dispose of batteries in domestic waste. The manufacturer is obliged to take back used and old batteries free of charge as per Section 9 German Batteries Act. You thus meet statutory obligations and help to protect the environment. The pedelec, battery, motor, display screen and charger are recyclable materials. You must dispose of and recycle them separately from the domestic waste in compliance with applicable statutory regulations. Separate collection and recycling saves reserves of raw materials and ensures that all the regulations for protection of health and the environment are adhered to when recycling the product and/or the battery.

- ▶ Never dismantle the pedelec, batteries or charger for disposal.
- ▶ The pedelec, display screen, the unopened and undamaged battery and the charger can be returned to any specialist dealer free of charge. Depending on the region, further disposal options may be available.
- ▶ Store the individual parts of the decommissioned pedelec in a dry place, free from frost, where they are protected from direct sunlight.

# 11 Documents

## 11.1 Parts list

### 11.1.1 E-Stream EVA 1

21-21-1105

| Model name | E-Stream Eva 1 27.5 |
|---|---|
| Fork | BULLS Lytro 34 BLACK LOR Air CTS Boost |
| Headset | BULLS |
| Handlebars | BULLS |
| Handles | BULLS |
| Stem | BULLS |
| Saddle | BULLS |
| Seat post | BULLS |
| Pedals | BULLS |
| Rear derailleur | Shimano Deore RD-M6000-GS Shadow Plus |
| Shifter | Shimano Deore SL-M6000 |
| Cassette/cassette sprocket | Shimano Deore CS-M4100-10, 11-46T |
| Back-pedal brake | No |
| Brake system | Hydraulic disc brake |
| Front brake | Shimano BR-MT420/410 hydraulic disc brake |
| Front rim | BULLS Eccentric 30 |
| Tyres | SCHWALBE Smart Sam K-Guard |
| Front lamp | MonkeyLink |
| Rear lamp | MonkeyLink |
| Motor | Brose Drive S mag |
| Rechargeable battery | BMZ SuperCore 555 |
| Display | Brose Bloks 14d |

### 11.1.2 E-Stream EVA 2

21-21-1106

### 11.1.3 E-Stream EVA TR2

21-21-1107

| Model name | E-Stream Eva TR2 |
|---|---|
| Fork | BULLS Lytro 35 SL Supreme LOR Air CTS Boost |
| Damper | SR Suntour Unair LOR8 |
| Headset | BULLS |
| Handlebars | BULLS |
| Handles | BULLS |
| Stem | BULLS |
| Saddle | BULLS |
| Pedals | BULLS |
| Rear derailleur | SRAM SX Eagle RD-SX-1-A1 |
| Shifter | SRAM SX Eagle SL-SX-1-A1 |
| Cassette/cassette sprocket | Shimano Deore CS-M6100-11, 10-51T |
| Back-pedal brake | No |
| Brake system | Hydraulic disc brake |
| Front brake | Shimano BR-MT420/410 hydraulic disc brake |
| Front rim | BULLS Eccentric 30 |
| Tyres | SCHWALBE Nobby Nic Performance |
| Front lamp | MonkeyLink |
| Rear lamp | MonkeyLink |
| Motor | Brose Drive S mag |
| Rechargeable battery | BMZ SuperCore 555 |
| Display | Brose Bloks 14d |

### 11.1.4 E-Stream Evo 1

21-21-1094 (Gent, 27.5″), 21-21-1095 (Wave 27.5″), 21-21-1115 (29″)

| Model name | E-Stream Evo 1 27.5 |
|---|---|
| Headset | Semi-integrated |
| Handlebars | STYX |
| Handles | STYX |
| Stem | STYX |
| Saddle | STYX |
| Seat post | STYX |
| Pedals | STYX |
| Rear derailleur | Shimano Deore RD-M6000-GS Shadow Plus |
| Shifter | Shimano Deore SL-M6000 |
| Cassette/cassette sprocket | Shimano Deore CS-M4100-10, 11-46T |
| Back-pedal brake | No |
| Brake system | Hydraulic disc brake |
| Front brake | Shimano BR-MT420/410 hydraulic disc brake |
| Front rim | BULLS Eccentric 30 |
| Tyres | SCHWALBE Smart Sam K-Guard |
| Front lamp | MonkeyLink |
| Rear lamp | MonkeyLink |
| Motor | Brose Drive S mag |
| Rechargeable battery | BMZ SuperCore 555 |
| Display | Brose Bloks 14d |

