IMPORTANT
READ CAREFULLY BEFORE USE
KEEP SAFE FOR LATER REFERENCE

Electric bicycle

OPERATING INSTRUCTIONS

Cross E, Cross E8, Urban, Grinder, Twenty4, Aminga, Six50, Twenty9, Monster, Cruiser, Cross Mover Speed, Cross Lite, Iconic, Sentinel, Six50 E 2 Street
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Data sheet

Name of the purchaser: ________________________________

Date of purchase: ________________________________

Model: ________________________________

Frame number: ________________________________

Type number: ________________________________

Unloaded weight (lbs): ________________________________

Tire size: ________________________________

Recommended tire pressure (psi)*: front: _________ rear: _________

Wheel circumference (mm): ________________________________

Company stamp and signature: ________________________________

*After a tire change, refer to the tire markings for the permitted tire pressures and make sure that they are observed. The recommended tire pressure must not be exceeded.
1 Technical data

Bicycle

- **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
- **Operation temperature**: 41°F - 95°F
- **Working environment temperature**: 59°F - 77°F
- **Charging temperature**: 50°F - 86°F
- **Power output/system**: 250 W (0.25 W)
- **Shut-off speed - Class 1 bicycle**: 20 mph
- **Shut-off speed - Class 3 bicycle**: 28 mph

*Table 1: Bicycle technical data*

Battery

- **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

*Table 2: Battery technical data*
Technical data

Command console with display

<table>
<thead>
<tr>
<th>Internal cell batteries</th>
<th>3 V, 90 mAh</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>CR2016</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>14 °F to 140°F</td>
</tr>
</tbody>
</table>

Table 3: Technical data for battery of the command console with display

<table>
<thead>
<tr>
<th>Emissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-weighted emission sound pressure level</td>
</tr>
<tr>
<td>Total vibration level for the hands and arms</td>
</tr>
<tr>
<td>Highest effective value of weighted acceleration for the entire body</td>
</tr>
</tbody>
</table>

Table 4: Emissions from the bicycle*

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

Tightening torque

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

Read these operating instructions before commissioning the bicycle in order to use all the functions correctly and safely. They are not a substitute for personal training by the BULLS specialist dealer. The operating instructions are a component part of the bicycle. Therefore, if it is resold at a later time, they must be handed over to the subsequent owner.

These operating instructions are mainly directed towards the rider and user of the bicycle. In general, they are technical laypersons.

Text passages which are directed expressly at specialist staff (e.g. bicycle mechanics), are clearly marked with a blue tool symbol.

Staff at all BULLS specialist dealers have specialist training and qualifications, and are therefore capable of identifying risks and preventing hazards which may arise during maintenance, servicing and repairs on the bicycle. Information for specialist staff does not require technical laypersons to take any action.

2.1 Manufacturer

The manufacturer of the bicycle is:

BULLS Bikes USA
11854 Alameda St
Lynwood, CA 90262

Tel.: (310) 763-0677

E-mail: contact@bullsbikesusa.com

Internet: www.bullsebikes.com
About these instructions

2.2 Laws, standards and directives
This electric bicycle complies with the ISO 4210 norm.

2.3 Other valid documents
These operating instructions are only complete in conjunction with the other valid documents.

The following document applies for this product:
• Charger operating instructions.

No other information is also applicable.

The constantly updated lists of approved accessories and parts are available to BULLS specialist dealers.

2.4 Subject to change
The information contained in these operating instructions are the approved technical specifications at the time of printing. Any significant changes are included in a new issue of the operating instructions.
2.5 **Language**

This operating instructions are written in English. A translation is not valid without this original operating instructions.
About these instructions

2.6 Identifying

2.6.1 Operating instructions

These operating instructions are printed in color. BULLS (BULLS Bikes USA) assumes no liability for copies of any kind, for example, black and white copies, loose pages or electronic copies.

Table 6: Identification of the operating instructions

2.6.2 Bicycle

This operating instructions are a component part of the following bicycles:

<table>
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<th>Type no.</th>
<th>Model</th>
<th>Bicycle type</th>
</tr>
</thead>
<tbody>
<tr>
<td>790-814XX</td>
<td>Twenty9 EVO 1</td>
<td>Class 1</td>
</tr>
<tr>
<td>598-094XX</td>
<td>Monster E S</td>
<td>Class 1</td>
</tr>
<tr>
<td>775-356XX</td>
<td>Twenty4 E</td>
<td>Class 1</td>
</tr>
<tr>
<td>785-855XX</td>
<td>Urban EVO</td>
<td>Class 3</td>
</tr>
<tr>
<td>770-404XX</td>
<td>Six50 E 2 Street</td>
<td>Class 3</td>
</tr>
</tbody>
</table>

Table 7: Type number, model and bicycle type categorisation
### About these instructions

<table>
<thead>
<tr>
<th>Type no.</th>
<th>Model</th>
<th>Bicycle type</th>
</tr>
</thead>
<tbody>
<tr>
<td>790-736XX</td>
<td>Six50 EVO AM 1</td>
<td>Class 1</td>
</tr>
<tr>
<td>785-732XX</td>
<td>Six50 EVO AM 2</td>
<td>Class 1</td>
</tr>
<tr>
<td>785-744XX</td>
<td>Six50 EVO AM 3</td>
<td>Class 1</td>
</tr>
<tr>
<td>785-747XX</td>
<td>Six50 EVO AM 4</td>
<td>Class 1</td>
</tr>
<tr>
<td>784-654XX</td>
<td>Aminga E TR1</td>
<td>Class 1</td>
</tr>
<tr>
<td>790-750XX</td>
<td>Aminga EVA TR2</td>
<td>Class 1</td>
</tr>
<tr>
<td>780-512XX</td>
<td>Monster E FS</td>
<td>Class 1</td>
</tr>
<tr>
<td>784-365XX</td>
<td>Cruiser E</td>
<td>Class 1</td>
</tr>
<tr>
<td>784-156XX</td>
<td>Cross E8 (ST)</td>
<td>Class 1</td>
</tr>
<tr>
<td>784-160XX</td>
<td>Cross E8 (Wave)</td>
<td>Class 1</td>
</tr>
<tr>
<td>780-868XX</td>
<td>Cross Mover Speed (Diam)</td>
<td>Class 3</td>
</tr>
<tr>
<td>780-870XX</td>
<td>Cross Mover Speed (ST)</td>
<td>Class 3</td>
</tr>
<tr>
<td>780-872XX</td>
<td>Cross Mover Speed (Wave)</td>
<td>Class 3</td>
</tr>
<tr>
<td>785-660XX</td>
<td>Six50 TR Street</td>
<td>Class 3</td>
</tr>
<tr>
<td>790-850XX</td>
<td>Cross Lite EVO (Diam)</td>
<td>Class 1</td>
</tr>
<tr>
<td>785-837XX</td>
<td>Cross Lite EVO (ST)</td>
<td>Class 1</td>
</tr>
<tr>
<td>790-854XX</td>
<td>Cross Lite EVO (Wave)</td>
<td>Class 1</td>
</tr>
<tr>
<td>785-599XX</td>
<td>Cross E (Wave)</td>
<td>Class 1</td>
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<tr>
<td>790-946XX</td>
<td>Twenty8 E45 (Diam)</td>
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<td>785-858XX</td>
<td>Grinder EVO</td>
<td>Class 3</td>
</tr>
<tr>
<td>790-738XX</td>
<td>Iconic EVO TR 1</td>
<td>Class 3</td>
</tr>
<tr>
<td>785-633XX</td>
<td>Sentinel</td>
<td>Class 3</td>
</tr>
</tbody>
</table>

**Table 7:** Type number, model and bicycle type categorisation
For your safety

The safety riding of the bicycle compromises four elements:

- the instruction of the rider and/or user, and maintenance and repair of the bicycle by the BULLS specialist dealer,
- the section on general safety,
- the warnings in this instructions and
- the safety marking on the type plate.

Instruction, training and customer service

The BULLS specialist dealer is in charge of the customer service. Contact details can be found on the back page of these operating instructions and in the data sheet. If you are unable to contact your specialist dealer, you will find a list of BULLS specialist dealers on www.bullsebikes.com

They will also be able to attend your customer service needs.

A BULLS specialist dealer commissioned to perform repairs and maintenance work receives regular training.

The rider or the user of the bicycle will be instructed in person about the functions of the bicycle, in particular its electrical functions and the correct use of the charger, at the time when the bicycle is handed over by the supplying BULLS specialist dealer.

Each rider or user, should receive instructions on the functions of the bicycle. The operating instructions must be handed to each rider in printed form and must be acknowledged and adhered to.
2.7.2 Basic safety notes

These operating instructions have a chapter with general safety notes [Chapter 3, page 21]. The chapter stands out because of its grey background.

