OPERATING INSTRUCTIONS

IMPORTANT
READ CAREFULLY BEFORE USE
KEEP SAFE TO CONSULT AT A LATER DATE

Lacuba EVO Lite

791-457, 791-460, 791-463
## Contents

1  About these operating instructions  3.1.6.1
   1.1  Manufacturer  Range  22
1.2  Type number and model  3.1.7  Driving light  22
1.3  Identifying the operating instructions  3.1.8  Micro USB port  22
1.4  Laws, standards and directives  3.1.9  Operating element  23
1.5  Subject to change  3.2  Proper use  24
1.6  Language  3.3  Improper use  25
1.7  For your safety  3.4  Technical data  26
   1.7.1  Instruction, training and customer service  3.4.1  ebike  26
   1.7.2  Basic safety instructions  3.4.2  Motor  26
   1.7.3  Warnings  3.4.3  Evo 650 rechargeable battery  26
   1.7.4  Safety markings  3.4.4  USB port  26
   1.8  For your information  3.4.5  SuperCore rechargeable battery  26
   1.8.1  Instructions for actions  3.4.6  Display screen and control panel  26
   1.8.2  Language conventions  3.4.7  USB port  27
1.9  Class  3.4.8  Emissions  27
   1.9.1  Information on the class plate  3.5  Tightening torque  27
2  Safety  3.5.1  Description of controls and screens  28
   2.1  General warnings  3.5.2  Handlebars  28
   2.2  Toxic substances  3.5.2.1  Level of assistance  28
   2.3  Requirements for the rider  3.5.2.2  Current speed  28
   2.4  Protection for vulnerable groups  3.5.2.3  Journey information indicator  28
   2.5  Personal protective equipment  3.5.2.4  System settings and data  29
   2.6  Safety markings and safety instructions  3.5.2.5  Battery level indicator  29
   2.7  Emergency  3.5.2.6  System message  30
   2.7.1  What to do in an emergency  3.5.3  Battery on-screen indicators  30
   2.7.2  First aid measures  3.6  Environmental requirements  31
   2.7.3  Fighting fire  3.6.1  Transportation and storing  33
   2.7.4  Leaking fluids  4.1  Physical transport characteristics  33
   2.7.4.1  Brake fluid  4.1.1  Dimensions during transportation  33
   2.7.4.2  Oils and lubricants from the fork  4.1.2  Transport weight  33
   2.7.4.3  Oils and lubricants from the rear frame damper  4.1.3  Designated handles/lifting points  33
3  Overview  4.2  Transportation  33
   3.1  Description  4.2.1  Transporting the battery  34
   3.1.1  Wheel and suspension  4.2.2  Shipping the battery  34
   3.1.1.1  Valve  4.2.3  Using the brake transport securing system  34
   3.1.2  Suspension  4.3  Storing  34
   3.1.2.1  Steel suspension fork structure  4.3.1  Break in operation  35
   3.1.2.2  Air suspension fork structure  4.3.1.1  Preparing a break in operation  35
   3.1.2.3  Structure of the FOX rear frame damper  4.3.1.2  Taking out of operation  35
   3.1.2.4  Structure of the Suntour rear frame damper  5  Assembly  36
   3.1.3  Brake system  5.1  Required tools  36
   3.1.3.1  Rim brake  5.2  Unpacking  36
   3.1.3.2  Disc brake  5.2.1  Scope of delivery  36
   3.1.3.3  Back-pedal brake  5.3  Commissioning  37
   3.1.4  Electric drive system  5.3.1  Checking the battery  37
   3.1.5  Rechargeable battery  5.3.2  Mounting the wheel in the Suntour fork  37
   3.1.6  SuperCore rechargeable battery  5.3.2.1  Mounting the wheel with screw-on axle (15 mm)  37
      3.1.6.1  Range  5.3.2.2  Mounting the wheel with screw-on axle (20 mm)  38
   3.1.7  Driving light  22
   3.1.8  Micro USB port  22
   3.1.9  Operating element  23
   3.2  Proper use  24
   3.3  Improper use  25
   3.4  Technical data  26
   3.4.1  ebike  26
   3.4.2  Motor  26
   3.4.3  Evo 650 rechargeable battery  26
   3.4.4  USB port  26
   3.4.5  SuperCore rechargeable battery  26
   3.4.6  Display screen and control panel  26
   3.4.7  USB port  27
   3.4.8  Emissions  27
   3.5  Tightening torque  27
   3.5.1  Description of controls and screens  28
   3.5.2  Handlebars  28
   3.5.2.1  Level of assistance  28
   3.5.2.2  Current speed  28
   3.5.2.3  Journey information indicator  28
   3.5.2.4  System settings and data  29
   3.5.2.5  Battery level indicator  29
   3.5.2.6  System message  30
   3.5.3  Battery on-screen indicators  30
   3.6  Environmental requirements  31
   3.6.1  Transportation and storing  33
   4.1  Physical transport characteristics  33
   4.1.1  Dimensions during transportation  33
   4.1.2  Transport weight  33
   4.1.3  Designated handles/lifting points  33
   4.2  Transportation  33
   4.2.1  Transporting the battery  34
   4.2.2  Shipping the battery  34
   4.2.3  Using the brake transport securing system  34
   4.3  Storing  34
   4.3.1  Break in operation  35
   4.3.1.1  Preparing a break in operation  35
   4.3.1.2  Taking out of operation  35
   5  Assembly  36
   5.1  Required tools  36
   5.2  Unpacking  36
   5.2.1  Scope of delivery  36
   5.3  Commissioning  37
   5.3.1  Checking the battery  37
   5.3.2  Mounting the wheel in the Suntour fork  37
   5.3.2.1  Mounting the wheel with screw-on axle (15 mm)  37
   5.3.2.2  Mounting the wheel with screw-on axle (20 mm)  38
5.3.2.3 Mounting the wheel with a quick release axle 38
5.3.3 Mounting the wheel with a quick release 40
5.3.4 Mounting the wheel in the FOX fork 41
5.3.4.1 Wheel with quick release (15 mm) 41
5.3.4.2 Adjusting the FOX quick release 41
5.3.4.3 Mounting the wheel with Kabolt axles 42
5.3.4.4 Checking the stem and handlebars 42
5.3.5 Ebike sale 42
6 Operation 43
6.1 Risks and hazards 43
6.1.1 Ambient conditions 44
6.1.2 Personal protective equipment 44
6.2 Error messages 45
6.2.1 Error message display 45
6.2.2 Battery error message 46
6.3 Before the first ride 47
6.3.1 Adjusting the saddle 47
6.3.1.1 Adjusting the saddle tilt 47
6.3.2 Determining the seat height 48
6.3.2.1 Adjusting the seat height with quick release 48
6.3.2.2 Height-adjustable seat post 48
6.3.3 Adjusting the handlebars 49
6.3.3.1 Adjusting the stem 49
6.3.3.2 Adjusting the height of the handlebars 49
6.3.3.3 Turning the handlebars to the side 50
6.3.3.4 Checking the clamping force in quick releases 50
6.3.3.5 Adjusting the quick release clamping force 50
6.3.4 Adjusting the brake lever 50
6.3.4.1 Adjusting the pressure point on a Magura brake lever 50
6.3.4.2 Adjusting the grip distance 51
6.3.4.3 Adjusting the grip distance on a Magura brake lever 51
6.3.5 Adjusting the suspension of the Suntour fork 52
6.3.5.1 Adjusting the negative deflection 52
6.3.5.2 Adjusting the air suspension fork negative deflection 52
6.3.5.3 Adjusting the steel suspension fork negative deflection 53
6.3.5.4 Adjusting the rebound 54
6.3.6 Adjusting the suspension of the FOX fork 54
6.3.6.1 Adjusting the negative deflection 54
6.3.6.2 Adjusting the rebound 55
6.3.7 Setting the Suntour rear frame damper 56
6.3.7.1 Adjusting the negative deflection 56
6.3.7.2 Adjusting the rebound 56
6.3.7.3 Setting the compression 56
6.3.7.4 Setting the FOX rear frame damper 57
6.3.8 Adjusting the negative deflection 57
6.3.8.2 Adjusting the rebound 58
6.3.9 Retracting the brake linings 58
6.4 Accessories 59
6.4.1 Child seat 59
6.5 Before the first ride 61
6.5.1 Parking the ebike 61
6.5.2 Electric drive system 66
6.5.3 Switching on the electric drive system 66
6.5.4 Switching off the drive system 66
6.6 Using the kickstand 62
6.6.1 Using the pannier rack 62
6.7 Using the pannier rack 62
6.7.1 Parking the ebike 62
6.8 Electric drive system 66
6.9 Rechargeable battery 63
6.9.1 Removing the battery 64
6.9.2 Inserting the battery 64
6.9.3 Charging the battery 64
6.9.4 Waking the battery 65
6.9.5 Using the pannier rack 62
6.10 Switching on the electric drive system 66
6.10.1 Switching off the drive system 66
6.10.2 Using the driving light 67
6.10.3 Using the push assist system 67
6.10.4 Using the USB port 68
6.10.5 Switching the journey information 68
6.10.6 Changing the system information 68
6.10.6.1 Setting units 69
6.10.6.2 Setting the backlight 69
6.10.6.3 Changing the password 69
6.10.6.4 Setting the automatic disconnect time 70
6.10.6.5 Resetting the settings 70
6.10.6.6 Setting the clock 70
6.11 Brake 71
6.11.1 Using the brake lever 72
6.11.2 Using the back-pedal brake 73
6.11.3 Suspension and damping 73
6.11.4 Adjusting the compression of the Fox fork 73
6.11.5 Adjusting the compression of the Fox damper 73
6.11.6 Adjusting the compression of the Suntour fork 74
6.11.7 Adjusting the compression of a Suntour damper 74
6.11.8 Adjusting the rebound in a Rock Shox damper 75
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjusting the compression in a Rock Shox damper</td>
<td>75</td>
</tr>
<tr>
<td>Gear shift</td>
<td>76</td>
</tr>
<tr>
<td>Selecting gears</td>
<td>76</td>
</tr>
<tr>
<td>Using a hub gear</td>
<td>76</td>
</tr>
<tr>
<td>Cleaning and servicing</td>
<td>78</td>
</tr>
<tr>
<td>Cleaning after each ride</td>
<td>78</td>
</tr>
<tr>
<td>Cleaning the suspension fork</td>
<td>78</td>
</tr>
<tr>
<td>Cleaning the rear frame damper</td>
<td>78</td>
</tr>
<tr>
<td>Cleaning the pedals</td>
<td>78</td>
</tr>
<tr>
<td>Cleaning the frame</td>
<td>79</td>
</tr>
<tr>
<td>Cleaning the stem</td>
<td>79</td>
</tr>
<tr>
<td>Cleaning the rear frame damper</td>
<td>79</td>
</tr>
<tr>
<td>Cleaning the drive elements</td>
<td>79</td>
</tr>
<tr>
<td>Cleaning the chain</td>
<td>80</td>
</tr>
<tr>
<td>Cleaning the wheel</td>
<td>79</td>
</tr>
<tr>
<td>Cleaning the battery</td>
<td>80</td>
</tr>
<tr>
<td>Cleaning the display</td>
<td>80</td>
</tr>
<tr>
<td>Cleaning the drive unit</td>
<td>80</td>
</tr>
<tr>
<td>Cleaning the brake</td>
<td>81</td>
</tr>
<tr>
<td>Cleaning the fork</td>
<td>81</td>
</tr>
<tr>
<td>Servicing the frame</td>
<td>81</td>
</tr>
<tr>
<td>Servicing the stem</td>
<td>81</td>
</tr>
<tr>
<td>Servicing the drive elements</td>
<td>81</td>
</tr>
<tr>
<td>Servicing the pedals</td>
<td>81</td>
</tr>
<tr>
<td>Servicing the chain</td>
<td>82</td>
</tr>
<tr>
<td>Servicing the drive elements</td>
<td>82</td>
</tr>
<tr>
<td>Maintenance</td>
<td>82</td>
</tr>
<tr>
<td>Wheel</td>
<td>82</td>
</tr>
<tr>
<td>Checking the tyres</td>
<td>83</td>
</tr>
<tr>
<td>Checking the rims</td>
<td>83</td>
</tr>
<tr>
<td>Check and correct tire pressure</td>
<td>83</td>
</tr>
<tr>
<td>Dunlop valve</td>
<td>83</td>
</tr>
<tr>
<td>Presta valve</td>
<td>83</td>
</tr>
<tr>
<td>Schrader valve</td>
<td>83</td>
</tr>
<tr>
<td>Brake system</td>
<td>84</td>
</tr>
<tr>
<td>Checking the brake linings for wear</td>
<td>84</td>
</tr>
<tr>
<td>Checking the pressure point</td>
<td>84</td>
</tr>
<tr>
<td>Checking the brake discs for wear</td>
<td>84</td>
</tr>
<tr>
<td>Electrical cables and brake cables</td>
<td>84</td>
</tr>
<tr>
<td>Gear shift</td>
<td>84</td>
</tr>
<tr>
<td>Stem</td>
<td>84</td>
</tr>
<tr>
<td>USB port</td>
<td>84</td>
</tr>
<tr>
<td>Checking the chain tension</td>
<td>85</td>
</tr>
<tr>
<td>Checking the handlebar grip position</td>
<td>85</td>
</tr>
<tr>
<td>Maintenance</td>
<td>86</td>
</tr>
<tr>
<td>Axle with quick release</td>
<td>87</td>
</tr>
<tr>
<td>Checking the quick release</td>
<td>87</td>
</tr>
<tr>
<td>Adjusting the gear shift</td>
<td>87</td>
</tr>
<tr>
<td>Cable-operated gear shift, single-cable</td>
<td>88</td>
</tr>
<tr>
<td>Cable-operated gear shift, dual-cable</td>
<td>88</td>
</tr>
<tr>
<td>Cable-operated twist grip, dual-cable</td>
<td>88</td>
</tr>
<tr>
<td>Troubleshooting, fault clearance and repair</td>
<td>89</td>
</tr>
<tr>
<td>Troubleshooting and fault clearance</td>
<td>89</td>
</tr>
<tr>
<td>The drive system or display do not start up</td>
<td>89</td>
</tr>
<tr>
<td>Error messages</td>
<td>89</td>
</tr>
<tr>
<td>Repair</td>
<td>90</td>
</tr>
<tr>
<td>Use original parts and lubricants only</td>
<td>90</td>
</tr>
<tr>
<td>Replacing the lighting</td>
<td>90</td>
</tr>
<tr>
<td>Setting the headlight</td>
<td>90</td>
</tr>
<tr>
<td>Recycling and disposal</td>
<td>91</td>
</tr>
<tr>
<td>Documents</td>
<td>92</td>
</tr>
<tr>
<td>Parts list</td>
<td>92</td>
</tr>
<tr>
<td>Assembly report</td>
<td>93</td>
</tr>
<tr>
<td>Maintenance log</td>
<td>95</td>
</tr>
<tr>
<td>Keyword index</td>
<td>98</td>
</tr>
<tr>
<td>Glossary</td>
<td>99</td>
</tr>
<tr>
<td>EC declaration of conformity</td>
<td>102</td>
</tr>
</tbody>
</table>
1 About these operating instructions

Thank you for your trust!

BULLS ebikes are sporting equipment of the highest quality – you have made a good choice. Your specialist dealer has advised you and assembled your product. Whether maintenance, servicing, conversion or repair, your specialist dealer will also be happy to assist you in the future.

Notice

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

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

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

These operating instructions are designed for the rider and the operator of the ebike to ensure that non-professionals can use the ebike safely.

1.1 Manufacturer

The ebike manufacturer is:

BULLS Bikes USA
11854 Alameda St.
Lynwood, CA 90262

Tel.: (310) 763 0677
E-mail: contact@bullsbikesusa.com
Internet: www.bullsbikesusa.com

1.2 Type number and model

The operating instructions are an integral part of ebikes with the following type numbers:

<table>
<thead>
<tr>
<th>Type no.</th>
<th>Model</th>
<th>Class type</th>
</tr>
</thead>
<tbody>
<tr>
<td>791-457</td>
<td>Lacuba EVO Lite (diamond)</td>
<td>Class 1</td>
</tr>
<tr>
<td>791-460</td>
<td>Lacuba EVO Lite (step-thru)</td>
<td>Class 1</td>
</tr>
<tr>
<td>791-463</td>
<td>Lacuba EVO Lite (wave)</td>
<td>Class 1</td>
</tr>
</tbody>
</table>

Table 1: Type number, model and ebike type

Instructions for the specialist dealer are highlighted in grey and marked with a symbol. Specialist dealers have specialist training and qualifications and are thus able to identify risks and prevent hazards which may arise during maintenance, servicing and repairs on the ebike. Information for specialist staff does not require non-professionals to take any action.
1.3 Identifying the operating instructions

You will find the operating instructions identification number at the bottom left-hand side of each page. The identification number consists of the document number, the version number and the release date.

Identification number MY20B02-22_1.0_28.05.2019

Table 2: Identification number

1.4 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/DIS 20607:2018 Safety of machinery – Instruction handbook – General drafting principles
- EN 15194:2018 Cycles – Electrically power assisted cycles – ebike bicycles
- EN 11243:2016, Cycles – Luggage carriers for bicycles – Requirements and test methods

1.5 Subject to change

The information contained in these operating instructions are the approved technical specifications at the time of printing. Any significant changes will be included in a new issue of the operating instructions.

1.6 Language

The original operating instructions were written in German.

1.7 For your safety

The ebike’s safety concept comprises four elements:

- rider and/or operator instruction, and ebike maintenance and repair by the specialist dealer
- the section on general safety
- the warnings in these operating instructions
- the safety markings on the class plate and the ebike.

1.7.1 Instruction, training and customer service

The supplying specialist dealer will provide customer service. Contact details can be found on the back page of these operating instructions and on the data sheet. If you are unable to contact your specialist dealer, you will find other specialist dealers online at www.bulls.com.

The rider or the operator of the ebike will be instructed on the ebike's functions in person when the supplying specialist dealer hands over the ebike, if not before. In particular, this instruction will cover the ebike’s electrical functions and correct use of the charger.

Each rider to whom this ebike is provided must receive instruction on the ebike's functions. A printed copy of these operating instructions must be provided to each rider, who must take note of and observe them.