### 11.1.5 E-Stream Evo 2

21-21-1096 (27.5″),21-21-1097 (29″)

| Model name | E-Stream Evo 2 29 |
|---|---|
| Fork | BULLS Lytro 35 SL Supreme LOR Air CTS Boost |
| Headset | Semi-integrated |
| Handlebars | STYX |
| Handles | STYX |
| Stem | STYX |
| Saddle | STYX |
| Seat post | STYX |
| Pedals | STYX |
| Rear derailleur | SRAM SX Eagle RD-SX-1-A1 |
| Shifter | SRAM SX Eagle SL-SX-1-A1 |
| Cassette/cassette sprocket | Shimano Deore CS-M6100-11, 10-51T |
| Back-pedal brake | No |
| Brake system | Hydraulic disc brake |
| Front brake | Magura MT5 hydraulic disc brakes |
| Front rim | BULLS Eccentric 30 |
| Tyres | SCHWALBE Smart Sam K-Guard |
| Front lamp | MonkeyLink |
| Rear lamp | MonkeyLink |
| Motor | Brose Drive S mag |
| Rechargeable battery | BMZ SuperCore 555 |
| Display | Brose Bloks 14d |

### 11.1.6 E-Stream Evo 2 Street

21-21-1109 (Gent), 21-21-1110 (Wave)

### 11.1.7 E-Stream Evo 3

21-18-1097 (27.5″), 21-18-1099 (29″)

### 11.1.8 E-Stream Evo AM3

21-18-1103

### 11.1.9 E-Stream Evo AM 5 (RAINBOW edition)

21-21-1112

| Model name | E-Stream Evo AM 5 |
|---|---|
| Fork | FOX 38 A Float |
| Damper | FOX Float DPS |
| Headset | FSA No.57 |
| Handlebars | BULLS |
| Handles | Ergon GE10 |
| Stem | MonkeyLink AS-ML1 |
| Saddle | Ergon SM10 |
| Seat post | Limotec Alpha 1 |
| Saddle clamp | MonkeyLink QR-ML2 |
| Crank set | FSA |
| Pedals | BULLS |
| Rear derailleur | Shimano Deore XT RD-M8100-SGS Shadow Plus |
| Shifter | Shimano Deore XT SL-M8100 |
| Cassette/cassette sprocket | Shimano SLX CS-M7100-12, 10-51T |
| Chain | KMC |
| Back-pedal brake | No |
| Brake system | Hydraulic disc brake |
| Front brake | Shimano Deore XT BR-M8120 hydraulic disc brake |
| Front brake lever | Shimano Deore XT BL-M8100 2-Finger |
| Disc, front | 203 Center Lock |
| Disc, rear | 203 Center Lock |
| Front rim | BULLS Eccentric 30 |
| Hub, front | Formula CL-811 |
| Hub, rear | Formula CL-3248M |
| Spokes | Steel, black |
| Tyres | SCHWALBE Magic Mary / Big Betty |
| Hose | Schwalbe SV21F |
| Motor | Brose Drive S mag |
| Rechargeable battery | BMZ SuperCore 555 |
| Display | Brose Bloks 14d |

## 11.1.10 E-Stream Evo AM 6 (Chrome Polish edition)

21-21-1140

| Model name | E-Stream Evo AM 6 27.5 |
|---|---|
| Fork | FOX 38 K Float |
| Damper | FOX Float DPS |
| Headset | FSA No.57 |
| Handlebars | BULLS |
| Handles | Ergon GE10 |
| Stem | MonkeyLink AS-ML1 |
| Saddle | Ergon SM10 |
| Seat post | FOX Transfer |
| Saddle clamp | MonkeyLink QR-ML2 |
| Crank set | FSA |
| Pedals | BULLS |
| Rear derailleur | Shimano XTR RD-M9100-SGS Shadow Plus |
| Shifter | Shimano Deore XT SL-M8100 |
| Cassette/cassette sprocket | Shimano SLX CS-M7100-12, 10-51T |
| Chain | Shimano CN-M7100 |
| Back-pedal brake | No |
| Brake system | Hydraulic disc brake |
| Front brake | Shimano Deore XT BR-M8120 hydraulic disc brake |
| Front brake lever | Shimano Deore XT BL-M8100 2-Finger |
| Disc, front | 203 Center Lock |
| Disc, rear | 203 Center Lock |
| Wheel set | DT Swiss HX501 Spline |
| Tyres | SCHWALBE Magic Mary / Big Betty |
| Hose | Schwalbe SV21F |
| Motor | Brose Drive S mag |
| Rechargeable battery | BMZ SuperCore 556 |
| Display | Brose Bloks 14d |