2.7.3 Warnings

Hazardous situations and actions are marked with warnings. The warnings in these operating instructions are shown as follows:

<table>
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<th>SIGNAL WORD</th>
<th>Description of the danger and the consequences.</th>
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<tbody>
<tr>
<td>DANGER</td>
<td>Will lead to serious or even fatal injuries if ignored. High-risk hazard.</td>
</tr>
<tr>
<td>WARNING</td>
<td>May lead to serious or even fatal injuries if ignored. Medium-risk hazard.</td>
</tr>
<tr>
<td>CAUTION</td>
<td>May lead to minor or moderate injuries. Low-risk hazard.</td>
</tr>
<tr>
<td>NOTICE</td>
<td>May lead to material damage if ignored.</td>
</tr>
</tbody>
</table>

Table 8: Meanings of the signal words
About these instructions

2.7.4 Safety markings

The following safety markings are used on the type plates of the bicycle:

General warning

Adhere to the instructions for use

Table 9: Safety markings on the product

2.8 For your information

2.8.1 Instructions for actions

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

✓ Requirements (optional)

▶ Instruction for action

☞ Result of the action (optional)

2.8.2 Information on the type plate

Alongside the warnings, the type plates of the products also contain other important information on the bicycle:
About these instructions

1. only suitable for the road, no off-road riding or jumps
2. suitable for roads, off-road riding and jumps of up to 15 cm
3. suitable for rough off-road riding and jumps of up to 61 cm
4. suitable for rough off-road riding and jumps of up to 122 cm
5. suitable for the most difficult terrain

Table 10: Area of use

City and trekking bicycle
Child’s bicycle / bicycle for young adults
BMX bicycle
Mountain bike
Racing bicycle
Carrier bicycle
Folding bicycle

Table 11: Bicycle type
About these instructions

- 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 12: Further information on the product
About these instructions

2.8.3 Language conventions

The bicycle described in these operating instructions may be equipped with alternative components. The equipment of the bicycle is defined by the respective type number. If applicable, the notes *alternative equipment* and *alternative version* make reference to the use of alternative components.

*Alternative equipment* describes additional components which are not necessarily an integral part of every bicycle in these instructions.

*Alternative version* explains the various variants of components if they differ in use.

The following terms are used for better legibility:

<table>
<thead>
<tr>
<th>Term</th>
<th>Meaning</th>
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<tr>
<td>Operating instructions</td>
<td>Original operating instructions or translation of the original operating instructions</td>
</tr>
<tr>
<td>Bicycle</td>
<td>Electric motor driven bicycle</td>
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<tr>
<td>Motor</td>
<td>Drive motor</td>
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Table 13: Simplified terms

The following conventions are used in these operating instructions:

<table>
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<th>Use</th>
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<td><em>Italics</em></td>
<td>Entry in the index</td>
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<tr>
<td>SPACED</td>
<td>Displays on the <em>display screen</em></td>
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<tr>
<td>[Example, page numbering]</td>
<td>Cross references</td>
</tr>
<tr>
<td>•</td>
<td>Bulleted lists</td>
</tr>
</tbody>
</table>

Table 14: Conventions
2.9 Type plate

The type plate is situated on the frame. The type plate features the following information:

Figure 1: Type plate, example

<table>
<thead>
<tr>
<th></th>
<th>Identification</th>
<th>Classification</th>
<th>Maximum power output</th>
<th>Shut-off speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Identification</td>
<td>Classification</td>
<td>Maximum power output</td>
<td>Shut-off speed</td>
</tr>
<tr>
<td>2</td>
<td>Classification</td>
<td>Maximum power output</td>
<td>Shut-off speed</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Maximum power output</td>
<td>Shut-off speed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Shut-off speed</td>
<td></td>
<td></td>
<td></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.
3

3.1

Safety

Requirements for the rider

If there are no legal requirements for the rider 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 physical and mental abilities of the rider must be sufficient for the use of a muscle-powered bicycle.

If the bicycle is used by minors, as well as thorough instruction to be provided by or in the presence of the legal guardians, supervised use should also be scheduled until there is certainty that the bicycle is being used in accordance with these operating instructions. The legal guardians hold sole responsibility for determining whether minors are suitable to use the bicycle.

3.2

Proper use

The bicycle must only be used in perfect, fully functional condition. National requirements may apply to the bicycle which differ from the standard equipment. For riding on public roads, some special regulations apply in relation to running light, reflectors and other components.

The general laws and the regulations for the prevention of accidents and environmental protection in the respective country, state and/or city of use must be adhered to. Proper use also includes all instructions for actions and check lists in these operating instructions. Approved accessories can be installed by specialist staff.

Each bicycle is assigned to a bicycle type which determines the proper use.
3.2.1 City and trekking bicycle

City and trekking bicycles are designed for daily, comfortable use on asphalted roads and paths. They are suitable for riding on public roads.

City and trekking bicycles are not sports bicycles. If used for sports, reduced riding stability and diminished comfort are to be expected. City and trekking bicycles are not suitable for riding off-road.

3.3 Improper use

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

- riding with a damaged or incomplete bicycle,
- riding over steps,
- riding through deep water,
- lending the bicycle to untrained riders,
- carrying further passengers,
- riding with excessive luggage,
- riding with no hands,
- riding on ice and snow,
- improper servicing,
- improper repair,
- demanding areas of use, such as professional competition, and
- stunt riding or acrobatics.

3.4 Personal protective equipment

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

3.5 Hazards for vulnerable groups

The battery and the charger must be kept out of the reach of children.
3.6 Duty of care

The safety of the bicycle can only be assured if all the necessary measures are taken.

3.6.1 Rider

The rider:

• receives instruction before the first ride. He/she can clarify any questions relating to the operating instructions with the user or the BULLS specialist dealer.
• wears personal protective equipment.
• assumes all the responsibilities of the user when ridding the bicycle.
3.6.2 User

The user has the duty of care and responsibility for scheduling these measures and checking that they are implemented.

The user:

- makes these operating instructions available to the rider for the duration of use of the bicycle. If necessary, he translates the operating instructions into a language which the rider understands.
- familiarises the rider with the functions of the bicycle before the first ride. Only riders who have received instruction must be allowed to ride the bicycle.
- instructs the rider on proper use and the wearing of personal protective equipment.
- employs specialist staff only for maintenance and repair of the bicycle.

The declaration of conformity in the appendix is valid as long as the bicycle remains in original condition. As soon as the user makes any relevant modifications or additions, he legally becomes the manufacturer.
4 Description

4.1 Overview

Figure 2: Bicycle, viewed from the right, example of Six50

1. Front wheel
2. Fork
3. Front mudguard
4. Handlebars
5. Stem
6. Frame
7. Seat post
8. Saddle
9. Reflector
10. Pannier rack
11. Rear mudguard
12. Kickstand
13. Rear wheel
14. Chain
15. Frame number and type plate
16. Battery
4.2 Handlebars

![Detailed view of bicycle from rider position, example](image)

1. Front brake lever
2. Bell
3. Lamp
4. Front brake lever
5. **Command console with display**
6. Fork lock
7. Shifter
4.3 Wheel and fork

Figure 4: Components of the wheel, example of front wheel

1. Tire
2. Rim
3. Preload adjuster
4. Shock absorber
5. Spoke
6. Quick release
7. Hub
8. Valve
9. Fork end of the shock absorber

4.3.1 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 bicycle either has a classical Dunlop valve, a Presta valve or a Schrader valve.
4.3.2 Suspension

A suspension fork has two functions which improve the floor contact and the comfort: the suspension and the damping.

Figure 5: Bicycle without suspension (1) and with suspension (2) when riding over an obstacle

The suspension prevents an impact, e.g. caused by a stone lying in the way, from being directed directly into the rider's body via a fork. Instead, it is absorbed by the suspension system. This causes the suspension fork to compress. The compression can be disabled so that a suspension fork reacts like a rigid fork.

The compressed suspension fork then returns to its original position. The damper decelerates the movement and thus prevents the suspension system from springing back in an uncontrolled manner, and the fork from oscillating up and down.

Dampers which dampen the compressive deflection movements, i.e. the compression load, are called compression dampers or dashpots.
This model series features up to three different suspension and damping systems:

Figure 6: Arrangement of the suspension systems for the front wheel (I) and rear wheel (II)

1. Suspension system (steel suspension fork or air suspension fork)
2. Compression damper
3. Rebound damper
4. Fork housing
4.4 **Brake system**  
The bicycle’s brake system comprises:

- a rim brake on the front and rear wheels,
- a disc brake on the front and rear wheels or
- a rim brake on the front and rear wheels and an additional coaster brake.

4.4.1 **Rim brake**  
*(Alternative equipment)*

![Figure 7: Components of the rim brake with details, example](image)

<table>
<thead>
<tr>
<th>Number</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Rear wheel brake</td>
</tr>
<tr>
<td>2</td>
<td>Brake pad</td>
</tr>
<tr>
<td>3</td>
<td>Brake arm</td>
</tr>
<tr>
<td>4</td>
<td>Rim</td>
</tr>
<tr>
<td>5</td>
<td>Handlebars with brake levers</td>
</tr>
<tr>
<td>6</td>
<td>Front wheel brake</td>
</tr>
</tbody>
</table>

The rim brake stops the movement of the wheel when the rider pulls the *brake lever*, causing two brake pads, positioned opposite one another, to be pressed onto the *rims*. 
There are two alternative versions of the rim brake:

- the hydraulically operated rim brake and
- the cable-operated rim brake.