1.7.2 Basic safety instructions

These operating instructions explains all general safety instructions in Section 2 on Safety.
1.7.3 Warnings
Hazardous situations and actions are marked with warnings. The warnings in these operating instructions are indicated as follows:

**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. Low-risk hazard.

1.8 Notice
May lead to material damage if ignored.

1.7.4 Safety markings
The following safety markings are used on the ebike's nameplates:

- ![General warning](image)
- ![Adhere to the instructions for use](image)

Table 3: Meaning of safety markings

<table>
<thead>
<tr>
<th>Term</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Instruction handbook</strong></td>
<td>Original operating instructions or translation of the original operating instructions</td>
</tr>
<tr>
<td><strong>Ebike</strong></td>
<td>Electric motor driven cycle</td>
</tr>
<tr>
<td><strong>Motor</strong></td>
<td>Drive motor</td>
</tr>
</tbody>
</table>

The following conventions are used in these operating instructions:

<table>
<thead>
<tr>
<th>Convention</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Italics</td>
<td>Glossary terms</td>
</tr>
<tr>
<td>SPACED</td>
<td>Indicators on the display screen</td>
</tr>
<tr>
<td>[Example, page numbering]</td>
<td>Cross references</td>
</tr>
<tr>
<td>•</td>
<td>Bulleted lists</td>
</tr>
</tbody>
</table>

1.8 For your information

1.8.1 Instructions for actions
Instructions for actions are structured in accordance with the following pattern:

- Requirements (optional)
- Instruction for action
- Result of the action (optional)

1.8.2 Language conventions
The ebike described in these operating instructions may be equipped with alternative equipment. The ebike equipment is defined by its respective type number. Where applicable, the word *Alternative* beneath the heading indicates alternatively used components. The following terms are used for better legibility:

<table>
<thead>
<tr>
<th>Term</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instruction handbook</td>
<td>Original operating instructions or translation of the original operating instructions</td>
</tr>
<tr>
<td>Ebike</td>
<td>Electric motor driven cycle</td>
</tr>
<tr>
<td>Motor</td>
<td>Drive motor</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Convention</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Italics</td>
<td>Glossary terms</td>
</tr>
<tr>
<td>SPACED</td>
<td>Indicators on the display screen</td>
</tr>
<tr>
<td>[Example, page numbering]</td>
<td>Cross references</td>
</tr>
<tr>
<td>•</td>
<td>Bulleted lists</td>
</tr>
</tbody>
</table>
1.9 Class

The class plate is situated on the frame. You will find the precise position of this class plate in Figure 2.

Figure 1: class plate, example

<table>
<thead>
<tr>
<th>No.</th>
<th>Designation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Identification</td>
<td>The manufacturer uses the Class marking to declare that the ebike complies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>with applicable requirements.</td>
</tr>
<tr>
<td>2</td>
<td>Classification</td>
<td>There are 3 types. Read classification below</td>
</tr>
<tr>
<td>3</td>
<td>Maximum power output</td>
<td>The maximum continuous power is the maximum power for the electric motor output shaft during 30 minutes.</td>
</tr>
<tr>
<td>4</td>
<td>Shut-off speed</td>
<td>Speed reached by the ebike at the moment when the current has dropped to zero or to the no load current value.</td>
</tr>
</tbody>
</table>

Classification

(1) A “class 1 electric bicycle,” or “low-speed pedal-assisted electric bicycle,” is a bicycle equipped with a motor that provides assistance only when the rider is pedaling, and that ceases to provide assistance when the bicycle reaches the speed of 20 miles per hour.

(2) A “class 2 electric bicycle,” or “low-speed throttle-assisted electric bicycle,” is a bicycle equipped with a motor that may be used exclusively to propel the bicycle, and that is not capable of providing assistance when the bicycle reaches the speed of 20 miles per hour.

(3) A “class 3 electric bicycle,” or “speed pedal-assisted electric bicycle,” is a bicycle equipped with a motor that provides assistance only when the rider is pedaling, and that ceases to provide assistance when the bicycle reaches the speed of 28 miles per hour.
1.9.1 Information on the class plate

Alongside the warnings, product nameplates also contain other important information about the ebike:

- Read the instructions
- Separate collection of electrical and electronic devices
- Separate collection of batteries
- Must not be thrown into fire (burning prohibited)
- Battery must not be opened
- Device of protection class II
- Only suitable for use indoors
- Fuse (device fuse)
- EU conformity
- Recyclable material
- Protect from temperatures above 122 °F and direct sunlight

Table 4: Relevance of safety instructions
2 Safety

2.1 General warnings

**WARNING**

**Risk of fire and explosion due to faulty battery**

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

- Remove batteries with external damage from service immediately and never charge them.
- Only operate the battery and accessories if they are in perfect condition.
- Only use batteries which are approved for use on your ebike.
- Do not use the battery with defective connecting cables or defective contacts.
- Use the battery with BMZ Systems e-bikes only. This is the only way that the battery will be protected from dangerous overloading.
- If the battery becomes deformed or begins to smoke, keep at a safe distance, disconnect the power supply at the socket, and notify the fire service immediately.
- Never extinguish a damaged battery with water or allow it to come into contact with water.
- If a battery is dropped or struck but shows no signs of external damage, remove it from service and observe it for at least 24 hours.
- Faulty batteries are hazardous goods. Dispose of faulty batteries properly and as quickly as possible.
- Store in a dry place until disposal. Never store in the vicinity of flammable substances.
- Never open or repair the battery.
- Charge the battery before use. Only use the charger included in the scope of delivery.

**CAUTION**

**Electric shock in case of 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.

**Risk of fire and explosion due to short circuit**

Small metal objects may jumper the electrical connections of the battery. The battery may self-ignite and explode.

- Keep paper clips, screws, coins, keys and other small parts away and do not insert them into the battery.

**Risk of fire and explosion due to incorrect charger**

Batteries which are recharged with an unsuitable charger may become damaged internally. This may result in fire or an explosion.

- Only ever use the battery with the supplied charger.
- Mark the supplied charger clearly to prevent mix-ups – with the ebike frame number or type number, for example.

**WARNING**

- Avoid wide temperature fluctuations.
- Do not use the battery at altitudes higher than 2,000 m.
2.2 Toxic substances

**WARNING**

Intoxication from suspension oil

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

- Never disassemble the rear frame damper.
- Never allow suspension oil to come into contact with the skin.

**CAUTION**

Chemical burns to the skin and eyes caused by faulty battery

Liquids and vapours may leak from damaged or faulty batteries. They can irritate the airways and cause burns.

- Avoid contact with leaked liquids.
- Ventilate with fresh air and consult a doctor if you suffer any pain or discomfort.
- Immediately consult a doctor in case of contact with the eyes or any discomfort.
- In case of contact with the skin, rinse off immediately with water.
- Ventilate the room well.

**WARNING**

Hazard for the environment due to leaking brake fluid

The brake system contains a toxic, environmentally harmful brake fluid. Such fluids will contaminate if they enter the sewers or groundwater.

- The brake system must be repaired immediately if brake fluid leaks out. Contact your specialist dealer about repair.
- Dispose of leaking brake fluid in an environmentally responsible way in accordance with statutory regulations. Ask a specialist dealer for more information.
2.3 Requirements for the rider

If there are no legal requirements for riders of electrically power-assisted cycles, we recommend that the rider should be a minimum 15 years of age and have experience with muscle-powered bicycles.

The rider's physical and mental abilities must be adequate to use a muscle-powered bicycle.

2.4 Protection for vulnerable groups

You must keep battery and charger away from children and people with reduced physical, sensory or mental capabilities or lacking in experience and knowledge.

If minors are to use the ebike, comprehensive instruction should be provided by or in the presence of the legal guardians. Supervised use should also be scheduled until it is certain that the ebike is being used as per these operating instructions.

2.5 Personal protective equipment

We recommend that you wear a suitable cycling helmet. We also recommend that you wear sturdy footwear and typical, close-fitting clothing for bicycles.

2.6 Safety markings and safety instructions

The class plate contains the following safety markings and safety instructions:

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>⚠️</td>
<td>General warning</td>
</tr>
<tr>
<td>🖕️</td>
<td>Adhere to the instructions for use</td>
</tr>
</tbody>
</table>

Table 5: Meaning of safety markings
2.7 Emergency

2.7.1 What to do in an emergency

- In the event of a hazard or danger in road traffic, apply the brakes on the ebike until it comes to a halt. The brake acts as an emergency stop system in such cases.

2.7.2 First aid measures

Symptoms which are caused by combustion gases or leaking fluids require medical attention.

**After inhalation**

Vapours may emit if the battery is damaged or used improperly. Get into fresh air and consult a doctor if you suffer any pain or discomfort. The vapours may cause respiratory tract irritation.

**After contact with eyes**

Rinse eyes with plenty of water for at least 15 minutes. Protect unaffected eye. Seek medical advice immediately.

**After swallowing**

Drink plenty of milk or water and induce vomiting. Seek medical advice immediately.

2.7.3 Fighting fire

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

- Keep your distance if the battery becomes deformed or starts to emit smoke.
- Evacuate everyone from the immediate area of the fire.
- 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.
2.7.4 Leaking fluids

2.7.4.1 Brake fluid

► The brake system must be repaired immediately if brake fluid leaks out. Contact your specialist dealer about repair.

► Dispose of leaking brake fluid in an environmentally responsible way in accordance with statutory regulations. Ask a specialist dealer for more information.

2.7.4.2 Oils and lubricants from the fork

► The brake system must be repaired immediately if brake fluid leaks out. Contact your specialist dealer about repair.

► Dispose of leaking brake fluid in an environmentally responsible way in accordance with statutory regulations. Ask a specialist dealer for more information.

2.7.4.3 Oils and lubricants 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. Ask a specialist dealer for more information.
3  Overview

Figure 2: Right side of ebike – Lacuba E

1  Front wheel  
2  Fork  
3  Front guard  
4  Headlight  
5  Handlebars  
6  Stem  
7  Frame  
8  Seat post  
9  Saddle  
10  Pannier rack  
11  Rear light and reflector  
12  Rear guard  
13  Kickstand  
14  Chain  
15  Rear wheel  
16  Chain guard  
17  Battery and frame number  
18  Class plate (typically here)
3.1 Description

3.1.1 Wheel and suspension

Figure 3: Components of the wheel, example of front wheel

1. Tire
2. Rim
3. Suspension fork head with setting wheel
4. Shock absorber
5. Spoke
6. Quick release
7. Hub
8. Valve
9. Fork end of the shock absorber

3.1.1.1 Valve

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

The ebike 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. 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.

Figure 4: ebike without suspension (1) and with suspension (2) when riding over an obstacle

The suspension prevents an impact, such as one caused by a stone lying in the bike'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. The compression can be disabled so that a suspension fork reacts like a rigid fork. The switch to disable the fork is called a remote lockout.

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.
3.1.2.1 Steel suspension fork structure

The stem and handlebars are fastened to the fork steerer (1). The wheel is fastened to the quick release axle (6). Other elements: the compression setting (2), crown (3), Q-Loc (5), dust seal (6), fork end for quick release (7), stanchion (8) and spring (9).

Figure 5: Example showing Suntour fork

3.1.2.2 Air suspension fork structure

The ebike's fork features both air suspension and a compression damper plus a rebound damper in some cases.

You can see the following components in the diagram: Air valve (1), valve cap (2) fork lock (3), quick release (4) and rebound damper adjuster (5) and the assembly groups: Air suspension fork (A), compression damper assembly group (B) and rebound damper assembly group (C).

Figure 6: Example showing Yari fork
3.1.2.3 Structure of the FOX rear frame damper
The rear frame damper features air suspension, a compression damper and a rebound damper.

Figure 7: Example showing FOX rear frame damper

1 Guide rod eye
2 Air valve
3 Setting wheel
4 Lever
5 Air chamber
6 O-ring

3.1.2.4 Structure of the Suntour rear frame damper
The rear frame damper features air suspension, a compression damper and a rebound damper.

Figure 8: Example showing Suntour rear frame damper

1 Upper eye
2.1 Total damper length
2.2 SAG
3 Lower eye
4 O-ring
5 Sleeve
6 Damper unit
7 IFP (internal floating piston)
8 Air valve
9 Air chamber
10 Lockout lever
11 Rebound lever

3.1.3 Brake system
The ebike’s brake system comprises either a hydraulic:

• rim brake on the front and rear wheels
• 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 ebike to a halt quickly and safely in the event of an emergency.
3.1.3.1 Rim brake

Figure 9: Rim brake components with details; 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

The rim brake stops the wheel moving when the rider pulls 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.

Figure 10: Rim brake locking lever, closed (1) and open (2)

The rim brake locking lever is not marked with any lettering. Only a specialist dealer may set the rim brake locking lever.

3.1.3.2 Disc brake

Figure 11: Ebike brake system with a 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 ebike with a disc brake, the brake disc is screwed permanently to the wheel hub.

The brake lever is pulled to increase brake pressure. The brake fluid is used to transfer pressure through the brake lines 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 pulled, 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 12: Ebike 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.
3.1.4 Electric drive system

The ebike 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 ebike 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.

![Diagram of drive system](image)

**Figure 13: Diagram of drive system**

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

The ebike 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:

![Diagram of electric drive system](image)

**Figure 14: Diagram of electric drive system**

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

As soon as the required muscle power from the rider pedalling passes a certain level, the motor is activated gently and assists the pedalling motion of the rider. 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 happens regardless 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 20 mph has been reached. If the speed falls below 20 mph, the assistance is automatically activated again.

A push assist system can be activated. The push assist continues to drive the ebike as long as the rider presses the plus button on the handlebars. The speed can be a maximum of 3.7 mph in this case.

3.1.5 Rechargeable battery

The lithium ion battery has an internal electronic protection circuit, which is specifically designed for the charger and the ebike. 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 battery 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.
3.1.6 SuperCore rechargeable battery

Figure 15: Details of SuperCore rechargeable 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
- tire type
- tire 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.),
- Ebike weight and
- load

3.1.7 Driving light

When the driving light is activated, the headlight and the rear light are switched on. When the driving light is activated, the display screen changes from daytime to night mode.

Figure 16: Daytime and night mode

3.1.8 Micro USB port

The display has a micro USB port on the underside. With a suitable USB cable, you can charge devices such as your mobile. The charging current is 0.5 amps. Please observe the permissible charging currents of your devices.

<table>
<thead>
<tr>
<th>Table 8: USB port technical data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charge voltage</td>
</tr>
<tr>
<td>Charging current</td>
</tr>
</tbody>
</table>

Table 7: Rechargeable battery technical data

| Transportation temperature | 41 °F - 77 °F |
| Ideal transportation temperature | 50 °F - 59 °F |
| Storage temperature | 41 °F - 77 °F |
| Ideal storage temperature | 50 °F - 59 °F |
| Charging ambient temperature | 50 °F - 86 °F |
3.1.9 Operating element

The operating element features four buttons.

![Operating element overview]

Figure 17: Operating element overview

- 1 On/off switch
- 2 Function button
- 3 Up button
- 4 Down button
3.2  Proper use

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

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

<table>
<thead>
<tr>
<th>City and trekking bicycles</th>
<th>Child's bicycles/bicycles for young adults</th>
<th>Mountain bikes</th>
<th>Racing bicycle</th>
<th>Cargo bike</th>
<th>Folding bicycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>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. The contents of these operating instructions must be communicated to the riders in an age-appropriate manner. The cycles for children and young adults are suitable for riding on public roads. The size of the ebike must be checked regularly for orthopaedic reasons. A check must be made at least every three months to make sure that the 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. A mountain bike is a piece of sporting equipment. It requires an adaptation period as well as physical fitness. Use requires the appropriate training; in particular riding in bends and braking should be practised. 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. 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. 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. 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. 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. The length of the bicycle, its width and turning circle require a longer period of adaptation. The cargo bike requires cautious riding. You must pay attention to the traffic on public roads and the condition of the route accordingly. The cargo bike is suitable for use on public roads. A folding bicycle can be folded up and is thus suitable for space-saving transportation, for example on public transport or in a car. 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. The folding bicycle is suitable for use on public roads. A folding bicycle can be folded up and is thus suitable for space-saving transportation, for example on public transport or in a car. 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.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 9: Proper use
3.3 Improper use

Failure to adhere to the proper use poses a risk of personal injury and material damage. The ebike is not suitable for the following uses:

- when the electrical drive has been manipulated
- riding with a damaged or incomplete ebike
- riding over steps
- riding through deep water
- lending the ebike 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.

### Table 10: Information on incorrect use

<table>
<thead>
<tr>
<th>City and trekking bicycles</th>
<th>Child’s bicycles/ bicycles for young adults</th>
<th>Mountain bikes</th>
<th>Racing bicycle</th>
<th>Cargo bike</th>
<th>Folding bicycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>City and trekking bicycles are not sports bicycles. If used for sports, the rider can expect reduced riding stability and diminished comfort</td>
<td>Cycles for children and young adults are not toys.</td>
<td>Mountain bikes must be retrofitted with lighting, a guard and other fittings as specified by national laws and regulations before they are used on public roads.</td>
<td>The folding bicycle is not a sports bicycle.</td>
<td>A folding bicycle is not a touring bicycle or a sports bicycle.</td>
<td>Racing bikes must be retrofitted with lighting, a guard and other fittings as specified by national laws and regulations before they are used on public roads.</td>
</tr>
</tbody>
</table>
3.4 Technical data

3.4.1 Ebike

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transportation temperature</td>
<td>41 °F - 77 °F</td>
</tr>
<tr>
<td>Ideal transportation temperature</td>
<td>50 °F - 59 °F</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>41 °F - 77 °F</td>
</tr>
<tr>
<td>Ideal storage temperature</td>
<td>50 °F - 59 °F</td>
</tr>
<tr>
<td>Operation temperature</td>
<td>41 °F - 95 °F</td>
</tr>
<tr>
<td>Work environment temperature</td>
<td>59 °F - 77 °F</td>
</tr>
<tr>
<td>Charging temperature</td>
<td>50 °F - 86 °F</td>
</tr>
<tr>
<td>Power output/system</td>
<td>250 W (0.25 kW)</td>
</tr>
<tr>
<td>Shut-off speed</td>
<td>20 mph</td>
</tr>
</tbody>
</table>

Table 11: Technical data for ebike

3.4.2 Motor

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions (mm)</td>
<td>213 x 150 x 128</td>
</tr>
<tr>
<td>Weight</td>
<td>7.5 lbs.</td>
</tr>
<tr>
<td>Nominal voltage</td>
<td>36 V DC</td>
</tr>
<tr>
<td>Protection class</td>
<td>IP56</td>
</tr>
<tr>
<td>Max. torque</td>
<td>90 Nm</td>
</tr>
<tr>
<td>Continuous power rating</td>
<td>250 W</td>
</tr>
<tr>
<td>Assistance up to</td>
<td>20 mph</td>
</tr>
<tr>
<td>Working temperature</td>
<td>-14 - 122 °F</td>
</tr>
</tbody>
</table>

Table 12: Motor technical data

3.4.3 Evo 650 rechargeable battery

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transportation temperature</td>
<td>41 °F - 77 °F</td>
</tr>
<tr>
<td>Ideal transportation temperature</td>
<td>50 °F - 59 °F</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>41 °F - 77 °F</td>
</tr>
<tr>
<td>Ideal storage temperature</td>
<td>50 °F - 59 °F</td>
</tr>
<tr>
<td>Charging ambient temperature</td>
<td>50 °F - 86 °F</td>
</tr>
</tbody>
</table>