### 11.1.11 E-Stream Evo TR1

21-21-1100

| Model name | E-Stream Evo TR1 27.5 |
|---|---|
| Fork | BULLS Lytro 34 LOR AIR CTS Boost |
| Damper | |
| Headset | Semi-integrated |
| Handlebars | BULLS |
| Handles | BULLS |
| Stem | MonkeyLink AS-ML1 |
| Saddle | BULLS |
| Seat post | BULLS |
| Saddle clamp | |
| Crank set | |
| Pedals | Wellgo, ZZE-01M |
| Rear derailleur | Shimano Deore RD-M6000-GS Shadow Plus |
| Shifter | Shimano Deore SL-M6000 |
| Cassette/cassette sprocket | Shimano Altus CS-HG500-10, 11-42T |
| Chain | |
| Back-pedal brake | No |
| Brake system | Hydraulic disc brake |
| Front brake | Tektro HD-M275 hydraulic disc brakes |
| Front brake lever | |
| Disc, front | |
| Disc, rear | |
| Front rim | BULLS Eccentric 35 |
| Hub, front | |
| Hub, rear | |
| Wheel set | |
| Tyres | SCHWALBE Smart Sam K-Guard |
| Hose | |
| Front lamp | MonkeyLink |
| Rear lamp | MonkeyLink |
| Motor | Brose Drive S mag |
| Rechargeable battery | BMZ SuperCore 555 |
| Display | Brose Bloks 14d |

## 11.2 Assembly report

Date:

Frame number:

| Components | Description | | Criteria | | Measures if rejected |
|---|---|---|---|---|---|
| | Assembly/inspection | Tests | Accept-ance | Rejection | |
| **Front wheel** | Assembly | | O.K. | Loose | Adjust quick release |
| **Kickstand** | Check mount fastening | Functional check | O.K. | Loose | Retighten screws |
| **Tyres** | | Tyre pressure check | O.K. | Tyre pressure too low/ too high | Adjust tyre pressure |
| **Frame** | Check for damage – fracture, scratches | | O.K. | Damage detected | *Take out of operation*, new frame |
| **Handles, coverings** | Check mount fastening | | O.K. | Not provided | Retighten screws, new handles or coverings as specified in parts list |
| **Handlebars, stem** | Check mount fastening | | O.K. | Loose | Retighten screws; new stem as specified in parts list if necessary |
| **Steering headset** | Check for damage | Functional check | O.K. | Loose | Retighten screws |
| **Saddle** | Check mount fastening | | O.K. | Loose | Retighten screws |
| **Seat post** | Check mount fastening | | O.K. | Loose | Retighten screws |
| **Protective plate** | Check mount fastening | | O.K. | Loose | Retighten screws |
| **Pannier rack** | Check mount fastening | | O.K. | Loose | Retighten screws |
| **Attachments** | Check mount fastening | | O.K. | Loose | Retighten screws |
| **Bell** | | Functional check | O.K. | No ring, too quiet, missing | New bell as specified in the parts list |
| **Suspension elements** | | | | | |
| **Fork, suspension fork** | Check for damage | | O.K. | Damage detected | New fork as specified in the parts list |
| **Rear frame damper** | Check for damage | | O.K. | Damage detected | New fork as specified in the parts list |
| **Suspension seat post** | Check for damage | | O.K. | Damage detected | New fork as specified in the parts list |
| **Brake system** | | | | | |
| **Brake lever** | Check mount fastening | | O.K. | Loose | Retighten screws |
| **Brake fluid** | Check fluid level | | O.K. | Too little | Refill with brake fluid; new brake hoses if damaged |
| **Brake linings** | Check brake linings, brake discs or rims for damage | | O.K. | Damage detected | New brake linings, brake discs or rims |
| **Back-pedal brake braking armature** | Check mount fastening | | O.K. | Loose | Retighten screws |
| **Light system** | | | | | |
| **Rechargeable battery** | First examination | | O.K. | Error message | *Take out of service*; contact battery manufacturer, new battery |
| **Light cabling** | Connections, correct wiring | | O.K. | Cable defective, no light | New cabling |
| **Rear light** | Side light | Functional check | O.K. | No constant light | *Take out of service*; new rear light as specified in parts list; replace if necessary |
| **Front light** | Side light, daytime riding light | Functional check | O.K. | No constant light | *Take out of service*; new front light as specified in parts list; replace if necessary |
| **Reflectors** | All complete, state, fastening | | O.K. | Damaged or not all complete | New reflectors |