### 4.4.1.1 Locking lever

*(Alternative equipment)*

The bicycle with hydraulically operated rim brakes is equipped with a locking lever on both the front wheel brake and the rear wheel brake.

![Rim brake locking lever, on rear wheel (1) and front wheel (2)](image)

The locking levers are not labelled. The locking levers must only be set by a BULLS specialist dealer.
4.4.2 Disc brake
(Alternative equipment)

Figure 9: Bicycle brake system with a disc brake, example

1 Disc brake
2 Brake caliper with brake linings
3 Handlebars with brake levers
4 Front wheel disc brake
5 Rear wheel disc brake

On a bicycle with a disc brake, the brake rotor is fixed to the hub of the wheel. If the brake lever is pulled, the brake linings are pressed against the disc brake, and the movement of the wheel is stopped.
4.4.3 Coaster brake (Alternative equipment)

Figure 10: Brake system with a coaster brake, example

1 Rear wheel rim brake
2 Handlebars with brake levers
3 Front wheel rim brake
4 Pedal
5 Coaster brake

The coaster brake stops the movement of the rear wheel when the rider pedals in the opposite direction to the direction of travel.
Electric drive system

The bicycle is driven by muscle power via the chain drive. The force which is applied by pedaling in the direction of travel, drives the front chain ring. The chain transmits the force onto the cassette and then onto the rear wheel.

In addition, the bicycle has an integrated, electric drive system, with a command console with display.
The electric drive system is made up of six components:

**Figure 12:** Diagram of electric drive system

1. Lamp
2. Command console with display
3. Down tube battery
4. Rear light
5. Motor
   • a charger which is designed for this battery.

As soon as the required muscle power from the rider pedaling passes a certain level, the motor is activated gently and assists the pedaling motion of the rider. The motor force is determined by the set level of assistance.
The bicycle does not have a separate EMERGENCY STOP or EMERGENCY SHUT-OFF button. The drive system with removable display can be stopped in case of emergency by removing the display.

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 limit has been reached.

A pushing aid can be activated. The pushing aid continues to drive the bicycle as long as the rider pushes the plus button on the handlebars. The maximum speed in the process is 3.75 mph. The drive stops when the plus button is released.

4.5.1 Battery

The lithium ion battery has an internal electronic protection circuit. It is matched to the charger and the bicycle. The temperature of the battery is monitored constantly. The battery is safeguarded against deep discharge, overcharging, overheating and short circuit. In case of a risk the battery is switched off automatically by a protective circuit. The battery also switches to sleep mode for self-protection when not used for a longer period.

The service life of the battery can be extended if it is well cared for and, above all, stored at the correct temperatures. Even if the battery is cared for properly, the charge status of the battery reduces as it ages. If the operating time is severely shortened after charging, this is a sign that the battery is spent.
The bicycle has a down tube battery.

Table 15: Battery technical data

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</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>

Figure 13: Details of the down tube battery

1. Battery housing
2. Battery lock
3. Key for the battery lock
4. Battery lock cover
5. On-Off button (battery)
6. Operating and charge status indicator
7. Charging port cover
8. Port for charger plug
4.5.1.1 Operating and charge status indicator
The five green LEDs of the operating and charge status indicator indicate the charge status when the battery is switched on. Each LED represents 20% of the charge status. The charge status of the activated battery is also shown on the display.

If the charge status of the battery is below 5%, all the LEDs of the operating and charge status indicator go out. However, the charge status is still shown on the display.

4.5.2 Running light
When the running light is activated, the lamp and the rear light are switched on together.

4.5.3 Command console with display
The command console with display controls the drive system with four operating controls, and displays the journey data.

The bicycle’s battery supplies the command console with display with energy. The command console with display also has two internal non-rechargeable button cell batteries. This ensures that the system can be switched on using the command console with display.

<table>
<thead>
<tr>
<th>Internal button cell batteries</th>
<th>3 V, 90 mAh</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>CR2016</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>14 °F to 140 °F</td>
</tr>
</tbody>
</table>

Table 16: Technical data for battery of the command console with display
The pane of glass on the display may steam up from the inside in the event of abrupt temperature fluctuations. This is not a malfunction.

The command console with display has four buttons.

**Figure 14:** Overview of the command console with display

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Surname</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>WALK</strong></td>
</tr>
<tr>
<td>2</td>
<td>USB port</td>
</tr>
<tr>
<td>3</td>
<td>On-Off button</td>
</tr>
<tr>
<td>4</td>
<td>Display</td>
</tr>
<tr>
<td>5</td>
<td>+</td>
</tr>
<tr>
<td>6</td>
<td>–</td>
</tr>
</tbody>
</table>

**Table 17:** Overview of the command console with display
4.5.3.1 USB port

Test instruments can be connected to the USB diagnostics port to check the drive system. The USB diagnostics port does not have any other functions.

4.5.3.2 Displays

The command console with display has seven display screens:

![Figure 15: Overview of the screen displays](image)

<table>
<thead>
<tr>
<th>Use</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Unit of speed</td>
</tr>
<tr>
<td>2</td>
<td>Current speed</td>
</tr>
<tr>
<td>3</td>
<td>Function display</td>
</tr>
<tr>
<td>4</td>
<td>Running light symbol</td>
</tr>
<tr>
<td>5</td>
<td>Service symbol</td>
</tr>
<tr>
<td>6</td>
<td>Battery charge status</td>
</tr>
<tr>
<td>7</td>
<td>Level of assistance</td>
</tr>
</tbody>
</table>

Table 18: Overview of the screen display
Level of assistance

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

<table>
<thead>
<tr>
<th>Level of assistance</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>When the drive system is switched on, the motor assistance is switched off. The pushing aid cannot be activated with this level of assistance.</td>
</tr>
<tr>
<td>ECO</td>
<td>Low assistance</td>
</tr>
<tr>
<td>TOUR</td>
<td>Normal assistance</td>
</tr>
<tr>
<td>SPORT</td>
<td>Powerful assistance</td>
</tr>
<tr>
<td>TURBO</td>
<td>Maximum assistance</td>
</tr>
</tbody>
</table>

Table 19: Overview of levels of assistance

Current speed

In the system settings, you can select whether the speed is displayed in kilometres or miles.

Function display

The function display shows three different items of information:

- Journey information,
- System data and
- System messages.
Description

Journey information

The command console with display shows one of three items of journey information. The displayed item of journey information can be switched.

<table>
<thead>
<tr>
<th>Display</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRIP</td>
<td>Distance travelled since the last RESET</td>
</tr>
<tr>
<td>TOTAL</td>
<td>Display of the total distance travelled (cannot be changed)</td>
</tr>
<tr>
<td>RANGE</td>
<td>Anticipated range of the available battery charge, calculated based on the most recent manner of riding</td>
</tr>
</tbody>
</table>

Table 20: Journey information

System data

To view all the information on the system being used and the software, the rider has to call up the system data.

<table>
<thead>
<tr>
<th>Display</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>SERIENNUMMER DU</td>
<td>Serial number of the drive system</td>
</tr>
<tr>
<td>SERIENNUMMER HMI</td>
<td>Serial number of the command console with display</td>
</tr>
<tr>
<td>SW-VERSION HMI</td>
<td>Software version of the command console with display</td>
</tr>
<tr>
<td>SW-VERSION DU</td>
<td>Software version of the drive system</td>
</tr>
<tr>
<td>SW-VERSION PP</td>
<td>Software version of the battery</td>
</tr>
</tbody>
</table>

Table 21: System data, not changeable

System message

The drive system monitors itself continuously and if a fault is detected, it is indicated by a system message. The system may switch off automatically depending on the type of fault. There is a table of system messages in the appendix.
Transportation, storage and assembly

5 Transportation, storage and assembly

5.1 Transportation

**Crash caused by unintentional activation**

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

- Remove the battery before the bicycle is transported.

**Risk of fire and explosion due to high temperatures**

Excessively high temperatures damage the batteries. The batteries may self-ignite and explode.

- Never expose the battery to sustained direct sunlight.

**NOTICE**

If the bicycle is lying flat, oil and grease may leak from the bicycle.

If the shipping carton with a bicycle is lying flat or on one end, it does not provide sufficient protection from damage to the frame and the wheels.

- Only transport the bicycle in an upright position.

**NOTICE**

Bicycle rack systems which secure the bicycle standing on its head by the handlebars or frame, generate inadmissible forces on the components during transportation. This can cause the supporting parts to break.

- Never use bicycle rack systems which secure the bicycle standing on its head by the handlebars or frame.
Transportation, storage and assembly

- Take into account the weight of the complete bicycle when transporting it.
- Remove the display and the battery before transportation of the bicycle.
- Protect the electrical components and connections on the bicycle from the elements with suitable protective covers.
- Remove accessories, for example drinking bottles, before transportation of the bicycle.
- When transporting by car, you must use a suitable bicycle rack system.

The BULLS specialist dealer will advise you on how to select a suitable rack system properly and how to use it safely.

- Transport the bicycle in a dry, clean place which is protected from direct sunlight.

For shipping the bicycle, we recommend that you have the bicycle partially dismantled in the proper manner and packaged by the BULLS specialist dealer.
5.2 Storing

Risk of fire and explosion due to high temperatures

Excessively high temperatures damage the battery. The battery may self-ignite and explode.