Table 13: Rechargeable battery technical data

3.4.4 USB port

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charge voltage</td>
<td>5 V</td>
</tr>
<tr>
<td>Charging current</td>
<td>Max. 500 mA</td>
</tr>
</tbody>
</table>

Table 14: USB port technical data

3.4.5 SuperCore rechargeable battery

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal capacity</td>
<td>37/20 Ah</td>
</tr>
<tr>
<td>Energy</td>
<td>750 W</td>
</tr>
<tr>
<td>Maximum discharging current, continuous</td>
<td>25 A</td>
</tr>
<tr>
<td>Maximum charging current, continuous</td>
<td>5 A</td>
</tr>
<tr>
<td>Voltage</td>
<td>36 V</td>
</tr>
<tr>
<td>Maximum charging voltage</td>
<td>42 V</td>
</tr>
<tr>
<td>Weight</td>
<td>8.35 lbs.</td>
</tr>
<tr>
<td>Dimensions in mm (W x H x L)</td>
<td>130 x 60 x 450</td>
</tr>
<tr>
<td>Designated charger</td>
<td>Item no. 28555*</td>
</tr>
<tr>
<td>Transportation temperature</td>
<td>41 °F - 77 °F</td>
</tr>
<tr>
<td>Ideal transportation temperature</td>
<td>50 °F - 59 °F</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>41 °F - 77 °F</td>
</tr>
<tr>
<td>Ideal storage temperature</td>
<td>50 °F - 59 °F</td>
</tr>
<tr>
<td>Charging ambient temperature</td>
<td>50 °F - 86 °F</td>
</tr>
</tbody>
</table>

Table 15: Rechargeable battery technical data

*Charger: 10S | 45 V | 4.5 A | 100–240 VAC

3.4.6 Display screen and control panel

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply</td>
<td>DC 24V/36V/48V</td>
</tr>
<tr>
<td>Rated current</td>
<td>30 ma/36 V</td>
</tr>
<tr>
<td>Switch-off point in the event &lt;1uA of residual current</td>
<td>&lt;1uA</td>
</tr>
<tr>
<td>Display details</td>
<td>3.5&quot;, colour, TFT, 480 x 320 pixels</td>
</tr>
<tr>
<td>Communication</td>
<td>UART (default)</td>
</tr>
<tr>
<td>Protection class</td>
<td>IP65</td>
</tr>
<tr>
<td>Working temperature</td>
<td>-44 to 133 °F</td>
</tr>
<tr>
<td>Storage temperature range</td>
<td>-66 to 176 °F</td>
</tr>
</tbody>
</table>

Table 16: Operating element technical data
### 3.4.7 USB port

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Charge voltage</strong></td>
<td>5 V</td>
</tr>
<tr>
<td><strong>Charging current</strong></td>
<td>Max. 500 mA</td>
</tr>
</tbody>
</table>

Table 17: USB port technical data

### 3.4.8 Emissions

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A-weighted emission sound pressure level</td>
<td>&lt; 70 dB(A)</td>
</tr>
<tr>
<td>Total vibration level for the hands and arms</td>
<td>&lt; 2.5 m/s²</td>
</tr>
<tr>
<td>Highest effective value of weighted acceleration for the entire body</td>
<td>&lt; 0.5 m/s²</td>
</tr>
</tbody>
</table>

Table 18: Emissions from the ebike*

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

### 3.4.9 Tightening torque

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Axle nut tightening torque</td>
<td>35 Nm - 40 Nm</td>
</tr>
<tr>
<td>Handlebars clamping screw maximum tightening torque*</td>
<td>5 Nm - 7 Nm</td>
</tr>
</tbody>
</table>

Table 19: Tightening torque values

*If there is no other data on the component
3.5 Description of controls and screens

3.5.1 Handlebars

Figure 18: Detailed view of ebike from rider position, example

1 Rear brake lever
2 Bell
3 Headlight
4 Front brake lever
5 Gear shift
6 Operating element
7 Display
8 Fork lock
9 Gear shift

3.5.2 On-screen indicators

The display has nine on-screen indicators:

Figure 19: On-screen indicators overview

<table>
<thead>
<tr>
<th>Use</th>
<th>Colour</th>
<th>Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Level of assistance</td>
<td>Grey</td>
<td>Off</td>
</tr>
<tr>
<td>2 Current speed with unit of measure for speed</td>
<td>Green</td>
<td>ECO</td>
</tr>
<tr>
<td>3 Clock</td>
<td>Yellow</td>
<td>Tour</td>
</tr>
<tr>
<td>4 Bluetooth symbol</td>
<td>Orange</td>
<td>Sport</td>
</tr>
<tr>
<td>5 Driving light symbol</td>
<td>Red</td>
<td>Turbo</td>
</tr>
</tbody>
</table>

Table 20: On-screen indicators overview

3.5.2.1 Level of assistance

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

Figure 20: Level of assistance indicators

<table>
<thead>
<tr>
<th>Colour</th>
<th>Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Trip time</td>
<td>Trip</td>
</tr>
<tr>
<td>2 Overall distance (ODO)</td>
<td>Range</td>
</tr>
<tr>
<td>3 Average speed (AVG Speed)</td>
<td>Maximum speed (Max Speed)</td>
</tr>
</tbody>
</table>

Table 21: Overview of level of assistance

3.5.2.2 Current speed

You can select whether the speed is displayed in kilometres or miles in the system settings.

3.5.2.3 Journey information indicator

The function display shows three different items of information:

Figure 21: Journey information indicator

<table>
<thead>
<tr>
<th>Colour</th>
<th>Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Trip time</td>
<td>Trip</td>
</tr>
<tr>
<td>2 Overall distance (ODO)</td>
<td>Range</td>
</tr>
<tr>
<td>3 Average speed (AVG Speed)</td>
<td>Maximum speed (Max Speed)</td>
</tr>
</tbody>
</table>

Table 22: Overview of level of assistance
The displayed journey information can be switched.

### 3.5.2.4 System settings and data

In order to see the system settings, the rider has to call up the system settings. The rider can change the values of the system settings.

<table>
<thead>
<tr>
<th>Screen display</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>BLUETOOTH ON/OFF</em></td>
<td><em>Switch Bluetooth function on and off</em></td>
</tr>
<tr>
<td>UNIT SETTING</td>
<td>Change units</td>
</tr>
<tr>
<td>BACKLIGHT SETTING</td>
<td>Set the backlight brightness</td>
</tr>
<tr>
<td>CLOCK SETTING</td>
<td>Set clock</td>
</tr>
<tr>
<td>PASSWORD SETTING</td>
<td>Change password</td>
</tr>
<tr>
<td>TIME PERIOD FOR AUTOMATIC SHUT-OFF</td>
<td>Set time period for automatic shut-off</td>
</tr>
<tr>
<td><em>WHEEL DIAMETER</em></td>
<td>Change wheel circumference</td>
</tr>
<tr>
<td><em>SPEED LIMITATION INFORMATION</em></td>
<td>Display speed limitation</td>
</tr>
<tr>
<td><em>BATTERY INFORMATION</em></td>
<td>Display battery information</td>
</tr>
<tr>
<td><em>SYSTEM INFORMATION</em></td>
<td>Display system information</td>
</tr>
<tr>
<td>RESET TO FACTORY SETTING</td>
<td>Reset to factory setting</td>
</tr>
</tbody>
</table>

*Not standard settings; only specialist dealer can change them*

**Table 23: Journey information**

**3.5.2.5 Battery level indicator**

The battery level indicator consists of 5 segments. If the battery level is less than 5%, the battery icon turns yellow and starts to flash. The battery level indicator starts flashing.

<table>
<thead>
<tr>
<th>When charging</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 5%</td>
<td><img src="image1" alt="Battery level indicator" /></td>
</tr>
<tr>
<td>5 - 39%</td>
<td><img src="image2" alt="Battery level indicator" /></td>
</tr>
<tr>
<td>40 - 59%</td>
<td><img src="image3" alt="Battery level indicator" /></td>
</tr>
<tr>
<td>60 - 70%</td>
<td><img src="image4" alt="Battery level indicator" /></td>
</tr>
<tr>
<td>70 - 90%</td>
<td><img src="image5" alt="Battery level indicator" /></td>
</tr>
<tr>
<td>90 - 100%</td>
<td><img src="image6" alt="Battery level indicator" /></td>
</tr>
</tbody>
</table>

*Table 24: List of system settings*

*Table 25: Battery level indicator on the display*
3.5.2.6 System message

The drive system monitors itself continuously and shows a system message on the display screen in the case of a known error. The system may switch off automatically depending on the type of error.

![Error Message Example](image)

Figure 22: Example of an error message

There is a table of system messages in the Appendix.

3.5.3 Battery on-screen indicators

The battery indicator is on the battery:

![Battery Indicator](image)

Figure 23: On-screen indicators overview

1 On-Off button
2 Battery level indicator

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>●</td>
<td>LED on</td>
</tr>
<tr>
<td>○</td>
<td>LED off</td>
</tr>
<tr>
<td>★</td>
<td>LED flashing</td>
</tr>
</tbody>
</table>

Table 26: Battery level indicator

The battery level is displayed to you when you press the on-off button.

<table>
<thead>
<tr>
<th>LED 1,2,3,4,5</th>
<th>Battery level</th>
</tr>
</thead>
<tbody>
<tr>
<td>●●●●●</td>
<td>100 - 80%</td>
</tr>
<tr>
<td>●●●●○</td>
<td>79 - 60%</td>
</tr>
<tr>
<td>●●●○○</td>
<td>59 - 40%</td>
</tr>
<tr>
<td>●●○○○</td>
<td>39 - 20%</td>
</tr>
<tr>
<td>●○○○○</td>
<td>19 - 10%</td>
</tr>
<tr>
<td>★○○○○</td>
<td>9 - 0%</td>
</tr>
</tbody>
</table>

Table 27: Battery level indicator
3.6 Environmental requirements

The ebike is designed for outdoor use up to altitudes of 2,000 m.

You can ride the ebike within a temperature range between 41 °F and 95 °F. The drive system is limited in its performance outside this temperature range.

**Operation temperature** 41°F - 95°F

You must also keep within the following temperature ranges:

- **Transportation temperature** 41°F - 77°F
- **Ideal transportation temperature** 50°F - 59°F

**Table 28: Technical data for ebike**

<table>
<thead>
<tr>
<th>Area of use</th>
<th>City and trekking bicycles</th>
<th>Child's bicycles/bicycles for young adults</th>
<th>Mountain bikes</th>
<th>Racing bicycle</th>
<th>Cargo bike</th>
<th>Folding bicycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>![1]</td>
<td>Suitable for tarmacked and paved roads.</td>
<td>Suitable for tarmacked and paved roads.</td>
<td>Suitable for tarmacked and paved roads.</td>
<td>Suitable for tarmacked and paved roads.</td>
<td>Suitable for tarmacked and paved roads.</td>
<td>Suitable for tarmacked and paved roads.</td>
</tr>
<tr>
<td>![2]</td>
<td>Suitable for tarmacked roads, cycle paths and firm gravel paths and roads, and longer sections with moderate slopes and jumps up to 15 cm.</td>
<td>Suitable for tarmacked roads, cycle paths and firm gravel paths and roads, and longer sections with moderate slopes and jumps up to 15 cm.</td>
<td>Suitable for tarmacked roads, cycle paths and firm gravel paths and roads, and longer sections with moderate slopes and jumps up to 61 cm.</td>
<td>Suitable for tarmacked roads, cycle paths and firm gravel paths and roads, and longer sections with moderate slopes and jumps up to 61 cm.</td>
<td>Suitable for tarmacked roads, cycle paths and firm gravel paths and roads, and longer sections with moderate slopes and jumps up to 61 cm.</td>
<td>Suitable for tarmacked roads, cycle paths and firm gravel paths and roads, and longer sections with moderate slopes and jumps up to 61 cm.</td>
</tr>
<tr>
<td>![3]</td>
<td></td>
<td></td>
<td>Suitable for tarmacked roads, cycle paths and easy to demanding off-road riding, limited downhill use and jumps up to 122 cm.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>![4]</td>
<td></td>
<td></td>
<td>Suitable for tarmacked roads, cycle paths and easy to extremely difficult off-road riding, unlimited downhill use and any jumps</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table 29: Area of use**

The class plate contains symbols for the ebike's area of use. Check what roads and paths you may use before you ride the ebike for the first time.
The eBike is unsuitable for the following areas of use:

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

4.1 Physical transport characteristics

4.1.1 Dimensions during transportation
There was no information relating to the box dimensions at the time of going to press. You'll find the information in the latest operating instructions on the retailer portal.

4.1.2 Transport weight
There was no information relating to the box dimensions at the time of going to press. You'll find the information in the latest operating instructions on the retailer portal.

4.1.3 Designated handles/lifting points
There was no information relating to the box dimensions at the time of going to press. You'll find the information in the latest operating instructions on the retailer portal.

4.2 Transportation

CAUTION

Crash caused by unintentional activation
There is a risk of injury if the drive system is activated unintentionally.
► Remove the battery before the ebike is transported.

Risk of fire and explosion due to high temperatures
Excessively high temperatures will damage the battery. Batteries may self-ignite and explode.
► Never expose batteries to sustained direct sunlight.

CAUTION

Oil leak if no transport securing device
The brake securing device prevents the brakes from being applied accidentally during transportation. This could cause irreparable damage to the brake system or an oil leak, which will harm the environment.
► Never pull the brake lever when the wheel has been dismounted.
► Always use the transport securing system when transporting dismounted wheels.

Notice

Oil and grease may leak from the ebike if it is lying flat.
If the shipping box with an ebike is lying flat or standing on one end, it does not provide the frame and wheels with adequate protection against damage.
► Transport the ebike in an upright position only.

Bicycle rack systems which use the handlebars or frame to hold the ebike in an upside-down position exert inadmissible forces on its components during transportation. This can cause the supporting parts to break.
► Never use bicycle rack systems which use the ebike’s handlebars or frame to hold it in an upside-down position.
► Take into account the weight of the ready-to-use ebike when transporting it.
► Remove the display screen and the batteries before transporting the ebike.
► Protect the electrical components and connections on the ebike from the weather conditions with suitable protective covers.
► Remove accessories such as drinking bottles before transporting the ebike.
► You must use a suitable bicycle rack system when transporting by car.
4.2.1 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.

4.2.2 Shipping the battery
The battery is considered a hazardous good and only trained persons may pack and ship a battery. Contact your specialist dealer regarding any battery shipment.

4.2.3 Using the brake transport securing system
- Insert the transport securing devices between the brake linings.
- The transport securing device is squeezed between the two linings.

Figure 24: Fastening the transport securing device

4.3 Storing

Risk of fire and explosion due to high temperatures
Temperatures over 140 °F can also cause liquid to leak from the battery and the battery will become damaged. Batteries may self-ignite and explode.
- Protect batteries against heat.
- Never store in proximity to hot or flammable objects.
- Never expose batteries to continuous direct sunlight and never store near heaters.

Notice
Oil and grease may leak from the ebike if it is lying flat.
If the shipping box with an ebike is lying flat or standing on one end, it does not provide the frame and wheels with adequate protection against damage.
- Store the ebike in an upright position only.

- If the ebike features a hydraulic seat post, fix only the lower seat post or the frame into a fitting stand to prevent damage to the upper seat post and the seat post lever.
- Never place an ebike with a hydraulic seat post upside down on the floor; otherwise you will damage the seat post lever.
- Store the ebike, battery and charger in a dry, clean location.

<table>
<thead>
<tr>
<th>Storage temperature</th>
<th>41 °F - 77 °F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optimum ebike storage temperature</td>
<td>50 °F - 59 °F</td>
</tr>
<tr>
<td>Optimum battery storage temperature</td>
<td>72 °F - 79 °F</td>
</tr>
</tbody>
</table>

Table 30: Storage temperature for batteries, the ebike and charger
4.3.1 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 3 months.

The battery may become damaged if it is connected permanently to the charger.
➤ Never connect the battery to the charger permanently.

The display battery discharges when it is not in use. This can cause it to be irreparably damaged.
➤ Recharge the display battery for at least 1 hour every 3 months.

If the ebike is to be removed from service for longer than four weeks, for the winter, for example, you need to prepare it for a break in operation.

4.3.1.1 Preparing a break in operation
✓ Remove battery from the ebike.
✓ Charge battery to around 50%
✓ The ebike 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 servicing and basic cleaning and apply preservative agent.

4.3.1.2 Taking out of operation
➤ Store the ebike, battery and charger in a dry, clean environment.
➤ Recharge the display battery for at least 1 hour every 3 months.
➤ Check the battery level after 8 weeks. If only one LED on the battery level indicator lights up, recharge the battery to around 60%. 

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

➤ The battery must be recharged every 3 months.

The battery may become damaged if it is connected permanently to the charger.
➤ Never connect the battery to the charger permanently.

The display battery discharges when it is not in use. This can cause it to be irreparably damaged.
➤ Recharge the display battery for at least 1 hour every 3 months.

If the ebike is to be removed from service for longer than four weeks, for the winter, for example, you need to prepare it for a break in operation.
5 Assembly

5.1 Required tools

The following tools are required to assemble the ebike:

- 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

5.2.1 Scope of delivery

The ebike was completely assembled in the factory for test purposes and then dismantled for transportation.

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

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

The battery is supplied separately from the ebike.

WARNING

Injury to the eyes

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

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

CAUTION

Crushing caused by unintentional activation

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

- Remove the battery if it is not absolutely necessary for assembly.

Assemble the ebike in a clean, dry environment.

The work environment temperature should be between 59 °F and 77 °F.

| Work environment temperature | 59 °F - 77 °F |

Table 31: Work environment temperature

- If a fitting stand is used, it must be approved for a maximum weight of 66 lbs.
- We recommend that you always disconnect the battery from the ebike when using the fitting stand to reduce weight.

CAUTION

Hand injuries caused by cardboard packaging

The shipping carton is closed with metal staples. There is a risk of puncture wounds and cuts when unpacking and crushing the packaging.

- Wear suitable hand protection.
- Remove the metal staples with pliers before the shipping carton is opened.

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.
5.3 Commissioning

Risk of fire and explosion due to incorrect charger

Batteries which are recharged with an unsuitable charger may become damaged internally. This may result in fire or an explosion.

► Only ever use the battery with the supplied charger.
► Mark the supplied charger clearly to prevent mix-ups – with the ebike frame number or type number, for example.

 Burns from hot drive

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

► Leave the drive unit to cool before cleaning.

5.3.1 Checking the battery

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

► Press the On-Off button (battery).

▼ If none of the LEDs on the operating status and battery level indicator light up, the battery may be damaged.
▼ The battery can be charged if at least one of the LEDs on the operating status and battery level indicator is fully lit up, but not if all of them are.

► Once the battery has been charged, insert it into the ebike.

5.3.2 Mounting the wheel in the Suntour fork

Only applies to ebikes with this equipment

5.3.2.1 Mounting the wheel with screw-on axle (15 mm)

► Insert the axle completely on the drive side.

