

PIERER

E-Bikes GmbH



RAYMON

GASGAS

OPERATING INSTRUCTIONS

EN ISO 4210-2

MOUNTAIN BIKE

*Read pages 4 to 11 before your first ride! Perform the functional check
on pages 12 and 13 before every ride!*

Frame:

- ① Top tube
- ② Down tube
- ③ Seat tube
- ④ Chainstay
- ⑤ Rear stay
- ⑥ Head tube
- ⑦ Rear shock

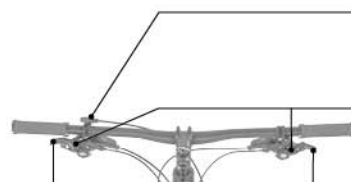
Suspension fork:

- I Fork crown
- II Stanchion tube
- III Lower leg
- IV Dropout



Handlebar:

- Remote control lever height-adjustable/dropper post
- Shifter
- Brake lever



Frame:

- ① Top tube
- ② Down tube
- ③ Seat tube
- ④ Chainstay
- ⑤ Rear stay
- ⑥ Head tube

Suspension fork:

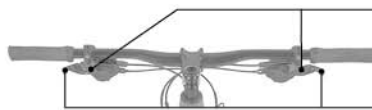
- I Fork crown
- II Stanchion tube
- III Lower leg
- IV Dropout



Handlebar:

Shifter

Brake lever



Stem

Handlebar

Headset

Front brake

Rotor/brake disc

Wheel:

Quick-release/
thru axle

Spoke

Rim

Tyre

Hub

Valve



Pay particular attention to the following symbols:

⚠ WARNING

This symbol indicates a hazardous situation which could result in death or serious injury – if the relevant operational instructions are not followed or if the relevant protective measures are not taken.

⚠ CAUTION

This symbol indicates a hazardous situation which could result in minor or moderate injury – if the relevant operational instructions are not followed or if the relevant protective measures are not taken.

NOTICE

This symbol is used to address practices not related to physical injury – which may, however, result in damage to property and the environment.

SAFETY INSTRUCTIONS

This symbol indicates specific safety-related instructions or procedures about how to handle the product or refers to a section in the operating instructions that deserves your particular attention.

The described possible consequences will not be repeated in the operating instructions every time one of the symbols appears.

For the sake of better legibility, the male form is used with personal names and personal nouns throughout these operating instructions. The terms in question principally apply to all genders in the spirit of equal treatment. The abbreviated language form is used solely for editorial reasons and does not represent any value judgement.

SOME NOTES ON THIS MANUAL

The illustrations (c+d) show typical mountain bikes – one of these types may look similar to the bicycle you have purchased. Today's bicycles come in various types that are designed for specific uses and equipped accordingly.

These operating instructions are not intended to help you assemble a bicycle from individual components, to repair it or to make a partly assembled bicycle ready-for-use.

These operating instructions are not applicable to any other than the displayed or specified bicycle type.

Technical details in the text and illustrations of these operating instructions are subject to change.

This manual complies with the requirements of the EN ISO standard 4210-2.

Also observe the enclosed operating instructions of the component manufacturers. These operating instructions are subject to European law. If delivered to countries outside Europe, supplementary information has to be provided by the bicycle manufacturer, if necessary.



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GENERAL SAFETY INSTRUCTIONS

Dear Customer,

In purchasing this bicycle (a) you have chosen a product of high quality and technology. Each component of your new bicycle has been designed, manufactured and assembled with great care and expertise. Your authorised dealer gave the bicycle its final assembly and adjustment to guarantee proper operation and many enjoyable riding experiences with complete peace of mind from the very first metres.

This manual contains a wealth of information on the proper use of your bicycle, its maintenance and operation as well as interesting information on bicycle design and engineering. Read this manual thoroughly. We are sure that even if you have been cycling all your life you will find useful and detailed information. Bicycle technology has developed at a rapid pace during recent years (b). Therefore, before setting off on your new mountain bike, be sure to read at least chapters **"Intended Use"** and **"Before Your FIRST Ride"**.

To have as much fun as possible during cycling, be sure to carry out the functional check described in chapter **"Before EVERY Ride"** before setting off.

Even a manual as big as an encyclopedia could not describe any possible combination of bicycle models and components or parts on the market. It therefore focuses on your newly purchased bicycle and standard components and provides useful information and warnings.

When doing any of the adjusting or servicing (c), be aware that the instructions and notes provided in your manual only refer to this mountain bike.

The information included here is not applicable to any other bicycle type. As bicycles come in a wide variety of designs with frequent model changes, the routines described may require complementary information. Be sure to also observe the instructions of the component suppliers (d) that you received from your authorised dealer.

Be aware that these instructions may require further explanation, depending on the experience and/or skills of the person doing the work. For some jobs you may require additional (special) tools or supplementary instructions. This manual cannot teach you the skills of a bicycle mechanic.



Before you set off, let us point out a few things to you that are very important to every cyclist: Never ride without a properly adjusted helmet and without glasses (e). Make sure you wear suitable, bright clothing, as a minimum, however, straight cut trousers and shoes (f) fitting the pedal system.

This manual cannot teach you how to ride. Be aware that cycling is a hazardous activity that requires the rider to stay in control of his or her bicycle at all times.

Like any sport, cycling involves the risk of injury and damage. By choosing to ride a bike, you assume the responsibility for the risk. Note that on a bicycle you have no protection technique around you (e.g. bodywork, ABS, airbag) like you have in a car. Therefore, always ride carefully and respect the other traffic participants.

Never ride under the influence of drugs, medication, alcohol or when you are tired. Do not ride with a second person on your bicycle and never ride without having both hands on the handlebar.

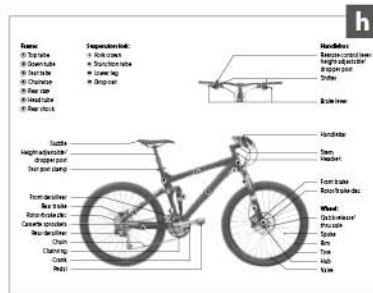
Observe the legal regulations concerning off-road cycling (g). These regulations may differ in each country. Respect nature when riding through the forest and in the open countryside. Use your bicycle only on signposted, well maintained trails and hard-surface roads.

First we would like to familiarise you with the the components of your bicycle. Unfold the cover of this manual (h). Here you find two exemplary bicycles showing all the necessary components. Leave the page unfolded as you read so that you can easily locate the components as they are referred to in the text.

⚠ WARNING

For your own safety, never do work on your bicycle unless you feel absolutely sure about it. If you are in doubt or if you have any questions, contact your authorised dealer.

Note: During cycling you must not hold onto a moving vehicle or trailer. Keep both hands on the handlebar. Only take your feet off the pedals, if required by the condition of the road. Also bear in mind that riding with headphones is in some countries allowed as long as the acoustic perception is not impaired. Inform yourself about the law situation in the country where you use your bike.



Note that each type and/or kind of bicycle, referred to as **category** in the following, is designed for a specific use. Use your bicycle only according to its intended use, as it may otherwise not withstand the loads, fail and cause an accident with unforeseeable consequences! If you use your bicycle for another than its intended purpose, the warranty will become void, in addition.

Ask your authorised dealer to confirm the category to which your bicycle belongs. Have a look at your bike card.

The **maximum permissible overall weight** is specified in the bike card (a). Under certain circumstances the maximum permissible overall weight can be further limited by the component manufacturers' recommendations for use.

Categories 3 to 5: mountain bikes

The mountain bike as such describing one particular type of bicycle does not exist any longer. Various types of mountain bikes for specific uses have been developed instead. Be sure to use your bicycle only according to its intended use. Observe the traffic rules when riding on public roads.

Due to their design and equipment, mountain bikes are not always suitable for being used on public roads. If you want to use them on public roads, these bikes must be equipped according to the respective rules (b). Observe the traffic rules when riding on public roads. For more information see chapter **“Legal Requirements for Riding on Public Roads”**.

Ask your authorised dealer to confirm the category to which your bicycle belongs. Have a look at your bike card.

Category 3: cross-country, marathon and touring mountain bikes

Mountain bikes and components of the category 3 are used for sports and competition rides with moderate to challenging trail features. Mountain bikes and components of this category are intended for rides on rough paths (c), uneven, unpaved roads as well as in difficult terrain and on undeveloped trails. Their use requires technical riding skills. Jumps may be performed up to a height of 60 cm.

Mountain bikes and components of the category 3 are however not suitable for blocked terrain, higher jumps (d), etc. and higher category competitions.

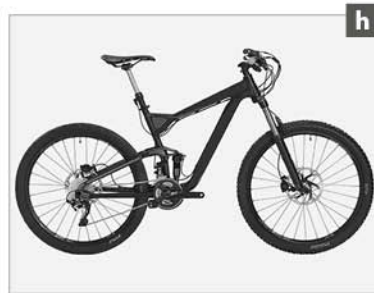
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In general, **cross-country** (e), **marathon** and **touring mountain bikes** are mountain bike hardtails and full-suspension mountain bikes with short spring travel (100–120 mm).

But particularly inexperienced riders doing jumps may land inappropriately, thus increasing the acting forces significantly which may result in damage and injuries. We recommend that you train your skills in a riding technique course. If necessary, have your bicycle checked more often by your authorised dealer than prescribed by the maintenance schedule.

⚠ WARNING

Categories 3 bicycles are not suitable for blocked terrain, stair riding, high and wide jumps, slides, stoppies, wheelies (f), tricks etc.!



Category 4: enduro and all mountain bikes, trail bikes

Mountain bikes and components of the category 4 are used for sports and competition rides with very challenging demand of the trails. Mountain bikes and components of this category are intended for rides on uneven, rough and partly blocked paths and unpaved trails at speeds less than 40 km/h. Jumps may be performed up to a height of 120 cm.

Mountain bikes and components of the category 4 are however not suitable for regular and long-term use in bike parks and for higher category competitions.

In general, **enduro** (g) and **all mountain bikes** (h), are full-suspension mountain bikes with medium spring travel (130–160 mm).

⚠ WARNING

Due to the higher stresses, category 4 mountain bikes have to be checked for possible damage after every ride. Be sure to have your bicycle serviced at your authorised dealer at least every 75 hours of use.

Category 5: dirt bikes, freeride and downhill mountain bikes

Mountain bikes and components of the category 5 are used for extreme sports, e.g. in bike parks (a), on specific downhill trails and in competitions. Mountain bikes and components of this category are intended for extreme jumps or descents on unpaved, severely blocked trails at speeds of more than 40 km/h (24.9 mph). Jumps may also be performed above a height of 120 m.

In general, mountain bikes with specially reinforced hardtail frames and designated dirt forks are typical for dirt bikes. Full-suspension mountain bikes with very long spring travels are typical for freeride mountain bikes.

Due to the specific use, **dirt bikes** (b) often have only one brake. If you want to use the dirt bike for another than the typical dirt bike use on enclosed terrain, make sure you have it equipped accordingly.

Freeride mountain bikes (c) are full-suspension mountain bikes with very long spring travels.

In the case of these mountain bikes it is imperative to ensure that a thorough check for possible damage is carried out after every ride. Preliminary damage with clearly inferior further stress can result in failure. A regular replacement of safety-relevant components must also be taken into account. Wearing special protectors is strongly protectors (d).

WARNING

Due to the higher stresses, category 5 mountain bikes have to be checked for possible damage after every ride. An inspection at your authorised dealer is mandatory at least every 50 hours of use.



⚠ WARNING

For your own safety, do not overestimate your riding skills. Note that though looking easy the riding manoeuvres of a professional are hazardous to your life and limb. Always protect yourself with suitable clothing (e).

Use your bicycle only for its intended purpose, as it may otherwise not withstand the loads and fail (f+g). Risk of accident!

Your bicycle is designed for a maximum permissible overall weight including rider, luggage, bicycle and possibly trailer load. The maximum permissible overall weight is specified in the bike card of this manual; if it is not, contact your authorised dealer.

