
OPERATING INSTRUCTIONS



BICYCLES

EN

2° Beltdrive, 2° Carbon, 2° Comp, 2° Comp Street,
2° Street Beltdrive, Grinder Disc, Grinder Cross, Grinder Pure,
Grinder RT, Grinder Street, Layana RT, Layana Street, Traveller 1,
Traveller 2

KM115-VCRDxx, KM117-VAKxxx, KM117-VBKxxx, KM118-VAKxxx, KM119-VAKxxx,
KM120-VAKxxx, KM120-VBKxx, KM130-VARWxx, KM131-VBRW24, KM132-VARW31,
KM132-VBRW31, KM133-VARW35, KM133-VBRW35, KM133-VCRW35, KM133-VDRW35,
KM134-VARWxx, KM134-VBRWxx, KM135-VAKTxx, KM136-VAKTxx, KM136-VBKTxx,
KM137-VAKD31, KM138-VAKD35, KM139-VAKD40, KM139-VAKDxx, KM140-VAKD44,
KM140-VAKD50, KM141-VAKD35, KM141-VBKD35, KM142-VAKD40, KM142-VAKD44,
KM142-VAKD50, KM142-VBKDxx, KM143-VAKDxx, KM143-VBKDxx, KM144-VAKD35,
KM145-VAKDxx, KM146-VAKD44, KM146-VAKDxx, KM147-VARD20, KM148-VARD24,
KM149-VARD31, KM149-VBRD31, KM150-VARD35, KM150-VBRD35, KM150-VCRD35,
KM150-VDRD35, KM151-VARDxx, KM151-VBRDxx, KM152-VAKD35, KM153-VAKDxx,
KM154-VARD25, KM154-VBRD25, KM155-VARD31, KM155-VBKD31, KM155-VCKD31,
KM160-VAFxxx, KM161-VAFxxx, KM162-VAKxxx, KM163-VAKxxx, KM164-VAFxxx

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Data sheet

Surname, first name of the purchaser:

Date of purchase:

Model:

Frame number:

Type number:

Tyre size:

Recommended tyre pressure (bar)*: front: rear:

Company stamp and signature:

*Observe the tyre marking for the tyre pressure after changing tyres. Never exceed or go below the recommended tyre pressure.

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1

About these instructions

Read these operating instructions before commissioning the bicycle to ensure that you use all functions safely and correctly. The operating instructions are not a substitute for personal instruction by the supplying specialist dealer. The operating instructions are a component part of the bicycle. Therefore, if it is re-sold at a later time, they must be handed over to the subsequent owner.

These operating instructions are mainly intended for the rider and owner of the bicycle, who tend to be non-professionals.



Text passages which are expressly intended for specialist staff (e.g. bicycle mechanics) are clearly marked with a tool symbol.

Staff at all 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 non-professionals to take any action.

1.1

Manufacturer

The manufacturer of the bicycle is:

KETTLER Alu-Rad GmbH
Longericher Straße 2
50739 Köln, Germany

Tel.: +49 6805 6008-0
Fax: +49 6805 6008-3098
E-mail: info@kettler-alu-rad.de
Internet: www.kettler-alu-rad.de

1.2 Laws, standards and directives

These operating instructions comply with the essential requirements from:

- EN ISO 4210-2:2015, Cycles – Safety requirements for bicycles – Part 2: Requirements for city and trekking, young adult, mountain and racing bicycles,
- EN 11243:2016, Cycles – Luggage carriers for bicycles – Requirements and test methods,
- EN 82079-1:2012, Preparation of instructions for use – Structuring, content and presentation – Part 1: General principles and detailed requirements and
- EN ISO 17100:2016-05, Translation Services – Requirements for translation service.

1.3 Other valid documents

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

No other information is also applicable.

1.4 Subject to change

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

You will find any modifications to these operating instructions at:

www.kettler-alu-rad.de/de/de/index/service/anleitung

1.5

For your safety

The safety concept of the bicycle comprises four elements:

- rider and/or operator instruction, and bicycle maintenance and repair by the specialist dealer,
- the chapter on general safety,
- the warnings in these instructions and
- the safety marking on the type plates.

1.5.1

Instruction, training and customer service

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



The specialist dealer authorised to perform repairs and maintenance work receives regular training.

The rider or owner of the bicycle will be instructed in person on the bicycle's functions, this being when the supplying specialist dealer hands over the bicycle at the latest.

Each rider to whom this bicycle is provided must receive instruction on the bicycle's functions. These operating instructions must be submitted to each rider in printed form and must be acknowledged and adhered to.

1.5.2 Basic safety notes

These operating instructions have a chapter with general safety notes [[> Chapter 2, page 22](#)]. You can distinguish this chapter as it has a grey background.

1.5.3 Warnings

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

| |
|-------------|
| SIGNAL WORD |
|-------------|

Type and source of the danger

Description of the danger and the consequences.

► Measures

The following pictograms and signal words are used in the operating instructions for warnings and information notices:



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



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



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

| |
|---------------|
| NOTICE |
|---------------|

May lead to material damage if ignored.

Table 1: Meanings of the signal words

1.5.4

Safety markings

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



General warning



Adhere to the instructions for use

Table 2:

Safety markings on the product

1.6

For your information

1.6.1

Instructions for actions

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

- ✓ Requirements (optional)
- ▶ Instruction for action
- ⇒ Result of the action (optional)

1.6.2

Information on the type plate

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



only suitable for the road, no off-road riding or jumps

suitable for roads, off-road riding and jumps of up to 15 cm

suitable for rough off-road riding and jumps of up to 61 cm

suitable for rough off-road riding and jumps of up to 122 cm

suitable for the most difficult terrain

Table 3:

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 4:

Bicycle type

1.6.3

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 [[▷ Table 3, page 14](#)]. 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 conventions are used in these operating instructions:

| Convention | Use |
|---|---|
| <i>Italics</i> | Entry in the index |
| SPACED | Indicators on the <i>display screen</i> |
| [▷ Example, page numbering] | Cross references |
| • | Bulleted lists |

Table 5:

Conventions

1.7

Type plate

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

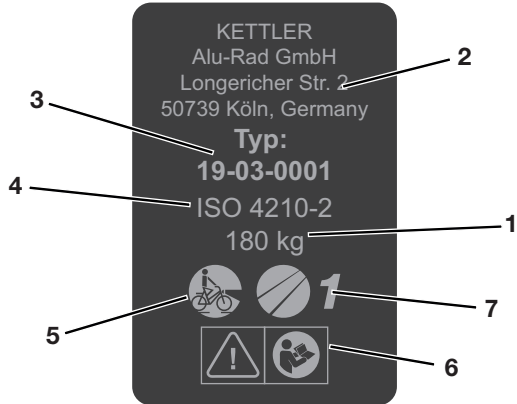


Figure 1:

Type plate, example

- 1 Permitted total weight
- 2 Manufacturer
- 3 Type number
- 4 Bicycle standard
- 5 *Bicycle type*
- 6 *Safety instructions*
- 7 *Area of use*

1.8 Identifying

1.8.1 Operating instructions

The identification number of these operating instructions is made up of the document number, the version number and the release date. It can be found on the cover page and in the footer.

| | |
|------------------------------|-------------------------|
| Identification number | 87700125_1.0_15.11.2018 |
|------------------------------|-------------------------|

Table 6:

Identification number of the operating instructions

1.8.2 Bicycle

These KETTLER operating instructions refer to the *model year* 2019. The production period is from August 2018 to July 2019. They are issued in August 2018.

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

| Type number | Model | Bicycle type |
|--------------------|---------------------------|-------------------------------------|
| KM115-VCRD31 | Grinder Cross (20") 3G C2 | Cycle for children and young adults |
| KM117-VAKD50 | Traveller 1 (21-speed) C1 | City and trekking bicycle |
| KM117-VAKD55 | Traveller 1 (21-speed) C1 | City and trekking bicycle |
| KM117-VAKD60 | Traveller 1 (21-speed) C1 | City and trekking bicycle |
| KM117-VAKT45 | Traveller 1 (21-speed) C1 | City and trekking bicycle |
| KM117-VAKT50 | Traveller 1 (21-speed) C1 | City and trekking bicycle |
| KM117-VAKT55 | Traveller 1 (21-speed) C1 | City and trekking bicycle |
| KM117-VAKW45 | Traveller 1 (21-speed) C1 | City and trekking bicycle |
| KM117-VAKW50 | Traveller 1 (21-speed) C1 | City and trekking bicycle |
| KM117-VBKT45 | Traveller 1 (21-speed) C2 | City and trekking bicycle |
| KM117-VBKT50 | Traveller 1 (21-speed) C2 | City and trekking bicycle |
| KM117-VBKT55 | Traveller 1 (21-speed) C2 | City and trekking bicycle |
| KM117-VBKW45 | Traveller 1 (21-speed) C2 | City and trekking bicycle |
| KM117-VBKW50 | Traveller 1 (21-speed) C2 | City and trekking bicycle |
| KM118-VAKD50 | Traveller 1 (7-speed) C1 | City and trekking bicycle |
| KM118-VAKD55 | Traveller 1 (7-speed) C1 | City and trekking bicycle |
| KM118-VAKD60 | Traveller 1 (7-speed) C1 | City and trekking bicycle |
| KM118-VAKW45 | Traveller 1 (7-speed) C1 | City and trekking bicycle |
| KM118-VAKW50 | Traveller 1 (7-speed) C1 | City and trekking bicycle |
| KM118-VAKW55 | Traveller 1 (7-speed) C1 | City and trekking bicycle |
| KM118-VBKW45 | Traveller 1 (7-speed) C2 | City and trekking bicycle |
| KM118-VBKW50 | Traveller 1 (7-speed) C2 | City and trekking bicycle |

| Type number | Model | Bicycle type |
|--------------------|--------------------------|-------------------------------------|
| KM118-VBKW55 | Traveller 1 (7-speed) C2 | City and trekking bicycle |
| KM119-VAKD50 | Traveller 2 (27-speed) | City and trekking bicycle |
| KM119-VAKD55 | Traveller 2 (27-speed) | City and trekking bicycle |
| KM119-VAKD60 | Traveller 2 (27-speed) | City and trekking bicycle |
| KM119-VAKT45 | Traveller 2 (27-speed) | City and trekking bicycle |
| KM119-VAKT50 | Traveller 2 (27-speed) | City and trekking bicycle |
| KM119-VAKT55 | Traveller 2 (27-speed) | City and trekking bicycle |
| KM119-VAKW45 | Traveller 2 (27-speed) | City and trekking bicycle |
| KM119-VAKW50 | Traveller 2 (27-speed) | City and trekking bicycle |
| KM120-VAKD50 | Traveller 2 (8-speed) C1 | City and trekking bicycle |
| KM120-VAKD55 | Traveller 2 (8-speed) C1 | City and trekking bicycle |
| KM120-VAKD60 | Traveller 2 (8-speed) C1 | City and trekking bicycle |
| KM120-VAKW45 | Traveller 2 (8-speed) C1 | City and trekking bicycle |
| KM120-VAKW50 | Traveller 2 (8-speed) C1 | City and trekking bicycle |
| KM120-VAKW55 | Traveller 2 (8-speed) C1 | City and trekking bicycle |
| KM120-VBKW45 | Traveller 2 (8-speed) C2 | City and trekking bicycle |
| KM120-VBKW50 | Traveller 2 (8-speed) C2 | City and trekking bicycle |
| KM120-VBKW55 | Traveller 2 (8-speed) C2 | City and trekking bicycle |
| KM130-VARW20 | Layana RT (12") | Cycle for children and young adults |
| KM131-VARW24 | Layana RT (16") C1 | Cycle for children and young adults |
| KM131-VBRW24 | Layana RT (16") C2 | Cycle for children and young adults |
| KM132-VARW31 | Layana RT (20") C1 | Cycle for children and young adults |
| KM132-VBRW31 | Layana RT (20") C2 | Cycle for children and young adults |
| KM133-VARW35 | Layana RT (24") 3G C1 | Cycle for children and young adults |
| KM133-VBRW35 | Layana RT (24") 3G C2 | Cycle for children and young adults |
| KM133-VCRW35 | Layana RT (24") 7G C1 | Cycle for children and young adults |
| KM133-VDRW35 | Layana RT (24") 7G C2 | Cycle for children and young adults |
| KM134-VARW40 | Layana (26") C1 | Cycle for children and young adults |
| KM134-VARW44 | Layana (26") C1 | Cycle for children and young adults |
| KM134-VARW50 | Layana (26") C1 | Cycle for children and young adults |
| KM134-VBRW40 | Layana (26") C2 | Cycle for children and young adults |
| KM134-VBRW44 | Layana (26") C2 | Cycle for children and young adults |
| KM134-VBRW50 | Layana (26") C2 | Cycle for children and young adults |
| KM135-VAKT35 | Layana Street (24") | Cycle for children and young adults |
| KM136-VAKT40 | Layana Street (26") C1 | Cycle for children and young adults |