Figure 25: Fully inserting the axle
Tighten the axle with a 5 mm hexagon socket spanner to 8–10 Nm.

Figure 26: Tightening the axle

> Insert the securing screw on the non-drive side.

Figure 27: Pushing the quick release lever into the axle

> Tighten the securing screw with a 5 mm hexagon socket spanner to 5–6 Nm.

The lever is mounted.

Figure 28: Tightening the securing screw

5.3.2.2 Mounting the wheel with screw-on axle (20 mm)

> Insert the axle completely on the drive side.

Figure 29: Tightening the inserted axle

> Tighten the securing clip with a 4 mm hexagon socket spanner to 7 Nm.

Figure 30: Tightening the axle

5.3.2.3 Mounting the wheel with a quick release axle

Crash caused by loose quick release axle

A faulty or incorrectly installed quick release axle may become caught in the brake disc and block the wheel. This will cause a crash.

> Never fit a defective quick release axle.

Crash caused by faulty or incorrectly installed quick release axle

The brake disc becomes very hot during operation. Parts of the quick release axle may become damaged as a result. The quick release axle becomes loose. This will cause a crash with injuries.

> The quick release axle and the brake disc must be opposite one another.
Insert the axle into the hub on the drive side.

Clamping version II.

Reverse the quick release lever.

The lever is secured.

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.

Use a 4 mm hexagon socket spanner to adjust the clamping lever clamping force if required. Afterwards, check the quick release lever position and clamping force.

Crash caused by incorrectly set quick release axle

Insufficient clamping force will cause a detrimental transmission of force. The suspension fork or the quick release axle may break. This will cause a crash with injuries.

Never fasten a quick release axle with a tool, such as a hammer or pliers.

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.

Use a 4 mm hexagon socket spanner to adjust the clamping lever clamping force if required. Afterwards, check the quick release lever position and clamping force.

CAUTION

Crash caused by incorrectly set quick release axle

Insufficient clamping force will cause a detrimental transmission of force. The suspension fork or the quick release axle may break. This will cause a crash with injuries.

Never fasten a quick release axle with a tool, such as a hammer or pliers.
5.3.3 Mounting the wheel with a 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.

► Never fit a defective quick release.

**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 quick release 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.

► Before mounting, ensure that the quick release flange is extended. Open the lever completely.

► Push in the quick release until you hear a clicking sound. Make sure that the flange is extended.

![Figure 38: Pushing the quick release in](image)

► Adjust the clamping with a half-open clamping lever until the flange reaches the fork end.

![Figure 39: Adjusting the clamping](image)

► Fully close the quick release. Check the quick release to ensure it is firmly in place and adjust on the flange if necessary.

♀ The lever is secured.

![Figure 40: Closing the quick release](image)
5.3.4 Mounting the wheel in the FOX fork

*Only applies to ebikes with this equipment*

5.3.4.1 Wheel with quick release (15 mm)

The procedure for installing the 15 x 100 mm and 15 x 110 mm quick releases is the same.

- Place the front wheel in the fork ends of the fork. Push the axle through the fork end on the non-drive side and hub.

![Figure 41: Pushing the quick release in](image)

- Open the axle lever.
- Turn the axle five to six complete revolutions clockwise into the axle nut.
- Close the quick release. The lever must be tensioned to the point that it leaves a mark on your hand.
- The lever must be 1 to 20 mm ahead of the fork leg in the closed position.

![Figure 42: Spacing between lever and fork leg](image)

- If the lever is tensioned too little or too much when closed in the recommended position (1 to 20 mm ahead of the fork), the quick release must be adjusted.

5.3.4.2 Adjusting the FOX quick release

![Figure 43: Structure of quick release from rear with (1) axle nut lock, (2) axle nut securing screw, (3) directional arrow, (4) axle setting value and (5) axle nut](image)

- Record the axle setting value (4) indicated by the directional arrow (3).
- Loosen the axle nut securing screw (2) with a 2.5 mm hex key by approx. four revolutions, but do not remove the screw completely.
- Turn the quick release lever to the open position and loosen the axle by approx. four revolutions.
- Press the axle inward from the side of the open lever. This pushes out the axle nut securing screw so that you can turn it out of the way.
- Push the axle further forward and turn the axle nut clockwise to increase the lever tension or anti-clockwise to reduce the lever tension.
- Reinsert the axle nut lock and tighten the screw to 0.9 Nm (8 in-lb).
- Repeat the steps for installing the axle to check proper installation and correct adjustment.
5.3.4.3 Mounting the wheel with Kabolt axles

The procedure for installing the 15 x 100 mm and 15 x 110 mm Kabolt axles is the same.

► Place the front wheel in the fork ends of the fork. Push the Kabolt axle through the fork end on the non-drive side and hub.

Figure 44: Pushing the Kabolt axle in

► Tighten the Kabolt axle screw to 17 Nm (150 in-lb) with a 6 mm hex key.

5.3.4.4 Checking the stem and handlebars

Checking connections

► Stand in front of the ebike 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. Try to twist the handlebars towards the front wheel.

☞ The stem must not move or twist.

Firm hold

► 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.

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

► Close the lever and check the stem is firmly in position.

Checking the headset backlash

► To check the handlebar headset backlash, close the quick release lever on the stem. 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 ebike backwards and forwards.

► 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.

► 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.

5.3.5 Ebike sale

► Complete the data sheet on the operating instructions envelope.

► Adjust the ebike to the rider.

► Set the stand and the shifter, and show the purchaser the settings.

► Instruct the operator or rider on how to use all the ebike'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 ebikes. Likewise, other road users frequently do not see ebike riders. 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 and reduce your speed as a precaution when other road users turn right.

**Injuries and death caused by riding incorrectly**

An ebike 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 an ebike for some time, get accustomed to the speed before you ride at speeds over 7.5 mph. Increase the level of assistance on your ebike gradually.
- Practice hard braking on a regular basis.
- Take and complete a riding safety course.

**CAUTION**

**Risk of fire and burning due to hot motor**

The motor housing becomes hot when riding. Touching it may cause burns to the skin or other objects.

- Never touch the motor housing directly after riding.
- Never place the ebike on a flammable surface, such as grass or wood, directly after use.

**Crash caused by soiling**

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

- Remove coarse soiling before riding.

**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.

**Notice**

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

- Never park the ebike in the sun.
- On hot days, regularly check the tire pressure and adjust it as necessary.

When riding downhill, high speeds may be reached.

The ebike is only designed to exceed a speed of 20 mph for short periods. The tyres in particular can fail if exposed to a continuous load.

- Decelerate the ebike with the brakes if you reach speeds greater than 20 mph.
6.1.1 Ambient conditions

The ebike is designed for outdoor use.

You can ride the ebike within a temperature range between 41 °F and 95 °F. The drive system is limited in its performance outside this temperature range.

### Operation temperature

<table>
<thead>
<tr>
<th></th>
<th>41 °F - 95 °F</th>
</tr>
</thead>
</table>

You must also keep within the following temperature ranges:

<table>
<thead>
<tr>
<th>Temperature Type</th>
<th>Temperature Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transportation temperature</td>
<td>41°F - 77°F</td>
</tr>
<tr>
<td>Ideal transportation temperature</td>
<td>50°F - 59°F</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>41°F - 77°F</td>
</tr>
<tr>
<td>Ideal storage temperature</td>
<td>50°F - 59°F</td>
</tr>
<tr>
<td>Operation temperature</td>
<td>41°F - 95°F</td>
</tr>
<tr>
<td>Work environment temperature</td>
<td>59°F - 77°F</td>
</tr>
<tr>
<td>Charging temperature</td>
<td>50°F - 86°F</td>
</tr>
</tbody>
</table>

#### Table 32: Technical data for ebike

---

### Personal protective equipment

We recommend that you wear a suitable cycling helmet. We also recommend that you wear sturdy footwear and typical, close-fitting, reflective clothing for bicycles.

Notice

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

- Always keep the ebike dry and free from frost.
- If the ebike is to be used at temperatures below 37 °F, the specialist dealer must carry out an inspection and prepare the ebike for winter usage first.
- If you leave a key inserted when riding or transporting the ebike, it may break off or the locking system may open accidentally.
- Remove the key from the battery lock immediately after use.
- We recommend that you attach the key to a key ring.

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.

---
6.2 Error messages

6.2.1 Error message display

The drive system monitors itself continuously and displays a number as an error message if a known error is detected. The system may switch off automatically depending on the type of error.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Method of resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>The battery voltage is too low.</td>
<td>▶ Charge the battery with the charger.</td>
</tr>
<tr>
<td>11</td>
<td>The battery voltage is too high.</td>
<td>▶ Switch off the system completely using the On-Off button on the battery and then switch it on again. ▶ Contact your specialist dealer if the problem persists.</td>
</tr>
<tr>
<td>12</td>
<td>The battery is almost or completely discharged.</td>
<td>▶ Charge the battery with the charger.</td>
</tr>
<tr>
<td>20</td>
<td>Electrical measurements are incorrect.</td>
<td>▶ Switch off the system completely using the On-Off button on the battery and then switch it on again.</td>
</tr>
<tr>
<td>21</td>
<td>The temperature sensor is faulty.</td>
<td>▶ Contact your specialist dealer if the problem persists.</td>
</tr>
<tr>
<td>23</td>
<td>The internal voltage is outside the working range.</td>
<td>▶ Charge the battery with the charger.</td>
</tr>
<tr>
<td>25</td>
<td>Error in the motor current measurement.</td>
<td>▶ Switch off the system completely using the On-Off button on the battery and then switch it on again.</td>
</tr>
<tr>
<td>26</td>
<td>A software reset was carried out.</td>
<td>▶ Contact your specialist dealer if the problem persists.</td>
</tr>
<tr>
<td>30</td>
<td>Error in the push assist system.</td>
<td>▶ Reduce the motor load by pedalling less or reducing the level of assistance</td>
</tr>
<tr>
<td>40</td>
<td>Overcurrent detected in the motor.</td>
<td>▶ Reduce the motor load by pedalling less.</td>
</tr>
<tr>
<td>41</td>
<td>Overcurrent detected in the motor.</td>
<td>▶ Reduce the motor load by pedalling less.</td>
</tr>
<tr>
<td>42</td>
<td>Fault in the motor rotation.</td>
<td>▶ Switch off the system completely using the On-Off button on the battery and then switch it on again. ▶ Contact your specialist dealer if the problem persists.</td>
</tr>
<tr>
<td>43</td>
<td>Short circuit in motor.</td>
<td>▶ Switch off the system completely using the On-Off button on the battery and then switch it on again. ▶ Contact your specialist dealer if the problem persists.</td>
</tr>
</tbody>
</table>

Table 33: List of error messages

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Method of resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>44</td>
<td>Motor is overheating.</td>
<td>▶ Reduce the motor load by pedalling less or reducing the level of assistance.</td>
</tr>
<tr>
<td>45</td>
<td>The software has corrected an error during motor rotation.</td>
<td>▶ Switch off the system completely using the On-Off button on the battery and then switch it on again.</td>
</tr>
<tr>
<td>46</td>
<td>No motor movement detected, although a current &gt;2A was measured.</td>
<td>▶ Contact your specialist dealer if the problem persists.</td>
</tr>
<tr>
<td>60</td>
<td>Interruption in data exchange on the CAN-BUS.</td>
<td>▶ Check the cables and connectors of all components of the drive system.</td>
</tr>
<tr>
<td>70</td>
<td>Pedal force not within the valid range.</td>
<td>▶ Switch off the system completely using the On-Off button on the battery and then switch it on again.</td>
</tr>
<tr>
<td>71</td>
<td>No pedal rotation detected.</td>
<td>▶ Contact your specialist dealer if the problem persists.</td>
</tr>
<tr>
<td>72</td>
<td>No pedal force detected.</td>
<td>▶ Contact your specialist dealer if the problem persists.</td>
</tr>
<tr>
<td>73</td>
<td>Connection to the pedal force sensor malfunctioning.</td>
<td>▶ Switch off the system completely using the On-Off button on the battery and then switch it on again.</td>
</tr>
<tr>
<td>80</td>
<td>Incorrect motor parameter.</td>
<td>▶ Switch off the system completely using the On-Off button on the battery and then switch it on again. ▶ Contact your specialist dealer if the problem persists.</td>
</tr>
<tr>
<td>81</td>
<td>Speed not detected.</td>
<td>▶ Make sure that the spoke magnet is correctly positioned opposite the speed sensor.</td>
</tr>
<tr>
<td>82</td>
<td>The program was manipulated.</td>
<td>▶ Switch off the system completely using the On-Off button on the battery and then switch it on again.</td>
</tr>
<tr>
<td>83</td>
<td>Error in program process.</td>
<td>▶ Contact your specialist dealer if the problem persists.</td>
</tr>
<tr>
<td>84</td>
<td>Incorrect motor parameter.</td>
<td>▶ Contact your specialist dealer if the problem persists.</td>
</tr>
</tbody>
</table>

Table 33: List of error messages
### 6.2.2 Battery error message

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Method of resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>All LEDs flashing</td>
<td>Battery defective.</td>
<td>➤ Contact your specialist dealer.</td>
</tr>
<tr>
<td>First LED flashing</td>
<td>Battery empty.</td>
<td>➤ Charging the battery</td>
</tr>
<tr>
<td>No LEDs light up</td>
<td>Mechanical defect.</td>
<td>➤ Contact your specialist dealer.</td>
</tr>
</tbody>
</table>
6.3 Before the first ride

**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 or in the operating instructions.

Only a correctly adjusted ebike will guarantee you 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.

6.3.1 Adjusting the saddle

6.3.1.1 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, readjust the saddle after finding the handlebar position you prefer.

- Place the saddle tilt in the horizontal position to adjust the ebike to your needs for initial use.

![Figure 45: Horizontal saddle tilt](image)

6.3.2 Determining the seat height

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

- Climb onto the ebike.

- 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, you can adjust the length of the seat post to your needs.

![Figure 46: Optimal saddle height](image)

6.3.2.1 Adjusting the seat height with quick release

- Open the quick release on the seat post to change the seat height. To do so, push the clamping lever away from the seat post.

![Figure 47: Seat post quick release (3)](image)

The seat post quick release with clamping lever (5) and setting bolt (4) in the open position (1) and in the direction of the closed position (2)
Set the seat post at the required height.

**CAUTION**

Crash caused by an excessively high seat post setting

A seat post with 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.

**Operation**

- To close it, push the seat post clamping lever as far as it will go into the seat post.
- Check the clamping force of quick releases.

6.3.2.2 Height-adjustable seat post

Only applies to ebikes with this equipment

- When using your seat post for the first time, you must give it a firm push downwards to set it in motion. This is due to the natural tendency of the seal to repel oil from the seal surface. You only need to do this before the first use or after a longer period of non-use. Once you have displaced the post through its deflection, the oil spreads on the seal and the post begins to function normally.

**Lowering the saddle**

- To lower the saddle, press your hand down on the saddle or sit on the saddle. Press the seat post activation lever and hold it down.
- Release the lever once you have reached the required height.

**Raising the saddle**

- Pull the seat post activation lever.
- Remove any pressure on the saddle and release the lever once you have reached the required height.

6.3.2.3 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 then need to adjust the saddle height again since both settings affect one another.

- To adjust the seat position safely, either push the ebike near to a wall, so that you can lean on the wall to support yourself or ask another person to hold the ebike for you.
- Climb onto the ebike.
- Place the pedals into the vertical position (3 o'clock position) with your feet.

- The rider is sitting in the optimal sitting position if the knee cap perpendicular line runs through the pedal axle. If the perpendicular line crosses behind the pedal, bring the saddle forward. If the perpendicular line crosses in front of the pedal, bring the saddle back. Move the saddle
within its permitted displacement range only (marked on the saddle stay).

Figure 50: Knee cap perpendicular line

✓ The handlebars must only be adjusted while the ebike is stationary.

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

6.3.3 Adjusting the handlebars

6.3.3.1 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.

6.3.3.2 Adjusting the height of 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 cause a detrimental 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.

► Open the clamping lever.

► Pull the locking lever on the stem up, and simultaneously pivot the handlebars into the desired position.

✧ You feel the locking lever click into place.

► Pull out the handlebars to the required height.

► Lock the quick release.

Figure 51: Open (2) and closed (1) clamping lever on the stem; by.schulz speedlifter used as an example
6.3.3.3 Turning the handlebars to the side

Only applies to ebikes with this equipment

**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 cause a detrimental transmission of force. This will cause a crash with injuries.

Ứ | Never fasten a quick release using a tool (e.g. hammer or pliers).

 Oriental | Only use the clamping lever with the specified set clamping force.

PEG | Open the clamping lever.

PEG | Pull the locking lever on the stem up, and simultaneously pivot the handlebars into the desired position.

عقود | You feel the locking lever click into place.

PEG | Pull out the handlebars to the required height.

PEG | Lock the quick release.

Figure 52: Pushing locking lever upwards – by.schulz speedlifter used as an example

6.3.3.4 Checking the clamping force in quick releases

PEG | Open and close the quick releases on the stem or the seat post.

PEG | The clamping force is sufficient if the clamping lever can be moved easily from the open final position into the middle and has to be pressed with the fingers or base of the thumb from the middle point onwards.

6.3.3.5 Adjusting the quick release clamping force

PEG | If the *clamping lever on the handlebars* cannot be moved into its final position, screw out the *knurled nut*.

PEG | Tighten the *knurled nut* on the seat post if the *clamping lever’s* clamping force is not sufficient.

PEG | If you are unable to set the clamping force, the specialist dealer will need to check the quick release.

6.3.4 Adjusting the brake lever

6.3.4.1 Adjusting the pressure point on a Magura brake lever

**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 set 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.

PEG | Turn the twist knob towards the plus (+) symbol.

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

PEG | The lever pressure point activates sooner.
6.3.4.2 Adjusting the grip distance

**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.

- Once the grip distance has been set, check the position of the brake cylinder and adjust it as necessary.

Never correct the brake cylinder position without special tools. Have a specialist dealer correct it.

- The brake lever grip distance can be adjusted to ensure that it can be reached more easily. Contact your specialist dealer if the brake handle is too far from the handlebars or is hard to use.

Use a T25 TORX® wrench to turn the setting screw to adjust the grip distance.

- Turn the setting screw in the minus (−) direction.
  - The brake lever moves closer to the handlebar grip.

- Turn the setting screw in the plus (+) direction.
  - The brake lever moves away from the handlebar grip.