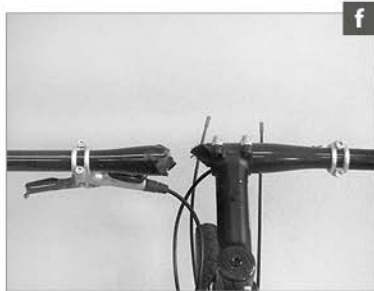
Due to their design and equipment, mountain bikes (cross-country, marathon and tour mountain bikes, enduro and all mountain bikes, dirt and freeride bikes) are not always suitable for being used on public roads. If you want to use them on public roads, these bikes must be equipped according to the respective rules (h). Observe the traffic rules when riding on public roads.

⚠ WARNING

Regular maintenance of your bicycle is essential for its suitability and decisive for its safety. You as owner are the only one who knows how often you use your bicycle, where you use it and how hard you do. It is therefore your responsibility, to have regular servicing and maintenance carried out. For more information see chapter "Service and Maintenance Schedule" or contact your authorised dealer.

SAFETY INSTRUCTIONS

For more information about the intended use of your bicycle and the maximum permissible overall weight (rider, luggage, bicycle and possibly trailer load) see the bike card and chapter "Before Your First Ride".



BEFORE YOUR FIRST RIDE

1. The above-mentioned bicycle categories are designed for a **maximum permissible overall weight** including rider, luggage, bicycle and possibly trailer load. The maximum permissible overall weight is specified in the bike card of these operating instructions; if it is not, contact your authorised dealer.
2. If you want to use your bicycle on public roads, it has to comply with the respective legal requirements. These requirements may vary in each country. The equipment of your bicycle is, therefore, not necessarily complete. Ask your authorised dealer for the laws and regulations applicable in your country or in the country you intend to use the bicycle. Have your bicycle equipped accordingly, before using it on public roads.
3. Are you familiar with the brake system (a)? Have a look at the bike card and check whether the brake lever of the front brake (b) is on the side you are used to (right or left). If it is not, ask your authorised dealer to change the brake levers before you set off for the first time.



Your new bicycle is equipped with modern brakes (c) which may be far more powerful than those you were used to so far. Be sure to first practise using the brakes on a level, non-slip surface off public roads!

For more information see chapter **“Brake System”** and the enclosed operating instructions.

4. Are you familiar with the type and functioning of the gears (d)? Ask your authorised dealer to explain the gear system to you and make yourself familiar with your new gears in an area free of traffic.

For more information see chapter **“Gears”** and the enclosed operating instructions.

5. Are both saddle and handlebar properly adjusted? The saddle should be set to a height from which you can just reach the pedal in its lowest position with your heel (e). Check whether your toes reach to the floor when you are sitting on the saddle. Your authorised dealer will be pleased to help you, if you are not happy with your seating position.

For more information see chapter **“Adjusting the Bicycle to the Rider”**.

6. If your bicycle is equipped with clipless or step-in pedals (f): Have you ever tried cycling with the respective cycling shoes? Do not set off until you have practised engaging and disengaging the shoes from the pedals in standing. Ask your authorised dealer to explain the pedals to you.

For more information see chapter “**Pedals and Shoes**” and the enclosed operating instructions.

7. If you have bought a suspension bicycle, you should ask your authorised dealer to adjust the suspension mechanism to your needs before delivery. Improperly adjusted suspension elements are liable to malfunction or damage. In any case they will impair the performance of your bike as well as your safety and joy whilst riding.

For more information see chapters “**Suspension Forks**” (g) and “**Rear Shock**” (h). Further notes regarding full-suspension bicycles and suspension forks are possibly enclosed with this manual.

⚠ WARNING

Use your bicycle only for its intended purpose, as it may otherwise not withstand the loads and fail! Risk of accident!



⚠ WARNING

- A lack of practice when using clipless pedals or too much spring tension in the mechanism can lead to a very firm connection, from which you cannot quickly step out. Risk of accident!**
- Due to the specific intended use, some dirt bikes have only one brake. Do not ride these bikes on public roads, but only on sign-posted tracks and lanes.**

⚠ CAUTION

- Make particularly sure there is enough space between your crotch and the top tube so that you do not hurt yourself, if you have to get off your bicycle quickly.**

NOTICE

- We recommend that you take out private liability insurance. Make sure that coverage for this kind of damage is provided by your insurance. Contact your insurance company or agency.**

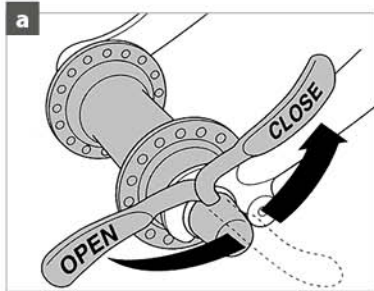
SAFETY INSTRUCTIONS

- Before hitching a trailer to your bicycle or mounting a child seat, have a look at the bike card and contact your authorised dealer.**

BEFORE EVERY RIDE

Your bicycle has undergone numerous tests during production and a final check has been carried out by your authorised dealer. Nevertheless, be sure to check the following points to exclude any malfunctioning that may be due to the transport of your bicycle or to a work a third person may have performed on your bicycle before delivery:

1. Are the quick-release levers (a), thru axles or nuts of the front and rear wheel, the seat post and other components properly closed? For more information see chapter **"How to Use Quick-Releases and Thru Axles"**.
2. Are the tyres in good condition and do they have sufficient pressure (b)? A higher pressure gives a better riding stability and reduces the risk of a puncture. The minimum and maximum pressure (in bar or psi) is indicated on the tyre side. For more information see chapter **"Wheels and Tyre Equipment"** and the enclosed operating instructions.
3. Spin the wheels to check whether the rims are true. Watch the gap between rim and brake pad or, in the case of disc brakes, between frame and rim or tyre.



Untrue rims can be an indication of tyres with ruptured sides, broken axles or spokes. For more information see chapter **"Wheels and Tyre Equipment"** and the enclosed operating instructions.

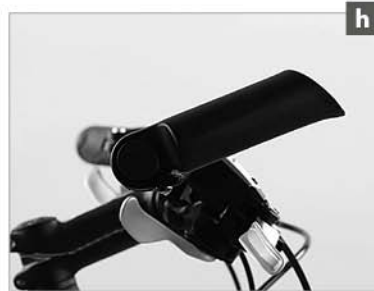
4. Test the brakes in standing by firmly pulling the brake levers towards the handlebar (c).

The brake pads of **rim brakes** must hit the rim evenly with their entire surface without touching the tyre during braking, in open condition or in between. You should not be able to pull the lever all the way to the handlebar. If your bike has hydraulic brakes, check the hydraulic brake cables for oil leaks! Also check the thickness of the brake pads.

With **disc brakes** (d) you should have a stable pressure point at once. If you have to actuate the brake lever more than once to get a positive braking response, have the bicycle checked by your authorised dealer. You should not be able to pull the lever all the way to the handlebar. If your bike has hydraulic brakes, check the hydraulic brake cables for oil or brake fluid leaks! Also check the thickness of the brake pads.

For more information see chapter **"Brake System"** and the enclosed operating instructions.

5. Let your bicycle bounce on the ground from a small height. If there is any rattling, check the proper fit. Check the bearings and bolted connections, if necessary.
6. If you want to ride on public roads, make sure your bicycle is equipped according to the regulations of your country (e). Riding without lights and reflectors in dark or dim conditions is very dangerous because you will be seen too late or not at all by other road users. A permissible lighting system is a must on public roads. Turn on the lights as soon as dusk sets in. For more information see chapter **"Legal Requirements for Riding on Public Roads"**.
7. If your bicycle has suspension, check it as follows: Press down on your bicycle and see whether the spring elements retract and extend as usual (f). For more information see chapters **"Suspension Forks"**, and **"Rear Shock"** as well as the enclosed operating instructions.
8. If your bike has a kickstand, make sure it is fully raised before you set off. **Risk of accident!**
9. Do not forget to take a high-value D-, folding (g) or chain lock with you on your ride. The only way to effectively protect your bicycle against theft is to lock it to an immovable object.



⚠ WARNING

- Improperly closed fastenings can cause components to come loose and result in serious accidents!
- Do not use your bicycle, if it fails on one these points! Riding a defective bicycle can result in serious accidents! If you are in doubt or if you have any questions, contact your authorised dealer.
- During use your bicycle is undergoing stress resulting from the surface of the road and from the rider's action. Due to these dynamic loads, the different parts of the bicycle react with wear and fatigue. Check your bicycle regularly for wear marks, scratches, deformations, colour changes and any indication of cracking. Components which have reached the end of their service life may fail suddenly without previous warning. Let your authorised dealer maintain and service your bicycle regularly and in cases of doubt it is always best to replace components.
- Be aware that the distance you need to stop your bicycle increases, when you are riding with your hands on bar ends (h). The brake levers are not in all gripping positions within easy reach.

AFTER AN ACCIDENT

1. Check whether the wheels are still firmly fixed in the drop-outs (a) and whether the rims are still centred with respect to the frame or fork. Spin the wheels and observe the gap either between brake pads and rim sides or between frame and tyre. If the width of the gap changes markedly and you have no way to true the rim where you are, you will need to open the rim brake a little so that the rim can run between the brake pads without touching them. Note that in this case the brakes may not act as powerfully as you are used to. For more information see chapters **"Brake System"**, **"How to Use Quick-Releases and Thru Axles"** and **"Wheels and Tyre Equipment"** as well as the enclosed operating instructions.
2. Check that handlebar and stem are neither bent nor broken and that they are level and upright (b). Make sure the stem is firmly fixed on the fork by trying to turn the handlebar relative to the front wheel (c). Briefly lean on the brake levers to make sure the handlebar is firmly fixed in the stem. Realign the components, if necessary, and gently tighten the bolts to ensure a reliable clamping of the components.

The maximum torque values are printed directly on the components or specified in the enclosed operating instructions. For more information see chapters **"Adjusting the Bicycle to the Rider"**, **"Headset"** and the enclosed operating instructions.

3. Check whether the chain still runs on the chainrings and the sprockets. If your bicycle fell over to the chain side, verify the proper functioning of the gears. Ask somebody to lift the bicycle by the saddle and carefully shift through all the gears. Pay particular attention when shifting to the small gears and make sure the rear derailleur does not get too close to the spokes (d+e) as the chain climbs onto the larger sprockets.

If the rear derailleur or the drop-outs/derailleur hanger are bent, the rear derailleur may collide with the spokes or the chain may slip. This can result in damage to the rear derailleur, the rear wheel and the frame. Check the function of the front derailleur, as a displaced front derailleur can throw off the chain, thus interrupting the drive train of the bicycle. For more information see chapter **"Gears"** and the enclosed operating instructions.



4. Make sure the saddle is not out of alignment using the top tube or the bottom bracket shell as a reference. If necessary, open the clamping, realign the saddle and retighten the clamping. For more information see chapters **"Adjusting the Bicycle to the Rider"**, **"How to Use Quick-Releases and Thru Axles"** and the enclosed manuals of the component manufacturers.
5. Lift your bicycle up a few centimetres and let it bounce onto the ground (f). If this causes any sort of noise, search for loosened bolts or components. Tighten them slightly, if necessary.
6. Finally, take a good look at the whole bicycle to detect any deformations, colour changes or cracks (g).

Ride back very carefully by taking the shortest route possible, even if your bicycle went through this check without any problems. Do not accelerate or brake hard and do not ride your bicycle out of the saddle. If you are in doubt about the performance of your bicycle, have yourself picked up by car, instead of taking any risk.

Back home you need to check your bicycle thoroughly. The damaged parts must be repaired. Ask your authorised dealer for help. For more information about carbon components see chapter **"Carbon – Important Information"**.

⚠ WARNING

Deformed components, especially components made of aluminium, can break without previous warning. They must not be repaired, i.e. straightened, as this will not reduce the imminent risk of breakage. This applies in particular to the fork, the handlebar, the stem, the cranks, the seat post and the pedals. When in doubt, it is always recommendable to have these components replaced, as your safety comes first. Ask your authorised dealer for help.

If your bicycle is assembled with carbon components (h), it is imperative that you have your bicycle checked by your authorised dealer after an accident or similar incident. Carbon is an extremely strong material which combines high resistance with low weight. It is, however, one of the inherent properties of carbon that possible overstress may compromise the inner carbon-fibre structure without showing any visible deformation as is the case with steel or aluminium. A damaged component can fail without previous warning. Risk of accident!