| Type number | Model | Bicycle type |
|--------------------|----------------------------|-------------------------------------|
| KM136-VAKT44 | Layana Street (26") C1 | Cycle for children and young adults |
| KM136-VAKT50 | Layana Street (26") C1 | Cycle for children and young adults |
| KM136-VBKT40 | Layana Street (26") C2 | Cycle for children and young adults |
| KM136-VBKT44 | Layana Street (26") C2 | Cycle for children and young adults |
| KM136-VBKT50 | Layana Street (26") C2 | Cycle for children and young adults |
| KM137-VAKD31 | Grinder Pure (20") | Cycle for children and young adults |
| KM138-VAKD35 | Grinder Pure (24") | Cycle for children and young adults |
| KM139-VAKD40 | Grinder Pure (26") | Cycle for children and young adults |
| KM139-VAKD44 | Grinder Pure (26") | Cycle for children and young adults |
| KM139-VAKD50 | Grinder Pure (26") | Cycle for children and young adults |
| KM140-VAKD44 | Grinder Pure (27,5") | Cycle for children and young adults |
| KM140-VAKD50 | Grinder Pure (27,5") | Cycle for children and young adults |
| KM141-VAKD35 | Grinder 21 Disc (24") C1 | Cycle for children and young adults |
| KM141-VBKD35 | Grinder 21 Disc (24") C2 | Cycle for children and young adults |
| KM142-VAKD40 | Grinder 21 Disc (26") C1 | Cycle for children and young adults |
| KM142-VAKD44 | Grinder 21 Disc (26") C1 | Cycle for children and young adults |
| KM142-VAKD50 | Grinder 21 Disc (26") C1 | Cycle for children and young adults |
| KM142-VBKD40 | Grinder 21 Disc (26") C2 | Cycle for children and young adults |
| KM142-VBKD44 | Grinder 21 Disc (26") C2 | Cycle for children and young adults |
| KM142-VBKD50 | Grinder 21 Disc (26") C2 | Cycle for children and young adults |
| KM143-VAKD44 | Grinder 21 Disc (27,5") C1 | Cycle for children and young adults |
| KM143-VAKD50 | Grinder 21 Disc (27,5") C1 | Cycle for children and young adults |
| KM143-VBKD44 | Grinder 21 Disc (27,5") C2 | Cycle for children and young adults |
| KM143-VBKD50 | Grinder 21 Disc (27,5") C2 | Cycle for children and young adults |
| KM144-VAKD35 | Grinder 24 Disc (24") | Cycle for children and young adults |
| KM145-VAKD40 | Grinder 24 Disc (26") | Cycle for children and young adults |
| KM145-VAKD44 | Grinder 24 Disc (26") | Cycle for children and young adults |
| KM145-VAKD50 | Grinder 24 Disc (26") | Cycle for children and young adults |

| Type number | Model | Bicycle type |
|--------------------|---------------------------|-------------------------------------|
| KM146-VAKD44 | Grinder 24 Disc (27,5") | Cycle for children and young adults |
| KM146-VAKD50 | Grinder 24 Disc (27,5") | Cycle for children and young adults |
| KM147-VARD20 | Grinder RT (12") | Cycle for children and young adults |
| KM148-VARD24 | Grinder RT (16") | Cycle for children and young adults |
| KM149-VARD31 | Grinder RT (20") | Cycle for children and young adults |
| KM149-VBRD31 | Grinder RT (20") | Cycle for children and young adults |
| KM150-VARD35 | Grinder RT (24") 3G C1 | Cycle for children and young adults |
| KM150-VBRD35 | Grinder RT (24") 7G C1 | Cycle for children and young adults |
| KM150-VCRD35 | Grinder RT (24") 3G C2 | Cycle for children and young adults |
| KM150-VDRD35 | Grinder RT (24") 7G C2 | Cycle for children and young adults |
| KM151-VARD40 | Grinder RT (26") C1 | Cycle for children and young adults |
| KM151-VARD44 | Grinder RT (26") C1 | Cycle for children and young adults |
| KM151-VARD50 | Grinder RT (26") C1 | Cycle for children and young adults |
| KM151-VBRD40 | Grinder RT (26") C2 | Cycle for children and young adults |
| KM151-VBRD44 | Grinder RT (26") C2 | Cycle for children and young adults |
| KM151-VBRD50 | Grinder RT (26") C2 | Cycle for children and young adults |
| KM152-VAKD35 | Grinder Street (24") | Cycle for children and young adults |
| KM153-VAKD40 | Grinder Street (26") | Cycle for children and young adults |
| KM153-VAKD44 | Grinder Street (26") | Cycle for children and young adults |
| KM153-VAKD50 | Grinder Street (26") | Cycle for children and young adults |
| KM154-VARD25 | Grinder Cross (18") C1 | Cycle for children and young adults |
| KM154-VBRD25 | Grinder Cross (18") C2 | Cycle for children and young adults |
| KM155-VARD31 | Grinder Cross (20") 3G C1 | Cycle for children and young adults |
| KM155-VBKD31 | Grinder Cross (20") 7G C1 | Cycle for children and young adults |
| KM155-VCKD31 | Grinder Cross (20") 7G C2 | Cycle for children and young adults |
| KM160-VAFD44 | 2° Beltdrive | City and trekking bicycle |
| KM160-VAFD48 | 2° Beltdrive | City and trekking bicycle |
| KM160-VAFD54 | 2° Beltdrive | City and trekking bicycle |
| KM160-VAFD58 | 2° Beltdrive | City and trekking bicycle |
| KM160-VAFD61 | 2° Beltdrive | City and trekking bicycle |

| Type number | Model | Bicycle type |
|--------------------|---------------------|---------------------------|
| KM160-VAFT44 | 2° Beltdrive | City and trekking bicycle |
| KM160-VAFT48 | 2° Beltdrive | City and trekking bicycle |
| KM160-VAFT54 | 2° Beltdrive | City and trekking bicycle |
| KM161-VAFD44 | 2° Street Beltdrive | City and trekking bicycle |
| KM161-VAFD48 | 2° Street Beltdrive | City and trekking bicycle |
| KM161-VAFD54 | 2° Street Beltdrive | City and trekking bicycle |
| KM161-VAFD58 | 2° Street Beltdrive | City and trekking bicycle |
| KM161-VAFD61 | 2° Street Beltdrive | City and trekking bicycle |
| KM161-VAFT44 | 2° Street Beltdrive | City and trekking bicycle |
| KM161-VAFT48 | 2° Street Beltdrive | City and trekking bicycle |
| KM161-VAFT54 | 2° Street Beltdrive | City and trekking bicycle |
| KM162-VAKD44 | 2° Comp Street | City and trekking bicycle |
| KM162-VAKD48 | 2° Comp Street | City and trekking bicycle |
| KM162-VAKD54 | 2° Comp Street | City and trekking bicycle |
| KM162-VAKD58 | 2° Comp Street | City and trekking bicycle |
| KM162-VAKD61 | 2° Comp Street | City and trekking bicycle |
| KM162-VAKT44 | 2° Comp Street | City and trekking bicycle |
| KM162-VAKT48 | 2° Comp Street | City and trekking bicycle |
| KM162-VAKT54 | 2° Comp Street | City and trekking bicycle |
| KM163-VAKD44 | 2° Comp | City and trekking bicycle |
| KM163-VAKD48 | 2° Comp | City and trekking bicycle |
| KM163-VAKD54 | 2° Comp | City and trekking bicycle |
| KM163-VAKD58 | 2° Comp | City and trekking bicycle |
| KM163-VAKD61 | 2° Comp | City and trekking bicycle |
| KM163-VAKT44 | 2° Comp | City and trekking bicycle |
| KM163-VAKT48 | 2° Comp | City and trekking bicycle |
| KM163-VAKT54 | 2° Comp | City and trekking bicycle |
| KM164-VAFD44 | 2° Carbon | City and trekking bicycle |
| KM164-VAFD48 | 2° Carbon | City and trekking bicycle |
| KM164-VAFD54 | 2° Carbon | City and trekking bicycle |
| KM164-VAFD58 | 2° Carbon | City and trekking bicycle |
| KM164-VAFD61 | 2° Carbon | City and trekking bicycle |
| KM164-VAFT44 | 2° Carbon | City and trekking bicycle |
| KM164-VAFT48 | 2° Carbon | City and trekking bicycle |
| KM164-VAFT54 | 2° Carbon | City and trekking bicycle |

2

Safety

2.1

Requirements for the rider

The physical and mental abilities of the rider must be sufficient for riding on public roads.

2.2

Hazards for vulnerable groups

Legal guardians hold sole responsibility for determining whether minors are capable of using the bicycle.

2.3

Personal protective equipment

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

2.4

Proper use

The bicycle may only be used in a 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 the *driving light*, *reflectors* and other components.

The general laws and the regulations for the prevention of accidents and environmental protection in the respective country of use must be adhered to. 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 [▷ *Table 4, page 14*] which determines the proper use.

2.4.1

**City and trekking bicycle**

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

Area of use:

Suitable for tarmacked and paved roads.

Suitable for tarmacked roads, cycle paths and firm gravel paths and roads, and longer sections with moderate slopes and jumps up to 15 cm.



2.4.2

**Cycle for children and young adults**

These operating instructions must be read and understood by the legal guardians of minor riders before commissioning. The content of the operating instructions must be communicated to the riders in an age-appropriate manner.

The cycles for children and young adults are suitable for riding on public roads. The size of the cycle must be checked regularly for orthopaedic reasons. A check must be made at least every three months to make sure that the permitted overall weight is being adhered to.

Area of use:

Suitable for tarmacked and paved roads.

Suitable for tarmacked roads, cycle paths and firm gravel paths and roads, and longer sections with moderate slopes and jumps up to 15 cm.



2.5

Improper use

Failure to adhere to the proper use poses 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 other people
- riding with excessive luggage
- riding with no hands
- riding on ice and snow
- improper servicing
- improper repair
- tough areas of use, such as professional competitions
- stunt riding or acrobatics.