**Figure 55: Using the setting screw (2) to adjust the distance from the brake lever to the handlebar grip (1)**
6.3.5 Adjusting the suspension of the Suntour fork

Only applies to ebikes with this equipment

The following Suntour forks can be installed in this series of models:

<table>
<thead>
<tr>
<th>Fork Type</th>
<th>Suspension Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aion-35 Boost</td>
<td>Air suspension fork</td>
</tr>
<tr>
<td>NCX</td>
<td>Air suspension fork</td>
</tr>
<tr>
<td>NEX</td>
<td>Steel suspension fork</td>
</tr>
<tr>
<td>XCM-ATB</td>
<td>Steel suspension fork</td>
</tr>
<tr>
<td>XCM</td>
<td>Steel suspension fork</td>
</tr>
<tr>
<td>XCR32</td>
<td>Air suspension fork</td>
</tr>
<tr>
<td>XCR34</td>
<td>Air suspension fork</td>
</tr>
</tbody>
</table>

Table 34: Overview of Suntour forks

CAUTION

Crash caused by incorrectly set suspension

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

► Never ride the ebike without air in the air suspension fork.
► Never use the ebike 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 ebike and break it in to prevent accidents.

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.

6.3.5.1 Adjusting the negative deflection

Negative deflection (sag is compression of the fork caused by the weight of the rider and their gear (e.g. a backpack, the sitting position and the frame geometry. This sag is not caused by riding.

Each rider has a different weight and sitting position. The sag depends on the rider's position and weight and should be between 15% and 30% of the maximum fork deflection, depending on ebike usage and preferences.

6.3.5.2 Adjusting the air suspension fork negative deflection

Only applies to ebikes with this equipment

► The air valve is located under a cover on the head of the left shock absorber. Screw off the cover.

Figure 56: Screw caps in different designs

► Screw a high-pressure pump onto the valve.
► Pump the suspension fork up to the desired pressure. Never exceed the recommended maximum air pressure. Comply with the values of the filling pressure table.
► Remove the high-pressure pump.
Measure the distance between the crown and the dust wiper of the fork. This distance is the total deflection of the fork.

Push a temporarily attached cable tie downward against the dust wiper of the fork.

Put on your usual bicycling clothing, including baggage.

Sit on the ebike in your usual riding position and support yourself (e.g. against a wall or tree).

Get off the ebike without allowing it to deflect.

Measure the distance between the dust wiper and the cable tie. This dimension is the sag. The sag value should be between 15% (hard) and 30% (soft) of the total fork deflection.

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

Once the sag is correct, re-tighten the blue air cover cap clockwise.

If you cannot achieve the desired sag, you may need to make an internal adjustment. For this purpose, contact your specialist dealer.

---

### 6.3.5.3 Adjusting the steel suspension fork negative deflection

#### Only applies to ebikes with this equipment

You can adjust the fork by tensioning the spring to the rider's weight and their preferred riding style. It is not the coil spring hardness which is adjusted; it is its pre-tensioning. This reduces the fork's negative deflection when the rider sits on the ebike.

#### Table 35: Filling pressure pump of the Suntour air forks

<table>
<thead>
<tr>
<th>Rider weight</th>
<th>AION, NEX</th>
<th>XCR 32, XCR 34</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 121 lbs.</td>
<td>35 - 50 psi</td>
<td>40 - 55 psi</td>
</tr>
<tr>
<td>121 - 143 lbs.</td>
<td>50 - 60 psi</td>
<td>55 - 65 psi</td>
</tr>
<tr>
<td>143 - 165 lbs.</td>
<td>60 - 70 psi</td>
<td>65 - 75 psi</td>
</tr>
<tr>
<td>165 - 188 lbs.</td>
<td>70 - 85 psi</td>
<td>75 - 85 psi</td>
</tr>
<tr>
<td>188 - 210 lbs.</td>
<td>85 - 100 psi</td>
<td>85 - 95 psi</td>
</tr>
<tr>
<td>&lt; 210 lbs.</td>
<td>+ 105 psi</td>
<td>+ 100 psi Max.</td>
</tr>
<tr>
<td>pressure</td>
<td>150 psi</td>
<td>180 psi</td>
</tr>
</tbody>
</table>

#### Figure 57: Negative deflection setting wheel on the suspension fork crown

- The setting wheel may be located under a plastic cover on the suspension fork crown. Remove the plastic cover by pulling it off upwards.
- Turn the negative deflection setting wheel in a clockwise direction to increase the spring pre-tensioning. Turn the negative deflection setting wheel in an anti-clockwise direction to reduce it.
- The ideal setting in relation to the weight of the rider has been achieved when the shock absorber deflects 3 mm under the stationary load of the rider. Reattach the cover after the adjustment.
6.3.5.4 Adjusting the rebound

Only applies to ebikes with this equipment

The rebound defines the speed at which the fork rebounds after being loaded. The rebound setting depends on the air pressure setting. Higher sag settings require lower rebound settings.

- Turn the rebound adjuster clockwise to the closed position until it stops.

- Turn the rebound adjuster anti-clockwise.

- Adjust the rebound in such a way that the fork rebounds quickly, but without bottoming out upward during testing. Bottoming out is where the fork rebounds too quickly and stops moving abruptly once it has reached the full rebound distance. You will hear and feel a slight knock when this occurs.

Figure 58: Suntour rebound adjuster (2) on the fork (1)

- Turn the rebound adjuster clockwise to the closed position until it stops.

6.3.6 Adjusting the suspension of the FOX fork

Only applies to ebikes with this equipment

Crash caused by incorrectly set suspension

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

- Never ride the ebike without air in the air suspension fork.

- Never use the ebike 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 ebike and break it in to prevent accidents.

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.

6.3.6.1 Adjusting the negative deflection

Negative deflection (sag is compression of the fork caused by the weight of the rider and their gear (e.g. a backpack, the sitting position and the frame geometry. This sag is not caused by riding. Each rider has a different weight and sitting position. The sag depends on the rider’s position and weight and should be between 15% and 20% of the maximum fork deflection, depending on ebike usage and preferences.

- When adjusting the sag, ensure that each compression adjuster is in the open position, i.e. turned clockwise until it stops.

- The pressure is to be measured at an ambient temperature of 70 to 75 °F.

- The air valve is located under a blue cover on the head of the left shock absorber. Screw off the cover anti-clockwise.
Operation

- Place a high-pressure pump on the valve.
- Pump the suspension fork up to the desired pressure. Never exceed the recommended maximum air pressure. Comply with the values of the filling pressure table.
- Remove the high-pressure pump.

<table>
<thead>
<tr>
<th>Rider weight</th>
<th>Rhythm 34</th>
<th>Rhythm 36</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum air pressure</td>
<td>40 psi (2.8 bar)</td>
<td>40 psi (2.8 bar)</td>
</tr>
<tr>
<td>54 - 59 kg</td>
<td>58 psi</td>
<td>55 psi</td>
</tr>
<tr>
<td>59 - 64 kg</td>
<td>63 psi</td>
<td>59 psi</td>
</tr>
<tr>
<td>64 - 68 kg</td>
<td>68 psi</td>
<td>63 psi</td>
</tr>
<tr>
<td>68 - 73 kg</td>
<td>72 psi</td>
<td>67 psi</td>
</tr>
<tr>
<td>73 - 77 kg</td>
<td>77 psi</td>
<td>72 psi</td>
</tr>
<tr>
<td>77 - 82 kg</td>
<td>82 psi</td>
<td>76 psi</td>
</tr>
<tr>
<td>82 - 86 kg</td>
<td>86 psi</td>
<td>80 psi</td>
</tr>
<tr>
<td>86 - 91 kg</td>
<td>91 psi</td>
<td>85 psi</td>
</tr>
<tr>
<td>91 - 95 kg</td>
<td>96 psi</td>
<td>89 psi</td>
</tr>
<tr>
<td>95 - 100 kg</td>
<td>100 psi</td>
<td>93 psi</td>
</tr>
<tr>
<td>100 - 104 kg</td>
<td>105 psi</td>
<td>97 psi</td>
</tr>
<tr>
<td>104 - 109 kg</td>
<td>110 psi</td>
<td>102 psi</td>
</tr>
<tr>
<td>109 - 113 kg</td>
<td>114 psi</td>
<td>106 psi</td>
</tr>
<tr>
<td>Max. pressure</td>
<td>120 psi (8.3 bar)</td>
<td>120 psi (8.3 bar)</td>
</tr>
</tbody>
</table>

Table 36: Filling pressure table of the FOX air fork

- Measure the distance between the crown and the dust wiper of the fork. This distance is the "total deflection of the fork."
- Push the O-ring downward against the dust wiper of the fork. If an O-ring is not available, attach a cable tie to the stanchion temporarily.
- Put on your usual bicycling clothing, including baggage.
- Sit on the ebike in your usual riding position and support yourself (e.g. against a wall or tree).
- Get off the ebike without allowing it to deflect.

- Measure the distance between the dust wiper and the O-ring or cable tie. This dimension is the sag. The recommended sag value is between 15% (hard) and 20% (soft) of the "total fork deflection."
- Increase or reduce the air pressure until you have reached the desired sag.

重要讲话 marks important points.

Once the sag is correct, re-tighten the blue air cover cap clockwise.

If you cannot achieve the desired sag, you may need to make an internal adjustment. For this purpose, contact your specialist dealer.

6.3.6.2 Adjusting the rebound

The rebound defines the speed at which the fork rebounds after being loaded. The rebound setting depends on the air pressure setting. Higher sag settings require lower rebound settings.

- Turn the rebound adjuster clockwise to the closed position until it stops.

Figure 59: FOX rebound adjuster (1) on the fork

- Turn the rebound adjuster anti-clockwise.

重要讲话 marks important points.

Adjust the rebound in such a way that the fork rebounds quickly, but without bottoming out upward during testing. Bottoming out is where the fork rebounds too quickly and stops moving abruptly once it has reached the full rebound distance. You will hear and feel a slight knock when this occurs.
6.3.7 Setting the Suntour rear frame damper

Only applies to ebikes with this equipment

6.3.7.1 Adjusting the negative deflection

**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).

Negative deflection (sag) is compression of the rear frame damper caused by the weight of the rider and their gear (e.g. a backpack), the sitting position and the frame geometry. This sag is not caused by riding. Each rider has a different weight and sitting position. The sag depends on the rider's position and weight and should be between 25% and 30% of the maximum Rear frame damper, depending on ebike usage and preferences.

- Set the compression adjuster to the OPEN position so that the sag setting is not affected.
- Remove the cap on the air valve.
- Attach a high-pressure damper pump to the valve.
- Adjust the air pressure of the damper so that it corresponds to your weight.
- Remove the high-pressure pump.
- Measure the distance between the rubber air chamber seal and the O-ring. This distance is the "total damper deflection".
- Put on your usual bicycling clothing, including baggage. Sit on the ebike in your usual riding position and support yourself against an object such as a wall or tree.
- Push the O-ring downward against the rubber air chamber seal.
- Get off the ebike without allowing it to deflect.

- Measure the distance between the rubber air chamber seal and the O-ring. This dimension is the sag. The recommended sag value is between 15% (hard) and 25% (soft) of the "total damper deflection."
- Increase or reduce the air pressure until you have reached the desired sag.

6.3.7.2 Adjusting the rebound

The rebound defines the speed at which the rear frame damper rebounds after being loaded. The rebound setting depends on the air pressure setting. Higher sag settings require lower rebound settings.

![Figure 60: Suntour rebound adjuster wheel (1) on the rear frame damper](image)

- Turn the rebound adjuster wheel in the – direction to increase rebounding.
- Turn the rebound adjuster wheel in the + direction to reduce compressive deflection movements.

6.3.7.3 Setting the compression

The compression damper setting of the rear frame damper makes it possible to set the damper according to the conditions of the ground. The compression damper setting specifies the speed at which the rear frame damper deflects after being loaded.
Turn the compression adjuster wheel in the – direction to increase rebounding.

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

6.3.8 Setting the FOX rear frame damper

Only applies to ebikes with this equipment

6.3.8.1 Adjusting the negative deflection

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.

Negative deflection (sag) is compression of the rear frame damper caused by the weight of the rider and their gear (e.g. a backpack), the sitting position and the frame geometry. This sag is not caused by riding. Each rider has a different weight and sitting position. The sag depends on the rider’s position and weight and should be between 25% and 30% of the maximum Rear frame damper, depending on ebike usage and preferences.

Set the compression adjuster to the OPEN position.

Adjust the air pressure of the damper so that it corresponds to your weight.

Attach the high-pressure pump to the damper. Slowly compress the damper 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, and the pressure indication on the pump manometer changes accordingly.

Remove the high-pressure pump.

The negative deflection (2) is the distance between the O-ring (4) and the rubber air chamber seal (1). The total deflection of the rear frame damper (5) is the distance between the end of the rear frame damper (3) and the rubber air chamber seal (1).

Measure the distance between the rubber air chamber seal (1) and the end of the damper (3). This distance is the "total damper deflection" (5).

Put on your usual bicycling clothing, including baggage. Sit on the ebike in your usual riding position and support yourself against an object such as a wall or tree.

Push the O-ring (4) downward against the rubber air chamber seal (1).

Get off the ebike without allowing it to deflect.

Measure the distance between the rubber air chamber seal and the O-ring. This dimension is the sag. The recommended sag value is between 25% (hard) and 30% (soft) of the "total damper deflection" (5).

Increase or reduce the air pressure until you have reached the desired sag.
6.3.8.2 Adjusting the rebound

The rebound defines the speed at which the rear frame damper rebounds after being loaded. The rebound setting depends on the air pressure setting. Higher sag settings require lower rebound settings.

![Figure 63: FOX rebound adjuster wheel (1) on the rear frame damper](image)

- Turn the rebound adjuster clockwise to the closed position until it stops.
- Determine your rebound setting based on the air pressure. Turn the rebound adjuster back anti-clockwise by the number of clicks specified in the table below:

<table>
<thead>
<tr>
<th>Air pressure (psi)</th>
<th>Recommended rebound setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 100</td>
<td>Open (anti-clockwise)</td>
</tr>
<tr>
<td>100 - 120</td>
<td>11</td>
</tr>
<tr>
<td>120 - 140</td>
<td>10</td>
</tr>
<tr>
<td>140 - 160</td>
<td>9</td>
</tr>
<tr>
<td>160 - 180</td>
<td>8</td>
</tr>
<tr>
<td>180 - 200</td>
<td>7</td>
</tr>
<tr>
<td>200 - 220</td>
<td>6</td>
</tr>
<tr>
<td>220 - 240</td>
<td>5</td>
</tr>
<tr>
<td>240 - 260</td>
<td>4</td>
</tr>
<tr>
<td>260 - 280</td>
<td>3</td>
</tr>
<tr>
<td>280 - 300</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 37: Filling pressure table of the FOX air fork

6.3.9 Retracting the brake linings

New brake linings take time to break in and adjust to their final braking force.

- Accelerate ebike to about 20 mph.
- Brake ebike until it comes to a halt.
- Repeat process 30–50 times.
- The brake linings and brake discs are now retracted and provide optimal braking power.
6.4 Accessories

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

<table>
<thead>
<tr>
<th>Description</th>
<th>Article number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protective cover for electrical components</td>
<td>080-41000 ff</td>
</tr>
<tr>
<td>Panniers, system component*</td>
<td>080-40946</td>
</tr>
<tr>
<td>Rear wheel basket, system component*</td>
<td>051-20603</td>
</tr>
<tr>
<td>Bicycle box, system component*</td>
<td>080-40947</td>
</tr>
<tr>
<td>Parking stand, universal stand</td>
<td>XX-TWO14B</td>
</tr>
</tbody>
</table>

Table 38: 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.

6.4.1 Child seat

![WARNING]

Crash caused by incorrect child seat

Neither the pannier rack nor the ebike down tube are suitable for 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 ebike'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 ebike 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 or 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 or 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 notes for the child seat system.
- Never exceed the total weight of the ebike.

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

The specialist dealer must mount 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 ebike and that all components are installed and firmly fastened. They will also ensure that shift cables, brake cables, hydraulic and electrical cables are adjusted as necessary, the rider's freedom of movement is not restricted and the ebike's permitted total weight is not exceeded.

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

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

The specialist dealer must mount 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 ebike and that all components are installed and firmly fastened. They will also ensure that shift...
cables, brake cables, hydraulic and electrical cables are adjusted as necessary, the rider's freedom of movement is not restricted and the ebike's permitted total weight is not exceeded.

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

6.4.2 Bicycle trailers

**CAUTION**

**Crash caused by brake failure**

The brake may not work sufficiently if there is an excessive trailer 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 notes 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.

An ebike which is approved for towing a trailer will bear an appropriate adhesive label. Only bicycle trailers with a support load and total mass which do not exceed the permitted values may be used.

---

**Figure 64: Trailer sign**

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

6.4.3 Pannier rack

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

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

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

The specialist dealer will provide instruction on how to handle the ebike and the pannier rack.
6.5 Before each ride

**CAUTION**

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

If the ebike 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 ebike 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 ebike 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 ebike 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 ebike to strong sources of heat.

6.6 Check list before each ride

- Check the ebike before each ride.
- Do not use the ebike if there is evidently something wrong with it.

- Check that the ebike 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 ebike been transported or secured with a lock.
- Check the valves and the tire pressure. Adjust as necessary before each ride.
- If the ebike 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 driving 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 ebike’s lower surface.
- Use body weight to compress suspension system. Adjust to the optimum sag value if suspension is too soft.
- If quick releases are used check them to make sure that they are fully closed in their end position. If quick release axle systems are used, make sure that all attachment screws are tightened to the correct torque.
- Be alert to any unusual operating sensations when braking, pedalling or steering.
6.7 Using the kickstand

**CAUTION**

**Crash caused by a lowered kickstand**

The kickstand does not fold up automatically. There is a risk of crashing if riding with the kickstand lowered.

- Raise the kickstand completely before setting off.

---

**Notice**

The ebike's force of weight may cause the kickstand to sink into soft ground and the ebike may topple over.

- The ebike must be parked on firm, level ground only.
- It is particularly important to check that the ebike is stable if it is equipped with accessories or loaded with baggage.

6.7.1 Raising the kickstand

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

6.7.1.1 Parking the ebike

- Use your foot to lower the kickstand completely before parking.
- Park the ebike carefully and check that it is stable.

6.8 Using the pannier rack

**CAUTION**

**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 ebike's reflectors and the driving light. Other users may not see the ebike 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.

**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.

---

**Notice**

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

- Never exceed the permitted total weight when packing the ebike.
- Never exceed the maximum load bearing capacity of the pannier rack.
- Never modify the pannier rack.

- Distribute the baggage as evenly as possible on the left- and right-hand side of the ebike.
- We recommend the use of panniers and baggage baskets.
6.9 Rechargeable battery

**WARNING**

**Risk of fire and explosion due to faulty battery**

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

- Remove batteries with external damage from service immediately and never charge them.
- Only operate the battery and accessories if they are in perfect condition.
- Only use batteries which are approved for use on your ebike.
- Do not use the battery with defective connecting cables or defective contacts.
- Use the battery with BMZ Systems e-bikes only. This is the only way that the battery will be protected from dangerous overloading.
- If the battery becomes deformed or begins to smoke, keep at a safe distance, disconnect the power supply at the socket, and notify the fire service immediately.
- Never extinguish a damaged battery with water or allow it to come into contact with water.
- If a battery is dropped or struck but shows no signs of external damage, remove it from service and observe it for at least 24 hours.
- Faulty batteries are hazardous goods. Dispose of faulty batteries properly and as quickly as possible.
- Store in a dry place until disposal. Never store in the vicinity of flammable substances.
- Never open or repair the battery.
- Charge the battery before use. Only use the charger included in the scope of delivery.
- Avoid wide temperature fluctuations.