HOW TO USE QUICK-RELEASES AND THRU AXLES

Quick-Releases

Most mountain bikes are equipped with quick-releases to ensure quick adjustments, assembly and disassembly. Be sure to check whether all quick-releases are tight before you set off on your bicycle. Quick-releases should be handled with greatest care, as they affect your safety directly.

Practise the proper use of quick-releases to avoid any accidents.

Quick-release mechanisms essentially consist of two operative elements:

1. The hand lever on one side of the hub which creates a clamping force via a cam when you close it (a).
2. The tightening nut on the other side of the hub with which the preload on the threaded rod (quick-release axle) is set (b).



⚠ WARNING

Make sure the levers of both wheel quick-releases are always on the side opposite to the chain. This will help you to avoid mounting the front wheel accidentally the wrong way round. In the case of bicycles with disc brakes and quick-releases having a 5-mm-axle, it may be reasonable to mount the quick-release with the levers on the side of the chain drive (c). This would help you not to come into contact with the brake disc, also referred to as rotor, and prevent you from having your fingers burnt. If you are in doubt or if you have any questions, contact your authorised dealer.

Never ride a bicycle without having checked first whether the wheels are securely fastened! Risk of accident!

⚠ CAUTION

Do not touch the rotor directly after having stopped – you may burn your fingers! Always let the rotor cool down before opening the quick-release!

NOTICE

If your bicycle is equipped with quick-releases, be sure to lock it to an immovable object together with the frame when you leave it outside.

How to Fasten Components Securely with a Quick-Release

Open the quick-release. The marking "Open" on the lever should become visible now (d).

Make sure the component to be fastened is in the accurate position. For more information see chapters **"Wheels and Tyre Equipment"** and **"Adjusting the Bicycle to the Rider"**.

Move the lever back, as if to close it. Now you should be able to read "Close" on the outside of the lever. When you start closing the lever you should feel virtually no resistance with your hand until the lever is at right angle to the frame/fork (e). When continuing to close the lever the resistance you feel should increase significantly and towards the end even more strength is required to close the lever. Use the ball of your thumb to push it in all the way while your fingers pull on an immovable part, such as the fork (f) or the rear stay, but not on a rotor or spoke.

In its end position, the lever should be at right angle to the quick-release axle, i.e. it should not stick out to the side. The lever should lie close to the frame or the fork so that it cannot be opened accidentally. Make sure, however, the lever is easy to handle for an actually quick use.

To check whether the lever is securely locked apply pressure to the end of the hand lever and try to turn it while it is closed (g). If you can turn the lever around, open it and increase the preload. Screw the tightening nut on the opposite side clockwise by half a turn. Close the quick-release lever and check it again for tightness.

Finally lift the bike a few centimetres, so that the wheel no longer touches the ground and hit the tyre from above (h). A securely fastened wheel remains in the axle mounts of frame or fork and will not rattle.

If your seat post is equipped with a quick-release mechanism, check whether the saddle is firmly fixed by trying to twist it relative to the frame.

WARNING

With an insufficiently closed quick-release the wheel can come loose. Imminent risk of accident!

NOTICE

To be on the safe side you can replace the quick-releases by special locks. They can only be opened and closed with a special, coded key or an Allen key. If you are in doubt or if you have any questions, contact your authorised dealer.



Thru Axles

Thru axles (a) are mounted when the bike has to withstand high loads, for example for a sporty use, such as cross-country, marathon, all mountain etc. They provide suspension forks with suitable stiffness.

SAFETY INSTRUCTIONS

Before mounting or replacing a fork/wheel combination with thru-axle system, be sure to read the operating instructions of the respective suspension fork or wheel manufacturer first.

There is currently a wide range of thru-axle systems available on the market. Some systems are tightened with quick-releases. Other systems require special tools for assembly or disassembly.

Whatever system you use, make sure during the assembly that the thru axles, the drop-outs in forks and hubs are clean. Clean the components with an absorbent cloth, if necessary, by using water and a little detergent. In case you do not succeed in adjusting and fixing the wheel, as described, contact your authorised dealer.

Thru Axles on Suspension Fork

RockShox Maxle and Maxle-Lite Thru-Axle System 15 or 20 mm

Wheel Mounting

If your bicycle is equipped with a Maxle thru-axle system with quick-releases, put the wheel into the fork and mount the rotor in the brake calliper. Bring the front wheel into the correct position between the drop-outs and slide the axle with the open Maxle quick-release lever from the right side through the drop-out and the hub (b).

Make sure the quick-release lever is completely open (c) and in the axle recess. When the axle thread engages with the thread of the left fork leg, turn the axle clockwise. During the first rotations you should be able to turn the thru axle with little resistance.

Now turn the lever clockwise as tight as you can with your hand. Make sure the quick-release lever does not slip out of the axle recess while tightening. Finish by closing the Maxle quick-release lever (d) like you would close a standard quick-release lever. The quick-release lever should not stand out to the front or to the side and should fit snugly against the lower leg.



Wheel Removal

In the case of the Maxle thru-axle system open the quick-release lever completely. Make sure the open quick-release lever lies in the axle recess. Now open the thru axle anticlockwise. Make sure the open quick-release lever does not slip out of the axle recess while loosening.

When the thru-axle thread no longer engages with the thread of the lower legs, you can remove the thru axle fully.

SAFETY INSTRUCTIONS

More information is provided at www.rockshox.com

Fox E-Thru 15 mm (e)

Wheel Mounting

Put the front wheel into the fork and mount the rotor simultaneously in the brake calliper. Bring the front wheel into the right position between the drop-outs and slide the axle with the E-Thru quick-release lever open from the left side through the drop-out and the hub (f).

When the axle thread engages with the thread of the right fork leg, turn the axle clockwise (g). During the first rotations you should be able to turn the thru axle with little resistance. Tighten the axle a little and then release it by about a third of a turn.

Close the E-Thru quick-release lever like a usual quick-release lever. When you start closing the lever you should feel virtually no resistance with your hand, during the second half of the way the resistance you feel should increase significantly and towards the end even more strength is required to close the lever.

In case you do not succeed in closing the lever fully, re-open it and turn the axle a little anticlockwise. Try again to close the quick-release lever. Use the palm of your hand while your fingers pull on the fork leg (h), but never on a spoke or the rotor. In its end position the quick-release lever should be tight so that it can no longer be turned. Make sure the quick-release lever does not stand out to the front or to the side. The best closing position is in nearly upright position in front of the lower leg.

Wheel Removal

If you have an E-Open 15 mm thru-axle system, open the quick-release lever fully. Now open the thru axle anticlockwise.



When the thru-axle thread no longer engages with the thread of the lower legs, you can remove the thru axle fully.

SAFETY INSTRUCTIONS

More information is provided at www.ridefox.com

SR SUNTOUR Q-LOC2 (a)

Wheel Mounting

If you have an SR SUNTOUR Q-LOC system 15 mm, put the front wheel into the fork and slide the rotor into the brake calliper at the same time. Align the front wheel between the drop-outs.

Open the quick-release lever of the SR SUNTOUR thru axle fully. Turn the fixing nut on the thru axle anticlockwise until the locking mechanism opens.

Slide the axle with the opened quick-release lever and loosened locking mechanism from the left (b) through the drop-out and the hub until the thru axle audibly latches with an audible click. Now turn the quick-release lever clockwise as tight as you can with your hand. Finish by closing the quick-release lever like a usual quick-release lever (c). The quick-release lever must not stand out to the front or to the side (d).



Wheel Removal

If you have an SR SUNTOUR Q-LOC system 15 mm open the quick-release fully. Apply a little pressure on the fixing nut and turn the nut anticlockwise until the locking mechanism opens. When the thru-axle thread no longer engages with the thread of the lower legs, you can remove the thru axle fully.

WARNING

- Improperly mounted wheels may throw you off your bike or result in serious falls and accidents!**
- After the wheel mounting do a brake test in standing. You should reach the pressure point of the brake before the brake lever reaches the handlebar. In the case of hydraulic brakes pump them, if necessary, until you reach a precise pressure point. To check it compress the suspension fork several times.**
- To fix the axle only use the tools recommended by the manufacturer. Always use a torque wrench. Never exceed the maximum torque value indicated by the manufacturer! A too tight fixing of the axle can damage the axle or the fork leg.**

SAFETY INSTRUCTIONS

More information is provided at www.srsuntour-cycling.com

Thru Axles on the Rear Triangle

Some mountain bikes have a threaded thru-axle system (e).

The system typically consists of two operative elements:

1. There is a nut on the right side often integrated into the frame.
2. On the left side there is either a clamping lever which can be folded, a rigid lever for tightening or a tool mount hole, e.g. for an Allen key, 5 mm.

Wheel Mounting

Slide the rear wheel into the rear frame, mount the rotor at the same time into the brake calliper and guide the chain over the outmost sprocket of the cassette.

Make sure that in the area of the rear wheel the chain runs over the sprockets and over both pulleys of the rear derailleur.

Bring the rear wheel into the right position between the drop-outs and slide the axle with open quick-release lever from the left side through the drop-out and the hub (f).

When the axle thread engages with the nut thread, turn the axle clockwise. During the first rotations you should be able to turn the thru axle with little resistance. Tighten the axle slightly (g).

Close the possibly available quick-release lever like a usual quick-release lever (h).

When you start closing the lever you should feel virtually no resistance with your hand, during the second half of the way the resistance you feel should increase significantly and towards the end even more strength is required to close the lever.

In case you do not succeed in closing the lever fully, re-open it and turn the axle a little anticlockwise. Try again to close the quick-release lever.

Use the palm of your hand while your fingers pull on the rear triangle, but never on a spoke or the rotor.

In its end position the quick-release lever should be tight so that it can no longer be turned. Make sure the quick-release lever does not stand out to the rear or to the side. The best position is in parallel to a frame tube.



If necessary, modify the nut to change the position.

In the case of rigid levers or thru axles with a tool mount hold the axle tight. Observe the possibly available torque value indications.

Wheel Removal

In the case of the possibly available rigid thru-axle system, open the quick-release lever fully (a). In the case of levers, loosen the axle by turning.

Unscrew all kinds of thru axles anticlockwise (b). After the thru-axle thread has fully loosened from the nut thread you can pull out the thru axle completely (c).

Hold the frame (d) and the wheel tight while doing so, to ensure that parts do not fall down or topple over.

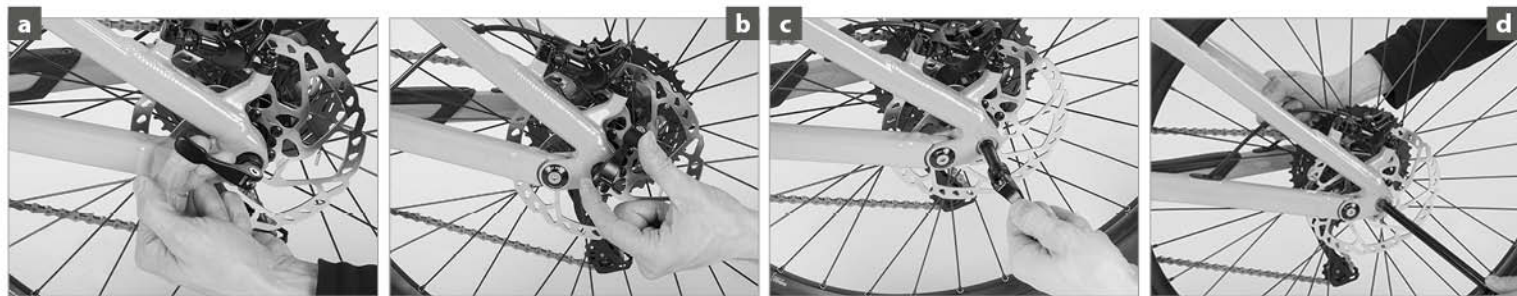
⚠ WARNING

To fix the axle only use the tools recommended by the manufacturer. Always use a torque wrench. Tighten carefully by approaching the prescribed maximum torque value in small steps (0.5 Nm increments) and check in between the proper fit of the component. Never exceed the maximum torque value indicated by the manufacturer! A too tight fixing of the axle can impair the axle or the frame.

SAFETY INSTRUCTIONS

Manufacturers of thru-axle systems usually deliver their products with detailed operating instructions. Read them carefully before removing the wheel or doing any maintenance work.