Never expose the battery to sustained direct sunlight.

If the bicycle is lying flat, oil and grease may leak from the bicycle.

If the shipping carton with a bicycle is lying flat or on one end, it does not provide sufficient protection from damage to the frame and the wheels.

Only store the bicycle in an upright position.

Store the bicycle, battery and charger in a dry and clean place.

<table>
<thead>
<tr>
<th>Storage temperature</th>
<th>41 °F - 77 °F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ideal storage temperature</td>
<td>50°F - 59°F</td>
</tr>
</tbody>
</table>

Table 22: Storage temperature for the battery, the bicycle and the charger

5.2.1 Break in operation

The battery discharges when it is not used. This can cause damage to the battery.

The battery has to be recharged every 8 weeks.

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

Do not connect the battery to the charger permanently.
Transportation, storage and assembly

5.2.1.1 Preparing a break in operation

- Remove the battery from the bicycle.
- Charge the battery to around 60% (three to four LEDs of the charge status indicator light up).
- The bicycle has 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 for the BULLS specialist dealer to carry out servicing, basic cleaning and to apply preservative agent.

5.2.1.2 Carrying out break in operation

- Store the bicycle, battery and charger in a dry and clean environment.
- Charge the internal battery in the display every 3 months for at least 1 hour.
- Check the charge status of the battery after 8 weeks. If only one LED of the charge status indicator lights up, recharge the battery to around 60%.

**NOTICE**

The internal battery in the display discharges when it is not used. This can cause it to be irreparably damaged.

- Charge the internal battery in the display every 3 months for at least 1 hour.

If the bicycle is to be removed from service for longer than four weeks, e.g. in winter, a break in operation has to be prepared.
Transportation, storage and assembly

5.3 Assembly

**CAUTION** Crushing caused by unintentional activation

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

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

- Assemble the bicycle in a clean and dry environment.

- The working environment should have a temperature of 59°F - 77°F.

<table>
<thead>
<tr>
<th>Working environment temperature</th>
<th>59°F - 77°F</th>
</tr>
</thead>
</table>

**Table 23:**

Working environment temperature

- If a fitting stand is used, it must be approved for a weight of at least 66 lbs.

- To reduce the weight, we recommend that you always disconnect the battery from the bicycle for the duration of use of the fitting stand.

- Universal tools, a torque wrench with an operating range of 5 Nm to 40 Nm and the special tools, as recommended by BULLS, must be available.

5.3.1 Unpacking

**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.
Transportation, storage and assembly

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

5.3.2 Scope of delivery

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

The scope of delivery includes:

- the bicycle, 98% pre-assembled,
- the front wheel,
- the battery or batteries,
- the charger,
- the pedals,
- the operating instructions.

5.3.3 Commissioning

Fire and explosion caused by incorrect charger

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

- Only ever use the battery with the supplied charger.
- To prevent mix-ups, mark the supplied charger and these operating instructions clearly, for example with the frame number or type number of the bicycle.

Given that initial commissioning of the bicycle requires special tools and specialist knowledge, it must be performed by trained specialist staff only.

Experience has shown that a bicycle which has not yet been sold, is spontaneously handed to consumers as soon as it appears ready to ride.

- Every bicycle must be prepared so that it is in fully usable condition immediately after being set up.
Transportation, storage and assembly

Initial commissioning includes the following work:

► Check the battery [Chapter 5.3.3.1, page 50].

► The battery is supplied partially charged. In order to guarantee full power, charge the battery fully.

► Install the wheels with quick release and the pedals.

► Move the handlebars and saddle into the functional position.

► Check all the components to make sure that they are firmly in place.

► Check all the settings and the tightening torque of the axle nuts.

<table>
<thead>
<tr>
<th>Axle nut tightening torque</th>
<th>35 Nm - 40 Nm</th>
</tr>
</thead>
</table>

Table 24:

► Check the entire cable harness to make sure that it is routed properly:

- You must prevent the cable harness from coming into contact with moving parts.
- The cable routes must be smooth and free from sharp edges.
- Moving parts must not apply any pressure or tension to the cable harness.

► Set the lamp.

► Check the drive system, the light equipment and the brakes to make sure that they are fully functional and effective.

► Set the language to English and imperial measurement units.

► Check the software version of the drive system and update it as necessary.
Transportation, storage and assembly

Sale of the bicycle

- Fill out the data sheet on the first page of the operating instructions.
- Adjust the bicycle to the rider.
- Set the kickstand and the shifter, and show the purchaser the settings.
- Instruct the user or rider how to use all the functions of the bicycle.

5.3.3.1 Checking the battery

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

- Press the On-Off button (battery).

⚠ If none of the LEDs on the operating and charge status indicator light up, the battery may be damaged.

⚠ If at least one of the LEDs of the operating and charge status indicator lights up, but not all of them, the battery can be charged.

5.3.4 Installing the wheels with quick release

Crash caused by unfastened quick release

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

- Install the front wheel quick release lever on the opposite side to the disc brake.
Transportation, storage and assembly

**Crash caused by faulty or incorrectly installed quick release**

The disc brake becomes very hot during operation. Parts of the quick release may become damaged as a result. The quick release may loosen up and ultimately this could result in a crash accident.

- The front wheel quick release lever and the brake rotor 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 result in a crash and 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.
- Insert the hub in the fork end of the fork so that it rests fully in place.
- Push the opened clamping lever with the wheel axle from the right-hand side through the hub.
- Clamp the wheel and set the clamping force, depending on the version.
6 Adjusting the bicycle to the rider

The BULLS specialist dealer checks all the factory settings and, when the bicycle is sold, adapts the settings of the saddle, handlebars, suspension fork and the spring damper elements to the rider.

6.1 Adjusting the saddle

6.1.1 Determining the seat height

Crash caused by an excessively high seat post setting

A seat post which is positioned too high could cause the seat post or the frame crack and break. This will result in a crash accident with injuries.

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

Figure 16: Detailed view of the seat post, examples of the minimum insertion depth marking

1 III marking for minimum insertion depth
2 Seat post I
3 Seat post II
4 MIN marking for minimum insertion depth
Adjusting the bicycle to the rider

From an ergonomic point of view, the seat height should be set so that the heel touches the lowest point of the pedal when the leg is outstretched.

**Figure 17:**
Determining the saddle height

6.1.2 Clamp the seat post with the quick release

The BULLS specialist dealer demonstrates the function of the quick release to the rider or user.

**Figure 18:**
Seat post quick release in the final position

1. Seat post clamping lever
2. Seat post
3. Knurled nut
Adjusting the bicycle to the rider

**Clamping**

✓ Only clamp the *seat post* when the bicycle is stationary.

The *seat post clamping lever* is not marked with any lettering. You can tell whether it is open or closed from its shape.

• To close it, push the *seat post clamping lever* as far as it will go into the *seat post*.
• To open it, pull the *seat post clamping lever* away from the *seat post*.

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

6.1.3 **Adjusting the sitting position and saddle tilt**

Special tools are required to adjust the seat length and the saddle tilt. The BULLS specialist dealer adjusts the saddle setting to the rider.

6.2 **Setting the handlebars**

✓ The handlebars setting must only be made while the bicycle is stationary.

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

**Maximum tightening torque for the clamping screws of the handlebars**

\[5 \text{ Nm} - 7 \text{ Nm}\]

*if there is no other data on the component*

Table 25: Handlebars clamping screw maximum tightening torque
6.3 Setting the stem with quick release
(Alternative version)

**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 result in a crash and 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 for the quick release on the stem.
- 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.
- Check the clamping force of the quick releases.

---

![Closed clamping lever (2) with knurled nut (3) and locking lever (1) on the stem](image)

**Figure 19:** Closed clamping lever (2) with knurled nut (3) and locking lever (1) on the stem
6.4 **Checking the clamping force of the quick releases**

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

- 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.

**Setting the clamping force**

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

- If the clamping force of the *clamping lever on the seat post* is not sufficient, screw in the *knurled nut*.

If the clamping force cannot be set, the BULLS specialist dealer will need to check the quick release.
6.5 Basic setting for suspension and damping

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 recommendable 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.

6.5.1 Adjusting the hardness of the spring elements

6.5.1.1 Adjusting the hardness of the steel suspension fork

✓ Only make the steel suspension fork setting with the bicycle stationary.

- The setting wheel may be located under a plastic cover on the head of the left-hand shock absorber. Remove the plastic cover by pulling it off upwards.

Figure 20: Suspension fork setting wheel, example

- Use the setting wheel on the left-hand suspension fork head to adjust the hardness of the steel suspension fork. Adjust the hardness of the steel suspension fork by turning the setting wheel in the plus or minus direction.

芼 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.

- If applicable, re-attach the plastic cover after setting the suspension fork.
Adjusting the bicycle to the rider

6.5.1.2 Adjusting the hardness of the air suspension elements

**NOTICE**

Riding without filling pressure will destroy the suspension, the frame, and the air suspension components.

- Never ride without filling pressure in the air suspension elements.

**NOTICE**

A normal air pump cannot build up the required pressure with sufficient sensitivity.

- Use a special suspension pump to adjust the filling pressure.