| Components | Description | | Criteria | | Measures if rejected |
|---|---|---|---|---|---|
| **Drive/gear shift** | | | | | |
| **Chain/cassette/ pinion/chainring** | Check for damage | | O.K. | Damage | Refasten if necessary or replace as specified in parts list |
| **Chain guard/spoke guard** | Check for damage | | O.K. | Damage | Replace as specified in parts list |
| **Bottom bracket axle/ crank** | Check mount fastening | | O.K. | Loose | Retighten screws |
| **Pedals** | Check mount fastening | | O.K. | Loose | Retighten screws |
| **Shifter** | Check mount fastening | Functional check | O.K. | Loose | Retighten screws |
| **Shift cables** | Check for damage | Functional check | O.K. | Loose or defective | Adjust shift cables; new shift cables if necessary |
| **Front derailleur** | Check for damage | Functional check | O.K. | Gear shift difficult or not possible | Adjust |
| **Rear derailleur** | Check for damage | Functional check | O.K. | Gear shift difficult or not possible | Adjust |
| **Electric drive** | | | | | |
| **Display** | Check for damage | Functional check | O.K. | No screen, defective screen display | Restart, test battery, new software, or new display – *take out of service*, |
| **Electric drive control panel** | DriveCheck for damage | Functional check | O.K. | No response | Restart; contact control panel manufacturer, new control panel |
| **Tachometer** | | Speed measurement | O.K. | Pedelec travelling 10% too fast/slow | Take pedelec out of service until the source of the error is found |
| **Cabling** | Visual inspection | | O.K. | Failure in system, damage, kinked cables | New cabling |
| **Battery mount** | Firmly in position, lock, contacts | Functional check | O.K. | Loose; lock doesn't close, no contacts | New battery mount |
| **Motor** | Visual inspection and mount | | O.K. | Damage, loose | Refasten motor, contact motor manufacturer, new motor |
| **Software** | Check version | | In latest version | Not latest version | Import update |

## Technical inspection, checking safety, test ride

| Components | Description | | Criteria | | Measures if rejected |
|---|---|---|---|---|---|
| | **Assembly/inspection** | **Tests** | **Accept-ance** | **Rejection** | |
| **Brake system** | | Functional check | O.K. | No full braking; braking distance too long | Locate defective part in brake system and correct |
| **Gear shift under operating load** | | Functional check | O.K. | Problems when shifting gear | Readjust gear shift |
| **Suspension components (fork, shock absorber, seat post)** | | Functional check | O.K. | Suspension too deep or no longer exists | Locate defective component and correct |
| **Electric drive** | | Functional check | O.K. | Loose connection, problems when riding, accelerate | Locate defective part in electric drive and correct |
| **Light system** | | Functional check | O.K. | No continuous light, too bright | Locate defective part in light system and correct |
| **Test ride** | | | No strange noises | Strange noises | Locate source of noise and correct |

| | |
|---|---|
| **Date:** | |
| **Fitter's name:** | |
| **Final inspection by workshop manager** | |

## 11.3 Maintenance instructions

### Diagnosis and documentation of current status

Date: Frame number:

| Components | Frequency | Description | | | Criteria | | Measures if rejected |
|---|---|---|---|---|---|---|---|
| | | Inspection | Tests | Maintenance | Accept-ance | Rejection | |
| **Front wheel** | 6 months | Assembly | | | O.K. | Loose | Adjust quick release |
| **Kickstand** | 6 months | Check mount fastening | Functional check | | O.K. | Loose | Retighten screws |
| **Tyres** | 6 months | | Tyre pressure check | | O.K. | Tyre pressure too low/too high | Adjust tyre pressure |
| **Frame** | 6 months | Check for damage – fracture, scratches | | | O.K. | Damage detected | Take pedelec out of service, new frame |
| **Handles, coverings** | 6 months | Wear; check if fastened securely | | | O.K. | Not provided | Retighten screws, new handles or coverings as specified in parts list |
| **Handlebars, stem** | 6 months | Check mount fastening | | | O.K. | Loose | Retighten screws; new stem as specified in parts list if necessary |
| **Steering headset** | 6 months | Check for damage | Functional check | Lubricating and adjustment | O.K. | Loose | Retighten screws |
| **Saddle** | 6 months | Check mount fastening | | | O.K. | Loose | Retighten screws |
| **Seat post** | 6 months | Check mount fastening | | | O.K. | Loose | Retighten screws |
| **Protective plate** | 6 months | Check mount fastening | | | O.K. | Loose | Retighten screws |
| **Pannier rack** | 6 months | Check mount fastening | | | O.K. | Loose | Retighten screws |
| **Attachments** | 6 months | Check mount fastening | | | O.K. | Loose | Retighten screws |
| **Bell** | 6 months | | Functional check | | O.K. | No ring, too quiet, missing | New bell as specified in the parts list |
| **Suspension elements** | | | | | | | |
| **Fork, suspension fork** | To manu-facturer's specifica-tions* | Check for damage – corrosion, fracture | | Maintenance as specified by manufacturer<br><br>Lubrication, oil change as specified by manufacturer | O.K. | Damage detected | New fork as specified in the parts list |
| **Rear frame damper** | To manu-facturer's specifica-tions* | Check for damage – corrosion, fracture | | Maintenance as specified by manufacturer<br><br>Lubrication, oil change as specified by manufacturer | O.K. | Damage detected | New fork as specified in the parts list |
| **Suspension seat post** | To manu-facturer's specifica-tions* | Check for damage | | Maintenance as specified by manufacturer | O.K. | Damage detected | New fork as specified in the parts list |
| **Brake system** | | | | | | | |
| **Brake lever** | 6 months | Check mount fastening | | | O.K. | Loose | Retighten screws |
| **Brake fluid** | 6 months | Check fluid level | | Depending on time of year | O.K. | Too little | Top up brake fluid; *take Pedelec out of service* if damaged; new brake hoses |
| **Brake linings** | 6 months | Check brake linings, brake discs or rims for damage | | | O.K. | Damage detected | New brake linings, brake discs or rims |
| **Back-pedal brake braking armature** | 6 months | Check mount fastening | | | O.K. | Loose | Retighten screws |
| **Brake system** | 6 months | Check mount fastening | | Functional check | O.K. | Loose | Retighten screws |

*** see Section 8.1**

| Components | Frequency | Description | | | Criteria | | Measures if rejected |
|---|---|---|---|---|---|---|---|
| | | Inspection | Tests | Maintenance | Accept-ance | Rejection | |
| **Light system** | | | | | | | |
| **Rechargeable battery** | 6 months | First examination | | | O.K. | Error message | Contact battery manufacturer; *take out of service*, new battery |
| **Light cabling** | 6 months | Connections, correct wiring | | | O.K. | Cable defective, no light | New cabling |
| **Rear light** | 6 months | Side light | Functional check | | O.K. | No constant light | New rear light as specified in parts list; replace if necessary |
| **Front light** | 6 months | Side light, daytime riding light | Functional check | | O.K. | No constant light | New front light as specified in parts list; replace if necessary |
| **Reflectors** | 6 months | All complete, state, fastening | | | O.K. | Damaged or not all complete | New reflectors |
| **Drive/gear shift** | | | | | | | |
| **Chain/cassette/ pinion/ chainring** | 6 months | Check for damage | | | O.K. | Damage | Refasten if necessary or replace as specified in parts list |
| **Chain guard/ spoke guard** | 6 months | Check for damage | | | O.K. | Damage | Replace as specified in parts list |
| **Bottom bracket axle/crank** | 6 months | Check mount fastening | | | O.K. | Loose | Retighten screws |
| **Pedals** | 6 months | Check mount fastening | | | O.K. | Loose | Retighten screws |
| **Shifter** | 6 months | Check mount fastening | Functional check | | O.K. | Loose | Retighten screws |
| **Shift cables** | 6 months | Check for damage | Functional check | | O.K. | Loose or defective | Adjust shift cables; new shift cables if necessary |
| **Front derailleur** | 6 months | Check for damage | Functional check | | O.K. | Gear shift difficult or not possible | Adjust |
| **Rear derailleur** | 6 months | Check for damage | Functional check | | O.K. | Gear shift difficult or not possible | Adjust |
| **Electric drive** | | | | | | | |
| **Display** | 6 months | Check for damage | Functional check | | O.K. | No screen, defective screen display | Restart, test battery, new software, or new display – *take out of service*, |
| **Electric drive control panel** | 6 months | DriveCheck for damage | Functional check | | O.K. | No response | Restart; contact control panel manufacturer, new control panel |
| **Tachometer** | 6 months | | Speed measurement | | O.K. | Pedelec travelling 10% too fast/slow | Take pedelec out of service until the source of the error is found |
| **Cabling** | 6 months | Visual inspection | | | O.K. | Failure in system, damage, kinked cables | New cabling |
| **Battery mount** | 6 months | Firmly in position, lock, contacts | Functional check | | O.K. | Loose; lock doesn't close, no contacts | New battery mount |
| **Motor** | 6 months | Visual inspection and mount | | | O.K. | Damage, loose | Refasten motor, contact motor manufacturer, new motor; *take out of service* |
| **Software** | 6 months | Check version | | | In latest version | Not latest version | Import update |