More information is for ex. provided at
<https://bike.shimano.com> – Shimano E-Thru
www.syntace.com – X-12
www.dtswiss.com – RWS system



ADJUSTING THE BICYCLE TO THE RIDER

Your body height and proportions are decisive for the frame size of your bicycle. In particular, make sure there is enough clearance between crotch and top tube to so you cannot hurt yourself when you have to get off quickly (e).

By choosing a specific type of bicycle you roughly determine the posture you will be riding in (f). However, some components of your bicycle are especially designed so that you can adjust them to your body proportions up to a certain degree (g). This includes the seat post, the stem and the brake levers.

As these adjustments require know-how, experience, appropriate tools and a certain amount of skill, you should restrict yourself to the adjustment of the seating position. Ask your authorised dealer for the correct seating position or if you want something changed. They will see to your wishes the next time you leave your bicycle at the workshop, e.g. for the first inspection.

After any adjustment/assembly work, be sure to make a short functional check as described in chapter **"Before Every Ride"** and do a test ride in an area free of traffic.

⚠ WARNING

- If you have a very small frame, there may be the danger of your foot colliding with the front wheel. Therefore, make sure the cleats of your clipless pedals are properly adjusted.**
- All tasks described in the following require the know-how of a mechanic and appropriate tools. Make it a rule to tighten the bolted connections always with greatest attention. Increase the torque values bit by bit and check the fit of the component in between. Use a torque wrench and never exceed the maximum torque values! You find the prescribed values in chapter "Recommended Torque Values", directly on the components and/or in the manuals of the component manufacturers.**

SAFETY INSTRUCTIONS

- If sitting on the saddle is painful, e.g. because it numbs your crotch, this may be due to the saddle. Your authorised dealer has a very wide range of saddles available, and can offer advice on position (h).**



Adjusting the Saddle to the Correct Height

The correct saddle height for almost all bicycle types is the height which gives maximum pedalling comfort and efficiency. During pedalling the ball of your foot should be positioned above the centre of the pedal axle. With your feet in this position you should not be able to stretch your legs completely straight at the lowest point, otherwise your pedalling will become awkward.

Check the height of your saddle with flat-soled shoes. This is best done with suitable cycling shoes.

Sit on the saddle and put your heel on the pedal at its lowest point (a). Your leg should be fully stretched and your hips should remain horizontal.

To adjust the saddle height loosen the quick-release lever (b) (see chapter **"How to Use Quick-Releases and Thru Axles"**) or the binder bolt of the seat post clamp at the top of the seat tube.

The latter requires suitable tools, e.g. an Allen key, with which you turn the bolt two to three turns anticlockwise. Now you can perform the vertical adjustment of the seat post.

Be sure not to pull out the seat post too far. The mark on the seat post (c) (min. insert, minimum, maximum, stop or the like) should always remain within the seat tube. Always grease the surface of an aluminium or titanium seat post that is inserted into a seat tube made of aluminium, titanium or steel.

Do not grease carbon seat posts and/or carbon seat tubes in the clamping area! Use special **carbon assembly paste** instead.

Align the saddle with the frame by using the saddle nose and the bottom bracket or top tube as a reference point (d).

Clamp the seat post tight again. Close the quick-release, as described in chapter **"How to Use Quick Releases and Thru Axles"** or tighten the seat post binder bolt clockwise in half turns. You should not need much strength in your hands to clamp the seat post sufficiently tight. Otherwise the seat post does not match the frame.

Verify in between that the seat post is sufficiently tight by taking hold of the saddle at both ends and then trying to rotate the seat post inside the seat tube. If it does rotate, gently retighten the clamping bolt by half a turn and do the check again.



Does the leg stretch test now produce the correct result? Check by moving your foot and pedal to the lowest point (e). When the ball of your foot is exactly above the pedal centre in the ideal pedalling position, your knee should be slightly bent. If it is, you have adjusted the saddle height correctly.

Check whether you can touch the ground safely while sitting on the saddle by stretching your feet to the floor (f). If you cannot, you should lower the saddle a little, at least to begin with.

⚠ WARNING

Never ride your bicycle with the seat post drawn out beyond the min. insert, maximum, limit or stop mark! The seat post might break or cause severe damage to the frame. In the case of frames with seat tubes that extend beyond the top of the frame's top tube the seat post should be inserted into the seat tube at least below the bottom of the top tube and below the top of the rear stays! If seat post and frame require different minimum insertion depths, you should opt for the deeper insertion depth.

With some full-suspension mountain bikes the seat post should only project to a limited degree from the seat tube at the lowest saddle height, as otherwise the rear shock arm may collide with the seat post during compression.



⚠ WARNING

Never apply grease or oil into a seat tube of a frame made of carbon, unless an aluminium sleeve is inside the frame. If you mount a carbon seat post, do not put any grease on it, even if the frame is made of metal. Once greased carbon fibre components may never again be clamped reliably! Use special carbon assembly paste instead (g).

When riding steep downhill courses a lower saddle height is often better for some riding manoeuvres (h). This makes for a better control of the bicycle.

⚠ CAUTION

Tighten carefully by approaching the prescribed maximum torque value in small steps (0.5 Nm increments) and check in between the proper fit of the component. Never exceed the maximum torque value indicated by the manufacturer!

SAFETY INSTRUCTIONS

If the seat post does not move easily inside the seat tube or if it cannot be tightened sufficiently, ask your authorised dealer for advice. Do not use brute force!

In the case of dropper posts, such as from RockShox and Kind Shock, the height is adjusted by pressing a button on the handlebar. For more information see chapter "Height-Adjustable Seat Posts/Dropper Posts". Also read the instructions of the manufacturer.



Adjusting the Height of the Handlebar

The height of the handlebar compared to the saddle and the distance between saddle and handlebar determines how much your upper body will be inclined forward. Lowering the handlebar gives you a streamlined position and brings more weight to bear on the front wheel. However, it also entails an extremely forward leaning posture which is tiring and less comfortable, because it increases the strain on your wrists, arms, back, upper body and neck.

There are three different stem systems that allow vertical adjustment of the handlebar, i.e. the conventional, the adjustable and the Ahead®-stem. These systems require special knowledge. In this regard, the descriptions hereafter may be incomplete.

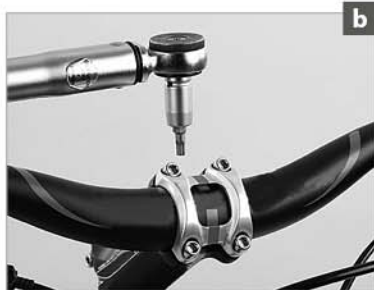
Mountain bikes are almost exclusively equipped with threadless stem systems, also referred to as the Ahead® system. If you are in doubt or if you have any questions, contact your authorised dealer.

⚠ WARNING

The stem is one of the load bearing parts of your bicycle. Changes to it can impair your safety. If you are in doubt or if you have any questions, contact your authorised dealer!

⚠ WARNING

- Stems come in varying lengths (a) as well as shaft and binder tube diameters. A stem of inappropriate dimension can become a source of danger: Handlebars or stems can break, resulting in an accident. When replacing any parts, be sure to only use suitable original spare parts that bear the appropriate mark. Your authorised dealer will be pleased to help you.**
- The bolted connections of stem and handlebar have to be tightened to the prescribed torque values (b). If you disregard the prescribed values, the handlebar or stem may come loose or break. Use a torque wrench (c) and never exceed the maximum torque value! You find the prescribed values in chapter "Recommended Torque Values", directly on the components (d) and/or in the manuals of the component manufacturers.**
- Make sure the handlebar/stem-combination is approved by the handlebar and/or stem manufacturer.**
- Make sure the handlebar clamping area is free of sharp edges.**



Stems for Threadless Systems, the Aheadset®-System

(Aheadset® is a registered trade mark of Dia-Compe)

In the case of bicycles with Aheadset® the stem also serves to adjust the bearing preload. If you change the position of the stem you have to readjust the bearing play (see chapter **"Headset"**). The vertical setting range is determined by the intermediate rings, also referred to as spacers. In the case of flip-flop stem models the stem can be mounted the other way round to achieve a different handlebar height.

Unscrew the bolt at the top of the fork steerer tube which serves to adjust the bearing preload, remove the Ahead® cap and release the bolts on either side of the stem by up to three turns (e). Remove stem and spacers from the fork steerer tube. In doing so keep hold of both frame and fork to prevent the fork from slipping off the head tube.

You can determine the handlebar height by the arrangement of stem and spacers (f). Slip the remaining spacers onto the fork steerer tube above the stem. Adjust the headset, as described in chapter **"Headset"**.

If you want to turn the stem around, you have to also release the bolts of the faceplate securing the handlebar (g). If the stem has a faceplate, you can simply remove the handlebar. If it has no faceplate, you have to remove the handlebar equipment.

Mount the handlebar and, if necessary, the handlebar equipment, as described in chapter **"Adjusting the Tilt of Handlebar, Bar Ends and Brake Levers"** and/or in the manuals of the component manufacturers.

Check whether the handlebar is firmly seated in the stem by trying to rotate the handlebar downwards. Verify whether the handlebar/stem-combination can be turned relative to the fork. Do this by taking the front wheel between your knees and trying to turn the handlebar (h). If there is movement, carefully tighten the bolts a little more and check the proper fit again.

Tighten carefully by approaching the prescribed maximum torque value in small steps (0.5 Nm increments) and check in between the proper fit of the component. Never exceed the maximum torque value indicated by the manufacturer!



⚠ WARNING

These routines require a certain amount of manual skill and (special) tools and are best left to your authorised dealer. If you nevertheless want to try it by yourself, read the operating instructions of the stem manufacturer carefully before you start.

In the case of turned stems, the cables may be too short. Riding with too short cables is dangerous. Ask your authorised dealer for help.

NOTICE

When removing spacers the fork steerer tube must be shortened. This procedure is irreversible. The shortening should be carried out by you authorised dealer, but only after you have found your preferred position.

SAFETY INSTRUCTIONS

If you want your handlebar in a higher position, you may opt for a riser bar model which has an upward bend. Ask your authorised dealer for help.

Adjusting the Tilt of the Handlebar, Bar Ends and Brake Levers

The handlebars of mountain bikes are usually slightly bent at the ends. Set the handlebar to a position in which your wrists are relaxed and not turned too much outwards.

To adjust the angle of the handlebar, release the Allen bolt(s) on the underside or front side of the stem. Turn the handlebar to the desired position. Make sure the handlebar is accurately centred in the stem (a). Carefully retighten the bolt(s) in a cross pattern by using the torque wrench until they lightly hold the handlebar in place (b). Make sure the upper and lower clamping slots of the stem are parallel and identical in width (c). Tighten the bolt(s) evenly in a cross pattern by using a torque wrench and observe the recommended torque values.

Once clamped in the stem try rotating the handlebar (d) and tighten the bolt(s) a little more, if necessary. Use a torque wrench and never exceed the maximum torque values! You find the prescribed values in chapter **"Recommended Torque Values"**, directly on the components and/or in the manuals of the component manufacturers.



After adjusting the handlebar you need to adjust the brake lever/shifter units.

Release the Allen bolt at either brake lever unit. Turn the levers on the handlebar. Sit in the saddle and place your fingers on the brake levers. Check whether the back of your hand forms a straight line with the line of your forearm (e). Retighten the units with a torque wrench (f) and do a twist test (d)!

Bar ends give you additional ways of gripping the handlebar. They are usually fixed in a position that gives the rider a comfortable grip when pedalling out of the saddle. The bar ends are then almost parallel to the ground or tilted slightly upwards (by about 25°).

Release the bolts, which are usually located on the underside of the bar ends, by one to two complete turns. Turn the bar ends to the desired position making sure the angle is the same on both sides. Retighten the bolts to the prescribed torque value (g). Check whether the bar ends are firmly fixed by trying to turn them out of position.