**WARNING**

- Do not use the battery at altitudes higher than 2,000 m.

---

**CAUTION**

**Chemical burns to the skin and eyes caused by faulty battery**

Liquids and vapours may leak from a damaged or faulty battery. Excessive temperatures can also cause liquid to leak from the battery and the battery will become damaged. Such liquids can irritate the airways and cause burns.

- Avoid contact with leaked liquids.
- Immediately consult a doctor in case of contact with the eyes or any discomfort.

- In case of contact with the skin, rinse off immediately with water.
- Ventilate the room well.
- Protect the battery against heat over 140 °F, e.g. against permanent direct sunlight.

**Risk of fire and explosion due to short circuit**

Small metal objects may jumper the electrical connections of the battery. The battery may self-ignite and explode.

- Keep paper clips, screws, coins, keys and other small parts away and do not insert them into the battery.

**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 immerse the battery in water.
- Never clean the battery with pressure washer.
- If there is reason to believe that water may have entered into the battery, the battery must be removed from service.
Switch off the battery and the drive system before removing or inserting the battery.

6.9.1 Removing the battery

- Open the battery lock with the key.
- The battery is released and falls into the retainer guard.
- Hold the battery in your hand from below. Use the other hand to push on the retainer guard from above.
- The battery is released and falls into the hand.
- Remove the battery from the frame.
- Remove the key from the lock.

6.9.2 Inserting the battery

- Place the battery into the lower mount with the contacts facing the front.
- Flip the battery up, so that it is held by the retainer guard.
- Push the battery upwards so that it audibly clicks into place.
- Check the battery to make sure it is firmly in place.
- Lock the battery with the key. Otherwise the battery may fall out of the mount when you open the lock.
- Remove the key from the lock.

6.9.3 Charging the battery

Fire caused by 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 the charger on a highly flammable surface (e.g. paper, carpet etc.).
- Never cover the charger during the charging process.
- Never leave a battery charging unattended.

Electric shock caused by penetration by water

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

- Never charge the battery outdoors.

Electric shock in case of 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.

Risk of fire and explosion caused by damaged battery

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

- If the battery becomes deformed or begins to smoke, keep at a safe distance, disconnect the power supply at the socket, and notify the fire service immediately.
- Never extinguish a damaged battery with water or allow it to come into contact with water.
The ambient temperature during the charging process must be within the range from 50 °F to 86 °F.

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

Interrupting the charging process does not damage the battery.

Remove the rubber cover from the battery.

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

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.

During the charging process the operating status and battery level indicator shows the charge level. When the drive system is switched on, the display screen will show the charging process.

### LED 1,2,3,4,5

<table>
<thead>
<tr>
<th>Battery level</th>
<th>LED 1,2,3,4,5</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 - 80%</td>
<td>☾☽☽☽☽</td>
</tr>
<tr>
<td>79 - 60%</td>
<td>☾☽☽☽☽</td>
</tr>
<tr>
<td>59 - 40%</td>
<td>☾☽☽☽☽</td>
</tr>
<tr>
<td>39 - 20%</td>
<td>☾☽☽☽☽</td>
</tr>
<tr>
<td>19 - 10%</td>
<td>☾☽☽☽☽</td>
</tr>
<tr>
<td>9 - 0%</td>
<td>☾☽☽☽☽</td>
</tr>
</tbody>
</table>

Table 39: Battery level indicator

The charging process is complete when the LEDs on the operating status and battery level indicator go out.

### 6.9.4 Waking the battery

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

Press the On-Off button (battery).

The operating status and battery level indicator shows the charge level.
6.10 Electric drive system

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

► Press the **On-Off button (operating element)**.
  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.

6.10.2 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 (operating element)**.
  or

► Press the **On-Off button (battery)** for a long time.
  ◄ The display and LEDs on the battery level indicator disappear.
6.11 Control panel with display

6.11.1 Using the driving light

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

► Press the up button for a long time (> 1 second).

 Thy headlight is now switched on. The backlight switches from daytime to night mode. The driving light symbol is activated.

► The interface daytime and night modes are displayed as follows:

► Press the up button for a long time (> 1 second).

The headlight is switched off. The backlight switches from night to daytime mode. The driving light symbol is deactivated.

6.11.2 Using the push assist system

The push assist helps the rider to push the ebike. The maximum speed can be 3.7 mph here.

► Press the down button for a long time (> 2 seconds).

The push assist is activated. The push assist symbol is displayed.

Injury from pedals or wheels

The pedals turn when using the push assist due to the system design.

► You must steer the ebike securely with both hands when using push assist.

 ► Allow for enough freedom of movement for the pedals.

► Never use a push assist for slow riding.

Crash caused by strong acceleration

The push assist helps the rider to push the ebike. The maximum speed can be 3.7 mph here.

► Press the down button for a long time (> 2 seconds).

The push assist is activated. The push assist symbol is displayed.

Notice

The pedals turn when using the push assist due to the system design.

► You must steer the ebike securely with both hands when using push assist.

► Allow for enough freedom of movement for the pedals.

► Never use a push assist for slow riding.
6.11.3 Using the USB port

**Notice**

Any moisture which enters through the USB port may trigger a short circuit in the display.

▲ Regularly check the position of the rubber cover on the USB port and adjust it as necessary.

The USB port can be used to operate external devices which can be connected using a standard micro A/micro B USB 2.0 cable.

▲ Open the protective flap on the USB port.

▲ Using a suitable USB cable, connect the USB interface and the desired end device.

◇ The "CHARG" screen will appear briefly on the display.

▲ Replace the protective flap after using the USB port.

6.11.4 Selecting the level of assistance

▲ Press the up button.

◇ The level of assistance is increased.

▲ Press the down button.

◇ The level of assistance is reduced.

![Figure 66: Level of assistance indicators](image)

6.11.5 Switching the journey information

▲ Press the function button briefly.

The function display shows three different items of information one after the other:

![Figure 67: Journey information indicator](image)

<table>
<thead>
<tr>
<th>Colour</th>
<th>Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Trip time</td>
</tr>
<tr>
<td>2</td>
<td>Overall distance (ODO)</td>
</tr>
<tr>
<td>3</td>
<td>Average speed (AVG Speed)</td>
</tr>
</tbody>
</table>

Table 40: Overview of journey information

6.11.6 Changing the system information

The rider can change the values of the system settings.

<table>
<thead>
<tr>
<th>Screen display</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNIT SETTING</td>
<td>Change units</td>
</tr>
<tr>
<td>BACKLIGHT SETTING</td>
<td>Set the backlight brightness</td>
</tr>
<tr>
<td>CLOCK SETTING</td>
<td>Set clock</td>
</tr>
<tr>
<td>PASSWORD SETTING</td>
<td>Change password</td>
</tr>
<tr>
<td>TIME PERIOD FOR AUTOMATIC SHUT-OFF</td>
<td>Set time period for automatic shut-off</td>
</tr>
<tr>
<td>RESET TO FACTORY SETTING</td>
<td>Reset to factory setting</td>
</tr>
</tbody>
</table>

Table 42: List of system settings

✓ The drive system must be switched on for at least 10 seconds.

▲ Press the function button for a long time (> 3 seconds).
The settings menu will open. The rider can read or change all information in the settings menu. The activated menu item is highlighted in yellow.

**Figure 68: Settings menu**

- The settings menu closes if the rider does not make an input within ten seconds.
- You can use the **up button** and **down button** to scroll through the menu.
- Press on the **function button** to open a sub-menu option.
- Press the **function button** for a long time (> 3 seconds) to change the setting or return to the main display screen. You can also select the **EXIT menu option** and press on the **function button** briefly to close the settings menu.

### 6.11.6.1 Setting units

- Open the UNIT menu sub-option in the settings menu.

**Figure 69: Selecting units**

- Press the **up button** or **down button** briefly to select km/h (kilometres per hour) or MPH (miles per hour)
- Press on the **function button** briefly.

### 6.11.6.2 Setting the backlight

- Open the BACKLIGHT menu sub-option in the settings menu.

**Figure 70: Setting the backlight**

- Press on the **up button** or **down button** briefly to select the brightness level. You can choose between 1 to 5.
- Press on the **function button** briefly.

### 6.11.6.3 Changing the password

- Open the START PASSWORD menu sub-option in the settings menu.

**Figure 71: Changing the password**

- Press on the **up button** or **down button** briefly to change the number in the password.
- Press on the **function button** briefly.
- The new password is saved and will be used from now on. The settings menu is open.

- The selected unit is saved and will be used from now on. The settings menu is open.
6.11.6.4 Setting the automatic disconnect time
► Open the AUTO OFF menu sub-option in the settings menu.

► Press on the up button or down button briefly to select the disconnect time.
► Press on the function button briefly.
► The disconnect time is saved and will be used from now on. The settings menu is open.

Figure 72: Setting the automatic disconnect time

6.11.6.5 Resetting the settings
► Open the RESET menu sub-option in the settings menu.

► Press on the up button or down button briefly to select YES.
► Press on the function button briefly.
► All settings are re-set to the factory settings. The settings menu is open.

Figure 73: Resetting the settings

6.11.6.6 Setting the clock
► Open the CLOCK menu sub-option in the settings menu.

► Press on the up button or down button briefly to set the time.
► Press on the function button briefly.
► Press on the up button or down button briefly to set the minutes.

Figure 74: Setting the clock

► Press on the function button briefly.
► The set time is saved and will be used from now on. The settings menu is open.
6.12 Brake

**DANGER**

Hydraulic fluid can be fatal if it is swallowed and penetrates into the respiratory system

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

**First aid treatment**

- Wear gloves and safety goggles as protective equipment. Keep unprotected persons away.
- Remove those affected from the danger area to fresh air. Never leave those affected unattended.
- Ensure sufficient ventilation.
- Immediately remove clothing items contaminated with hydraulic fluid.
- Serious slip hazard due to hydraulic fluid leakage.
- Keep away from naked flames, hot surfaces and sources of ignition.
- Avoid contact with skin and eyes.
- Do not inhale vapours or aerosols.

**After inhalation**

- Take in fresh air; consult doctor if any pain or discomfort.

**After skin contact**

- Wash affected skin with soap and water and rinse well. Remove contaminated clothing. Consult doctor if any 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. Consult eye doctor if pain or discomfort continues.

**DANGER**

After swallowing

- Rinse out mouth with water. Never induce vomiting! Risk of aspiration!
- Place a person lying on their back who is vomiting in a stable recovery position on their side. Seek medical advice immediately.

**Environmental protection measures**

- Never allow hydraulic fluid to flow into the sewage system, surface water or groundwater.
- Notify the relevant authorities if fluid penetrates the ground or pollutes water bodies or the sewage system.

**WARNING**

**Crash caused by brake failure**

Oil or lubricant on the brake disc in a disc brake or on the rim of a rim brake can cause the brake to fail completely. This may cause a crash with serious injuries.

- Never allow oil or lubricant to come into contact with the brake disc or brake linings or on the rim of a rim brake.
- If the brake linings have come into contact with oil or lubricant, contact a dealer or a workshop to have the components cleaned or replaced.

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. This will cause air bubbles or any water contained in the brake system to expand. 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.
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.

- In order to achieve optimum braking results, do not pedal while braking.

### 6.12.1 Using the brake lever

**Figure 75: Front (2) and rear (1) brake lever; Shimano brake used as an example**

- Push the left brake lever for the front wheel brake and the right lever for the rear wheel brake until the desired speed is reached.

---

**WARNING**

**Amputation due to rotating brake disc**

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

Always keep fingers well away from the rotating brake disc.

**CAUTION**

**Crash caused by wet conditions**

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.

**Crash caused by incorrect use**

Handling the brake improperly can lead to loss of control or crashes, which may result in injuries.

- Shift your body weight backwards and down as far as possible.
- Practice braking and emergency braking before using the ebike in public spaces.
- Never use the ebike if you can feel no resistance when you grip the brake handle. Consult a specialist dealer.

**Burns caused by heated brake**

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

- Never touch the components of the brake directly after the ride.

**CAUTION**

**Crash after cleaning or storage**

The brake system is not designed for use on an ebike 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 ebike 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.
- Never use the ebike if it no longer brakes as normal. 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.

- In order to achieve optimum braking results, do not pedal while braking.
6.12.2 Using the back-pedal brake

Only applies to ebikes with this equipment

✓ The best braking effect is achieved if the pedals are in the 3 o'clock and 9 o'clock position when braking. To bridge the free travel between the riding movement and the braking movement, it is recommendable to pedal a little beyond the 3 o'clock and 9 o'clock position before you pedal in the opposite direction to the direction of travel and start braking.

▶ Pedal in the opposite direction to the direction of travel until the desired speed has been reached.

6.13 Suspension and damping

6.13.1 Adjusting the compression of the Fox fork

Only applies to ebikes with this equipment

The compression adjuster makes it possible to make quick adjustments to the suspension behaviour of the fork to suit changes in terrain. It is intended for adjustments made during the ride.

▶ Compression damping is lowest in the OPEN position, making the fork feel softer. Use the HARD position if you want the fork feel stiffer and you are riding on soft ground. The lever positions between the OPEN and HARD positions enable fine adjustment of compression damping.

We recommend setting the lever of the compression adjuster to the OPEN mode position first.

Figure 76: FOX compression adjuster with the OPEN (1) and HARD (2) positions

6.13.2 Adjusting the compression of the Fox damper

Only applies to ebikes with this equipment

The compression adjuster makes it possible to make quick adjustments to the suspension behaviour of the damper to suit changes in terrain. It is intended for adjustments made during the ride.

Figure 77: FOX compression adjuster on the rear frame damper with the OPEN (1), MEDIUM (2) and HARD (3) positions

▶ Use the OPEN position for rough descents, the MEDIUM position for rough terrain and the HARD position for efficient climbing. First set the compression adjuster to the OPEN position.

Figure 78: Fine adjustment of the OPEN position is made using the adjuster (4)

The FOX rear frame damper features fine adjustment for the OPEN position.

✓ We recommend that fine adjustments be made when the compression adjuster is in the MEDIUM or HARD position.

▶ Pull out the adjuster.

▶ Turn the adjuster to position 1, 2 or 3. Setting 1 is for the softest riding performance, whereas 3 is for the hardest.

▶ Press the adjuster in to lock in the setting.
6.13.3 Adjusting the compression of the Suntour fork

Only applies to ebikes with this equipment

The compression adjuster makes it possible to make quick adjustments to the suspension behaviour of the fork to suit changes in terrain. It is intended for adjustments made during the ride.

![Figure 79: Suntour compression adjuster with the OPEN (1) and LOCK (2) positions](image)

Compression damping is lowest in the OPEN position, making the fork feel softer. Use the LOCK position if you want the fork to feel stiffer and you are riding on soft ground. The lever positions between the OPEN and LOCK positions enable fine adjustment of compression damping.

We recommend setting the lever of the compression adjuster to the OPEN position first.

6.13.4 Adjusting the compression of a Suntour damper

Only applies to ebikes with this equipment

The compression adjuster makes it possible to make quick adjustments to the suspension behaviour of the damper to suit changes in terrain. It should never be used while riding on rough terrain.

![Figure 80: Suntour compression adjuster open (1)](image)

Use the OPEN position for rough descents and the LOCK position for efficient climbing. First set the compression adjuster to the OPEN position.

![Figure 81: Suntour compression adjuster closed (2)](image)
6.13.5 Adjusting the rebound in a Rock Shox damper

Only applies to ebikes with this equipment

The rebound damper determines the speed at which the fork rebounds to full length after deflection. This speed affects the wheel's contact with the ground and thus has an influence on control and efficiency. The rear frame damper should rebound fast enough to sustain traction without producing an erratic or bumpy sensation. If rebound damping is too tight, the rear frame damper is unable to rebound fast enough before the next impact. The rebound damper for the rear wheel is located in the rear frame damper.

![Image of Rock Shox damper]

Figure 82: Setting the rebound damper strength on the rear frame damper setting wheel (1)

➤ Turn the setting wheel to the middle position.
➤ Ride the ebike over a small obstacle.
✔ The ideal setting for the rebound damper has been achieved when the rebound movement of the rear wheel feels comparable to that of the front wheel.
➤ If the rear wheel bounces back much more quickly or slowly than the front wheel, change the setting by turning the setting wheel.
  • Turn the setting wheel in an anti-clockwise direction to increase the rebound speed.
  • Turn the setting wheel in a clockwise direction to decrease the rebound speed.

6.13.6 Adjusting the compression in a Rock Shox damper

Only applies to ebikes with this equipment

The compression damper controls the speed at which the rear frame damper deflects during slow impact, such as smaller impacts or when the rider goes round a corner or shifts their weight. The damper improves control and efficiency.

If the compression damper is set too high, the suspension is too hard during impacts. The lever is used to set the compression damper.

• Turn the setting wheel in a clockwise direction (+) to decrease the deflection speed.
➤ Turn the setting wheel in an anti-clockwise direction (−) to increase the deflection speed.

![Image of Rock Shox damper]

Figure 83: Setting the compression damper strength using the rear frame damper setting lever (1)
6.14 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.

- It is advisable to stop pedalling briefly when changing gears. This makes it easier to switch gears and reduces wear on the drivetrain.

6.14.1 Selecting gears

Only applies to ebikes with this equipment

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

![Figure 84: Down shifter (1) and up shifter (2) on the left (I) and right (II) gear shift](image)

- Select the appropriate gear with the shifter.
- The gear shift switches the gear.
- The shifter returns to its original position.
- Clean the rear derailleur if the gear change blocks.

6.14.2 Using a hub gear

Only applies to ebikes with this equipment

**CAUTION**

Crash caused by incorrect use

If the rider applies too much pressure on the pedals during a gear change and activates the shifter or changes several gears at a time, their feet may slip from the pedals. As a result, the ebike may flip over or fall, which may cause injury.

Switching down several gears to a low gear may cause the twist grip outer sleeve to suddenly come off. This will not have an adverse effect on the twist grip’s correct functioning since the outer guide returns to its original position after the gear change is complete.

- Apply little pressure on the pedals while changing gears.
- Never change more than one gear at a time.

**Notice**

The interior hub is not completely waterproof. If water gets into the hub, it may rust and the gear switch function may no longer function as a result.

- Never use the ebike in places where water may get into the hub.

In rare cases, noises may be heard from the rear derailleur in the hub interior after a gear change. This is normal when gears are changed.

Do not detach the hub. If you need to detach it, contact your dealer.
Figure 85: Example; Shimano Nexus gear shift: twist grip (1) for the hub gear with its screen (3), the direction of rotation to switch up a gear (2) and the direction of rotation to switch down a gear (4)

▶ Turn the twist grip.