6.5.1.3 Front wheel

- Only make the air suspension fork setting with the bicycle stationary.

- The fork valve is located underneath a screw cover on the head of the left-hand fork tube. Unscrew and remove the screw cover.

**Figure 21:** Fork valve, example

- Set the filling pressure using the filling pressure recommendations on the air suspension fork as the initial value.

- Set the O-rings on the stanchion or the piston to the minimum possible deflection.

- Sit on the bicycle and dismount again.

- Read the position of the displaced O-ring.
Adjusting the bicycle to the rider

- The ideal setting for the weight of the rider has been achieved when the measured position is between 20 - 30%.

  - For fine setting, adjust the filling pressure using the fork valve.
  - Screw the screw cover back on.

**Rear wheel**

  - Unscrew the valve cap from the rear wheel damper valve.
  - Push the O-ring on the dial directly onto the housing of the suspension damping element.
  - Sit on the bicycle and dismount again.
  - Read the position of the displaced O-ring.

- The ideal setting for the weight of the rider has been achieved when the measured position is between 20 - 30%.

  - If the setting is incorrect, adjust the filling pressure using the suspension damping element valve:
    - If the pressure is too high, let out air
    - If the pressure is too high, carefully pump up the suspension damping element.
  - Screw the valve cap back on.
Adjusting the bicycle to the rider

Figure 22: Setting the hardness on the suspension damping element

1  Dial
2  Valve cap on suspension damping element
3  O-ring
6.5.2 Setting the rebound damper

Front wheel

The rebound damper for the front wheel is situated on the fork leg. It may be marked with either hare/tortoise symbols or plus and minus symbols.

Open the rebound damper completely. To do so, turn the setting bolt all the way towards the hare symbol or the minus symbol.

Stand next to the bicycle. Deflect the fork as far as possible by pushing down the handlebars.

Release the handlebars abruptly.

The ideal setting for the rebound damper has been achieved when the wheel maintains contact with the floor when springing back.
Adjusting the bicycle to the rider

- If the wheel loses contact with the floor, turn back in small steps towards the tortoise symbol or plus symbol.

**Rear wheel**

The rebound damper for the rear wheel is situated on the suspension damping element.

![Setting the hardness on the suspension damping element](image)

1 Setting wheel
2 Hare symbol
3 Tortoise symbol

- Set the setting wheel to the middle position between the hare and the tortoise symbols.
- Ride over a small obstacle with the bicycle.
- 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 springs much quicker or slower than the front wheel, change the setting by turning the setting wheel.
6.5.3 Setting the compression damper

The basic setting only has to be determined for compression dampers which have to be set with multiple clicks. A setting of 5 clicks is recommended as the basic setting.

<table>
<thead>
<tr>
<th>Response of the damper</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>sensitive</td>
<td>select opened damping or low pressure level</td>
</tr>
<tr>
<td>soft or delayed</td>
<td>moderately closed pressure level</td>
</tr>
</tbody>
</table>

Table 26: Setting the compression damper

- Set the ideal basic setting using the locking lever.

Figure 25: Compression damper with locking lever (1), example
6.6 Setting the grip distance of the brake lever (Alternative version)

6.6.1 Hydraulically operated rim brake (Alternative equipment)

**CAUTION**

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 result in a crash and injuries.

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

- Never adjust the position of the brake cylinder without special tools. Have a BULLS specialist dealer carry out the adjustment.

- Set the slider to one of the three positions with the brake lever gently applied.
- The rider can use the brake lever comfortably.

Figure 26: Brake lever with slider (1) and its three positions (2)
6.6.2 Hydraulically operated disc brake
(Alternative equipment)

» Set the grip distance using the knurled screw on the brake lever.
⇒ The rider can use the brake lever comfortably.

Figure 27: Brake lever (1) with knurled screw (2)
7 Operation

Crash caused by loose clothing

⚠️ CAUTION ⚠️
Laces, scarves and other loose items may become entangled in the spokes on the wheels and the chain drive. This may result in a crash and injuries.

► Wear sturdy footwear and close-fitting clothing.

Crash caused by accumulated dirt

⚠️ CAUTION ⚠️
Accumulated dirt can disrupt the functions of the bicycle, e.g. the functions of the brakes, lighting or reflectors. This may result in a crash and injuries.

► Remove accumulated dirt before riding.

Crash caused by poor road conditions

⚠️ CAUTION ⚠️
Loose objects, for example, branches and twigs, may become caught in the wheels and cause a crash.

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

When riding on a downhill bicycle, high speeds may be reached. The bicycle is only engineered for exceeding a speed of 20 mph (class 1) or 28 mph (class 3) briefly. In particular the tire can fail if exposed to a continuous load.

► Decelerate the bicycle with the brakes if higher speeds are reached.

NOTICE

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

► Never park the bicycle in the sun.
► On hot days, regularly check the tire pressure and adjust it as necessary.
Paths in poor condition subject the joints in the arms to severe strain. Take a break from riding every 30 to 90 minutes, depending on the condition of the roads.
7.1 Before each ride

Crash caused by unidentified damage

After a crash, accident or if the bicycle falls over, there may be barely identifiable damage, e.g. to the brake system, the quick releases or the frame. This may result in a crash and injuries.

- Remove the bicycle from service and have a BULLS specialist dealer carry out an inspection.

Crash caused by material fatigue

A component may suddenly fail in case of material fatigue. This may result in a crash and injuries.

Remove the bicycle from service immediately in case of any signs of material fatigue. Have a BULLS specialist dealer check the situation.

- Have the BULLS specialist dealer carry out basic cleaning regularly. During basic cleaning, the BULLS specialist dealer inspects the bicycle for any signs of material fatigue.

- Check the bicycle before each ride.

☞ In case of any discrepancies from the Check list before each ride, or any anomalies of any kind, the bicycle must not be used until the cause has been clarified.
Check list before each ride

- Check that the bicycle is complete.
- 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 bicycle has been transported or secured with a lock.
- Check the valves and the tire pressure. Adjust as necessary before each ride.
- Check the front and rear wheel brakes to make sure that they are working properly. To do so, operate the brake levers while the bicycle is stationary in order to check whether resistance is generated in the usual brake lever position.
- Check that the running light is working.
- Check for unusual noises, vibrations, smells, discolouration, deformation, abrasion and wear. This indicates material fatigue.
- Watch out for any unusual operating sensations when braking, pedaling or steering.
- Check the quick releases to make sure that they are fully closed in their final position.
- On a bicycle with a hydraulic rim brake, check whether the locking levers are fully closed in their final positions.
7.2 Using the kickstand

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 the ride.

Because of the heavy weight of the bicycle, the kickstand may sink into soft ground, the bicycle may topple and fall over.

- The bicycle must only be parked on level, firm ground.

- It is particularly important to check the stability if the bicycle is equipped with accessories or loaded with luggage.

- Before the ride, raise the kickstand completely with your foot.
7.3 Using the pannier rack
(Alternative equipment)

Crash caused by loaded pannier rack

The riding performance of the bicycle changes with a loaded pannier rack, in particular when steering and braking. This can lead to a loss of control. This may result in a crash and injuries.

▶ You should practice how to use a loaded pannier rack safely and reliably before using the bicycle in public spaces.

Crash caused by unsecured luggage

Loose or unsecured objects on the pannier rack, e.g. belts, may become caught in the rear wheel. This may result in a crash and injuries.

Objects which are fastened to the pannier rack may cover the bicycle’s reflectors and the running light. The bicycle may be overseen on public roads. This may result in a crash and injuries.

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

▶ Objects fastened to the pannier rack must never cover the reflectors, the lamp 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.
Operation

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

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

- Distribute the luggage as evenly as possible on the left and right-hand side of the bicycle.
- We recommend the use of panniers and luggage baskets.
7.4 Battery

Risk of fire and explosion due to faulty battery

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

- Remove batteries with external damage from service immediately and never charge them.
- 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.
- If a battery is dropped or struck but shows no signs of external damage, remove the battery 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.

Risk of fire and explosion due to high temperatures

Excessively high temperatures damage the battery. The battery may self-ignite and explode.

- Never expose the battery to sustained direct sunlight.
Operation

Fire and explosion caused by short circuit
Small metal objects may jumper the electrical connections of the battery. The batteries may self-ignite and explode.

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

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.
- 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.

Fire and explosion caused by 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.
- If there is reason to believe that water may enter into the battery, the battery must be removed from service.
If a key is left inserted when transporting the bicycle, or when riding, it may break off or the compartment may open accidentally.

- Remove the key from the battery lock immediately after use.
- We recommend that you attach the key to a key ring, for example.

7.4.1 Down tube battery
(Alternative version)

✓ Before the battery is to be removed or inserted, switch off the battery and the drive system.

7.4.1.1 Removing the down tube battery

- Open the battery lock with the key.
- Tip the down tube battery out of the top mount.
- Pull the down tube battery out of the bottom mount.

7.4.1.2 Inserting the down tube battery

- Place the down tube battery on the contacts in the bottom mount.
- Remove the key from the lock.
- Tip the battery into the top mount as far as it will go.
  ➔ There is an audible clicking noise.
- Check the battery to make sure it is firmly in place.
7.4.2 Pannier rack battery  
(Alternative version)

✓ Before the battery is to be removed or inserted, switch off the battery and the drive system.