WARNING

- Note that the bolted connections of the stem, handlebar, bar ends and brakes have to be tightened to their prescribed torque values. Use a torque wrench and never exceed the maximum torque values! You find the prescribed values in chapter "Recommended Torque Values", directly on the components and/or in the manuals of the component manufacturers.**
- If you intend to mount bar ends to a handlebar, verify first that the handlebar is suitable and approved for the mounting of the bar ends. Some handlebars must be equipped with specific reinforcing sleeves (handlebar plugs). If you are in doubt or if you have any questions, contact your authorised dealer.**
- Never fix bar ends in vertical position or with their ends pointing rearwards as this would increase the risk of injury in the event of a fall.**
- Be aware that the distance you need to stop your bicycle increases, when you are riding with your hands on bar ends (h). The brake levers are not in all gripping positions within easy reach.**



Adjusting the Brake Lever Reach

With most brake systems the distance between the brake levers and the handlebar grips (a) is adjustable. This gives in particular riders with small hands the convenience of bringing the brake levers closer to the handlebar. The first knuckles of middle and index fingers should be able to grip around the lever (b).

On most bicycles there is a small adjusting screw near the point where the brake cable of a cable brake enters the brake lever unit or at the lever itself. Turn the bolt clockwise and watch, whether and how the lever adjusts as you do so.

Hydraulic brakes also have adjusting devices at the brake lever (c). There are different systems. Ask your authorised dealer for help or read the respective manual.

When adjusting the lever reach, make sure the first knuckle of the index finger reaches around the brake lever. Check the proper adjustment and functioning of the brake system subsequently, as described in chapter **"Brake System"** and/or in the brake manufacturer's instructions. Some brake models allow for the adjusting of the lever distance and the pressure point (d).

⚠ WARNING

- After the adjusting do a test ride in a place free of traffic and only on easy terrain.
- Make sure you cannot pull the brake levers all the way to the handlebar. Your maximum brake force should be reached short of this point.

SAFETY INSTRUCTIONS

- If you have hydraulic brakes and disc brakes, follow the instructions of the brake manufacturer. If you are in doubt or if you have any questions, contact your authorised dealer.



Correcting the Fore-to-Aft Position and Tilt of the Saddle

The inclination of your upper body (e), and hence your riding comfort and riding dynamics, are also influenced by the distance between the grips of the handlebar and the saddle. This distance can be altered slightly by changing the position of the saddle rails in the seat post clamp. However, this also influences your pedalling. Whether the saddle is positioned more to the front or to the back of the bike will alter how rearward the pedalling position of your legs is.

You need to have the saddle horizontal in order to pedal in a relaxed manner. If it is tilted, you will constantly have to lean against the handlebar to prevent yourself from slipping off the saddle.

⚠ WARNING

The bolted connections of the seat post have to be tightened to the prescribed torque values (f). Use a torque wrench and never exceed the maximum torque values! You find the prescribed values in chapter "Recommended Torque Values", directly on the components and/or in the manuals of the component manufacturers.

⚠ WARNING

Make sure the saddle is clamped within the range of the marking on the saddle rail (g). Otherwise the saddle rail can fail!

SAFETY INSTRUCTIONS

The setting range of the saddle is very small. Replacing the stem allows you to make far bigger adjustments to the rider's fore-to-aft position, as stems come in different lengths (h). In doing so you may achieve differences of more than ten centimetres. In this case you usually would have to adjust the length of the cables – a job best left to your authorised dealer!

The manufacturers of saddles deliver their products with detailed manuals. Read them carefully before adjusting the position of your saddle. If you are in doubt or if you have any questions, contact your authorised dealer.



Adjusting Saddle Position and Tilt

Patent clamping with one bolt or two parallel bolts (a)

With patent seat posts a single bolt fixes the clamping mechanism, which controls both the tilt and the horizontal position of the saddle. Most seat posts have two bolts side-by-side.




Release the bolt(s) at the top of the seat post. Release the bolt(s) two to three turns anticlockwise at the most, otherwise the whole assembly can come apart. Move the saddle forth or back, as desired. You may have to give the saddle a light tap to move it. Observe the marking on the saddle rail and do not go beyond.

Make sure the seat of the saddle remains horizontal (b) as you retighten the bolt(s). The bicycle should stand on level ground while you adjust the saddle.

Having found your preferred position, make sure both clamp halves fit snug around the saddle rails before tightening the bolt(s) to the correct torque as prescribed by the seat post manufacturer.

Retighten the bolt(s) with a torque wrench according to the manuals of the manufacturer (c). After fastening the saddle, check whether it resists tilting by bringing your weight to bear on it once with your hands at either end of the saddle (d).

WARNING

-  **The saddle clamping bolts are among the most delicate bolts of the entire bicycle. Therefore, make absolutely sure that you do not come below the recommended minimum torque value and above the recommended maximum torque value. You find the prescribed values in chapter "Recommended Torque Values", directly on the components and/or in the manuals of the component manufacturers. Always use a torque wrench.**
-  **Check the bolts by using a torque wrench once a month according to the values indicated in the enclosed manuals or directly on the components.**
-  **Poorly tightened or loosening bolts can fail. Risk of accident!**



Clamping with two bolts in line (e)

Release both bolts at the top of the seat post. Turn the bolts two to three turns anticlockwise at the most, otherwise the whole assembly can come apart. Move the saddle forward or backward as desired to adjust the horizontal position. You may have to give the saddle a light tap to move it. Observe the marking on the saddle rail and do not go beyond.

Having found your preferred position, make sure both clamp halves fit snug around the saddle rails before tightening the bolt(s) to the correct torque as prescribed by the seat post manufacturer.

Tighten both bolts evenly (f+g) so the saddle remains at the same angle. If you wish to lower the nose of the saddle a little, tighten the front bolt clockwise. You might have to loosen the rear bolt a little as well. To lower the rear part of the saddle, the rear bolt has to be tightened clockwise and the front bolt to be released, if necessary.

After fastening the saddle check whether it resists tilting by bringing your weight to bear on it once with your hands on the tip and once at the rear end (h).

⚠ WARNING

- **The saddle clamping bolts are among the most delicate bolts of the entire bicycle. Therefore, make absolutely sure that you do not come below the recommended minimum torque value and above the recommended maximum torque value. You find the prescribed values in chapter "Recommended Torque Values", directly on the components and/or in the manuals of the component manufacturers. Always use a torque wrench.**
- **Check the bolts by using a torque wrench (f+g) once a month according to the values indicated in the enclosed manuals or directly on the components.**
- **Poorly tightened or loosening bolts can fail. Risk of accident!**



CARBON – IMPORTANT INFORMATION

Special characteristics of carbon components (a) made of carbon-reinforced plastics also referred to as carbon or CRP need to be taken into account.

Carbon is an extremely strong material which allows producing components of high strength and low weight. When used in a typical and reasonable riding scenario in accordance with its respective category of use, the resistance it offers equals or even exceeds that of aluminium or steel. However, it should be noted that carbon, unlike metals, does not show visible deformation after undue stress, even as its internal fibre structure may already be damaged.

In further use, a carbon component that was damaged previously in an overload event may fail just like a component made of metal would, potentially resulting in an accident with unforeseeable consequences. If your carbon component was exposed to a high load, we strongly recommend that you take the component, or ideally even your complete bicycle, to your authorised dealer for inspection. They will check the damaged bicycle and replace defective components as necessary.

For safety reasons, damaged components made of carbon (b) must never be repaired. They must be replaced at once! Prevent further use

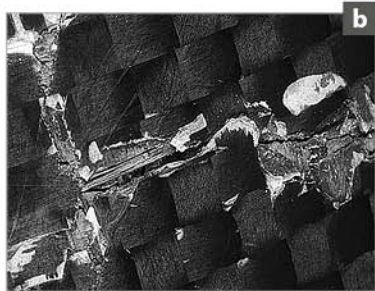
by taking appropriate measures, i.e. saw the component into pieces. The only components that may possibly be repaired are damaged bicycle frames.

Components made of carbon must never and under no circumstances be exposed to excessive heat. Therefore, never have a carbon component enamelled or powder-coated. The temperatures required for enamelling or powder-coating could destroy the component. Do not leave carbon fibre components near a source of heat or in a car or boot during hot or sunny weather.

Carbon components have, like all lightweight bike components, a limited service life. For this reason, change stem and handlebar at regular intervals (e.g. every 3 years), even if they have not experienced any undue stress, such as an accident.

When you intend to transport your bicycle or its carbon frame and components in the boot or on the back seat of your car, be sure to protect the bicycle or the carbon frame and components (c). Blankets, foam tubes or the like are a suitable padding to protect the sensitive material from damage.

Always park your bicycle carefully and make sure it does not topple over (d). Carbon frames and components may already sustain damage by simply toppling over and thereby hitting e.g. a sharp edge.



⚠ WARNING

If any notches, tears, deformations, dents or discolorations etc. are visible on your carbon component, or if it makes creaking or cracking noises, do not use the bicycle until the component has been replaced. If the component was subjected to a high load, an accident or heavy impact, have it replaced or examined by your authorised dealer before using it again.

Do not combine carbon handlebars with bar ends, unless they have been specifically approved. Do not shorten carbon handlebars or clamp the brake and shift levers more in the middle than indicated or needed. Risk of breakage!

Make sure all carbon clamping areas are absolutely free of grease and other lubricants. Grease will penetrate the surface of the carbon material, thereby reducing the coefficient of friction. This will no longer provide reliable clamping within the prescribed torque values. Once greased carbon fibre components may never again be clamped reliably! Use a special carbon assembly paste (e) instead, as offered by various manufacturers.

⚠ WARNING

Do not clamp a carbon frame or seat post in the holding jaws of a workstand! The components may sustain damage. Mount a sturdy (aluminium) seat post (f) instead and use it to clamp the frame, or choose a work stand that holds the frame at three points inside the frame triangle or which clamps the fork and bottom bracket shell.

Most clamps of bicycle carrier systems are potential sources of damage to large-diameter frame tubes! As a result thereof carbon frames can fail during use without previous warning. However, there are special-purpose models which are suitable, available in the car accessory trade (g). Inform yourself there or ask your authorised dealer for advice.

Do not sit on the top tube of your carbon frame, when you take a rest or stop your bike for example at traffic lights. The frame may sustain damage.

NOTICE

Protect the exposed areas of your carbon frame (e.g. the underside of the down tube) against rubbing cables or stone chips with special pads (h) your authorised dealer keeps for sale.



BRAKE SYSTEM

General Information on Brakes

Brakes (a+b) are used for adjusting one's speed to the surrounding terrain and traffic. In an emergency situation, the brakes must bring the bicycle to a halt as quickly as possible.

In the event of such emergency braking, the rider's weight shifts forward abruptly, thus reducing the load on the rear wheel. The rate of deceleration is primarily limited by the danger of the rear wheel losing contact with the ground resulting in an overturning of the bicycle and secondly by the tyres' grip on the road (c). This problem becomes particularly acute when riding downhill. Therefore, in case of an emergency braking situation you must try to put your weight back and down as far as possible.

Actuate both brakes simultaneously and bear in mind that, due to the weight transfer, the front brakes can generate a far better braking effect on a surface with good grip.

The braking conditions on unpaved surfaces differ (d), i.e. over-braking the front wheel can make the wheel slip away. Therefore, be sure to practise braking on different kinds of surface.

Wet weather reduces the braking power. Actuate the brakes carefully when riding on wet or slippery ground, as the tyres can easily slip away. Therefore, reduce your speed when riding in such conditions.



There are various types of brake systems that may be subject to the following problems:

Prolonged braking or permanent dragging of brake pads can lead to overheating of the rims in the case of **rim brakes** (e). This can damage the inner tube or make the tyre slip on the rim causing a sudden loss of air which could lead to a serious accident in the process.

Rims also wear down over time. They are even likely to burst. Therefore, they have to be replaced from time to time.

In the case of **disc brakes** (f+g) prolonged braking or permanent dragging of brake pads can lead to an overheating of the brake system. This can result in a reduction of the brake force or brake failure.

Risk of accident!

On long downhill rides (h), get used to braking hard and then releasing the brake again, whenever the road surface and the situation allows for it. If you are in doubt about the braking action, stop and let the brake system cool down.