## Technical inspection, checking safety, test ride

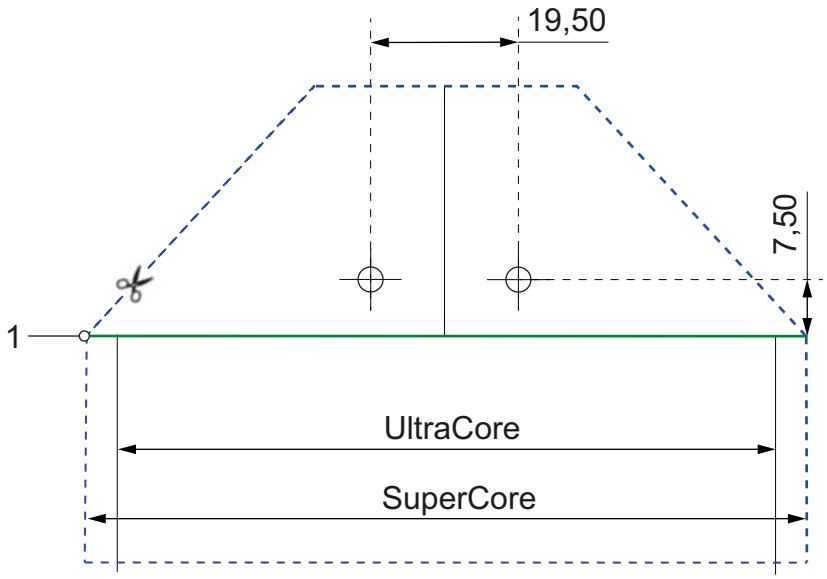
| Components | Description | | Criteria | | Measures if rejected |
|---|---|---|---|---|---|
| | Assembly/inspection | Tests | Accept-ance | Rejection | |
| **Brake system** | 6 months | Functional check | O.K. | No full braking; braking distance too long | Locate defective part in brake system and correct |
| **Gear shift under operating load** | 6 months | Functional check | O.K. | Problems when shifting gear | Readjust gear shift |
| **Suspension components (fork, shock absorber, seat post)** | 6 months | Functional check | O.K. | Suspension too deep or no longer exists | Locate defective component and correct |
| **Electric drive** | 6 months | Functional check | O.K. | Loose connection, problems when riding, accelerate | Locate defective part in electric drive and correct |
| **Light system** | 6 months | Functional check | O.K. | No continuous light, too bright | Locate defective part in light system and correct |
| **Test ride** | 6 months | Functional check | No strange noises | Strange noises | Locate source of noise and correct |

| | |
|---|---|
| Date: | |
| Fitter's name: | |
| Final inspection by workshop manager | |

**Notes**

**Notes**

## 11.4 SuperCore drilling template



# 12 Glossary

**Brake lever**

*Source: EN 15194:2017:* lever used to apply the brake.

**Braking distance**

*Source: EN 15194:2017:* distance travelled by a pedelec between the commencement of braking and the point at which the pedelec comes to rest.

**Cargo bike**

*Source: DIN 79010:* bicycle mainly designed to carry goods.

**CE marking**

*Source: Directive 2006/42/EC on Machinery:* the manufacturer uses the CE marking to declare that the Pedelec complies with the applicable requirements.

**City and trekking bicycles**

*Source: EN-ISO 4210 - 2:* pedelec designed for use on public roads primarily for means of transportation or leisure.

**Consumables**

*Source: EN 82079-1:* any part or material that is necessary for continued use or maintenance of the product.

**Decommissioning**

*Source: DIN 31051:* intentional, unlimited interruption in an object's functional capability.

**Disc brake**

*Source: EN 15194:2017:* brake in which brake pads are used to grip the lateral faces of a thin disc attached to or incorporated in the wheel hub.

**Drive belt**

*Source: EN 15194:2017:* seamless ring belt which is used as a means of transmitting motive force.

**Electrical control system**

*Source: EN 15194:2017:* electronic and/or electrical component, or an assembly of components provided for installation into a vehicle, together with all electrical connections and associated wiring for the motor electrical power assistance.