7.4.2.1 Removing the pannier rack battery

► Open the battery lock with the key.

► Pull the pannier rack battery backwards and out of the pannier rack battery mount.

7.4.2.2 Inserting the pannier rack battery

► Remove the key from the lock.

► Insert the pannier rack battery into the pannier rack battery mount with the contacts first so that it clicks into place.

► Check the battery to make sure it is firmly in place.

7.4.3 Integrated battery  
(Alternative version)

✓ Before the battery is to be removed or inserted, switch off the battery and the drive system.

7.4.3.1 Removing the integrated battery

► Open the battery lock with the key.

◊ The integrated battery is released and falls into the retainer guard.

► Support the battery from below with your hand. Use the other hand to push on the retainer guard from above.

◊ The integrated battery is completely released and falls into your hand.

► Pull the integrated battery from the frame.

► Remove the key from the lock.
7.4.3.2 Inserting the integrated battery

- Place the battery in the bottom mount with the contacts first.
- Flip the integrated battery up so that it is held by the retainer guard.
- Push the integrated 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.

7.4.4 Charging the battery

**CAUTION**

**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.

**CAUTION**

**Electric shock caused by penetration by water**
If water penetrates into a charger, there is a risk of electric shock.

- Never charge the battery outdoors.
Operation

**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.

- The ambient temperature during the charging process must be within the range from 50°F to 86°F.

<table>
<thead>
<tr>
<th>Charging temperature</th>
<th>50°F - 86°F</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ The battery can remain on the bicycle or be removed for charging.</td>
<td></td>
</tr>
<tr>
<td>✓ Interrupting the charging process does not damage the battery.</td>
<td></td>
</tr>
<tr>
<td>✓ On a bicycle which is equipped with two batteries, the charging process for both batteries is started from the pannier rack battery.</td>
<td></td>
</tr>
</tbody>
</table>

- Remove the rubber cover from the battery.

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

<table>
<thead>
<tr>
<th>Connection data</th>
<th>230 V, 50 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Connect the charging cable to the battery’s charging port.</td>
<td></td>
</tr>
<tr>
<td>✉ The charging process starts automatically.</td>
<td></td>
</tr>
<tr>
<td>✉ During the charging process the operating and charge status indicator indicates the charge status. When the drive system is switched on, the display shows the charging process.</td>
<td></td>
</tr>
<tr>
<td>✉ The charging process is complete when the LEDs of the operating and charge status indicator go out.</td>
<td></td>
</tr>
</tbody>
</table>
Risk of fire and explosion caused by damaged batteries. The safety electronics on damaged or faulty batteries may fail. The residual voltage can cause a short circuit. The batteries 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 damaged batteries with water or allow them to come into contact with water.

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

Waking the battery

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

▶ Press the On-Off button (battery).

▶ The battery's operating and charge status indicator indicates the charge status.
7.5 Electric drive system

7.5.1 Switching on the drive system

Crash caused by lack of readiness for braking

A drive system which has been switched on 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 on the bicycle.
- The battery is firmly in place. The key has been removed.
- After switching off, the drive system shuts down. It is possible to switch back on immediately. Wait a moment as necessary.

There are two options for switching on the drive system.

1 Battery On-Off button
   - Press the On-Off button (battery) once.

2 Display On-Off button
   - Press the On-Off button (command console with integrated display) once.

- If the drive system is switched on, the drive is activated as soon as the pedals are moved with sufficient force.
7.5.2 Switching off the drive system

The system switches off automatically ten minutes after the last command. The are two options for switching off the drive system manually.

1 Display On-Off key
   ▶ Press the On-Off button (command console with integrated display) once.

2 Battery On-Off key
   ▶ Press the On-Off button (battery).
Operation

7.6 Command console with display
(Alternative version)

7.6.1 Using the USB diagnostics port

Test instruments can be connected to the USB diagnostics port to check the drive system. The USB diagnostics port does not have any other functions.

- Never connect a charger or current consumer (e.g. mobile phone or computer) to the USB diagnostics port.

7.6.2 Using the pushing aid

The pushing aid provides the rider with assistance when pushing the bicycle. The maximum speed in the process is 3.75 mph.

- The tractive power of the pushing aid and its speed can be influenced by the selection of gear. To spare the drive, first gear is recommended for travelling uphill.

- The level of assistance OFF must not be selected.

- Press the **pushing aid button** once, holding it for less than a second, to activate the pushing aid.

- Press and hold the **plus button** within three seconds.

- The motor starts.
Switching off the pushing aid

The pushing aid is switched off in case of three events.

- The plus button is released.
- The wheels are blocked.
- At speeds above 3.75 mph

7.6.3 Using the running light

✔ To switch on the running light, the drive system has to be switched on already.

► Press and hold the plus button for around two seconds.

☞ The running light is switched on, the running light symbol is displayed.

► Press and hold the plus button for longer than three seconds.

☞ The running light is switched off, running light symbol is not displayed.

7.6.4 Selecting the level of assistance

► Press the plus button once, holding it for less than one second.

☞ The level of assistance is increased.

► Press the minus button, holding it for less than one second.

☞ The level of assistance is reduced.

7.6.5 Journey information

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

7.6.5.1 Switching the displayed journey information
➤ Press and hold the **minus button** *(command console with display)* again for around two seconds, until the desired item of **journey information** is displayed.

7.6.5.2 Resetting the journey distance
➤ Press and hold the **plus** and **minus buttons** simultaneously for around three seconds.

➤ **RESET** is shown on the display.

➤ Continue to press the **plus** and **minus buttons** together.

➤ The item of journey information **TRIP** is reset.

7.6.5.3 Changing the unit for speed
The speed can be displayed in either kilometres or miles.

➤ Press and hold the **minus button** *(command console with display)* for longer than three seconds.

➤ Press the **On-Off button** *(command console with integrated display)*, holding it for less than one second.

➤ The speed display changes to the other unit.

7.6.5.4 Displaying system data
✔ The drive system is switched off.

➤ Press the **plus** and **minus buttons** simultaneously.

➤ After three seconds, press the **On-Off button** *(command console with integrated display)*.

➤ Press the **plus** or **minus button** repeatedly until the desired item of system data is displayed.
7.7 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 pedaling frequency is between 40 and 60 revolutions per minute.

➤ Select the appropriate gear with the *gear shift shifter*.

 رسول The gear shift switches the gear.
7.8 Brakes

Crash caused by incorrect use
Handling the brake improperly can lead to loss of control or crashes, which may result in injuries.

- Shift your weight back and down as far as possible.
- Practise braking and emergency braking before the bicycle is used in public spaces.

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 after cleaning, servicing or repair
After cleaning, servicing or repairing the bicycle, the braking effect may be temporarily unusually weak. This may result in a crash and injuries.

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

Burns caused by heated brake
The brakes may become very hot during operation. There is a risk of burns in case of contact.

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

7.8.1 Using the brake

- Pull the brake lever until the desired speed has been reached.
7.8.2 Using the coaster brake (Alternative 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.
7.9 Suspension and damping

7.9.1 Locking the front wheel suspension (Alternative equipment)

When the fork lock is in the open position, the suspension system has activated suspension and thus provides the rider and the bicycle with relief. Riding with the fork lock open should therefore be preferred for everyday riding.

When riding downhill or at high speed, for instance, the force which is exerted on the drive is absorbed by the suspension system and reduced by up to 50%. In these cases it is recommendable to close the suspension fork.

The fork lock may be situated directly on the fork or on the handlebars, depending on the version.

7.9.1.1 Fork lock on the suspension head

In order to lock the front wheel suspension, shift the locking lever to the LOCK position.

In order to release the front wheel suspension, shift the locking lever to the OPEN position.

Figure 28: Fork lock on the suspension for head with locking lever (1), example
7.9.1.2 Locking lever on handlebars, version I

- To lock the suspension system, push the locking slider out of the pushed-in position.

- The locking slider stops in the pushed-out position. A padlock symbol indicates that the fork lock is locked.

To release the front wheel suspension, push the locking slider out of the pushed-out position.

- You can tell that the fork lock is open if the locking slider is pushed in.

Figure 29: Fork lock on handlebars, version I, with locking slider (1)

7.9.1.3 Locking lever on handlebars, version II

- To lock the suspension systems, push the black locking lever. The locking lever features a closed padlock symbol.

- To release the front wheel suspension, push the blue unlocking lever.

- The unlocking lever features an open padlock symbol.

Figure 30: Fork lock on handlebars, version II, with locking lever (1) and unlocking lever (2) (example)
7.9.1.4 Fork lock on handlebars, version III

- To lock or release the front wheel suspension, push the long lever.
- To reset the function of the long lever, push the short lever.

Figure 31: Fork lock on handlebars, version III, with long lever (1) and short lever (2), example

7.9.1.5 Fork lock on handlebars, version IV

- To lock the front wheel suspension, push the locking lever upwards.
- To release the front wheel suspension, push the unlocking knob.