⚠ WARNING

- *The brake lever to brake setup can vary, e.g. left lever acts on front brake. Have a look at the bike card and check whether you can actuate the front brake with the same brake lever (right or left) you are used to. If it is not, ask your authorised dealer to change the brake levers before you set off for the first time.*
- *Make yourself carefully familiar with your brakes. Practise emergency stops in a place clear of traffic until you are comfortable controlling your bicycle. This can save you from having accidents.*
- *Wet weather reduces the braking effect and the road grip of the tyres. Be aware of longer stopping distances when riding in the rain, reduce your speed and actuate the brakes carefully.*
- *Ensure that braking surfaces and brake pads are absolutely free of wax, grease and oil. Risk of accident!*

SAFETY INSTRUCTIONS

- *When replacing any parts, be sure to only use suitable original spare parts that bear the appropriate mark. Your authorised dealer will be pleased to help you.*



Rim Brakes

V-Brakes and Cantilever Brakes

Operation and Wear

V-brake (a) and cantilever brake designs (b) have two brake arms mounted separately on either side of the rim. When actuating the brake lever, both arms are pressed together by the cable, the pads touching the rim.

The friction generated by braking causes wear to the brake pads as well as to the rims. Frequent rides in the rain and dirt and over hilly terrain can accelerate wear on both braking surfaces. Some rims are provided with wear indicators, e.g. grooves or circular indentations. If the rim is worn down to the point where the grooves or indentations are no longer visible, they need to be replaced. Once the abrasion of the rim has reached a certain critical point, the rim may break under the tyre pressure. This can make the wheel jam or the inner tube burst, both of which can cause an accident! **Risk of accident!**

Functional Check

Check whether the brake pads (c) are accurately aligned with the rims and still sufficiently thick. You can judge the wear of the brake pads by the appearance of grooves.

If the pads are worn down to the bottom of the grooves (d), it is time to replace them. Be sure to observe the according instructions of the respective manufacturers.

See your authorised dealer and ask them to examine the remaining thickness of the rims when you have worn through your second set of brake pads at the latest. Your authorised dealer has special measuring devices for determining the remaining thickness of the rims.

The brake pads must hit the rim simultaneously, first touching it with the front portion of their surface. At the moment of first contact the rear part of the pads should be a millimetre away from the braking surface. Viewed from the top the brake pads form a "V" with the trough pointing to the front. This setting is to prevent the brake pads from screeching when applied.

The brake lever must always remain clear of the handlebar. You should not even be able to pull them all the way to the handlebar in the event of an emergency stop. If this is the case, however, observe the following chapter "**Synchronising and Readjusting**".

Only a successful passing of all these points will ensure a correctly adjusted brake.



⚠ WARNING

Brake cables which are damaged, e.g. frayed (e), must be replaced immediately, as they can otherwise fail in a critical moment, possibly causing a fall!

Adjusting the position of the brake pads relative to the rims requires a considerable degree of skill. Replacing and adjusting the brake pads is a job best left to your authorised dealer.

Have your rims regularly checked and measured by the authorised dealer.

Synchronising and Readjusting

Almost all brake designs have a bolt located next to one or both brake callipers for adjusting the spring preload (f). Turn the bolt slowly and watch how the gap changes between brake pads and rim.

Adjust the spring in a way that with an unapplied brake the gaps are equal on either side and the brake pads touch the rim simultaneously during braking.

The position of the brake lever where the brake starts to act, also referred to as pressure point, can be adjusted to the size of the hand as well as to individual convenience by readjusting the brake cable. Make absolutely sure you cannot pull the brake lever all the way to the handlebar grip. With an unapplied brake the brake pads should not be too close to the rim sides, otherwise they could drag along the rim during riding. Before making this adjustment, observe the notes in chapter “Adjusting the Brake Lever Reach”.

To readjust the brakes, unscrew the knurled lock ring located at the point where the brake cable enters the brake lever on the handlebar (g). Unscrew the knurled, slotted adjusting bolt by a few turns. This reduces the free travel of the brake lever. Keeping the adjusting bolt firm, tighten the lock ring against the brake lever unit. This prevents the adjusting bolt from coming loose by itself. Ensure that the slot of the bolt faces neither forward nor upward, as this would permit water or dirt to enter more easily.

⚠ WARNING

Always test the brakes' function in standing after adjusting them (h), making sure the brake pads engage fully with the rim when you pull them hard.



Disc Brakes

Operation and Wear

The most striking feature of disc brakes is their outstanding braking effect. They respond a lot faster in wet conditions than rim brakes do and achieve their normal high braking power within a very short time. They require little maintenance and do not wear down the rims as rim brakes do.

Disc brakes (a) consist of the brake calliper (1), the rotor (2), the brake hose or cable (3) as well as the brake grip/lever (b). Actuating the brake lever compresses the hydraulic pistons through hydraulic pressure or mechanically, pushing the brake pads against the rotor.

The friction generated by braking causes wear to the brake pads (c) as well as to the rotors. Frequent rides in the rain and dirt and over hilly terrain can accelerate wear of the rotors. Depending on the manufacturer and the model there are different ways of checking the brake pads and rotors for their wear limits.



⚠ WARNING

- **New brake pads need a "break-in" period before they reach their optimal braking performance. For this purpose, accelerate the bicycle 30 to 50 times to around 30 km/h (18 mph) and bring it to a standstill each time. This procedure is finished, when the force required at the lever for braking has stopped decreasing.**
- **Dirty brake pads and rotors can lead to drastically reduced brake force. Therefore, make sure the brake remains free of oil and other fluids, especially when you clean your bicycle or grease the chain. Dirty brake pads can under no circumstances be cleaned, they must be replaced! Rotors can be cleaned with special brake cleaners and with a clean absorbing cloth or with warm water and detergent (d).**
- **Unusual noises (scratching, chafing etc.) during braking and/or a noticeable change of the brake force (stronger or weaker) are indications that the brake pads are soiled or worn down. Check the brake pads and replace them, if necessary. Otherwise you risk further damage, e.g. to the rotor, or even an accident due to brake failure! If you are in doubt, contact your authorised dealer.**

⚠ CAUTION

- **Disc brakes get hot in use. For this reason do not touch the rotors directly after stopping, especially after a long downhill ride.**

Hydraulic Disc Brakes

Functional Check

Regularly check the hoses (e) and connections for leaks while pulling on the lever. In case of a brake liquid leakage, contact your authorised dealer immediately. A leak in the brake lines can render the brake ineffective. **Risk of accident!**

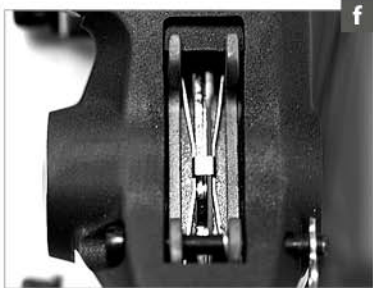
Wear and Maintenance

Check the pads for wear at regular intervals (f) by following the service instructions of the respective manufacturer.

Measure the thickness of the brake pad on the mount by using a caliper gauge (g). The brake pad must all over be 0.5 mm thick at least. Measure the pad and the mount together as well as the mount alone; the difference is the thickness of the pad. Re-insert the cleaned brake pads into the cleaned calliper.

⚠ WARNING

Loose connections and leaky brake hoses drastically impair the braking effect. If you find leaks in the brake system or buckled hoses, contact your authorised dealer immediately.



⚠ WARNING

Do not place a bicycle with hydraulic disc brakes upside down. Air could get into the system. This could render the brake ineffective (h).

⚠ CAUTION

Do not open the brake hoses. Brake fluid that can be very unhealthy and damaging to the paint could leak out.

SAFETY INSTRUCTIONS

If your brake system works with DOT brake fluid, the latter needs to be replaced regularly according to the intervals prescribed by the manufacturer.

The manufacturers of hydraulic disc brakes usually deliver their products with detailed instructions. Be sure to read them carefully before removing a wheel or doing any maintenance work.

Mechanical Disc Brakes

Functional Check

The more brake pads of mechanical disc brakes wear down, the longer is the brake lever travel. Regularly check whether you get a positive braking response before the lever touches the handlebar. Make sure the brake cables are in sound condition!

⚠ WARNING

Damaged cables (a) should be replaced immediately, as they can snap. Risk of accident!

Wear and Maintenance

To a certain extent, wear of the brake pads can be compensated directly at the brake lever. Unscrew the knurled lock nut on the bolt through which the cable enters the grip (b) and then unscrew the bolt until the lever has the desired travel. Retighten the lock nut by taking care that the slot of the bolt does not face upward or forward, as this would permit an unnecessarily high amount of water or dirt to enter.

Now check the functioning of the brake and make sure the brake pads do not drag on the rotor (c+d) when you release the brake lever and let the wheel spin.



Repeated readjustment at the brake lever makes the arm on the brake calliper change its position. This can reduce braking power and result in a complete brake failure in an extreme case. **Risk of accident!**

Some models offer further ways of adjusting the brakes directly at the brake calliper, though this requires a certain amount of skill. In any case, be sure to read the original instructions of the brake manufacturer before adjusting the brakes. If you are in doubt or if you have any questions, contact your authorised dealer.

⚠ WARNING

Repeated readjustment at the brake lever can drastically reduce the maximum braking performance.

SAFETY INSTRUCTIONS

Some systems must be readjusted directly at the brake calliper to compensate wear. For more information read the enclosed manual of the brake manufacturer.

The manufacturers of mechanical disc brakes usually deliver their products with detailed instructions. Be sure to read them carefully before removing a wheel or doing any maintenance work.

GEARS

Mountain bikes usually have derailleur gears. However, there are also bikes with special gear hubs and bottom bracket gear boxes instead of several chainrings. Ask your authorised dealer, if your mountain bike has no typical derailleur gears, as described below.

Derailleur Gears

The gears (e+f) of your bicycle serve to adjust the gear ratio to the terrain you are riding on and the desired speed. A low gear (where in the case of derailleur gears the chain runs on the small chainring and a large sprocket) allows you to climb steep hills with moderate pedalling force. You must, however, pedal at a faster pace. High gears (large chainring, small sprocket) are for riding downhill. Every turn of the pedals takes you many metres forward at correspondingly high speed.

WARNING

Practise shifting gears in a place free of traffic until you are familiar with the functioning of the levers or twist grips of your bicycle.

SAFETY INSTRUCTIONS

Read the gear manufacturer's operating instructions and make yourself familiar with gear shifting before you set off for the first time.

Operation and Control

Derailleur gears always work according to the following principle:

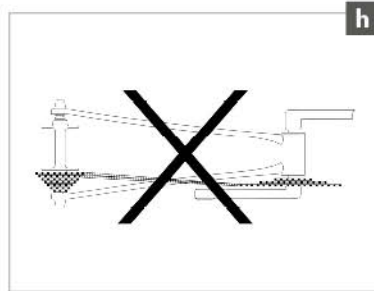
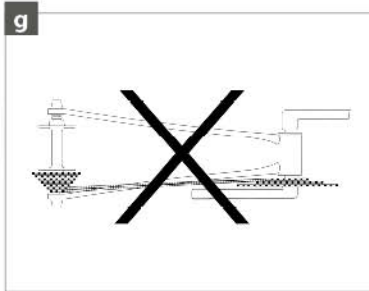
Large front chainring – high/heavy gear – bigger gear ratio
 Small front chainring – low/easy gear – smaller gear ratio
 Large rear sprocket – low/easy gear – smaller gear ratio
 Small rear sprocket – high/heavy gear – bigger gear ratio

Normally, the shifters are mounted as follows:

Shift lever right – rear sprockets
 Shift lever left – front chainrings

There are meanwhile various gear systems with one, two or three front chainrings.

Modern mountain bikes can have up to 33 gears. As there are, however, overlapping ranges, actually 15 to 20 gears are usable. It is not advisable to use gears which involve an extremely oblique run of the chain, as this reduces power transmission efficiency and hastens wear of the chain. An unfavourable run of the chain is when the smallest chainring is used with one of the two or three outermost (smallest) sprockets (g) or when the largest chainring is used with one of the inmost (largest) sprockets (h).



The bottom bracket (a) is the interface between cranks and frame. There are different designs, in some cases the bearing shaft is part of the bottom bracket, in some other cases it is integrated into the right crank. Sealed bottom brackets are maintenance free and delivered without play ex works. The bottom bracket in the frame and the cranks on the shaft must be checked for play at regular intervals.

Also check at regular intervals whether the cranks are firmly attached to the bearing shaft or whether there is play. Grab the crank and try to jiggle it forcefully. It must be absolutely free of play (b). If you notice any play, contact your authorised dealer immediately.

Depending on the gear system, gear shifting is initiated by actuating a shift lever or by a short turn of the wrist with twist grips (c). Continue pedalling during gear shifting, however, at reduced pedalling force.