☉ The gear shift switches the gear.

☉ The number on the screen display shows the changed gear.
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 155–185 miles
- 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 tire wear once a week
- Check for rim wear once a week
- Check tire 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 inspection.

The following servicing measures must be performed regularly. Servicing can be performed by the operator and rider. In case of any doubt, consult the specialist dealer.

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 on 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 repairing the ebike. 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 into 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 ebike with a steam jet.

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 and display before basic cleaning.

7.2.1 Cleaning the frame

► Soak dirt stains on the frame with dish-washing detergent if the dirt is thick and ingrained.
► After leaving it to soak for a time, remove the dirt and mud with a sponge, brush and toothbrush.
► Use a watering can or your hand to rinse the frame to finish off.
► Service the frame after cleaning.

7.2.2 Cleaning the stem

► Clean stem with a cloth and soapy water.
► Service the stem after cleaning.

7.2.3 Cleaning the rear frame damper

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

7.2.4 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.

► Check the tyres, rims, spokes and spoke nipples for any damage when cleaning the wheel.
► Use a sponge and a brush to clean the hub and spokes from the inside to the outside.
► Clean the rim with a sponge.

7.2.5 Cleaning the drive elements

► Spray the cassette, the chain wheels and the front derailleur with a degreasing agent.
► Clean coarse dirt with a brush after soaking for a short time.
► Wash down all parts with dish-washing detergent and a toothbrush.
► Service the drive elements after cleaning.
7.2.6 Cleaning the chain

**Notice**
- Never use aggressive (acid-based) cleaners, rust removers or degreasers when cleaning the chain.
- Do not use chain cleaning devices or chain cleaning baths.

- Slightly dampen a brush with dish-washing liquid. Brush both sides of the chain.
- Dampen a cloth with soapy water. Place the cloth on the chain.
- Hold and apply slight pressure while slowly turning the rear wheel, so the chain passes through the cloth.
- If the chain is still dirty afterwards, clean it with lubricant.
- Service the chain after cleaning.

7.2.7 Cleaning the battery

**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 high-pressure water device, water jet or compressed air.
- Keep the contacts clean and dry.
- Never immerse the battery in water.
- Never use cleaning agents.
- Remove the battery from the ebike before cleaning.

**Notice**
- Do not clean the battery with solvents, such as thinners, alcohol, oil and corrosion protection, or with cleaning agents.
- Clean the battery electrical connections with a dry cloth or brush only.
- Wipe off the decorative sides with a damp cloth.

7.2.8 Cleaning the display

**Notice**
If water enters into the display screen, it will be permanently damaged.

- Never immerse the display in water.
- Never clean with a high-pressure water device, water jet or compressed air.
- Never use cleaning agents.
- Remove the display from the ebike before cleaning.

- Carefully clean the display with a damp, soft cloth.

7.2.9 Cleaning the drive unit

**CAUTION**

**Burns from hot drive**
The drive cooler can become extremely hot during use. Contact may cause burns.

- Leave the drive unit to cool before cleaning.
Cleaning and servicing

7.2.10 Cleaning the brake

**Notice**

If water enters into the drive unit, the unit will be permanently damaged.

- Never immerse the drive unit in water.
- Never clean with a high-pressure water device, water jet or compressed air.
- Never use cleaning agents.
- Never open.
- Carefully clean the drive unit with a damp, soft cloth.

**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 ebike with compressed air or a high-pressure water device.
- 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 frame after cleaning.
- 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

- Spray the cassette, the chain wheels and the front derailleur with a degreasing agent.
- Clean coarse dirt with a brush after soaking for a short time.
- Wash down all parts with dish-washing detergent and a toothbrush.

7.3.5 Servicing the pedals

- Treat with spray oil after cleaning.
7.3.6 Servicing the chain

▶ Grease the chain thoroughly with chain oil after cleaning.

7.3.7 Servicing the drive elements

▶ Service front and rear derailleur articulated shafts and jockey wheels with Teflon spray.

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. They can be carried out by the operator and rider. In case of any doubt, consult the specialist dealer.

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

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

▶ Check the tire pressure as per specifications

▶ Adjust the tire pressure as necessary.

▶ Check tire wear.

▶ Check the tire pressure.

▶ 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.

▶ Check the tension of the spokes.
7.4.2 Checking the tyres

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

⚠ A specialist dealer will need to change the tire if it is worn.

7.4.3 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.

⚠ Worn rims must be replaced by a specialist dealer.

⚠ We recommend that you also replace the rims at the same time as every second brake lining replacement.

7.4.4 Check and correct tire pressure

7.4.4.1 Dunlop valve

The tire pressure cannot be measured on the simple Dunlop valve. The tire 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.

- Unscrew and remove the valve cap.
- Connect the bicycle pump.
- Pump up the tire slowly and pay attention to the tire pressure in the process.
- Correct the tire pressure according to specifications in the Bike pass.
- If the tire pressure is too high, unfasten the union nut, let out air and tighten the union nut again.
- Remove the bicycle pump.
- Screw the valve cap tight.

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

7.4.4.2 Presta valve

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

- Unscrew and remove the valve cap.
- Open the knurled nut around four turns.
- Carefully apply the bicycle pump so that the valve insert is not bent.
- Pump up the tire slowly and pay attention to the tire pressure in the process.

⚠ The tire pressure has been adjusted as per the specifications.
- Remove the bicycle pump.
- Tighten the knurled nut with your fingers.
- Screw the valve cap tight.

7.4.4.3 Schrader valve

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

- Unscrew and remove the valve cap.
- Connect the bicycle pump.
- Pump up the tire slowly and pay attention to the tire pressure in the process.

⚠ The tire pressure has been adjusted as per the specifications.
- Remove the bicycle pump.
- Screw the valve cap tight.
- Screw the rim nut gently against the rim with the tips of your fingers.
7.4.5 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 the hydraulic brake system on a regular basis and replace if necessary.

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

7.4.6 Checking the brake linings for wear

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

- 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.

- 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. If they have, a specialist dealer will need to replace the brake linings.

7.4.7 Checking the pressure point

- Push brake lever and hold several times.

- If you are unable to clearly detect the pressure point and it changes, a BULLS specialist dealer needs to vent the brake.

7.4.8 Checking the brake discs for wear

- Check that the brake disc is no less than 1.8 mm at any point.

- The brake discs have not reached the wear limit. If they have, a specialist dealer will need to replace brake discs.

7.4.9 Electrical cables and brake cables

- Check all visible electrical cables and cables for damage. If the sheathing is compressed, for example, the ebike will need to be removed from service until the cables have been replaced.

- Check all electrical cables and cables to make sure they are fully functional.

7.4.10 Gear shift

- Check the gear shift and the shifter or the twist grip setting and adjust it as necessary.

7.4.11 Stem

- The stem and quick release system should 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.

- Check for wear and signs of corrosion (maintain with an oily cloth) and for oil leaks.

7.4.12 USB port

**Notice**

Any moisture which enters through the USB port may trigger a short circuit in the display.

- Regularly check the position of the cover on the USB port and adjust it as necessary.
7.4.13 Checking the 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.

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

➢ 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.

➢ 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.

➲ If a hub gear is featured, the rear wheel must be pushed backwards or forwards to tighten the chain. This should be done by a specialist only.

Figure 86: Checking the chain tension

7.4.14 Checking the handlebar grip position

➢ Check the handlebar grip is firmly in position.
You must have the specialist dealer perform maintenance every six months as a minimum. This is the only way to ensure that the ebike remains safe and fully functional.

Special tools, special lubricants and knowledge of suspension components are required to maintain and repair brake discs as well as vent brakes or replace brake discs. The ebike 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 ebike based on the maintenance table in the appendix.

The specialist dealer will inspect the ebike 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 Axle with quick release

### 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.

### 8.1.1 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 87: Adjusting the quick release clamping force](image)

- Use a 4 mm hexagon socket spanner to adjust the clamping lever clamping force if required. Afterwards, check the quick release lever position and clamping force.

![Figure 88: Adjusting the quick release clamping force](image)

### 8.2 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.
8.2.1 Cable-operated gear shift, single-cable

Only applies to ebikes with this equipment

▶ For a smooth gear shift, adjust the adjusting sleeves on the shifter housing.

![Figure 89: Adjusting sleeve (1) for the single-cable, cable-operated gear shift with shifter housing (2), example](image)

8.2.2 Cable-operated gear shift, dual-cable

Only applies to ebikes 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 90: Adjusting sleeves (2) on two alternative versions (A and B) of a dual-cable, cable-operated gear shift on the chain stay (1)](image)

8.2.3 Cable-operated twist grip, dual-cable

Only applies to ebikes 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 91: Twist grip with adjusting sleeves (1) and play of the gear shift (2)](image)
9 Troubleshooting, fault clearance and repair

9.1 Troubleshooting and fault clearance

WARNING
Risk of fire and explosion due to faulty battery
The safety electronics may fail if the battery is damaged or faulty. The residual voltage can cause a short circuit. Batteries may self-ignite and explode.

- Batteries with external damage must be removed from service immediately.
- Never allow damaged batteries to come into contact with water.
- If a battery is dropped or struck but shows no signs of external damage, remove it from service and observe it for at least 24 hours.
- Faulty batteries are hazardous goods. Dispose of faulty batteries properly and as quickly as possible.
- Store in a dry place until disposal. Never store in the vicinity of flammable substances.

Never open or repair the battery.

The components of the drive system are checked constantly and automatically. If an error is detected the corresponding error code will appear on the display screen. Depending on the type of error, the drive will also be automatically switched off.

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:

- Check whether the battery is switched on. If not, start the battery.
- Contact specialist dealer if the battery level indicator LEDs do not light up.
- If the LEDs on the battery level indicator light up, but the drive system does not start up, remove the battery.
- Insert the battery.
- Start the drive system.
- If the drive system does not start up, remove the battery.
- Clean all the contacts with a soft cloth.
- Insert the battery.
- Start the drive system.
- If the drive system does not start up, remove the battery.
- Fully charge the battery.
- Insert the battery.
- Start the drive system.
- If the drive system does not start up, remove the display.
- Fasten the display.
- Start the drive system.
- Contact your specialist dealer if the drive system does not start up.

9.1.2 Error messages

If an error message is displayed, run through the following actions:

- Make a note of the system message.
- Shut off and re-start the drive system.
- If the system message is still displayed, remove and then re-insert the battery.
- Re-start the drive system.
- If the system message is still displayed, contact your specialist dealer.
### 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 brake pads and brake linings
- Replacing and tensioning the chain.

#### 9.2.1 Use original parts and lubricants only

The individual ebike 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 list are Section 11, Documents and Drawings.

#### 9.2.2 Replacing the lighting

- Only use components of the respective power class for replacement.

#### 9.2.3 Setting the headlight

- The *headlight* must be set, so that its light beam shines on the road 10 m in front of the ebike.
Recycling and disposal

**WARNING**

**Risk of fire and explosion**

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

► Remove battery with any external damage from service immediately and never recharge it.

► If the battery becomes deformed or begins to smoke, keep at a safe distance, disconnect the power supply at the socket, and notify the fire service immediately.

► Never extinguish damaged batteries with water or allow them to come into contact with water.

► Faulty batteries are hazardous goods. Dispose of faulty batteries properly as quickly as possible.

► Store in a dry place until disposal. Never store in the vicinity of flammable substances.

Never open or repair the battery.

**CAUTION**

**Hazard for the environment**

The fork, rear frame damper and hydraulic brake system contain toxic and environmentally harmful oils and lubricants. Such fluids will contaminate if they enter the sewers or groundwater.

► Dispose of lubricants and oils in an environmentally responsible way in accordance with statutory regulations.

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 Battery Act. You thus meets statutory obligations and help to protect the environment. The ebike, 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. Sorted waste collection and recycling saves on raw material reserves and ensures that all the regulations for health and environmental protection are met when the product and/or the battery are recycled.

► Never dismantle the ebike, batteries or charger for disposal.

► The ebike, 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 ebike in a dry place, free from frost, where they are protected from direct sunlight.

**CAUTION**

**Chemical burns to the skin and eyes**

Liquids and vapours may leak from a damaged or faulty battery. They can irritate the airways and cause burns.

► Avoid contact with leaked liquids.

► Immediately consult a doctor in case of contact with the eyes or any discomfort.

► In case of contact with the skin, rinse off immediately with water.

► Ventilate the room well.
11 Documents

11.1 Parts list

There was no information relating to a parts list yet at the time of going to press. You'll find the information in the latest operating instructions.
### 11.2 Assembly report

<table>
<thead>
<tr>
<th>Components</th>
<th>Description</th>
<th>Tests</th>
<th>Criteria</th>
<th>Measures if rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front wheel</td>
<td>Assembly</td>
<td></td>
<td>O.K.</td>
<td>Loose</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Adjust quick release</td>
</tr>
<tr>
<td>Kickstand</td>
<td>Check mount fastening</td>
<td>Functional check</td>
<td>O.K.</td>
<td>Loose</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Retighten screws</td>
</tr>
<tr>
<td>Tyres</td>
<td></td>
<td>Tire pressure check</td>
<td>O.K.</td>
<td>Damage detected</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Take out of operation, new frame</td>
</tr>
<tr>
<td>Frame</td>
<td>Check for damage – fracture, scratches</td>
<td></td>
<td>O.K.</td>
<td>Damage detected</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Take out of operation, new frame</td>
</tr>
<tr>
<td>Handles, coverings</td>
<td>Check mount fastening</td>
<td></td>
<td>O.K.</td>
<td>Not provided</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Retighten screws, new handles or coverings as specified in parts list</td>
</tr>
<tr>
<td>Handlebars, stem</td>
<td>Check mount fastening</td>
<td></td>
<td>O.K.</td>
<td>Loose</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Retighten screws, new stem as specified in parts list if necessary</td>
</tr>
<tr>
<td>Steering headset</td>
<td>Check for damage</td>
<td>Functional check</td>
<td>O.K.</td>
<td>Loose</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Retighten screws</td>
</tr>
<tr>
<td>Saddle</td>
<td>Check mount fastening</td>
<td></td>
<td>O.K.</td>
<td>Loose</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Retighten screws</td>
</tr>
<tr>
<td>Seat post</td>
<td>Check mount fastening</td>
<td></td>
<td>O.K.</td>
<td>Loose</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Retighten screws</td>
</tr>
<tr>
<td>Protective plate</td>
<td>Check mount fastening</td>
<td></td>
<td>O.K.</td>
<td>Loose</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Retighten screws</td>
</tr>
<tr>
<td>Pannier rack</td>
<td>Check mount fastening</td>
<td></td>
<td>O.K.</td>
<td>Loose</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Retighten screws</td>
</tr>
<tr>
<td>Attachments</td>
<td>Check mount fastening</td>
<td></td>
<td>O.K.</td>
<td>Loose</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Retighten screws</td>
</tr>
<tr>
<td>Bell</td>
<td>Functional check</td>
<td></td>
<td>O.K.</td>
<td>No ring, too quiet, missing</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>New bell as specified in the parts list</td>
</tr>
<tr>
<td><strong>Suspension elements</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fork, suspension fork</td>
<td>Check for damage</td>
<td></td>
<td>O.K.</td>
<td>Damage detected</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>New fork as specified in the parts list</td>
</tr>
<tr>
<td>Rear frame damper</td>
<td>Check for damage</td>
<td></td>
<td>O.K.</td>
<td>Damage detected</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>New fork as specified in the parts list</td>
</tr>
<tr>
<td>Suspension seat post</td>
<td>Check for damage</td>
<td></td>
<td>O.K.</td>
<td>Damage detected</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>New fork as specified in the parts list</td>
</tr>
<tr>
<td><strong>Brake system</strong></td>
<td>Check mount fastening</td>
<td></td>
<td>O.K.</td>
<td>Loose</td>
</tr>
<tr>
<td>Brake lever</td>
<td></td>
<td></td>
<td></td>
<td>Retighten screws</td>
</tr>
<tr>
<td>Brake fluid</td>
<td>Check fluid level</td>
<td></td>
<td>O.K.</td>
<td>Too little</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Refill with brake fluid; new brake hoses if damaged</td>
</tr>
<tr>
<td>Brake linings</td>
<td>Check brake linings, brake discs or rims for damage</td>
<td></td>
<td>O.K.</td>
<td>Damage detected</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>New brake linings, brake discs or rims</td>
</tr>
<tr>
<td>Back-pedal brake braking armature</td>
<td>Check mount fastening</td>
<td></td>
<td>O.K.</td>
<td>Loose</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Retighten screws</td>
</tr>
<tr>
<td><strong>Light system</strong></td>
<td>First examination</td>
<td></td>
<td>O.K.</td>
<td>Error message</td>
</tr>
<tr>
<td>Rechargeable battery</td>
<td></td>
<td></td>
<td></td>
<td>Take out of service; contact battery manufacturer, new battery</td>
</tr>
<tr>
<td>Light cabling</td>
<td>Connections, correct wiring</td>
<td></td>
<td>O.K.</td>
<td>Cable defective, no light</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>New cabling</td>
</tr>
<tr>
<td>Rear light</td>
<td>Side light</td>
<td>Functional check</td>
<td>O.K.</td>
<td>No constant light</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Take out of service; new rear light as specified in parts list; replace battery if necessary</td>
</tr>
<tr>
<td>Front light</td>
<td>Side light, daytime riding light</td>
<td>Functional check</td>
<td>O.K.</td>
<td>No constant light</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Take out of service; new front light as specified in parts list; replace battery if necessary</td>
</tr>
<tr>
<td>Reflectors</td>
<td>All complete, state, fastening</td>
<td></td>
<td>O.K.</td>
<td>Damage or not all complete</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>New reflectors</td>
</tr>
<tr>
<td>Drive/gear shift</td>
<td>Check for damage</td>
<td></td>
<td>O.K.</td>
<td>Damage</td>
</tr>
<tr>
<td>Chain/cassette/ pinion/chainring</td>
<td>Check for damage</td>
<td></td>
<td>O.K.</td>
<td>Damage or not all complete</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>New reflectors</td>
</tr>
</tbody>
</table>
### Components