2.5.1



City and trekking bicycle

City and trekking bicycles are not sports bicycles. If used for sports, the rider can expect reduced riding stability and diminished comfort.

Forbidden areas of use:



1

Never drive off-road or perform jumps.



2

Never drive off-road or perform jumps over 15 cm.

2.5.2

**1****2**

2.6

Cycle for children and young adults

Cycles for children and young adults are not toys.

Forbidden areas of use:

Never drive off-road or perform jumps.

Never drive off-road or perform jumps over 15 cm.

Duty of care

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

2.6.1

Operator

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

The operator:

- makes these operating instructions available to the rider for the duration of use of the bicycle. If necessary, they translate 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 may be allowed to ride.
- instructs the rider on proper use and the wearing of personal protective equipment.
- only employs specialist staff for maintenance and repair of the bicycle.

2.6.2**Rider**

The rider:

- receives instruction before the first ride. They can clarify any questions relating to the operating instructions with the operator or specialist dealer
- wears personal protective equipment.
- assumes all the obligations of the operator in case the bicycle changes hands.



3 Description

3.1 Overview



Figure 2: Bicycle viewed from the right, KETTLER Traveller 1 used as example

- 1 *Front wheel*
- 2 *Fork*
- 3 *Front wheel guard*
- 4 *Headlight*
- 5 *Handlebars*
- 6 *Stem*
- 7 *Frame*
- 8 *Seat post*
- 9 *Saddle*
- 10 *Pannier rack*
- 11 *Rear light and reflector*
- 12 *Rear wheel guard*
- 13 *Rear wheel*
- 14 *Kickstand*
- 15 *Chain*
- 16 *Frame number*
- 17 *Chain guard*
- 18 *Type plate*

3.2

Handlebars

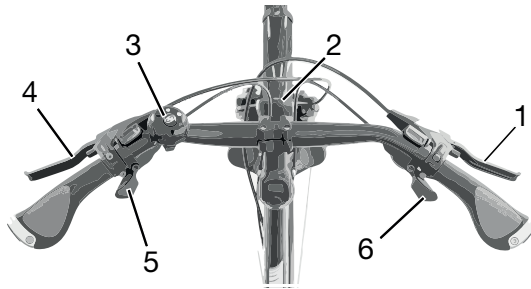


Figure 3: Detailed view of bicycle from rider position, example 1



Figure 4: Detailed view of bicycle from left, example 2

- 1 Rear brake lever
- 2 Headlight
- 3 Bell
- 4 Front brake lever
- 5 Shifter
- 6 Shifter
- 7 Shift battery charging port
- 8 Long shifter
- 9 Brake lever
- 10 Short shifter

3.2.1

Stem

The stem connects the fork to the handlebars. The sitting position of the rider is changed and optimised by changing the length and the angle of the stem.



Figure 5:

Detailed view of the stem, example of stem which can be set without tool

- 1 Stem clamping lever
- 2 *Handlebars*
- 3 Locking button
- 4 Stem

3.3

Wheel and suspension

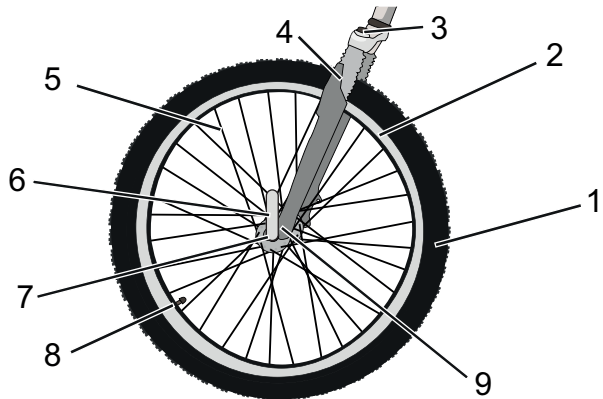


Figure 6:

Components of the wheel, example of front wheel

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

3.3.1

Valve

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

The bicycle either has a classical *Dunlop valve*, a *Presta valve* or a *Schrader valve*.

3.3.2

Suspension

Both forks and suspension forks are fitted in this model series. A suspension fork is based either on a steel spring or air suspension. Unlike a rigid fork, a suspension fork has two functions which improve floor contact and comfort: suspension and damping.



Figure 7: Bicycle without suspension (1) and with suspension (2) when riding over an obstacle

The suspension prevents an impact, such as one caused by a stone lying in the bike's path, from being channelled directly into the rider's body via the fork. The impact is absorbed by the suspension system instead. This causes the suspension fork to compress. The compression can be disabled so that a suspension fork reacts like a rigid fork. The switch to disable the fork is called a remote lockout.

After compressing, the suspension fork returns to its original position. If there is a damper, it decelerates movement, preventing the suspension system from springing back in an uncontrolled manner and stopping the fork from vibrating up and down.

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

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

3.3.3

Suspension fork structure

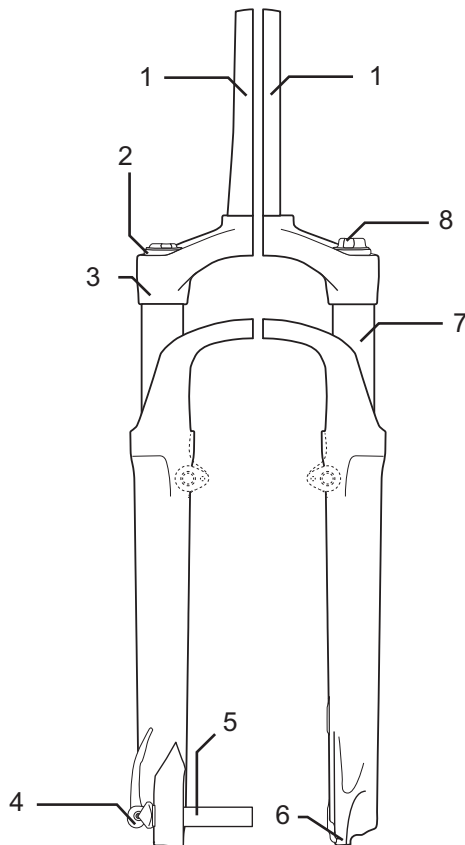


Figure 8:

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

3.4 Brake system

The bicycle's brake system comprises either a hydraulic:

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

3.4.1 Rim brake *Alternative*

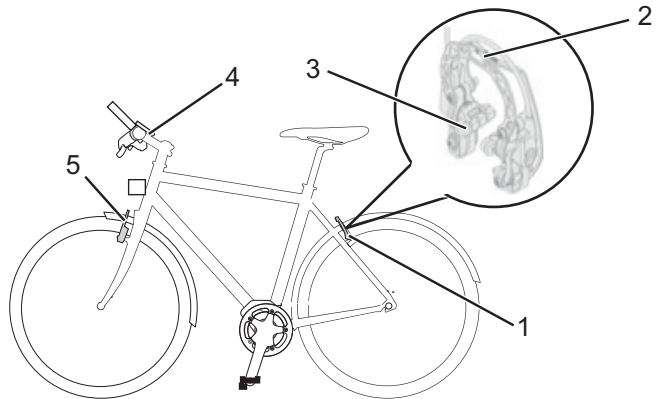


Figure 9: Rim brake components with details; Magura HS22 used as an example

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

The rim brake stops the wheel moving when the rider pulls the *brake lever*, causing two brake linings, positioned opposite one another, to be pressed onto the *rims*.

The hydraulic rim brake features a locking lever

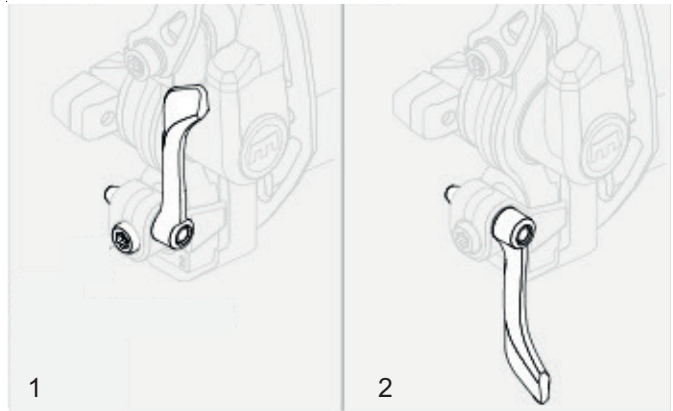


Figure 10:

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



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

3.4.2

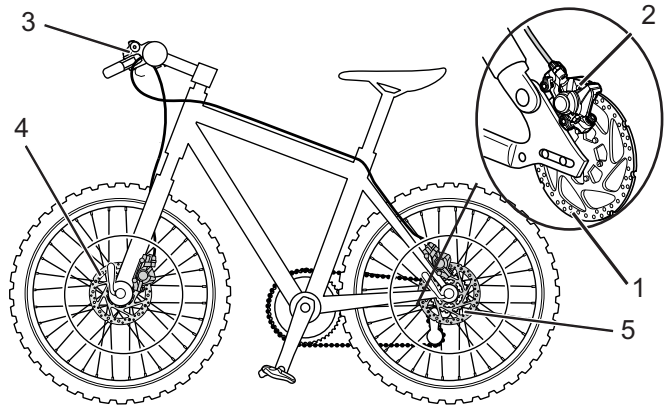
**Disc brake
Alternative**

Figure 11:

Bicycle brake system with a disc brake, example

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

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

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

3.4.3

Back-pedal brake
Alternative

Figure 12:

Brake system with a back-pedal brake, example

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

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

3.5

Drive system

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

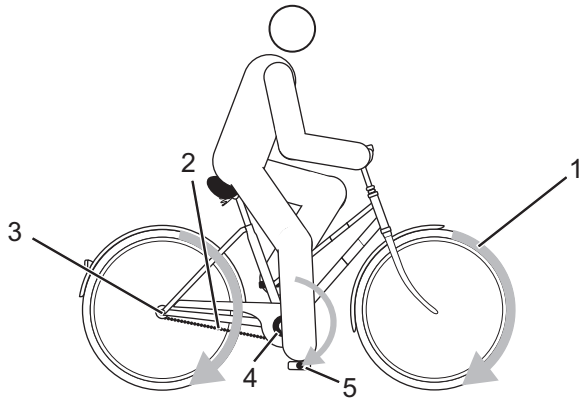


Figure 13:

Diagram of mechanical drive system

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

4 Technical data

Bicycle

| | |
|--|-------------|
| Transportation temperature | 5 °C–25 °C |
| Storage temperature | 5 °C–25 °C |
| Operation temperature | 5 °C–35 °C |
| Working environment temperature | 15 °C–25 °C |

Table 7: Bicycle technical data

Tightening torque

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

Table 8: Tightening torque values
*if there is no other data on the component

5 Transportation, storage and assembly

5.1 Transportation



Oil leak if no transport securing device

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

- ▶ Never pull the brake lever when the wheel has been dismantled.
- ▶ Always use the transport securing system when transporting dismantled wheels.

NOTICE

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

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

- ▶ 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*.
-
- ▶ Take into account the ready-to-use bicycle's weight when transporting it.
 - ▶ Remove accessories, for example drinking bottles, before transportation of the bicycle.

- ▶ When transporting by car, you must use a suitable bicycle rack system.



The 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 where it is protected from direct sunlight.



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

5.1.1

Using the transport securing system

- ▶ Insert the transport securing devices between the brake linings.
- ⇒ The transport securing device is squeezed between the two linings.