Find below the principles of the shift lever types and their operation. It is, however, also possible that your new bicycle has a gear system that is not listed below.

In the case of shift levers pressing the large shifter (thumb shifter) moves the chain towards the larger chainrings/sprockets.

That means that any gear shift made by pressing the large thumb shifter on the right produces a lower gear. This is an indexed shifting system with the option of shifting several gears with one action. Actuating the large thumb shifter on the left produces a higher gear.

Pulling the small lever located in front of the handlebar from the rider's viewpoint and actuated with the index finger (index finger lever) shifts the chain towards the smaller chainrings/sprockets, i.e. on the right side to the heavy gears and on the left side to the easy gears.

SAFETY INSTRUCTIONS

The gear manufacturers usually deliver their products with detailed instructions. Read them thoroughly. Make yourself familiar with your new gears, if necessary, in an area free of traffic, if necessary (d). If you are in doubt or if you have any questions, contact your authorised dealer.

The principle is different with **twist grips**. Turning the right-hand grip towards you makes for a lower gear ratio, while the same movement on the left produces a higher gear – and vice versa. The shifting direction may vary in this case, as well.



⚠ WARNING

Always wear straight-cut trousers or use trouser clips or the like (e) to make sure your trousers do not get caught in the chain or the chainrings. Risk of accident!

Shifting gears under load, i.e. while pedalling hard, can make the chain slip. At the front derailleur the chain may even slip off the chainrings and result in an accident! At least the service life of the chain will be shortened considerably.

NOTICE

If there is play between bearing shaft and cranks, they can sustain damage. Risk of breakage!

Avoid gears with the chain running at an extreme angle, as this will increase wear!

It is therefore crucial when switching gears to continue pedalling smoothly and without too much force. Do not shift under load, in particular not at the front derailleur (f), as this will shorten the service life of your chain considerably. Furthermore, this can lead to a chain-suck, i.e. the chain can get jammed between chain stay and chainrings.



Checking and Readjusting

The derailleur gears of your bicycle were carefully adjusted by your authorised dealer before delivery (g). However, Bowden cables may stretch a little on the first kilometres/miles, making gear shifting imprecise and the chain rattle.

Adjusting the front and rear derailleur (h) accurately is a job for an experienced mechanic. If you want to try it by yourself, observe the gear manufacturer's operating instructions. If you have any problems with the gears, contact your authorised dealer.

⚠ WARNING

For your own safety, bring your category 3 bicycle to your authorised dealer for its first inspection after 75 to 225 kilometres (45 to 140 miles), 5 to 15 hours of initial use or four to six weeks, at the very latest, however, after three months.

For your own safety, bring your category 4 bicycle to your authorised dealer for its first inspection after 5 to 15 hours of initial use or four to six weeks, at the very latest, however, after three months.

For your own safety, bring your category 5 bicycle to your authorised dealer for its first inspection after 4 to 12 hours of initial use or four to six weeks, at the very latest, however, after three months.

Adjusting the Rear Derailleur

Increase the tension of the Bowden cable by turning the adjustable cable stop at the shift lever (a) or the adjusting bolt through which it runs into the rear derailleur (b). To do so, shift to the smallest sprocket and turn the bolts anticlockwise in half turns until the cable is slightly tensioned.

After tensioning the Bowden cable check whether the chain immediately climbs onto the next larger sprocket. To find out you either have to turn the cranks by hand or ride the bicycle and shift through the gears.

If the chain easily climbs onto the next larger sprocket, check whether it just as easily shifts to the small sprockets. If it does not, release the respective adjusting bolt a little. You may need several tries.

WARNING

Adjusting the front and rear derailleur accurately is a job for an experienced mechanic. Please observe the instructions of the gear manufacturer. If you have any problems with the gears, contact your authorised dealer.



SAFETY INSTRUCTIONS

Ask a helper to lift the rear wheel. By turning the cranks and shifting through you can easily check the function.

Adjusting the Limit Stops

The rear derailleur is equipped with limit screws (c) which limit the movement range of the derailleur, thus preventing the derailleur and chain from colliding with the spokes or the chain from dropping off the smallest sprocket. The limit screws are adjusted by your authorised dealer. They do not alter their position during normal use.

If necessary, correct the position of the jockey wheels by means of the limit screws. The limit screws on rear derailleurs are often marked "H" for high gear and "L" for low gear. High gear means that the chain is running on the smallest sprocket. Turn the screw clockwise to move the rear derailleur towards the wheel and anticlockwise to move it away from the wheel.

Shift to the biggest (inmost) sprocket and check whether the teeth of the sprocket and the teeth of the guide pulley are all in a perfectly vertical line. Turn the limit screw marked "L" clockwise until the rear derailleur stops moving towards the spokes and can neither be moved by actuating the shift lever nor by pushing it with your hand (d).

This adjustment prevents the chain from getting stuck between sprocket and spokes or the rear derailleur or the derailleur cage from touching the spokes, which could result in damage to the spokes, the rear derailleur and the frame. In the worst case, it could be impossible to continue cycling.

⚠ WARNING

If your bicycle has tipped over or the rear derailleur received a blow, the rear derailleur or its mount, also referred to as derailleur hanger, might be bent. It is advisable to check its range of movement and readjust the limit screws (e), if necessary, after such an incident or after mounting a new rear wheel on your bike.

Do a test ride in a place free of traffic, after adjusting the gears of your bicycle.

NOTICE

Poorly adjusted gears are one of the main causes for irreparable damage to frame, rear derailleur and wheel.

SAFETY INSTRUCTIONS

Have your bicycle checked by your authorised dealer at regular intervals.

Adjusting the Front Derailleur

The range within which the front derailleur keeps the chain on the chainring without itself touching the chain is very small. The swivelling range is reduced in the same way as with the rear derailleur, i.e. by turning the limit screws marked "H" and "L" (f). The limit screws are adjusted by your authorised dealer. They do not alter their position during normal use.

As with the rear derailleur, the cable of the front derailleur (g) is subject to lengthening which leads to a reduced precision in gear changing. If necessary, shift to the small chainring and increase the tension of the Bowden cable by turning the adjusting bolt through which it passes at the entry to the gear shifter (h).

⚠ WARNING

Always check after an accident whether the guide plates of the front derailleur are still parallel to the chainrings. Make sure they do not touch the large chainring which would block the drive. Risk of accident!

Adjusting the front derailleur is a very delicate job. Improper adjustment can cause the chain to jump off, thus interrupting the driving force. Risk of accident!

Do a test ride in a place free of traffic, after adjusting the gears of your bicycle.



CHAIN – CARE AND WEAR

Regular and correct lubrication of your bicycle chain ensures enjoyable riding and prolongs its service life. It is not the quantity but the distribution and regular application of lubricant that counts. Clean the dirt and oil off your chain with an oily rag from time to time (a). Special degreasers are not necessary; they even have a damaging effect.

Having cleaned the chain as thoroughly as possible, apply chain oil, wax or grease to the chain links (b). To lubricate the chain, drip the lubricant onto the rollers of the lower run of the chain while you turn the crank. Once this is done, turn the cranks a few more times; then let the bicycle rest for a few minutes so that the lubricant can disperse. Finally wipe off excess lubricant with a rag so that it does not spatter around during riding or can collect road dirt.

⚠ WARNING

Make sure the braking surfaces of the rims, the rotors and the brake pads remain clear of lubricants. This would render the brake ineffective.

NOTICE

For the sake of the environment, only use biodegradable lubricants. Bear in mind that some of the lubricant can end up on the ground, especially in wet conditions.



Although the chain is one of the wearable parts of the bicycle, there are still ways for you to prolong its life. Make sure the chain is lubricated regularly, especially after riding in the rain. Try to only use gears which run the chain in the straightest line between the sprockets and chainrings and get in the habit of high cadence pedalling.

Chains of bicycles with derailleur gears are worn out after approx. 800 to 2,500 km (480 to 1,500 miles) or 40 to 125 hours of use. Heavily stretched chains impair the operation of derailleur gears. Cycling with a worn-out chain also accelerates the wear of the sprockets and chainrings. Replacing these components is relatively expensive compared with the costs of a new chain. It is therefore advisable to check the condition of the chain at regular intervals.

Your authorised dealer has accurate measuring instruments for checking the chain wear (c). Replacing the chain should ideally be left to an expert, as this requires special tools. In addition, you need to select a chain matching your gear system.

⚠ WARNING

An improperly joined or heavily worn chain can break and cause an accident.

SAFETY INSTRUCTIONS

When replacing your chain, only use appropriate and suitable original spare parts (d). Your authorised dealer will be pleased to help you.

HEIGHT-ADJUSTABLE SEAT POST/DROPPER POST

It is advisable to mount a height-adjustable seat post, also referred to as dropper post, if you want to often change the position of your seat post. In ready to ride condition, the dropper post is connected to a control lever or button (e) on the handlebar by means of a cable running through the seat tube.

Before mounting a dropper post on the frame, make sure that the seat tube is absolutely free of sharp edges and burrs. If necessary, have the seat tube cleaned and deburred by an experienced mechanic.

Before adjusting the saddle height (f), read the chapter **"Adjusting the Saddle to the Correct Height"**.

Observe the instructions of the manufacturer when adjusting the control lever of the dropper post on the handlebar.

⚠ WARNING

In general, it requires a considerable degree of manual skills and special tools to mount a dropper post (g). This job is best left to your authorised dealer. If you nevertheless want to try it by yourself, read the manual of the seat post manufacturer carefully before you start.

⚠ WARNING

Observe the instructions of the frame or bicycle manufacturer in terms of minimum insertion depth.

Do not clamp a bicycle which has a dropper post with the movable part of the seat post into a workstand, but exclusively with the bottom part pulled out far enough (h). When inserting or pulling out the dropper post, make sure to pull in or out the cable where it comes out of the frame to prevent the cable from breaking.

Service the dropper post regularly and keep the adjusting area particularly clean.

SAFETY INSTRUCTIONS

In the case of dropper posts, for example from RockShox, Kind Shock etc., the height is adjusted by pressing a button or by actuating a lever on the handlebar. Read the manual of the seat post manufacturer.

More information is provided at the websites of the seat post manufacturers, like e.g. www.rockshox.com and www.kssuspension.com



WHEELS AND TYRE EQUIPMENT

The wheel consists of the hub, the spokes and the rim. The tyre is mounted onto the rim so that it encases the tube. There is a rim tape running around the rim well (a) to protect the sensitive tube against the spoke nipples and the edges of the rim trough, which are often sharp.

Due to the rider's weight and the luggage as well as unevennesses in the field, the wheels are subjected to considerable load. Although wheels are manufactured with great care and delivered accurately trued, spokes and nipples can lose a little tension on the first kilometres/miles. Therefore, ask your authorised dealer to check and true up the wheels after a short "break-in" period already, i.e. after 75 to 225 kilometres (45 to 140 miles) (category 3), 5 to 15 (categories 3 and 4) or 4 to 12 hours of initial use (category 5). After the initial "break-in" period, check the wheels regularly. It will, however, rarely be necessary to tighten the spokes (b).

SAFETY INSTRUCTIONS

There are three tyre systems for mountain bikes. The tubeless tyres, also referred to as UST tyres, which require specific milk sealants. The tubular tyres which are glued on the rim and standard clincher and folding tyres which are used with inner tubes. The latter tyre type will be described further below, as it is by far the most commonly used one. If you have questions with regard to the other systems, ask your authorised dealer.



Tyres, Inner Tubes, Rim Tape, Inflation Pressure

The tyres should provide grip and traction. At the same time they should run smooth and enhance the rider's comfort by absorbing small shocks. Both the rolling friction and the grip depend on the nature of the tyre carcass, the rubber compound and the tyre tread. Your authorised dealer will be pleased to help you choose from the numerous types of tyres (c).

If you want to mount a new tyre, you need to mind the sizing system and the actual size of the old tyre. The latter is specified in two different units on the side of the tyre. One of the sizes is the standardised size in millimetres which is more precise, e.g. the number sequence 57-559 means that the tyre is 57 mm wide when fully inflated and has an (inner) tyre diameter of 559 millimetres (d). The other size is indicated in inches (e.g. 26 x 2.25").