**Electrically power assisted cycle, pedelec**

*Source: EN 15194:2017:* electrically power assisted cycle, equipped with pedals and an auxiliary electric motor, which cannot be propelled exclusively by means of the auxiliary electric motor, except in start-up assistance mode.

**Fault**

*Source: EN 13306:2018-02, 6.1:* state of an item (4.2.1) characterized by inability to perform a required function (4.5.1), excluding the inability during preventive maintenance or other planned actions, or due to lack of external resources.

**Folding bicycle**

*Source: EN-ISO 4210-2:* bicycle designed to fold into a compact form, facilitating transport and storage.

**Fork steerer**

*Source: EN 15194:2017:* part of a fork that rotates about the steering axis of a bicycle frame head tube. It is normally connected to the fork crown or directly to the fork legs, and is normally the point of connection between the fork and the handlebar stem.

**Fracture**

*Source: EN 15194:2017:* unintentional separation into two or more parts.

**Instruction handbook**

*Source: ISO/FDIS 20607:2018:* part of the user information that machine manufacturers provide to machine operators; it contains guidance, instructions and tips related to the use of the machine in all its life cycle phases.

**Maintenance**

*Source: DIN 31051:* maintenance is generally performed at regular intervals and often carried out by trained technical staff. This ensures a maximum service life and low wear and tear for the maintained items. Proper maintenance is often also a pre-requisite for providing a warranty.

**Maximum continuous power**

*Source: ZEG:* the maximum continuous power is the maximum power for the electric motor output shaft during 30 minutes.

**Maximum saddle height**

*Source: EN 15194:2017:* vertical distance from the ground to the point where the top of the seat surface is intersected by the seat-post axis, measured with the saddle in a horizontal position and with the seat-post set to the minimum insertion-depth mark.

**Maximum tyre pressure**

*Source: EN 15194:2017:* maximum tyre pressure recommended by the tyre or rim manufacturer for a safe and efficient performance. If the rim and tyre both indicate a maximum tyre pressure, the maximum inflation pressure is the lower of the two pressures indicated.

**Minimum insertion depth mark**

*Source: EN 15194:2017:* mark indicating the minimum insertion-depth of handlebar stem into fork steerer (fork stem) or seat post into frame.

**Model year**

*Source: ZEG:* the model year refers to the first production year that the series-manufactured pedelec was manufactured in the version in question and is not always identical with the year of manufacture. The year of manufacture may be before the model year in some cases. If no technical modifications are introduced to the series, production may continue of pedelecs from a previous model year.

**Mountain bike**

*Source: EN-ISO 4210-2:* bicycle designed for use off-road on rough terrain, on public roads, and on public pathways, equipped with a suitably strengthened frame and other components, and, typically, with wide-section tyres with coarse tread patterns and a wide range of transmission gears.

**Off-road rough terrain**

*Source: EN 15194:2017:* coarse pebble tracks, forest trails, and other general off-road tracks where tree roots and rocks are likely to be encountered.

**Permitted total weight**

*Source: EN 15194:2017:* weight of the fully assembled pedelec plus the rider and baggage, as specified by the manufacturer.

**Quick-release device, quick release**

*Source: EN 15194:2017:* lever actuated mechanism that connects, retains or secures a wheel or any other component.

**Racing bicycle**

*Source: EN-ISO 4210-2:* bicycle intended for high-speed amateur use on public roads having a steering assembly with multiple grip positions allowing for an aerodynamic posture, a multi-speed transmission system, tyre width not greater than 28 mm and a maximum mass of 12 kg for the fully assembled bicycle.

**Seat post**

*Source: EN 15194:2017:* component that clamps the saddle (with a bolt or assembly) and connects it with the frame.

**Shut-off speed**

*Source: EN 15194:2017:* speed reached, by the pedelec, at the moment the current has dropped to zero or to the no load current value.

**Spare part**

*Source: EN 13306:2018-02, 3.5:* item intended to replace a corresponding item in order to retain or maintain the original required function of the item.

**Suspension fork**

*Source: EN 15194:2017:* front fork incorporating controlled, axial flexibility to reduce the transmission of road-shocks to the rider.

**Suspension frame**

*Source: EN 15194:2017:* frame incorporating controlled, vertical flexibility to reduce the transmission of road-shocks to the rider.

**Type number**

*Source: ZEG:* all pedelec models have an eight-digit type number which is used to specify the design model year, the type of pedelec and the version.

**Wear**

*Source: DIN 31051:* reduction in useful life (4.3.4), caused by chemical and/or physical processes.