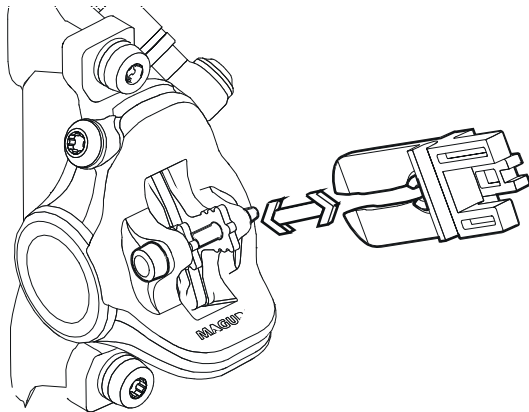


Figure 14:

Fastening the transport securing device

5.2

Storing



Risk of fire and explosion due to high temperatures

Excessively high temperatures will damage rechargeable batteries. Batteries may self-ignite and explode.

- ▶ Protect batteries against heat
- ▶ Never expose batteries to sustained direct sunlight.



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

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

- ▶ Only store the bicycle in an upright position.
-
- ✓ If the bicycle features a hydraulic seat post, fix only the lower seat post or the frame into a fitting stand to prevent damage to the upper seat post and the seat post lever.
 - ✓ Never place a bicycle with a hydraulic seat post upside down on the floor; otherwise you, will damage the seat post lever.
 - ✓ Store the bicycle in a dry and clean place.

Storage temperature 5 °C–25 °C

Ideal storage temperature 10 °C–15 °C

Table 9:

Bicycle storage temperature

5.3



Assembly

- ✓ Assemble the bicycle in a clean and dry environment.
- ✓ The working environment temperature should be between 15 °C and 25 °C.

Working environment temperature

15 °C–25 °C

Table 10:

Working environment temperature

5.3.1

Required tools

The following tools are required to assemble the bicycle:

- Knife
- Hexagon socket spanner 2 (2.5 mm, 3, mm 4 mm, 5 mm, 6 mm and 8 mm)
- Torque wrench with working range between 5 and 40 Nm
- Twelve-point square socket T-25
- Ring spanner (8 mm, 9 mm, 10 mm, 13 mm, 14 mm and 15 mm) and
- Cross, flat head and ordinary screwdriver.

5.3.2

Unpacking



Hand injuries caused by cardboard packaging

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

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

The packaging material consists mainly of cardboard and plastic film.

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

5.3.3

Scope of delivery

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

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

- the pre-assembled bicycle
- the front wheel
- the pedals and
- quick release (optional).

5.3.4

Commissioning

Since initial commissioning of the bicycle requires special tools and specialist knowledge, only trained specialist staff may perform initial commissioning.

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.

- ▶ For this reason, every vehicle must be prepared, so that it is fully ready for use immediately after being assembled.
- ▶ Staff should work through the initial commissioning check list to prepare the vehicle, so that it is ready to ride.

Initial commissioning check list

- | | |
|--------------------------|--|
| <input type="checkbox"/> | Mount the wheels, quick release and pedals. |
| <input type="checkbox"/> | Re-adjust the quick release clamping force if necessary. |
| <input type="checkbox"/> | Thoroughly degrease the brake discs in disc brakes or the brake sides and linings in rim brakes with brake cleaner or spirit. |
| <input type="checkbox"/> | Place handlebars, stem and saddle in the functional position and check they are firmly in place. |
| <input type="checkbox"/> | Check all the components to make sure that they are firmly in place. Check all the settings and the tightening torque on the axle nuts. |
| <input type="checkbox"/> | <p>Check the entire cable harness to make sure that it is routed properly:</p> <ul style="list-style-type: none"> • 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. |
| <input type="checkbox"/> | Check the light system fittings and the brakes to ensure they function properly and effectively. |
| <input type="checkbox"/> | Adjust the headlight. |
| <input type="checkbox"/> | Take a test ride to check the brake system and gear shift. |

5.3.5

Mounting the wheel in the Suntour fork *Alternative*

5.3.5.1

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

- ▶ Insert the axle completely on the drive side.

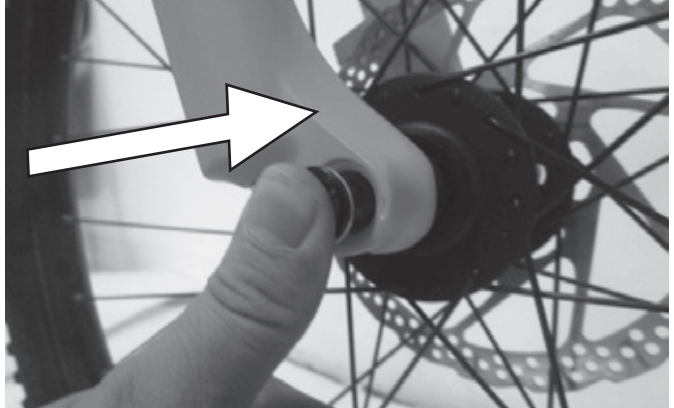


Figure 15:

Fully inserting the axle

- ▶ Tighten the axle with a 5 mm hexagon socket spanner to 8–10 Nm.

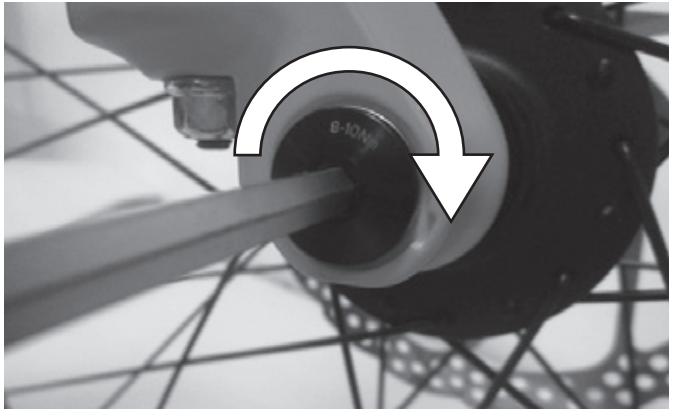


Figure 16:

Tightening the axle

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

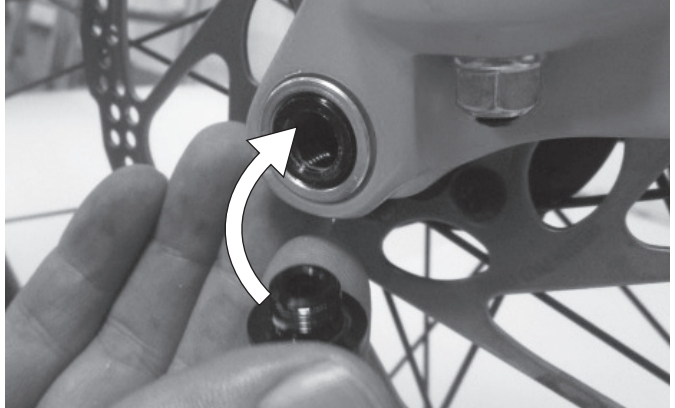


Figure 17:

Pushing the quick release lever into the axle

- ▶ Tighten the securing screw with a 5 mm hexagon socket spanner to 5–6 Nm.
- ⇒ The lever is mounted.



Figure 18:

Tightening the securing screw

5.3.5.2

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

- ▶ Insert the axle completely on the drive side.

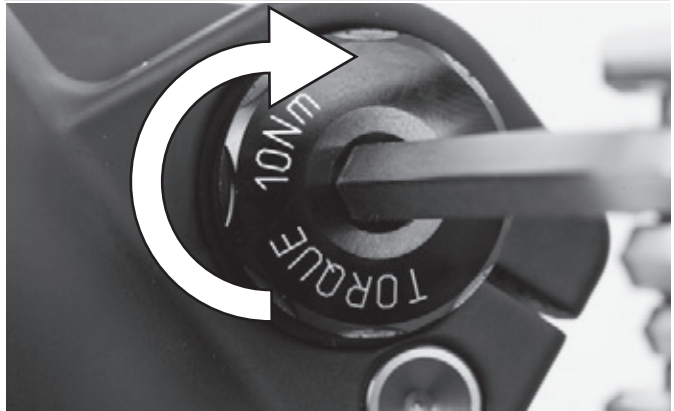


Figure 19:

Tightening the inserted axle

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



Figure 20:

Tightening the axle

5.3.5.3

Mounting the wheel with a quick release axle
Alternative**Crash caused by loose quick release axle**

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

- ▶ Never fit a defective quick release axle.

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

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

- ▶ The quick release axle and the brake disc must be opposite one another.

**Crash caused by incorrectly set quick release axle**

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

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

- ▶ Insert the axle into the hub on the drive side.
Clamping version II.

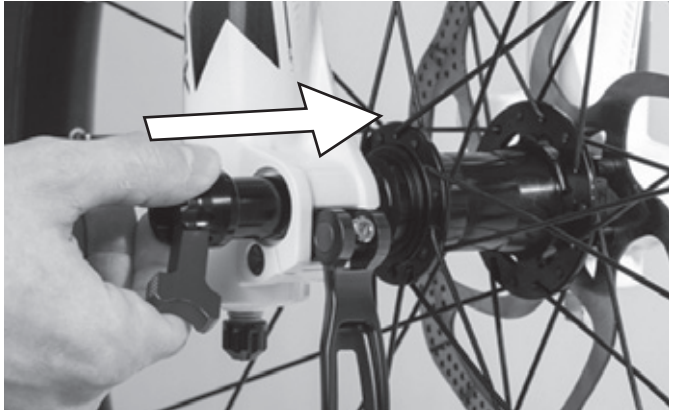


Figure 21:

Pushing the axle into the hub

- ▶ Tighten the axle with the red handle.

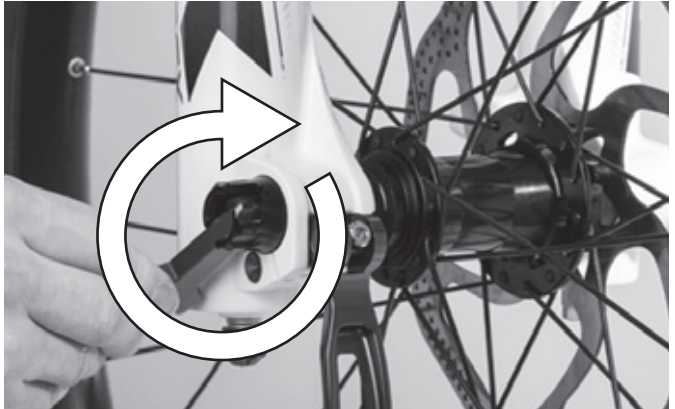


Figure 22:

Tightening the axle

► Push the quick release lever into the axle.

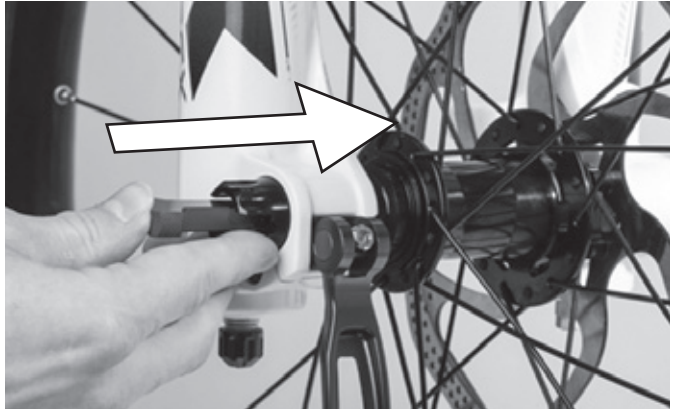


Figure 23:

Pushing the quick release lever into the axle

► Reverse the quick release lever.