Figure 32: Fork lock on handlebars, version IV, with locking lever (1) and unlocking knob (2)

7.9.1.6 Fork lock on handlebars, version V

- To lock the front wheel suspension, push the upper locking lever.
Operation

⇒ The locking lever features a closed padlock symbol.

▶ To release the front wheel suspension, push the side unlocking lever.

⇒ The side unlocking lever features an open padlock symbol.

Figure 33: Fork lock on handlebars, version V, with locking lever (1) and unlocking lever (2)

7.9.2 Locking the compression damper

▶ In order to lock the suspension, turn the locking lever in the plus direction.

▶ In order to release the suspension, turn the locking lever in the minus direction.

Figure 34: Compression damper with locking lever (1), example
## Maintenance

### Cleaning check list

<table>
<thead>
<tr>
<th>Task</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lubricating the chain</td>
<td>once a month</td>
</tr>
<tr>
<td>Cleaning the battery</td>
<td>once a month</td>
</tr>
<tr>
<td>Basic cleaning and preservation of all components</td>
<td>at least every six months</td>
</tr>
<tr>
<td>Cleaning the charger</td>
<td>at least every six months</td>
</tr>
</tbody>
</table>

### Maintenance check list

<table>
<thead>
<tr>
<th>Task</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Checking the position of the USB rubber cover before each ride</td>
<td></td>
</tr>
<tr>
<td>Checking for tire wear</td>
<td>once a week</td>
</tr>
<tr>
<td>Checking for rim wear</td>
<td>once a week</td>
</tr>
<tr>
<td>Checking the tire pressure</td>
<td>once a week</td>
</tr>
<tr>
<td>Checking for brake wear</td>
<td>once a month</td>
</tr>
<tr>
<td>Checking the electrical cables and Bowden cables for damage and to make sure they are fully functional</td>
<td>once a month</td>
</tr>
<tr>
<td>Checking the chain tension</td>
<td>once a month</td>
</tr>
<tr>
<td>Checking the tension of the spokes</td>
<td>every three months</td>
</tr>
<tr>
<td>Checking the gear shift setting</td>
<td>every three months</td>
</tr>
<tr>
<td>Checking the suspension fork for wear and to make sure it is fully functional</td>
<td>every three months</td>
</tr>
</tbody>
</table>

### Service check list

<table>
<thead>
<tr>
<th>Task</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service by the specialist dealer</td>
<td>every six months</td>
</tr>
</tbody>
</table>
8.1 Cleaning and servicing

8.1.1 Battery

Fire and explosion caused by 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.
- Never immerse the battery in water.
- Remove the battery from the bicycle before cleaning.

- Only clean the electrical connections of the battery with a dry cloth or brush.
- Wipe off the decorative sides with a damp cloth.

8.1.2 Display

NOTICE

If water enters into the display, it will be destroyed.

- Never immerse the display in water.
- Remove the display from the bicycle before cleaning.

Crash and falling caused by unintentional activation

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

- Remove the battery before cleaning.

The following servicing measures must be carried out regularly [Check list, page 92]. Servicing can be performed by the user and rider. In case of any doubt, consult the BULLS specialist dealer.
Maintenance

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

### 8.1.3 Basic cleaning and preservation

#### Crash caused by brake failure

**CAUTION**

After cleaning, servicing or repairing the bicycle, the braking effect may be temporarily unusually weak. This may result in a crash and injuries.

- Never apply care products or oil to the brake disks or brake pads, 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. The lubricant inside is diluted, the friction increases and, as a result, the bearings are destroyed in the long term.

- Never clean the bicycle with a steam jet.

**NOTICE**

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

- Never apply grease or oil to the clamping areas.

- Clean the bicycle with a damp cloth. Mix a little neutral soap with the cleaning water.
- Then use wax or oil on the bicycle as a preservative agent.

### 8.1.4 Chain

**NOTICE**

- Clean and lubricate the chain and the chain wheels using the stipulated care products.
8.2 Maintenance

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 carried out regularly [Check list, page 92]. They can be carried out by the user and rider. In case of any doubt, consult the BULLS specialist dealer.

8.2.1 Wheel

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

- Check the tire pressure against the specifications [Data sheet, page 1]
- Adjust the tire pressure as necessary.

- Check the tire wear.
- Check the rim 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 becomes invisible. We recommend that you also replace the rims with every second brake lining replacement.
- Check the tension of the spokes.
8.2.2 Brake system

- On bicycles with a rim brake, check the position of the brake pads. The brake pads must be aligned exactly to the rims. Replace the brake pads on the rim brake when the profile (check notches) has reached a remaining depth of 1 mm.
- Replace the brake linings on the disc brake when the pad thickness has reached 0.5 mm.

8.2.3 Electrical cables and brake cables

- Check all visible electrical cables and brake cables for damage. If, for example, the sheathing is compressed, the bicycle will need to be removed from service until the brake cables have been replaced.
- Check all electrical cables and Bowden cables to make sure they are fully functional.

8.2.4 Gear shift

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

8.2.5 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.
8.2.6 **Chain or belt tension**

Excessive chain or belt tension increases wear. If the chain or belt tension is too low, there is a risk that the chain or belt will slip off the chain wheels.

- Check the chain and belt tension once a month.

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

  - If the chain or the belt can be pushed more than 2 cm, the chain or belt will need to be tensioned again by the BULLS specialist dealer.
  
  - If the chain or the belt can only be pushed less than 1 cm, the chain or belt will need to be relieved of tension accordingly.

The ideal chain or belt tension has been achieved if the chain or the 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.

![Figure 35: Checking the chain and belt tension](image)

2 cm
**Maintenance**

**8.3 Service**

**Crash and falling caused by unintentional activation**

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

- Remove the battery before the service.

**Crash caused by material fatigue**

If the service life of a component has expired, the component may suddenly fail. This may result in a crash and injuries.

- Have the BULLS specialist dealer carry out six-monthly basic cleaning of the bicycle, preferably at the same time as the stipulated servicing work.

A service must be performed by the BULLS specialist dealer at least every six months [Check list, page 92]. This is the only way to ensure that the bicycle remains safe and fully functional.

- During basic cleaning, the BULLS specialist dealer inspects the bicycle for any signs of material fatigue.

- The BULLS specialist dealer checks the software version of the drive system and updates it. The electrical connections are checked, cleaned and preservative agent is applied. The electrical cables are inspected for damage.

- The further servicing measures correspond to those which are recommended for a bicycle as per ISO 4210. Particular attention is paid to the rim and brake wear. The spokes are re-tightened in accordance with the findings.
Maintenance

8.4 Correcting and repairing

8.4.1 Using original parts only

The individual parts of the bicycle have been carefully selected to matched each other.

Only original parts must be used for maintenance and repair.

The constantly updated lists of approved accessories and parts are available to BULLS specialist dealers.
8.4.2 Wheel quick release

**Crash caused by unfastened quick release**

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

- Install the front wheel quick release lever on the opposite side to the disc brake.

**Crash caused by faulty or incorrectly installed quick release**

The brake rotor becomes very hot during operation. Parts of the quick release may become damaged as a result. The quick release comes loose. This will result in a crash and injuries.

- The front wheel quick release lever and the disc brake 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 result in a crash and 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.
8.4.2.1 Clamping the clamping lever

The clamping lever for the quick release is marked OPEN and CLOSE. If you can read the word OPEN, the quick release is open. If you can read the word CLOSE, the quick release is clamped.

- Align the clamping lever properly and push it through as far as it will go.

- The wheel clamping lever is clamped 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.

8.4.2.2 Clamping version I

- Hold the open clamping lever. Screw the setting nut tight on the opposite side.

- Clamp the clamping lever.

- The final position of the clamping lever is at a right angle to the fork or frame.

Figure 36: Wheel quick release, version I, with clamping lever (2), fork (1) and setting nut (3)
Checking and setting the clamping force of the quick releases

If the clamping lever cannot be moved into the final position just by pushing it with the hand, or if it is too loose, its clamping force will need to be readjusted.

✓ The clamping lever is completely open.

▲ Turn the setting nut a little.

▲ Clamp the clamping lever.

▲ Repeat the steps until the proper angle has been achieved.

8.4.2.3 Clamping version II

Figure 37: Quick release, version II, with clamping lever (1), axle (2), setting nut (3), and detailed view of the open (4) and closed (5) flange

✓ The clamping lever is completely open.

▲ Push the axle into the hub as far as it will go.

▲ Align the clamping lever.

▲ Close the clamping lever

⇒ The final position of the clamping lever is forward, parallel to the fork.
8.4.2.4 Clamping version III

If the clamping force is insufficient, have the BULLS specialist dealer inspect it.

Figure 38: Quick release, version III, with axle (1) and clamping lever (2)

- Push the axle into the hub as far as it will go with the clamping lever completely open.
- Screw the quick release on the open clamping lever clockwise into the hub as far as it will go.
- Screw it out one turn.
- Use the fingers to screw in the clamping lever in the semi-open position, roughly in the middle between OPEN and CLOSE, until you feel resistance.
- Clamp the clamping lever.
8.4.2.5 Clamping version IV

Push the axle into the hub as far as it will go with the clamping lever open.

Screw the clamping lever clockwise into the correct final position.

Clamp the clamping lever.

Setting the clamping force

If the clamping force is set too high, the clamping lever cannot be pushed into the closed final position.