<table>
<thead>
<tr>
<th>Components</th>
<th>Description</th>
<th>Criteria</th>
<th>Measures if rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chain guard/spoke guard</td>
<td>Check for damage</td>
<td>O.K.</td>
<td>Damage</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Replace as specified in parts list</td>
</tr>
<tr>
<td>Bottom bracket axle/crank</td>
<td>Check mount fastening</td>
<td>O.K.</td>
<td>Loose</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Retighten screws</td>
</tr>
<tr>
<td>Pedals</td>
<td>Check mount fastening</td>
<td>O.K.</td>
<td>Loose</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Retighten screws</td>
</tr>
<tr>
<td>Shifter</td>
<td>Check mount fastening</td>
<td>Functional check</td>
<td>O.K.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Adjust shift cables; new shift cables if necessary</td>
</tr>
<tr>
<td>Shift cables</td>
<td>Check for damage</td>
<td>Functional check</td>
<td>O.K.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Adjust</td>
</tr>
<tr>
<td>Front derailleur</td>
<td>Check for damage</td>
<td>Functional check</td>
<td>O.K.</td>
</tr>
<tr>
<td>Rear derailleur</td>
<td>Check for damage</td>
<td>Functional check</td>
<td>O.K.</td>
</tr>
<tr>
<td>Electric drive</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Display</td>
<td>Check for damage</td>
<td>Functional check</td>
<td>O.K.</td>
</tr>
<tr>
<td>Electric drive control panel</td>
<td>Check drive for damage</td>
<td>Functional check</td>
<td>O.K.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Restart; contact control panel manufacturer, new control panel</td>
</tr>
<tr>
<td>Tachometer</td>
<td>Speed measurement</td>
<td>O.K.</td>
<td>Ebike travelling 10% too fast/slow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Shut off ebike until source of fault is found</td>
</tr>
<tr>
<td>Cabling</td>
<td>Visual inspection</td>
<td>O.K.</td>
<td>Failure in system, damage, kinked cables</td>
</tr>
<tr>
<td>Battery mount</td>
<td>Firmly in position, lock, contacts</td>
<td>Functional check</td>
<td>O.K.</td>
</tr>
<tr>
<td>Motor</td>
<td>Visual inspection and mount</td>
<td>O.K.</td>
<td>Damage, loose</td>
</tr>
<tr>
<td>Software</td>
<td>Check version</td>
<td>In latest version</td>
<td>Not latest version</td>
</tr>
</tbody>
</table>

### Technical inspection, checking safety, test ride

<table>
<thead>
<tr>
<th>Components</th>
<th>Description</th>
<th>Criteria</th>
<th>Measures if rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assembly/inspection</td>
<td>Functional check</td>
<td>O.K.</td>
<td>No full braking; braking distance too long</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Locate defective part in brake system and correct</td>
</tr>
<tr>
<td>Tests</td>
<td>Functional check</td>
<td>O.K.</td>
<td>Problems when shifting gear</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Readjust gear shift</td>
</tr>
<tr>
<td>Acceptance</td>
<td>Functional check</td>
<td>O.K.</td>
<td>Suspension too deep or no longer exists</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Locate defective component and correct</td>
</tr>
<tr>
<td>Rejection</td>
<td>Functional check</td>
<td>O.K.</td>
<td>Loose connection, problems when riding, accelerate</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Locate defective part in electric drive and correct</td>
</tr>
<tr>
<td>Electric drive</td>
<td>Functional check</td>
<td>O.K.</td>
<td>No continuous light, too bright</td>
</tr>
<tr>
<td>Light system</td>
<td>Functional check</td>
<td>O.K.</td>
<td>Locate defective part in light system and correct</td>
</tr>
<tr>
<td>Test ride</td>
<td></td>
<td>No strange noises</td>
<td>Strange noises.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Locate source of noise and correct</td>
</tr>
</tbody>
</table>

### Date

Fitter’s name:

Final inspection by workshop manager
## 11.3 Maintenance log

**Diagnosis and documentation of current status**

<table>
<thead>
<tr>
<th>Components</th>
<th>Frequency</th>
<th>Description</th>
<th>Criteria</th>
<th>Measures if rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inspection</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Tests</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Maintenance</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Acceptance</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Rejection</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front wheel</td>
<td>6 months</td>
<td>Assembly</td>
<td>O.K.</td>
<td>Loose; Adjust quick release</td>
</tr>
<tr>
<td>Kickstand</td>
<td>6 months</td>
<td>Check mount fastening</td>
<td>O.K.</td>
<td>Loose; Retighten screws</td>
</tr>
<tr>
<td>Tyres</td>
<td>6 months</td>
<td>Tire pressure check</td>
<td>O.K.</td>
<td>Tire pressure too low/too high; Adjust tire pressure</td>
</tr>
<tr>
<td>Frame</td>
<td>6 months</td>
<td>Check for damage – fracture, scratches</td>
<td>O.K.</td>
<td>Damage detected; Shut off eBike; new frame</td>
</tr>
<tr>
<td>Handles, coverings</td>
<td>6 months</td>
<td>Wear; check if fastened securely</td>
<td>O.K.</td>
<td>Not provided; Retighten screws, new handles or coverings as specified in parts list</td>
</tr>
<tr>
<td>Handlebars, stem</td>
<td>6 months</td>
<td>Check mount fastening</td>
<td>O.K.</td>
<td>Loose; Retighten screws</td>
</tr>
<tr>
<td>Steering headset</td>
<td>6 months</td>
<td>Check for damage</td>
<td>Functional check</td>
<td>Lubricating and adjustment</td>
</tr>
<tr>
<td>Saddle</td>
<td>6 months</td>
<td>Check mount fastening</td>
<td>O.K.</td>
<td>Loose; Retighten screws</td>
</tr>
<tr>
<td>Seat post</td>
<td>6 months</td>
<td>Check mount fastening</td>
<td>O.K.</td>
<td>Loose; Retighten screws</td>
</tr>
<tr>
<td>Protective plate</td>
<td>6 months</td>
<td>Check mount fastening</td>
<td>O.K.</td>
<td>Loose; Retighten screws</td>
</tr>
<tr>
<td>Pannier rack</td>
<td>6 months</td>
<td>Check mount fastening</td>
<td>O.K.</td>
<td>Loose; Retighten screws</td>
</tr>
<tr>
<td>Attachments</td>
<td>6 months</td>
<td>Check mount fastening</td>
<td>O.K.</td>
<td>Loose; Retighten screws</td>
</tr>
<tr>
<td>Bell</td>
<td>6 months</td>
<td>Functional check</td>
<td>O.K.</td>
<td>No ring, too quiet, missing; New bell as specified in the parts list</td>
</tr>
</tbody>
</table>

### Suspension elements

<table>
<thead>
<tr>
<th>Fork, suspension fork</th>
<th>To manufacturer’s specifications</th>
<th>Check for damage – corrosion, fracture</th>
<th>Maintenance as specified by manufacturer</th>
<th>Lubrication, oil change as specified by manufacturer</th>
<th>O.K.</th>
<th>Damage detected</th>
<th>New fork as specified in the parts list</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rear frame damper</td>
<td>To manufacturer’s specifications</td>
<td>Check for damage – corrosion, fracture</td>
<td>Maintenance as specified by manufacturer</td>
<td>Lubrication, oil change as specified by manufacturer</td>
<td>O.K.</td>
<td>Damage detected</td>
<td>New fork as specified in the parts list</td>
</tr>
<tr>
<td>Suspension seat post</td>
<td>To manufacturer’s specifications</td>
<td>Check for damage</td>
<td>Maintenance as specified by manufacturer</td>
<td></td>
<td>O.K.</td>
<td>Damage detected</td>
<td>New fork as specified in the parts list</td>
</tr>
</tbody>
</table>

### Brake system

<p>| Brake lever          | 6 months  | Check mount fastening        | O.K. | Loose; Retighten screws               |
| Brake fluid          | 6 months  | Check fluid level            | O.K. | Too little; Top up brake fluid; take 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               |</p>
<table>
<thead>
<tr>
<th>Components</th>
<th>Frequency</th>
<th>Description</th>
<th>Inspection</th>
<th>Tests</th>
<th>Maintenance</th>
<th>Acceptance</th>
<th>Rejection</th>
<th>Measures if rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Light system</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rechargeable battery</td>
<td>First examination</td>
<td></td>
<td>O.K.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Error message Contact battery manufacturer; take out of service, new battery</td>
</tr>
<tr>
<td>Light cabling</td>
<td>Connections, correct wiring</td>
<td></td>
<td>O.K.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Cable defective, no light New cabling</td>
</tr>
<tr>
<td>Rear light</td>
<td>Side light Functional check</td>
<td></td>
<td>O.K.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No constant light New rear light as specified in parts list; replace battery if necessary</td>
</tr>
<tr>
<td>Front light</td>
<td>Side light, daytime riding light Functional check</td>
<td></td>
<td>O.K.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No constant light New front light as specified in parts list; replace battery if necessary</td>
</tr>
<tr>
<td>Reflectors</td>
<td>All complete, state, fastening Functional check</td>
<td></td>
<td>O.K.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Damaged or not all complete New reflectors</td>
</tr>
<tr>
<td><strong>Drive/gear shift</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chain/cassette/ pinion/ chainring</td>
<td>Check for damage</td>
<td></td>
<td>O.K.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Damage Refasten if necessary or replace as specified in parts list</td>
</tr>
<tr>
<td>Chain guard/ spoke guard</td>
<td>Check for damage</td>
<td></td>
<td>O.K.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Damage Replace as specified in parts list</td>
</tr>
<tr>
<td>Bottom bracket axle/crank</td>
<td>Check mount fastening</td>
<td></td>
<td>O.K.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Loose Retighten screws</td>
</tr>
<tr>
<td>Pedals</td>
<td>Check mount fastening Functional check</td>
<td></td>
<td>O.K.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Loose Retighten screws</td>
</tr>
<tr>
<td>Shifter</td>
<td>Check mount fastening Functional check</td>
<td></td>
<td>O.K.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Loose or defective Adjust shift cables; new shift cables if necessary</td>
</tr>
<tr>
<td>Shift cables</td>
<td>Check for damage Functional check</td>
<td></td>
<td>O.K.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Gear shift difficult or not possible Adjust</td>
</tr>
<tr>
<td>Front derailleur</td>
<td>Check for damage Functional check</td>
<td></td>
<td>O.K.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Gear shift difficult or not possible Adjust</td>
</tr>
<tr>
<td>Rear derailleur</td>
<td>Check for damage Functional check</td>
<td></td>
<td>O.K.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Gear shift difficult or not possible Adjust</td>
</tr>
<tr>
<td><strong>Electric drive</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Display</td>
<td>Check for damage Functional check</td>
<td></td>
<td>O.K.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No screen display, defective screen display Restart, test battery, new software, or new display; take out of service,</td>
</tr>
<tr>
<td>Electric drive control panel</td>
<td>Check drive for damage Functional check</td>
<td></td>
<td>O.K.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No response Restart; contact control panel manufacturer, new control panel</td>
</tr>
<tr>
<td>Tachometer</td>
<td>Speed measurement</td>
<td></td>
<td>O.K.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Ebike travelling 10% too fast/slow Shut off ebike until source of fault is found</td>
</tr>
<tr>
<td>Cabling</td>
<td>Visual inspection</td>
<td></td>
<td>O.K.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Failure in system, damage, kinked cables New cabling</td>
</tr>
<tr>
<td>Battery mount</td>
<td>Firmly in position, lock, contacts Functional check</td>
<td></td>
<td>O.K.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Loose; lock doesn't close, no contacts New battery mount</td>
</tr>
<tr>
<td>Motor</td>
<td>Visual inspection and mount</td>
<td></td>
<td>O.K.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Damage, loose Refasten motor, contact motor manufacturer, new motor; take out of service</td>
</tr>
<tr>
<td>Software</td>
<td>Check version</td>
<td></td>
<td>In latest version</td>
<td>Not latest version</td>
<td>Import update</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Components</td>
<td>Description</td>
<td>Criteria</td>
<td>Measures if rejected</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------------------------</td>
<td>-------------</td>
<td>-----------</td>
<td>------------------------------------------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assembly/inspection</td>
<td>Tests</td>
<td>Acceptance</td>
<td>Rejection</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Brake system</strong></td>
<td>Functional check</td>
<td>O.K.</td>
<td>No full braking; braking distance too long; Locate defective part in brake system and correct</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Gear shift under operating load</strong></td>
<td>Functional check</td>
<td>O.K.</td>
<td>Problems when shifting gear; Readjust gear shift</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Suspension components (fork, shock absorber, seat post)</strong></td>
<td>Functional check</td>
<td>O.K.</td>
<td>Suspension too deep or no longer exists; Locate defective component and correct</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Electric drive</strong></td>
<td>Functional check</td>
<td>O.K.</td>
<td>Loose connection, problems when riding, accelerate; Locate defective part in electric drive and correct</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Light system</strong></td>
<td>Functional check</td>
<td>O.K.</td>
<td>No continuous light, too bright; Locate defective part in light system and correct</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Test ride</strong></td>
<td></td>
<td></td>
<td>No strange noises. Strange noises. Locate source of noise and correct</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Date**

**Fitter's name:**

Final inspection by workshop manager
Keyword index

A
Air chamber, 18
Air valve
- Fork, 17
  - Rear frame damper, 18
Alternative equipment, 7
Back-pedal brake, 73
Battery, 22
- charging, 64
  - checking, 37
  - disposing of, 91
  - waking, 65
Belt tension, 85
Brake arm, 19
Brake calliper, 19
Brake disc, 19
Brake lever, 28
- adjusting the pressure point 50
Brake lining, 19
- maintaining, 84
Brake
- using the transport securing system, 34
Break in operation, 35
- carrying out, 35
  - preparing, 35
Chain drive, 21
Chain guard,
- checking, 61
Chain tension, 85
Chain wheel, 21
Chain, 15, 21
- maintaining, 85
Charger,
- disposing of, 91
Clamping force,
- Checking the quick releases, 39
  - Setting the quick releases, 39
C
Direction of travel, 21
Drive system, 21
- switching on, 66
Driving light, 22, 23
- checking function, 61
EC Declaration of Conformity, 102
Fork lock,
  Position, 17
Fork, 16
- setting the compression damper, 75
  - Fork end, 16
  - Setting the rebound damper, 75
  - structure, 17
Frame, 15
Front wheel brake, 19, 20
- braking, 72
Front wheel, see Wheel
G
Gear shift twist grip, 28
- checking, 84
Gear shift,
- maintaining, 84
  - switching, 76
H
Handlebars, 15, 28
Headlight, 21
Hub, 16
I
Initial commissioning 37
J
Journey information, 29
- resetting, 68
  - Maximum, 29
Level of assistance, 29, 30, 65
- selecting, 68
Lever, 18
M
Minimum insertion depth marking, 48
Model year, 8
Motor, 21
Mudguards,
- checking, 61
O
On-screen indicator, 22, 28, 30, 60, 67, 68, 69
O-ring, 18
P
Packaging, 36
Pannier rack, 15
- checking, 62
  - checking, 61
  - using, 62
Parts list, 102
Pedal, 20, 21
Push assist,
- using, 67
Q
Quick release, 16
  Position, 17
R
Rear frame damper,
  - structure, 18
Rear light, 21
Rear wheel brake, 19, 20
Rebound damper adjuster,
  Position, 17
Rim brake locking lever 19
Rim, 16
- checking, 82
Roller brake,
  - braking, 73
S
Saddle, 15
- changing the saddle tilt, 47
  - changing the seat length, 48
  - determining the saddle height, 47, 48
Seat post, 15
Setting wheel, 18
Shiftier,
- checking, 84
  - setting, 87
Spoke, 16
Storage, 34
Suspension head, 16
System message, 30, 45
System setting, 29
  - changeable, 29, 68
T
Transportation, 33
Transporting, see Transportation
Tyres, 16
- checking, 82
U
USB port,
- using, 68
Using 76
V
Valve cap, 17
Valve, 16
  - Dunlop valve, 16
  - Presta valve, 16
  - Schrader valve, 16
W
Weight,
  - permitted total weight, 8
Wheel,
- maintaining, 82
Winter break, see Break in operation
13 Glossary

Wear
Source: DIN 31051: reduction in useful life (4.3.4), caused by chemical and/or physical processes.

Shut-off speed
Source: EN 15194:2017: speed reached, by the ebike, at the moment the current has dropped to zero or to the no load current value.

Drive belt
Source: EN 15194:2017: seamless ring belt which is used as a means of transmitting motive force.

Work environment
Source: EN ISO 9000:2015: set of conditions under which work is performed.

Decommissioning

Year of manufacture
Source: BULLS: the year of manufacture is the year in which the ebike was manufactured. The production period is always from August to July of the following year.

Instruction handbook
Source: ISO/DIS 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

Brake lever
Source: EN 15194:2017: lever used to apply the brake

Braking distance
Source: EN 15194:2017: distance travelled by a ebike between the commencement of braking and the point at which the ebike comes to rest

Fracture
Source: EN 15194:2017: unintentional separation into two or more parts

CE marking
Source: Directive 2006/42/EC on Machinery: the manufacturer uses the CE marking to declare that the ebike complies with the applicable requirements.

City and trekking bicycles
Source: EN-ISO 4210 - 2: ebike designed for use on public roads primarily for means of transportation or leisure.

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, ebike
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

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

Folding bicycle
Source: EN-ISO 4210-2: bicycle designed to fold into a compact form, facilitating transport and storage.

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
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.

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

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.

Weight of ready-to-ride bicycle
Source: BULLS: the indicated weight for a ready-to-ride bicycle refers to the weight of an ebike at the time of sale. The weight of each additional accessory must be added to this weight.

Permitted total weight
Source: EN 15194:2017: weight of the fully assembled ebike plus the rider and baggage, as specified by the manufacturer

Young adult bicycle
Source: EN-ISO 4210-2: bicycle designed for use on public roads by a young adult whose weight is less than 88 lbs, with maximum saddle height of 635 mm or more and less than 750 mm. (see ISO 4210)

Cargo bike
Source: DIN 79010: bicycle mainly designed to carry goods.

Wheel
Source: EN 15194:2017: assembly or combination of hub, spokes or disc, and rim, but excluding tire assembly

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

Maximum continuous power
Source: BULLS: 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 tire pressure
Source: EN 15194:2017: maximum tire pressure recommended by the tire or rim manufacturer for a safe and efficient performance. If the rim and tire both indicate a maximum tire pressure, the maximum inflation pressure is the lower of the two pressures indicated.

Model year
Source: BULLS: the model year refers to the first production year that the series-manufactured ebike 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 ebikes from a previous model year.

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, tire width not greater
than 28 mm and a maximum mass of 26.5 lbs. 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.

**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.

**Quick-release device, quick release**
*Source: EN 15194:2017:* lever actuated mechanism that connects, retains or secures a wheel or any other component.

**Type number**
*Source: BULLS:* all ebike models have an eight-digit type number which is used to specify the type of ebike and the version.

**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.

**Consumables**
*Source: EN 82079-1:* any part or material that is necessary for continued use or maintenance of the product.

**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.
I. EC declaration of conformity

Translation of the original EC Declaration of Conformity

The manufacturer:
BULLS Bikes USA
11854 Alameda St.
Lynwood, CA 90262
United States

hereby declares that the electrically power assisted bicycles of types:
791-457, 791-460, 791-463
Year of manufacture 2019 and 2020

comply with all applicable requirements of Machinery Directive 2006/42/EC. Furthermore, the electrically power assisted cycles comply with all applicable basic requirements of Electromagnetic Compatibility Directive 2014/30/EU.


Lynwood May 7, 2019