↪ The lever is secured.

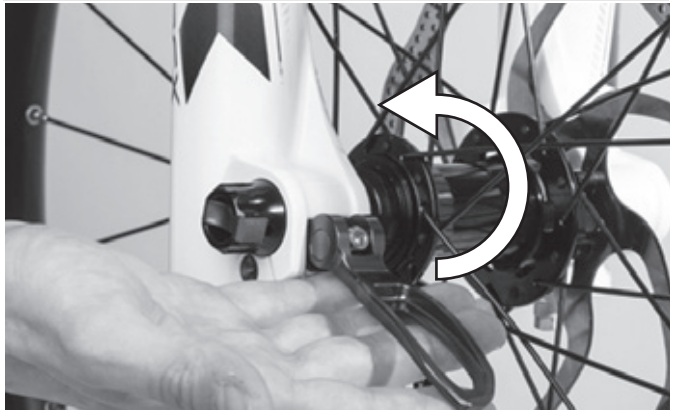


Figure 24:

Securing the lever

- ▶ Check the position and clamping force of the quick release lever. The quick release lever must be flush with the lower housing. You must be able to see a slight impression on the palm of your hand when you close the quick release lever.



Figure 25:

Perfect position for the clamping lever

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

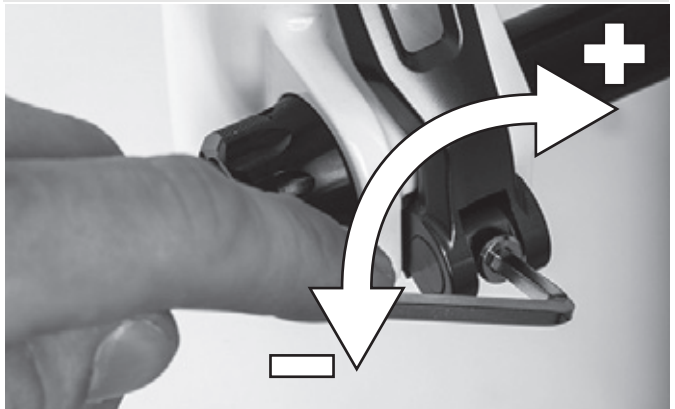


Figure 26:

Adjusting the quick release clamping force

5.3.6

Mounting the wheel with a quick release
Alternative**Crash caused by unfastened quick release**

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

- ▶ Never fit a defective quick release.

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

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

- ▶ The front wheel quick release lever and the brake disc must be situated on opposite sides.

**Crash caused by incorrectly set clamping force**

Excessively high clamping force will damage the quick release and cause it to lose its function.

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

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

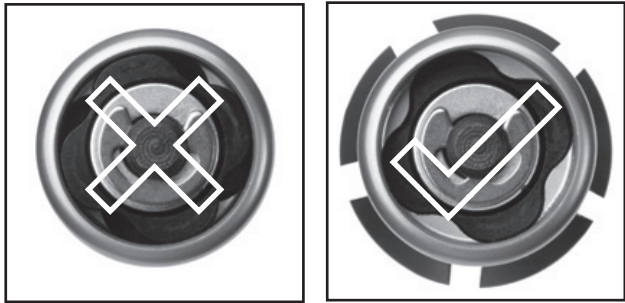


Figure 27:

Open and closed flange

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

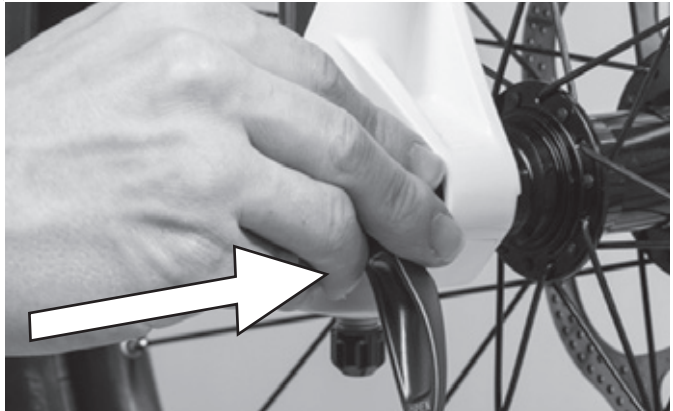


Figure 28:

Pushing the quick release in

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

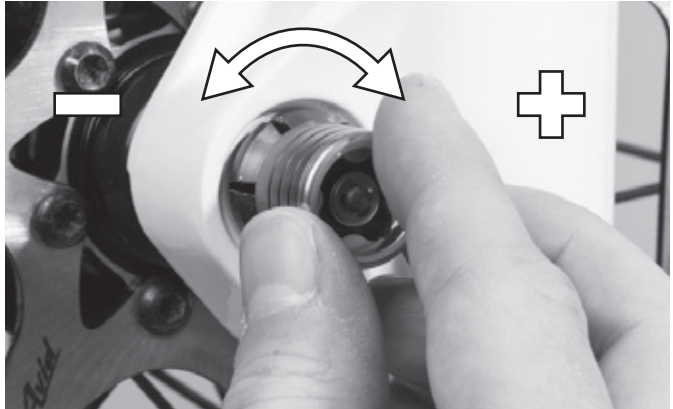


Figure 29:

Adjusting the clamping

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

⇒ The lever is secured.



Figure 30:

Closing the quick release

5.3.6.1**Checking the stem and handlebars****Checking connections**

- ▶ Stand in front of the bicycle to check whether the handlebars, stem and fork shaft are firmly attached to one another. Clamp the front wheel between your legs. Grasp the handlebar grips. Try to twist the handlebars towards the front wheel.
- ⇒ The stem must not move or twist.

Firm hold

- ▶ Place your entire body weight on the handlebars with the quick release lever closed to check that the stem is firmly in place.
- ⇒ The handlebars shaft must not move downwards in the fork shaft.
- ▶ If the handlebars shaft should move in the fork shaft, increase the quick release lever tensioning. To do so, turn the knurled nut slightly in a clockwise direction with the quick release lever open.
- ▶ Close the lever and check the stem is firmly in position.

Checking the headset backlash

- ▶ To check the handlebar headset backlash, close the quick release lever on the stem. Place the fingers of one hand on the upper headset cup, pull the front wheel brake with the other hand and try to push the bicycle backwards and forwards.
- ▶ The headset cup halves must not move towards one another while you are doing this. Note that there may be noticeable backlash due to worn-out bearing bushes or brake lining backlash in suspension forks and disc brakes.
- ▶ If there is headset backlash in the steering headset, you must adjust it as soon as possible; otherwise, the headset will become damaged. You must make the adjustment as described in the stem manual.

5.3.7

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 *stand* and the *shifter*, and show the purchaser the settings.
- ▶ Instruct the operator or rider how to use all the functions of the bicycle.

6

Before the first ride



Crash caused by incorrectly adjusted torques

If a screw is fastened too tightly, it may break. If a screw is not fastened enough, it may loosen. This will result in a crash and injuries.

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

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

6.1

Adjusting the saddle

6.1.1

Adjusting the saddle tilt

The saddle tilt must be adjusted to the seat height, the saddle and handlebar position, and the saddle shape to ensure an optimum fit. The seating position can be optimised in this way if needed. First, readjust the saddle after finding the handlebar position you prefer.

- ⇒ Place the saddle tilt in the horizontal position to adjust the bicycle to your needs for the first time.

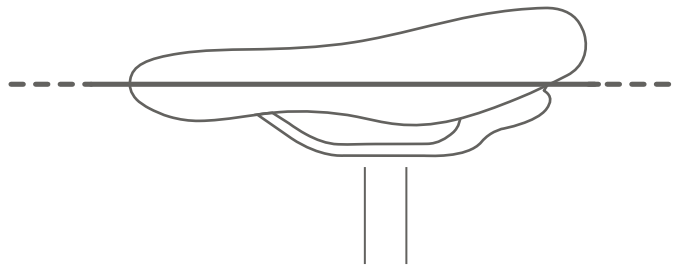


Figure 31:

Horizontal saddle tilt

6.1.2

Determining the seat height

- ✓ To determine the seat height safely, either push the bicycle near to a wall, so that you can lean on the wall to support yourself or ask another person to hold the bicycle for you.
- ▶ Climb onto the bicycle.
- ▶ Place your heel on the pedal and extend your leg, so that the pedal is at the lowest crank rotation point.
- ⇒ The rider sits straight on the saddle if the seat is at an optimum height. If this is not the case, you can adjust the length of the seat post to your needs.

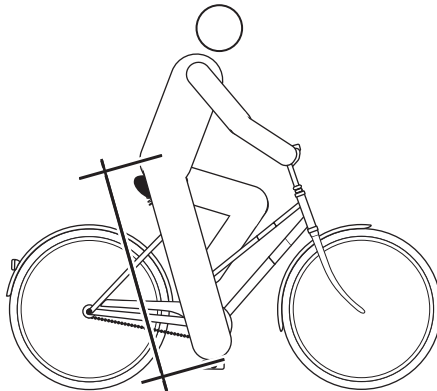


Figure 32:

Optimal saddle height

6.1.3

Adjusting the seat height with quick release

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

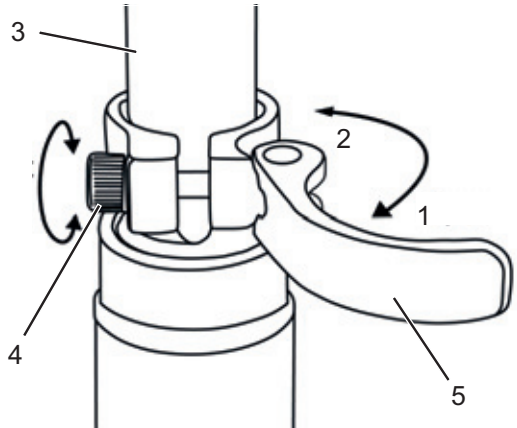


Figure 33:

Seat post quick release (3) with clamping lever (5) and setting bolt (4) in the open position (1) and in the direction of the closed position (2)

- ▶ Set the seat post at the required height.



Crash caused by an excessively high seat post setting

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

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

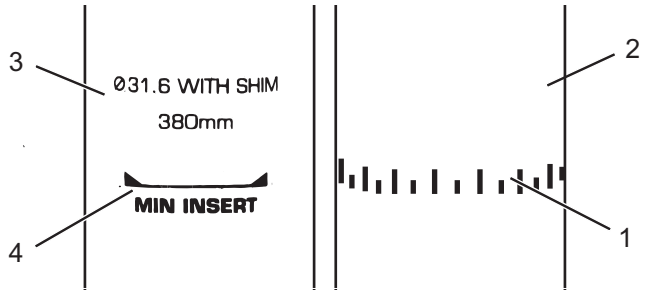


Figure 34:

Detailed view of the seat post – examples of the minimum insertion depth marking

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

6.1.4

Setting the height-adjustable seat post

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

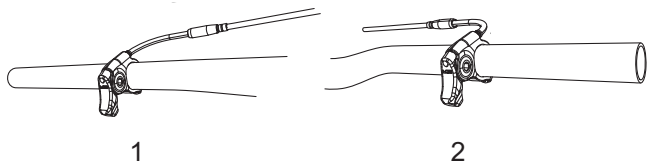


Figure 35:

The seat post activation lever can be mounted either on the left (1) or the right (2) side of the handlebars

6.1.4.1**Lowering the saddle**

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

6.1.4.2**Raising the saddle**

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

6.1.5**Adjusting the seat position**

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

- ✓ To adjust the seat position safely, either push the bicycle near to a wall, so that you can lean on the wall to support yourself or ask another person to hold the bicycle for you.
- ▶ Climb onto the bicycle.
- ▶ Place the pedals into the vertical position (3 o'clock position) with your feet.
- ⇒ The rider is sitting in the optimal sitting position if the knee cap perpendicular line runs through the pedal axle. If the perpendicular line crosses behind the pedal, bring the saddle forward. If the perpendicular line crosses in front of the pedal,

bring the saddle back. Move the saddle within its permitted displacement range only (marked on the saddle stay).