Turn the twist knob:

- Turn 1/8 turn anti-clockwise to reduce the clamping force.
- Turn 1/8 turn clockwise to increase the clamping force.

Clamp the clamping lever.

If the clamping lever is not yet in the proper final position, repeat the steps until the proper final position has been achieved.

Figure 39: Wheel quick release, version IV, with twist knob (1) and clamping lever (2)
8.4.2.6 Clamping version V

**Crash caused by unfastened quick release**

The clamping force of the quick release lever is set once during assembly and is not an indication that the wheel axle is sufficiently fastened. The axle may come loose if the closed quick release is turned. This will result in a crash and injuries.

- Never adjust or turn a quick release after closing it, e.g. in order to correct the final position.

- Push the axle into the hub from the left until it meshes in the thread on the right-hand fork end.

![Figure 40: Wheel quick release, version V, with twist knob (1) and clamping lever (2)](image)

- Flip the quick release lever into the recess.

![Figure 41: Flipping the quick release into the recess (1)](image)
- Turn the axle on the quick release clockwise until the axle is firmly in place.
- Pull the lever from the recess and clamp it properly.
- The clamping force of the lever is not an indication of the tightening torque of the axle.

**Setting the clamping force**

If the clamping lever cannot be moved into its proper final position by pushing it with the hand, or if it is too loose, its clamping force will need to be readjusted.

![Setting the clamping force in the middle of the clamping lever (1) with a hexagon socket spanner (2)](image)

*Figure 42:* Setting the clamping force in the middle of the clamping lever (1) with a hexagon socket spanner (2)
Open the quick release lever.

Connect a 2.5 mm hexagon socket spanner to the middle of the clamping lever.

Turn the hexagon socket spanner:
- clockwise to increase the clamping force and
- anti-clockwise to reduce the clamping force.

Clamp the clamping lever.

If the clamping lever is not yet in the proper final position, repeat the steps until the proper final position has been achieved.
8.4.3 Adjusting the tire pressure

8.4.3.1 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.

✈ The tire pressure has been adjusted as per the data [Data sheet, page 1].

► If the tire pressure is too high, unfasten the union nut, let off 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.

Figure 43: Dunlop valve with union nut (1) and rim nut (2)
8.4.3.2 Presta 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.
- 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 data [Data sheet, page 1].
- Remove the bicycle pump.
- Tighten the knurled nut with your finger tips.
- Screw the valve cap tight.
- Screw the rim nut gently against the rim with the tips of your fingers.

Figure 44: Presta valve with valve insert (1), knurled nut (2) and rim nut (3)
8.4.3.3 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 data [Data sheet, page 1].
- Remove the bicycle pump.
- Screw the valve cap tight.
- Screw the rim nut gently against the rim with the tips of your fingers.

Figure 45: Schrader valve with rim nut (1)
8.4.4 Adjusting the gear sleeve

If the gears cannot be shifted cleanly, the setting of the gear sleeve tension need to be adjusted.

- Carefully pull the adjusting barrel away from the shifter housing by turning it.
- Check the function of the gear shifting after each adjustment.

If the gear shift cannot be set this way, the assembly of the gear shift will need to be inspected by a BULLS specialist dealer.

8.4.4.1 Cable-operated gear shift, single-cable (Alternative version)

- For a smooth gear shift, adjust the barrel adjuster on the gear shift housing.

Figure 46: Adjusting the barrel adjuster (1) of the single-cable-operated gear shift with gear shift housing (2), example
8.4.4.2 Cable-operated gear shift, dual-cable
(Alternative version)

- For a smooth gear shift, set the adjusting sleeves underneath the chain stay on the frame.
- The shift cable has play of approximately 1 mm when it is pulled out gently.

Figure 47: Adjusting sleeves (2) on two alternative versions (A and B) of a dual-cable cable-operated gear shift on the chain stay (1)
8.4.4.3 Cable-operated twist grip, dual-cable
(Alternative version)

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

⇒ There is noticeable play of around 2 - 5 mm (1/2 gear) when twisting the twist grip.

Figure 48: Twist grip with adjusting sleeves (1) and play of the gear shift (2)
8.4.5 **Replacing the lighting**

Alternatively a 3 watt or 1.5 watt lighting system can be installed.

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

8.4.6 **Setting the lamp**

► The *lamp* must be set so that its light beam meets the road 10 m in front of the bicycle.

8.4.7 **Repair by the specialist dealer**

Special knowledge and tools are required for many repairs. Only a BULLS specialist dealer must carry out the following repairs, for instance:

• *Replacing* tyres and rims,
• Replacing the brake pads and brake linings,
• *Replacing* and *tensioning* the chain.
8.4.8 First aid for system messages

Fire and explosion due to faulty batteries
The safety electronics on damaged or faulty batteries may fail. The residual voltage can cause a short circuit. The 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 the battery 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 a fault is detected, the respective fault code appears on the display. The drive may be shut off automatically, depending on the type of fault.

8.4.8.1 First aid
If a fault 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 the BULLS specialist dealer.
Maintenance

8.4.8.2 Specific fault eradication

- Make a note of the system message.

<table>
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<th>Fault</th>
<th>Remedy</th>
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<td>LOW BAT</td>
<td>▶ Replace the internal display battery Contact the BULLS specialist dealer.</td>
</tr>
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- 540, 604, 605 The bicycle is outside the permitted temperature range.
  - ▶ Switch off the bicycle.
  - ▶ Allow the system components to cool down or warm up.
  - ▶ Re-start the drive system.

- 430 ▶ Charge the internal display battery.

- 410, 418 ▶ Check whether the keys are jammed, e.g. because dirt has got into them.
  - ▶ Clean the keys as necessary.

- 460, 550 ▶ Disconnect the consumer from the USB port.
  - ▶ Re-start the drive system.

- 592 ▶ Insert a compatible display.
  - ▶ Re-start the drive system.

- 606 ▶ Check the cabling.
  - ▶ Re-start the drive system.

Table 27: Fault eradication using the code

- If the system message is still displayed, contact the BULLS specialist dealer
8.4.9 The electric drive system of drive system does 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.

☞ If the LEDs of the charge status indicator do not light up, contact the BULLS specialist dealer.

▶ If the LEDs of the charge status 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.

▶ If the drive system does not start up, contact the BULLS specialist dealer.
8.5 **Accessories**

We do not recommend to equip a full suspension bicycle with a kickstand. We recommend a parking stand into which either the front or rear wheel can be inserted securely.
### 8.5.1 Child seat

**Crash caused by improper handling**

When using child seats, the riding properties and the stability of the bicycle change considerably. This can cause a loss of control, a crash and injuries.

- You should practice how to use the child seat safely and reliably before using the bicycle in public spaces.

**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 bicycle.
The BULLS specialist dealer will advise you on the choice of right child seat system for the child and the bicycle. The scope of delivery of commercially available child seats does not usually contain any of the material which is required to adapt the bicycle to the child seat.

Moreover, knowledge, skills and special tools may be required.

Therefore, the initial installation of a child seat must be performed by the BULLS specialist dealer in order to maintain operational and product safety. When installing a child seat, the BULLS specialist dealer makes sure that the seat and the fastening mechanism for the seat suit the bicycle, that all components are installed and firmly fastened, that shift cables, brake cables, hydraulic and electrical cables are adjusted as necessary, that the freedom of movement of the rider is not restricted, and the permitted total weight of the bicycle is not exceeded.

The BULLS specialist dealer provides instruction on how to handle the bicycle and the child seat.
8.5.2 Bicycle trailer

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.

- The operating and safety notes for the trailer system must be observed.

- The legal regulations on use of bicycle trailers must be observed.

- Only use type approved coupling systems.

A bicycle which is approved for towing a trailer is equipped with the respective information sign. Only bicycle trailers with a support load and total mass which do not exceed the permitted values, must be used.

The BULLS specialist dealer will advise you on the choice of right trailer system for the bicycle. The scope of delivery of commercially available bicycle trailers does not usually contain any of the material which is required to adapt the bicycle to the trailer. Moreover, knowledge, skills and tools which a technical layperson does not have, may be required.

Therefore, the initial installation of a trailer must be performed by the BULLS specialist dealer in order to maintain operational and product safety.
Recycling and disposal

9 Recycling and disposal

Risk of fire and explosion

**WARNING**

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

- Remove batteries with external damage from service immediately and never charge them.
- 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 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.

**CAUTION**

Chemical burns to the skin and eyes

Liquids and vapours may leak from damaged or faulty batteries. 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.
Recycling and disposal

The bicycle, the battery, the display and the charger are recyclable materials. They have to be disposed of separate from the domestic waste in accordance with the valid legal regulations, and recycled.

Separate collection and recycling saves reserves of raw materials and ensures that all the regulations for protection of health and the environment are adhered to when recycling the product and/or the battery.

- Never dismantle the bicycle, the battery or the charger for disposal.
- The bicycle, the display, the unopened and undamaged battery and the charger can be returned to any BULLS specialist dealer free of charge. Depending on the region, further disposal options may be available.
- Store the individual parts of the decommissioned bicycle in a dry place, free from frost, where they are protected from direct sunlight.
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