**Weight of ready-to-ride bicycle**

*Source: ZEG:* the indicated weight for a ready-to-ride bicycle refers to the weight of a pedelec at the time of sale. The weight of each additional accessory must be added to this weight.

**Wheel**

*Source: EN 15194:2017:* assembly or combination of hub, spokes or disc, and rim, but excluding tyre assembly.

**Work environment**

*Source: EN ISO 9000:2015:* set of conditions under which work is performed.

**Year of manufacture**

*Source: ZEG:* the year of manufacture is the year in which the Pedelec was manufactured. The production period is always from August to July of the following year.

**Young adult bicycle**

*Source: EN-ISO 4210-2:* bicycle designed for use on public roads by a young adult whose weight is less than 40 kg, with maximum saddle height of 635 mm or more and less than 750 mm. (see ISO 4210).

## 12.1 Abbreviations

ABS anti-blocking system

ECP electronic cell protection

## 12.2 Simplified terms

The following terms are used for better legibility:

| Term | Meaning |
|---|---|
| Operating instructions | Original operating instructions |
| Motor | Drive motor, sub-system |

**Table 39: Simplified terms**

# 13 Appendix

## I. Translation of the original EC/EU Declaration of Conformity

**Manufacturer**

ZEG Zweirad-Einkaufs-Genossenschaft eG
Longericher Strasse 2
50739 Köln, Germany

**Authorised representative for documentation***

Janine Otto
c/o ZEG Zweirad-Einkaufs-Genossenschaft eG
Longericher Strasse 2
50739 Köln, Germany

The machine, pedelec types:

| | | |
|---|---|---|
| 21-18-1097 | E-Stream Evo 3 | Mountain bike |
| 21-18-1099 | E-Stream Evo 3 29″ | Mountain bike |
| 21-18-1103 | E-Stream Evo AM3 | Mountain bike |
| 21-21-1094 | E-Stream Evo 1 27.5″ | Mountain bike |
| 21-21-1095 | E-Stream Evo 1 27.5″ | Mountain bike |
| 21-21-1096 | E-Stream Evo 2 | Mountain bike |
| 21-21-1097 | E-Stream Evo 2 29″ | Mountain bike |
| 21-21-1100 | E-Stream Evo TR1 | Mountain bike |
| 21-21-1105 | E-Stream EVA 1 | Mountain bike |
| 21-21-1106 | E-Stream EVA 2 | Mountain bike |
| 21-21-1107 | E-Stream EVA TR2 | Mountain bike |
| 21-21-1109 | E-Stream Evo 2 Street 27.5″ | Mountain bike |
| 21-21-1110 | E-Stream Evo 2 Street 27.5″ | Mountain bike |
| 21-21-1112 | E-Stream Evo AM 5 27.5″ (RAINBOW edition) | Mountain bike |
| 21-21-1115 | E-Stream Evo 1 29″ | Mountain bike |
| 21-21-1140 | E-Stream Evo AM 6 27.5″ (Chrome Polish edition) | Mountain bike |
| 21-18-1097 | E-Stream Evo 3 | Mountain bike |
| 21-18-1099 | E-Stream Evo 3 29″ | Mountain bike |
| 21-18-1103 | E-Stream Evo AM3 | Mountain bike |
| 21-21-1094 | E-Stream Evo 1 27.5″ | Mountain bike |
| 21-21-1095 | E-Stream Evo 1 27.5″ | Mountain bike |
| 21-21-1096 | E-Stream Evo 2 | Mountain bike |

Year of manufacture 2020 and year of manufacture 2021, complies with the following applicable EU provisions:

- Machinery Directive 2006/42/EC
- RoHS Directive 2011/65/EU
- Electromagnetic Compatibility Directive 2014/30/EU.

The safety objectives in the Low Voltage Directive 2014/35/EU have been met in compliance with Appendix I, No. 1.5.1 of the Machinery Directive 2006/42/EC.

The following harmonised standards have been applied:

- ISO 20607:2018 Safety machinery – Instruction handbook – General drafting principles
- EN 15194:2017, Cycles – Electrically power assisted cycles – EPAC Bicycles

The following other technical standards have been applied:

- EN 11243:2016: Cycles – Pannier racks for bicycles – Requirements and test methods

CE

Cologne, 21/09/2020

……

Egbert Hageböck, Chairman, ZEG Zweirad-Einkaufs-Genossenschaft eG

* Community member who is authorised to compile the technical documentation

# 14 Keyword index