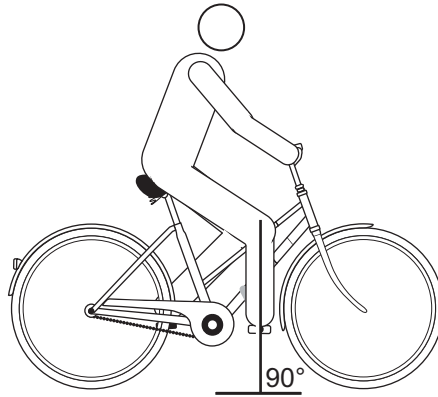


Figure 36: Knee cap perpendicular line

6.2

Adjusting the handlebars



- ✓ The handlebars must only be adjusted while the bicycle is stationary.
- ▶ Unfasten and adjust the designated screw connections, and clamp them with the maximum tightening torque for the clamping screws of the handlebars.

Maximum tightening torque for the clamping screws of the handlebars*

5 Nm - 7 Nm

*if there is no other data on the component

Table 11: Handlebars clamping screw maximum tightening torque

Adjusting the stem

**CAUTION**

Crash caused by loose stem

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

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

6.2.1

Adjusting the height of the handlebars

**CAUTION**

Crash caused by incorrectly set clamping force

Excessively high clamping force will damage the quick release and cause it to lose its function. Insufficient clamping force will cause a detrimental transmission of force. This can cause components to break. This will 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.
 - ▶ Pull the locking lever on the stem up, and simultaneously pivot the handlebars into the desired position.
- ⇒ You feel the locking lever click into place.
- ▶ Pull out the handlebars to the required height.
 - ▶ Lock the quick release.

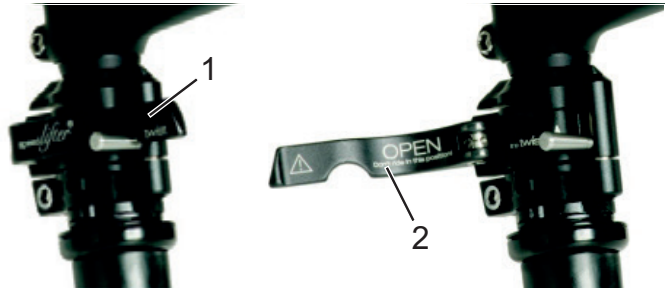


Figure 37: Open (2) and closed (1) clamping lever on the stem; by.schulz speedlifter used as an example

6.2.2 Turning the handlebars to the side *Alternative*



Crash caused by incorrectly set clamping force

Excessively high clamping force will damage the quick release and cause it to lose its function.

Insufficient clamping force will cause a detrimental transmission of force. This will 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.
 - ▶ Pull the locking lever on the stem up, and simultaneously pivot the handlebars into the desired position.
- ⇒ You feel the locking lever click into place.
- ▶ Pull out the handlebars to the required height.
 - ▶ Lock the quick release.

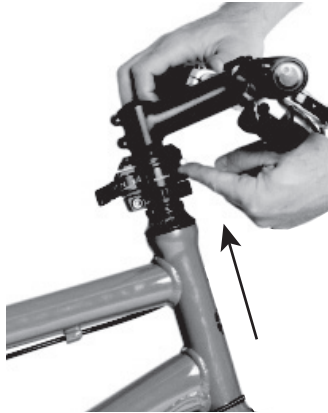


Figure 38: Pulling locking lever upwards; by.schulz speedlifter used as an example

6.2.2.1 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.

6.2.2.2 Adjusting the quick release clamping force

- ▶ If the *clamping lever on the handlebars* cannot be moved into its final position, screw out the *knurled nut*.
- ▶ Tighten the *knurled nut* on the seat post if the *clamping lever's* clamping force is not sufficient.



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

6.3 Adjusting the brake lever

6.3.1 Adjusting the pressure point on a Magura brake lever



Brake failure due to incorrect setting

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

- ▶ Before you set the pressure point, ensure that the brake lining and brake disc have not reached their wear limit.

The pressure point setting is adjusted using the twist knob.

- ▶ Turn the twist knob towards the plus (+) symbol.
 - ⇒ The brake lever moves closer to the handlebar grip. Re-adjust the grip distance as necessary.
 - ⇒ The lever pressure point activates sooner.

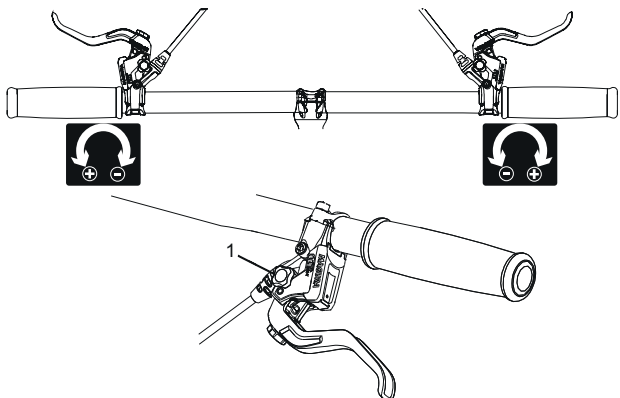


Figure 39: Using the twist knob (1) to adjust the pressure point

6.3.2

Adjusting the grip distance



Crash caused by incorrectly set grip distance

If brake cylinders are set incorrectly or installed wrongly, the braking power may be lost at any time. This may cause you to fall from the bicycle and injure yourself.

- ▶ Once the grip distance has been set, check the position of the brake cylinder and adjust it as necessary.
- ▶ Never correct the brake cylinder position without special tools. Have a specialist dealer correct it.



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

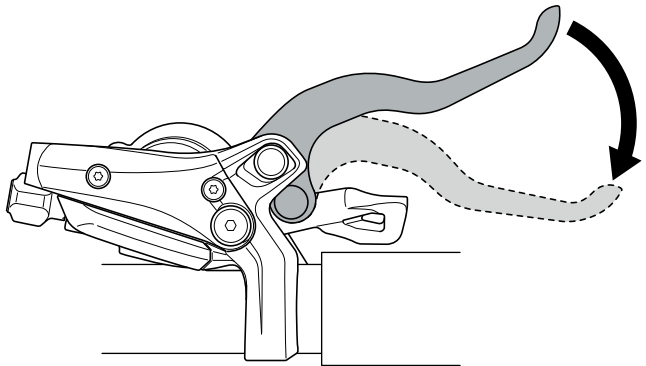


Figure 40:

Brake lever grip distance

6.3.2.1**Adjusting the grip distance on a Magura brake lever
Alternative**

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

- ▶ Turn the setting screw in the minus (–) direction.
⇒ The brake lever moves closer to the handlebar grip.
- ▶ Turn the setting screw in the plus (+) direction.
⇒ The brake lever moves away from the handlebar grip.

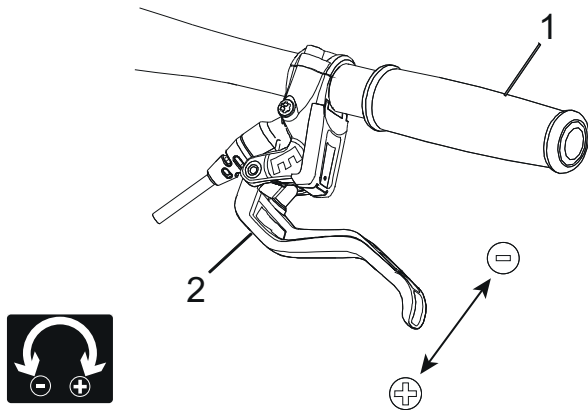


Figure 41:

Using the setting screw (2) to adjust the distance from the brake lever to the handlebar grip (1)

6.4

Adjusting the suspension



CAUTION

Crash caused by incorrectly set suspension

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

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

NOTICE

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

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

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

6.4.1

Adjusting the negative deflection

Negative deflection is compression caused by the rider's weight, including equipment (such as a backpack), sitting position and frame geometry.

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

6.4.1.1

Adjusting the steel suspension fork negative deflection

Alternative

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



Figure 42:

Negative deflection setting wheel on the suspension fork crown

- ✓ Only adjust the negative deflection when the bicycle is stationary.
- ▶ The setting wheel may be located under a plastic cover on the suspension fork crown. Remove the plastic cover by pulling it off upwards.
- ▶ Turn the negative deflection setting wheel in a clockwise direction to increase the spring pre-tensioning.
Turn the negative deflection setting wheel in an anti-clockwise direction to reduce it.
- ⇒ The ideal setting in relation to the weight of the rider has been achieved when the shock absorber deflects 3 mm under the stationary load of the rider.
- ▶ If applicable, re-attach the plastic cover after setting the suspension fork.

6.4.1.2

Adjusting the air suspension fork negative deflection *Alternative*

NOTICE

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

- ▶ 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 damper pump to adjust the filling pressure.

The air chamber valve can be used to adjust the fork suspension to the rider's weight and driving style.

Adjusting the tyre pressure

- ▶ The tyre pressure determines the force required to press the fork together. If the tyre pressure is reduced, the fork slackens more and rebounds less.



Figure 43:

Screw caps in different designs

- ✓ Only adjust the tyre pressure when the bicycle is stationary.

- ▶ The air valve is located under a screw cap on the head of the left shock absorber. Unscrew and remove the screw cap.
- ▶ Adjust the air pressure as an initial value using a high-pressure damper pump and based on the tyre pressure table on the fork and the rider's weight.

6.5

Retracting brake linings

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

- ▶ Accelerate bicycle to about 25 km/h.
- ▶ Brake bicycle until it comes to a halt.
- ▶ Repeat process 30–50 times.
- ▶ The brake linings and brake discs are now retracted and provide optimal braking power.

7

Operation

 **CAUTION****Crash caused by loose clothing**

Laces, scarves and other loose items may become entangled in the spokes on the *wheels* and the *chain drive*. This may cause you to fall from the bicycle and injure yourself.

- ▶ Wear sturdy footwear and close-fitting clothing.
-

 **CAUTION****Crash caused by soiling**

Heavy soiling can impair the functions of the bicycle, for example, the function of the brakes. This may cause you to fall from the bicycle and injure yourself.

- ▶ Remove coarse soiling before riding.
-

 **CAUTION****Crash caused by poor road conditions**

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

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

NOTICE

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

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

You can be ride the bicycle within a temperature range between 5 °C and 35 °C. The effectiveness of the drive system is restricted outside of this temperature range.

Operation temperature5 °C–35 °C

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

▶ Always keep the bicycle dry and free from frost.



▶ If the bicycle is to be used at temperatures below 3 °C, the specialist dealer must carry out an inspection and prepare the bicycle for winter usage first.

Off-road riding subjects the joints in the arms to severe strain. Take a break from riding every 30 to 90 minutes, depending on the condition of the roads.

7.1

Before each ride**Crash caused by difficult-to-spot damage**

If the bicycle topples over or you have a fall or an accident, there may be difficult-to-spot damage to components such as the brake system, quick releases or *frame*. This may cause you to fall from the bicycle and injure yourself.

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

**Crash caused by material fatigue**

Intensive use can cause material fatigue. A component may suddenly fail in case of material fatigue. This may cause you to fall from the bicycle and injure yourself.

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

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

- ▶ Never expose carbon parts to strong heat sources.

7.2

Check list before each ride

► Check the bicycle before each ride.

⇒ Do not use the bicycle if there are any anomalies.

| | |
|--------------------------|--|
| <input type="checkbox"/> | Check that the bicycle is complete. |
| <input type="checkbox"/> | Check that the lighting, reflector and brake, for instance, are sufficiently clean. |
| <input type="checkbox"/> | You must check that the mudguards, the pannier rack and the chain guard are securely installed. |
| <input type="checkbox"/> | Check that the front and rear wheels run true. This is particularly important if the bicycle has been transported or secured with a lock. |
| <input type="checkbox"/> | Check the valves and the tyre pressure. Adjust as necessary before each ride. |
| <input type="checkbox"/> | If the bicycle has a hydraulic rim brake, check whether the locking levers are fully closed in their final positions. |
| <input type="checkbox"/> | Check the front and rear wheel brakes to make sure that they are working properly. To do so, operate the brake levers while stationary in order to check whether resistance is generated in the usual brake lever position. The brake must not lose any brake fluid. |
| <input type="checkbox"/> | Check that the driving light is working. |
| <input type="checkbox"/> | Check for unusual noises, vibrations, smells, staining, deformation, cracks, scores, abrasion and wear. This indicates material fatigue. |
| <input type="checkbox"/> | Inspect suspension system for cracks, dents, bumps, parts or leaking oil. Look at concealed sections on the bicycle's lower surfaces. |
| <input type="checkbox"/> | Use body weight to compress suspension system. Adjust to the optimum "SAG" value if suspension is too soft. |
| <input type="checkbox"/> | If quick releases are used check them to make sure that they are fully closed in their end position. If quick release axle systems are used, make sure that all attachment screws are tightened to the correct torque. |
| <input type="checkbox"/> | Be alert to any unusual operating sensations when braking, pedalling or steering. |

7.3

Using the kickstand

**CAUTION****Crash caused by a lowered kickstand**

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

- ▶ Raise the kickstand completely before the ride.
-

NOTICE

The heavy weight of the bicycle may cause the kickstand to sink into soft ground and the bicycle may topple and crash over.

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

Raising the kickstand

- ▶ Before the ride, raise the kickstand completely with your foot.

Parking the bicycle

- ▶ Before parking, lower the kickstand completely with your foot.
- ▶ Park the bicycle carefully and check that it is stable.

7.4

Using the pannier rack

**CAUTION****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 cause you to fall from the bicycle and injure yourself.

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

**CAUTION****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 cause you to fall from the bicycle and injure yourself.

Objects which are fastened to the pannier rack may cover the bicycle's *reflectors* and the *driving light*. The bicycle may be overseen on public roads. This may cause you to fall from the bicycle and injure yourself.

- ▶ Secure any objects which are attached to the *pannier rack* sufficiently.
- ▶ Objects fastened to the *pannier rack* must never cover the *reflectors*, the *headlight* or the *rear light*.

**CAUTION****Crushing the fingers in the spring flap**

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

- ▶ Never allow the spring flap to snap shut in an uncontrolled manner.
 - ▶ Be careful where you position your fingers when closing the spring flap.
-

NOTICE

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

- ▶ Never exceed the permitted *total weight* when packing the 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.

7.5

Gear shift

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

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

7.5.1

Using the derailleur gears

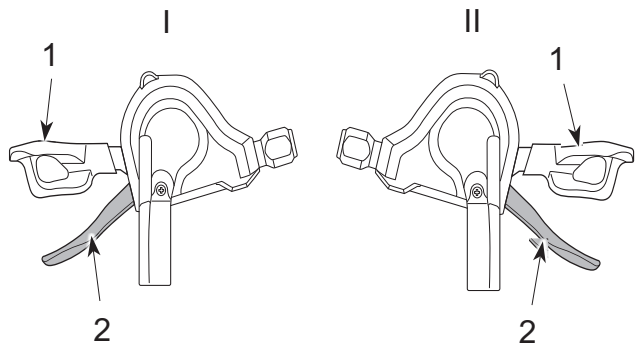


Figure 44:

Down shifter (1) and up shifter (2) on the left (I) and right (II) shift

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

7.6

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

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

First aid treatment

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

After inhalation

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

After skin contact

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

After contact with eyes

- ▶ Rinse eyes under flowing water for at least ten minutes with the lids open; also rinse under lids. Consult eye doctor if pain or discomfort continues.

After ingestion

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

Environmental protection measures

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



Amputation due to rotating brake disc

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

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



Crash caused by brake failure

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

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

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

- ▶ Release the brake regularly when riding downhill for a longer period of time.



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.
-

**CAUTION**

Crash caused by incorrect use

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

- ▶ Shift your body weight back and down as far as possible.
- ▶ Practise braking and emergency braking before the bicycle is used in public spaces.
- ▶ Never use the bicycle if you can feel no resistance when pulling on the brake handle. Consult a specialist dealer.

**CAUTION**

Crash after cleaning or storage

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

- ▶ If the bicycle is placed on its side or turned upside down, apply the brake a couple of times before setting off to ensure that it functions normally.
- ▶ Never use the bicycle if it no longer brakes as normal. Consult a specialist dealer.

**CAUTION**

Burns caused by heated brake

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

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

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

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

7.6.1 Using the brake lever

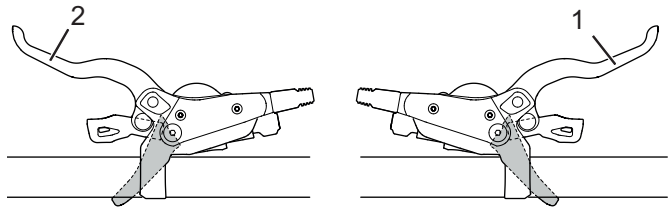


Figure 45: Front (2) and rear (1) brake lever; Shimano brake used as an example

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

7.6.2 Using the back-pedal brake *Alternative*

- ✓ 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.

7.7 Suspension and damping

7.7.1 Adjusting the compression of the Suntour fork *Alternative*

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



Figure 46: Suntour compression adjuster with the OPEN (1) and LOCK (2) positions

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

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

8

Maintenance**Cleaning check list**

| | | |
|--------------------------|---|---------------------------|
| <input type="checkbox"/> | Clean pedals | after each ride |
| <input type="checkbox"/> | Clean the suspension fork | after each ride |
| <input type="checkbox"/> | Chain (mainly tarmacked road) | every 250–300 km |
| <input type="checkbox"/> | Basic cleaning and preservation of all components | at least every six months |
| <input type="checkbox"/> | Clean and lubricate height-adjustable seat post | every six months |

Maintenance check list

| | | |
|--------------------------|---|---------------------------|
| <input type="checkbox"/> | Check USB rubber cover position | before each ride |
| <input type="checkbox"/> | Check for tyre wear | once a week |
| <input type="checkbox"/> | Check for rim wear | once a week |
| <input type="checkbox"/> | Check the tyre pressure | once a week |
| <input type="checkbox"/> | Check brakes for wear | once a week |
| <input type="checkbox"/> | Check electrical cables and Bowden cables for damage and ensure they are fully functional | once a month |
| <input type="checkbox"/> | Check the chain tension | once a month |
| <input type="checkbox"/> | Check the tension of the spokes | every three months |
| <input type="checkbox"/> | Check the gear shift setting | every three months |
| <input type="checkbox"/> | Check the suspension fork for wear and ensure it is fully functional | every three months |
| <input type="checkbox"/> | Check steering | every three months |
| <input type="checkbox"/> | Check for wear on brake discs | at least every six months |

Service check list

| | | |
|--------------------------|---|---|
| <input type="checkbox"/> | Functional check on the suspension fork | every 50 hours |
| <input type="checkbox"/> | Suspension fork maintenance and dismantling | every 100 hours or at least once a year |
| <input type="checkbox"/> | Inspection by the specialist dealer | every six months |

8.1 Cleaning and servicing

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

8.1.1 After each ride

8.1.1.1 Cleaning the suspension fork

- ▶ Remove dirt and deposits on the stanchions and deflector seals with a damp cloth.
- ▶ Check the stanchions for dents, scratches, staining or leaking oil.
- ▶ Check the air pressure.
- ▶ Lubricate the dust seals and stanchions.

8.1.1.2 Cleaning the rear frame damper

- ▶ Remove dirt and deposits from the damper body with a damp cloth.
- ▶ Check rear frame damper for dents, scratches, staining or leaking oil.

8.1.1.3 Cleaning the pedals

- ▶ Clean with a brush and soapy water after riding through dirt or rain.
- ⇒ Service the pedals after cleaning.

8.1.2

Basic cleaning**Crash caused by brake failure**

The braking effect may be unusually poor temporarily after cleaning, servicing or repairing the bicycle. This may cause you to fall from the bicycle and injure yourself.

- ▶ Never apply care products or oil to the brake discs or brake linings, or the braking surfaces on the rims.
- ▶ After cleaning, servicing or repair, carry out a few test brake applications.

NOTICE

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

- ▶ Never clean the bicycle with a steam jet.

NOTICE

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

- ▶ Never apply grease or oil to clamping sections.
- ✓ Remove battery and display before basic cleaning.

8.1.2.1**Cleaning the frame**

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

8.1.2.2**Cleaning the stem**

- ▶ Clean stem with a cloth and washing water.
- ▶ Service the stem after cleaning.

8.1.2.3**Cleaning the rear frame damper**

- ▶ Clean rear frame damper with a cloth and washing water.

8.1.2.4**Cleaning the wheel**

Crash caused by braking hard on rims

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

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

8.1.2.5**Cleaning the drive elements**

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

8.1.2.6**Cleaning the chain****NOTICE**

- ▶ Never use aggressive (acid-based) cleaners, rust removers or degreasers when cleaning the chain.
 - ▶ Do not use chain cleaning devices or chain cleaning baths.
-
- ▶ Slightly dampen a brush with dish-washing liquid. Brush both sides of the chain.
 - ▶ Dampen a cloth with dish-washing liquid. Place the cloth on the chain.
 - ▶ Hold with slight pressure while slowly turning the rear wheel, so the chain passes through the cloth.
 - ▶ If the chain is still dirty afterwards, clean it with WD40.
 - ▶ Service the chain after cleaning.

8.1.2.7**Cleaning the brake****Brake failure due to water penetration**

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

- ▶ Never clean the bicycle with a high-pressure water device or compressed air.
 - ▶ Take great care when using a hosepipe. Never point the water jet directly at the seal section.
-
- ▶ Clean brake and brake discs with a brush, water and dish-washing detergent.
 - ▶ Clean brake discs thoroughly with brake cleaner or spirit.

8.1.3**Servicing****8.1.3.1****Servicing the frame**

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

8.1.3.2**Servicing the stem**

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

8.1.3.3**Servicing the fork**

- ▶ Treat the dust seals with fork oil

8.1.3.4**Servicing the drive elements**

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

8.1.3.5**Servicing the pedal**

- ▶ Treat with spray oil after cleaning.

8.1.3.6**Servicing the chain**

- ▶ Grease the chain thoroughly with chain oil after cleaning.

8.1.3.7**Servicing the drive elements**

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

8.2

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 inspection.

**Crash caused by material fatigue**

If the service life of a component has expired, the component may suddenly fail. This may cause you to fall from the bicycle and injure yourself.

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

The specialist dealer must perform an inspection at least every six months. This is the only way to ensure that the bicycle remains safe and fully functional.



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



- ▶ The specialist dealer will fully inspect the interior and exterior of the rear frame damper, overhaul the rear frame damper, replace all air seals of air forks, overhaul the air suspension, change the oil and replace the dust wipers.
- ▶ The further servicing measures correspond to those which are recommended for a bicycle as per EN 4210. Particular attention is paid to the rim and brake wear. The spokes are re-tightened in accordance with the findings.

8.3

Adjusting and repairing



Crash and falling caused by unintentional activation

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

- ▶ Remove the battery before inspection.
-

8.3.1

Use original parts and lubricants only

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

Only original parts and lubricants must be used for maintenance and repair.

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

8.3.2

Axle with quick release

**CAUTION****Crash caused by unfastened quick release**

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

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

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

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

- ▶ The front wheel quick release lever and the brake disc must be situated on opposite sides.
-

**CAUTION****Crash caused by incorrectly set clamping force**

Excessively high clamping force will damage the quick release and cause it to lose its function.

Insufficient clamping force will cause a detrimental transmission of force. 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.
-

8.3.2.1

Checking the quick release

- ▶ Check the position and clamping force of the quick release lever. The quick release lever must be flush with the lower housing. You must be able to see a slight impression on the palm of your hand when you close the quick release lever.



Figure 47:

Adjusting the quick release clamping force

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

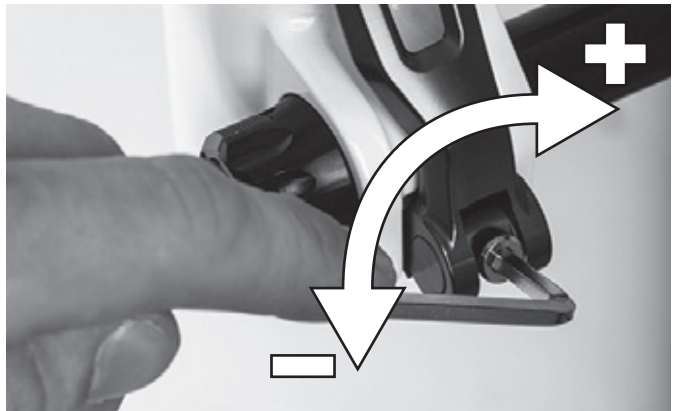


Figure 48:

Adjusting the quick release clamping force

8.3.3 Adjusting the tyre pressure

8.3.3.1 Dunlop valve

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

- ✓ It is recommendable to use a bicycle pump with a pressure gauge. The operating instructions for the bicycle pump must be adhered to.
- ▶ Unscrew and remove the valve cap.
- ▶ Connect the bicycle pump.
- ▶ Pump up the tyre slowly and pay attention to the tyre pressure in the process.
- ⇒ The tyre pressure has been adjusted as per the data [[▷ Data sheet, page 3](#)].
- ▶ If the tyre 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 49: Dunlop valve with union nut (1) and rim nut (2)

8.3.3.2

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 tyre slowly and pay attention to the tyre pressure in the process.
- ⇒ The tyre pressure has been adjusted as per the data [[Data sheet, page 3](#)].
- ▶ Remove the bicycle pump.
- ▶ Tighten the knurled nut with your fingers.
- ▶ Screw the valve cap tight.
- ▶ Screw the rim nut gently against the rim with the tips of your fingers.



Figure 50:

Presta valve with valve insert (1), knurled nut (2) and rim nut (3)

8.3.3.3**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 tyre slowly and pay attention to the tyre pressure in the process.
- ⇒ The tyre pressure has been adjusted as per the data [[▷ Data sheet, page 3](#)].
- ▶ Remove the bicycle pump.
- ▶ Screw the valve cap tight.
- ▶ Screw the rim nut gently against the rim with the tips of your fingers.

**Figure 51:****Schrader valve with rim nut (1)**

8.3.4

Adjusting the gear shift

If you cannot select the gears effortlessly, you will need to adjust the setting for the shift cable tension.

- ▶ Carefully pull the *adjusting sleeve* away from the shifter housing, turning it as you do so.
- ▶ Check the gear shift function after each adjustment.



If you are unable to adjust the gear shift in this way, the specialist dealer will need to check the gear shift assembly.

8.3.4.1

Cable-operated gear shift, single-cable *Alternative*

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

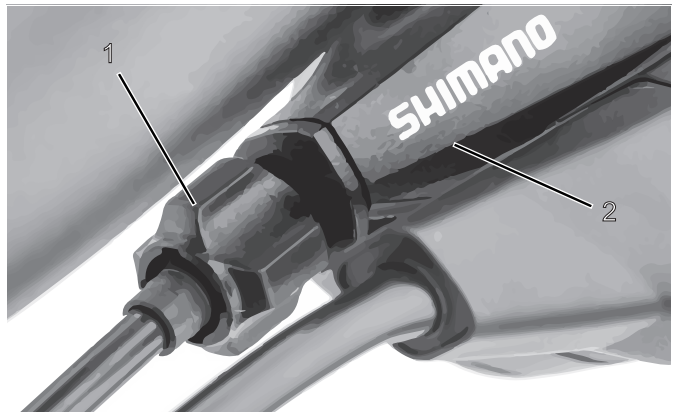


Figure 52:

Adjusting sleeve (1) for the single-cable cable-operated gear shift with shifter housing (2), example

8.3.4.2

**Cable-operated gear shift, dual-cable
Alternative**

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

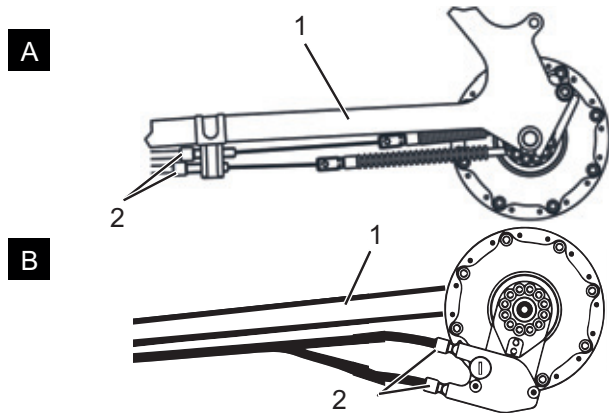


Figure 53:

Adjusting sleeves (2) on two alternative versions (A and B) of a dual-cable cable-operated gear shift on the chain stay (1)

8.3.4.3

Cable-operated twist grip, dual-cable
Alternative

- ▶ For a smooth gear shift, set the adjusting sleeves on the shifter housing.
- ⇒ There is noticeable play of around 2–5 mm (1/2 gear) when twisting the twist grip.

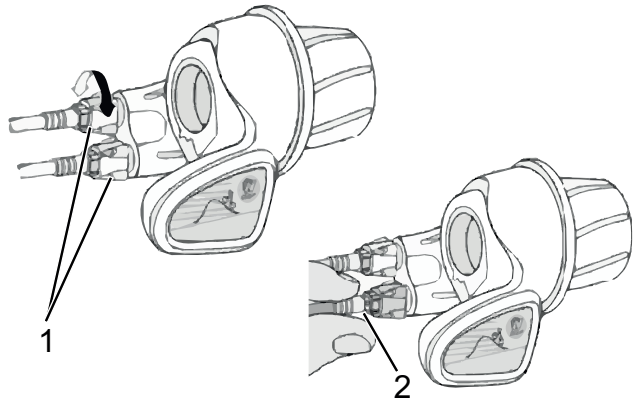


Figure 54:

Twist grip with adjusting sleeves (1) and play of the gear shift (2)

8.3.5 Offsetting the brake lining wear

8.3.5.1 Hydraulically operated rim brake *Alternative*

The *setting bolt* on the *brake lever* of the hydraulic rim brake is used to offset the brake lining wear. If the profile of the brake linings has a remaining depth of just 1 mm, the brake linings need to be replaced.

- ▶ In order to reduce the free travel and offset the brake lining wear, screw the *setting bolt* in.
 - ▶ In order to increase the free travel, screw the *setting bolt* out.
- ⇒ With the optimum setting the pressure point, i.e. the point at which the brake takes effect, is reached after 10 mm of free travel.



Figure 55: Brake lever (1) of the hydraulically operated rim brake with setting bolt (2)

8.3.5.2 Hydraulically operated disc brake *Alternative*

The brake pad wear on the disc brake does not require readjustment.

8.3.6

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.

8.3.7

Setting the headlight

- ▶ The *headlight* must be set, so that its light beam meets the road 10 m in front of the bicycle.

8.3.8

Repair by the specialist dealer



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

- Replacing *tyres* and rims,
- Replacing brake pads and brake linings
- Replacing and tensioning the *chain*.

8.4

Accessories

For bicycles without a kickstand we recommend a parking stand into which either the front or rear wheel can be inserted securely. The following accessories are recommended:

| <i>Description</i> | <i>Article number</i> |
|-----------------------|-----------------------|
| Teddy child seat | 08947-665 |
| Flipper child seat | 08947-660 |
| Fitting stand | 08981-880 |
| Wall mount | 08959-000 |
| Ceiling mount | 08959-500 |
| Parking stand | 08982-500 |
| Messenger bag | 08987-742 |
| Layana shopping bag | 08987-741 |
| Pannier rack basket | 08985-500 |
| Smart bag | 08987-745 |
| Single bag | 08987-746 |
| Handlebar bag | 08987-747 |
| Smart Bag Waterproof | 08987-748 |
| Single Bag Waterproof | 08987-749 |
| Business bag | 08987-744 |
| Ladies' bag | 08987-743 |

Table 12:

Accessories

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

**System components are matched to the drive system.

8.4.1

Child seat

**Crash caused by incorrect child seat**

Neither the pannier rack nor the bicycle down tube are suitable for child seats and may break. Such an incorrect position may cause a crash with serious injuries for the rider and the child.

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

**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 specialist dealer will advise on choosing a suitable child seat system for the child and the bicycle.

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

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

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

8.4.2

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 statutory regulations on the use of bicycle trailers must be observed.
- ▶ Only use type-approved coupling systems.

NOTICE

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

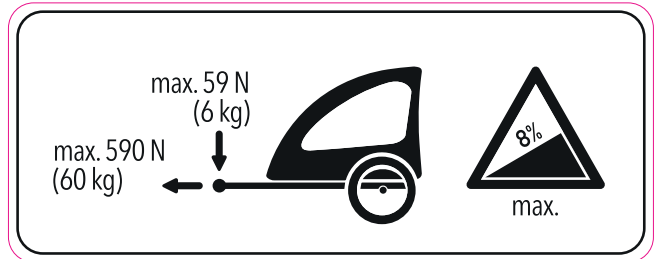


Figure 56:

Trailer sign



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

8.4.3

Pannier rack



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

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

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

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

9

Recycling and disposal



The bicycle is made of valuable materials. You must dispose of and recycle them separately from domestic waste in compliance with the applicable statutory regulations.

Sorted waste collection and recycling saves on raw material reserves and ensures that all the regulations for health and environmental protection are met when the product and/or the battery are recycled.

- ▶ Never dismantle the bicycle for disposal purposes.
- ▶ You are welcome to return the bicycle to any 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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