Tyres must be inflated to the proper inflation pressure to provide an optimal compromise between smooth running and riding comfort. Properly inflated tyres are also more resistant to punctures. An insufficiently inflated tyre can easily get pinched ("snakebite"), when it goes over a sharp kerb.



The air pressure recommended by the manufacturer is given on the tyre side or on the type label. The lower of the two pressure specifications makes for better cushioning for lightweight riders and is therefore best for cycling on a rough surface. Rolling resistance on level ground decreases with growing pressure, but so does comfort. Highly inflated tyres are therefore most suitable for heavy riders and for riding on smooth asphalt.

Inflation pressure is often given in the old system of units, i.e. in psi (pounds per square inch). The table (e) gives the most common pressure values in terms of both systems.

The tyre and rim alone are not able to hold the air. To maintain the pressure inside an inner tube (f) is placed inside the tyre and filled through a valve.

Exceptions to this are the tubeless wheel/tyre systems. With these systems rim and tyres are tight without inner tube (tubeless/UST tyres) or sealed with specific rim tapes and/or sealed with liquid sealants (Tubeless-Ready/NoTubes system). For more information read the respective instructions before starting any work with such kind of tyres.

e

psi	bar	psi	bar
10	0.7	40	2.8
15	1.0	45	3.1
20	1.4	50	3.4
25	1.7	55	3.8
30	2.1	60	4.1
35	2.4	65	4.5



f

Valves

There are two valve types in general use on mountain bikes:

1. **Sclaverand or Presta valve (g):** Meanwhile, this valve is used on almost all types of bicycles. It is designed to withstand extremely high pressures.
2. **Schrader- or American valve (h):** This is an adapted car tyre valve.

Both valve types come with a plastic cap to protect them from dirt.

The **Schrader valve** can be inflated with a suitable pump directly after removing the protective cap.

With **Presta valves** you first have to undo the small knurled nut a little and depress it carefully until air starts to escape. Check the nut is tightened and seated in its stem, otherwise air may slowly leak out. Do not forget to tighten by hand the valve nut after inflating.

g



h



Tyres with **Schrader valves** can conveniently be inflated at car filling stations with a compressed air dispenser. The same applies to **Presta valves** with special adapter. A compressed air dispenser must be used very carefully as you may otherwise overinflate the tyre and make it burst. To let out air, shortly press the pin in the centre of the Schrader valve (a) or the knurled nut of the Presta valve (b).

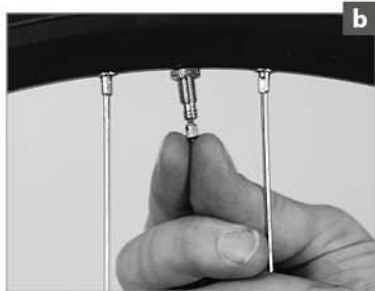
It can be hard to inflate tyres to the necessary pressure by using hand pumps. It is much easier with a foot-operated or a track pump equipped with a pressure gauge (c).

⚠ WARNING

Replace tyres with a worn tread or with brittle or frayed sides. Dampness and dirt penetrating the tyre can cause damage to its inner structure. The tube might burst. Risk of accident!

Mounting a new tyre of another size might possibly cause the tip of your shoe to touch the front wheel while steering. During compression of the suspension system a wheel can get jammed, as well. Risk of accident!

Treat your tyres with care. Never inflate your tyres beyond the maximum permissible pressure, otherwise they might burst or come off the rim during the ride. Risk of accident!



⚠ WARNING

Tyres allowing an inflation pressure of 5 bars or more have to be mounted on Crochet-type rims, identifiable by the designation "C". If you are in doubt or if you have any questions, contact your authorised dealer.

Are the tyres in good condition and do they have sufficient pressure (d)? A higher pressure gives a better riding stability and reduces the risk of a puncture. The minimum and maximum pressure (in bar or psi) is indicated on the tyre side.

SAFETY INSTRUCTIONS

Always ride your bicycle with the prescribed tyre pressure and check the pressure at regular intervals, at least once a week.

Observe the maximum pressure value of the rim. The pressure is dependent on the tyre width. You will find the values in the enclosed instructions of the rim or wheel manufacturer.

If your bicycle has tubeless tyres or tubulars, read the instructions of the tyre and rim manufacturers.



Rim Trueness and Spoke Tension

For the true running of the wheel the spokes must be tensioned evenly (e). If the tension of a single spoke changes, e.g. as a result of riding fast over a kerb or of a loose nipple, the tensile forces acting on the rim become unbalanced and the wheel will no longer run true. The functioning of your bicycle may even be impaired before you notice the wobbling appearance of a wheel that has gone out of true.

In the case of rim brakes the sides of the rims also serve as braking surfaces (f). An untrue wheel can impair the braking effect. It is therefore advisable to check the wheels for trueness from time to time. For this purpose lift the wheel off the ground and spin it with your hand. Watch the gap between the rim and the brake pads (g). If the gap varies by more than a millimetre, you should ask an expert to true up the wheel (h).

⚠ WARNING

Do not ride with untrue wheels. In the case of extreme side-to-side wobbles, the brake pads of rim brakes can miss the rim and get caught in the spokes! This normally instantly jams the wheel and throws you off your bicycle.

Loose spokes must be tightened at once. Otherwise the load on the other spokes and the rim will increase.

NOTICE

Truing (retruing) wheels is a difficult job which you should definitely leave to your authorised dealer.



TYRE PUNCTURE

Flat tyres are the most common cause of puncture during cycling. However, as long as you have the necessary tools and a spare tube or a repair kit, this need not mean the end of your cycle ride. If your wheels are attached with quick-releases to the frame and the fork, you only need two tyre levers and a pump (a).

SAFETY INSTRUCTIONS

Before removing a wheel, read chapters "Wheel Mounting" and "How to Use Quick-Releases and Thru Axles". If you are in doubt or if you have any questions, contact your authorised dealer.

Wheel Removal

If your bicycle has mechanical **rim brakes** (cantilever and V-brakes) you first have to unhook the brake cable from the brake arm (b). To do this, grip the rim with one hand and press the brake pads and/or arms together. In this position the usually barrel shaped nipple of the lateral brake cable or the brake hose (of V-brakes) can easily be disengaged.

If you have **disc brakes** (hydraulic or mechanical), you should first check the exact position and condition of the brake pads and/or wear indicators (c). In this way you will be able to tell after the removal whether the brake pads are still in their correct position. Read the brake manufacturer's operating instructions. Do not actuate the brake lever when the wheel is removed.

If you have **derailleur gears**, you should shift the chain to the smallest sprocket before removing the rear wheel. This shifts the rear derailleur right to the outside where it does not interfere with the removal of the wheel.

Open the quick-release of the wheel (d) or remove the thru axle, as described in chapter "**How to Use Quick-Releases and Thru Axles**".

If you cannot remove the wheel after releasing the nuts, this is due to the drop-out safety tabs. These are metal catches which engage with recesses in the drop-outs (e). Just release the quick-release adjusting nut a little and slip the wheel past the tabs.



You will find it easier to remove the rear wheel, when you pull the rear derailleur slightly backwards (f). Lift the bicycle off the ground and give the wheel a gentle tap with your hand so that it drops out.

If one or both wheels of your bicycle are attached with thru axles to the frame and/or the fork, read chapter **“How to Use Quick-Releases and Thru Axles”**. In case you are in doubt about how to handle thru axles, contact your authorised dealer.

CAUTION

Rotors can become hot, so let them cool down before removing a wheel.

NOTICE

Do not pull the (disc) brake lever with a removed wheel and make sure to mount the safety locks when removing the wheel.

SAFETY INSTRUCTIONS

Observe the operating instructions of the brake and the gear manufacturers.

Dismounting a Rohloff rear wheel requires special handling. Follow the enclosed Rohloff instructions, if necessary.

Clincher and Folding Tyres

Tyre Removal

Remove the cap and the fastening nut from the valve and deflate the tyre completely (g). Press one tyre side from the rim sides towards the centre of the rim. This will ease the removal.

Apply a plastic tyre lever under one bead of the tyre about 5 cm beside the valve and lever the tyre out of the rim in this area (h). Hold the tyre lever tight in its position. Slip the second tyre lever between rim and tyre at a distance of about ten centimetres on the other side of the valve and lever the next portion of the bead over the edge of the rim.

After levering a part of the tyre bead over the edge of the rim you should normally be able to slip off the whole tyre on one side by moving the tyre lever around the whole circumference. Now you can remove the inner tube. Make sure the valve does not get caught in the rim, as this can damage the inner tube. If necessary you can remove the whole tyre by pulling the other tyre bead off the rim. Repair the puncture according to the instructions of the repair kit manufacturer or replace the inner tube.



When you have removed the tyre, you should also check the rim tape (a). It should be positioned evenly, covering all spoke nipples and holes, and must not be damaged or brittle.

In the case of double wall rims the tape must cover the entire rim base, but it should not be so broad as to stand up along the inside edges of the rim trough. Rim tapes for this type of rim should only be made of fabric or durable plastic. If you are in doubt or if you have any questions, contact your authorised dealer.

⚠ WARNING

If the fabric of the tyre is destroyed by the perforating object, replace the tyre to be on the safe side.

Replace spoilt rim tapes immediately.

NOTICE

Keep in mind when buying spare tubes that Schrader valves do not fit in all rims!

NOTICE

If you have a puncture en route, inflate the inner tube and bring it close to your ear. In most cases you can hear the air coming out. At home you can help yourself with a bucket of water where you can locate the hole by the bubbles. When you have found the hole, look for the corresponding place on the tyre and check it, as well. Often, you will find a foreign body sticking in the tyre, which ought to be removed. Otherwise another puncture can occur.

Tyre Mounting

When mounting a tyre make sure no foreign matter, such as dirt or sand, gets inside the tyre and you do not damage the inner tube in the process.

Slip one bead of the tyre onto the rim. Using your thumbs, press one bead over the edge of the rim and then around the entire circumference. This should normally be possible without using tools.

Stick the valve of the inner tube through the hole in the rim (b). Inflate the inner tube slightly so that it becomes round and push it into the tyre all the way round. Make sure not to leave any folds in the inner tube.



To finish mounting the tyre, start at the opposite side of the valve. Using your thumbs, press as much of the second bead of the tyre over the edge of the rim as you can.

Make sure the inner tube does not get pinched and squashed between the tyre and the rim. You can prevent this by pushing the inner tube into the hollow of the tyre (c) with a finger as you work along.

Work the tyre into the rim by approaching the valve symmetrically from both sides. Towards the end, you will have to pull the tyre forcefully downwards (d) to make the already mounted section of the tyre slip towards the deepest part of the rim well. This will ease the job noticeably on the last centimetres.

Before fitting the tyre completely on the rim check again whether the inner tube lies properly inside the tyre and press the last stretch of tyre over the edge of the rim using the balls of your thumbs (e).

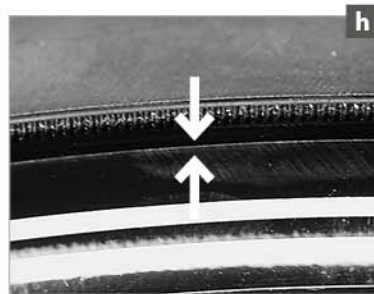
If this does not work, you have to use the tyre levers (f). Make sure the bent ends point towards the inner tube and the inner tube does not get damaged.

Push the valve a little into the tyre (g) so that the inner tube does not get caught between the rim and the tyre beads. Check whether the valve stands upright. If not, dismount one bead again and reposition the inner tube.

To make sure the inner tube does not get pinched between the rim and the bead, move it sideways back and forth between the sides of the rim. While doing so, also check whether the rim tape has shifted.

Inflate the inner tube to the desired pressure. The maximum pressure is indicated on the side of the tyre.

Check whether the tyre is properly seated by inspecting the fine witness line (h) just above the rim edge. This line should be even to the rim all around the tyre. Starting from the maximum tyre pressure you can now reduce the pressure through the valve to suit your needs. Please observe the recommended tyre pressure range.



Wheel Mounting

Mounting the wheel is done in the reverse order of dismounting. Make sure the wheel is correctly seated in the drop-outs and accurately centred between the fork legs or the seat and chainstays. Make sure the quick-release (a), the drop-out safety tabs and the thru axle, if available, are correctly seated (b). For more information see chapter “How to Use Quick-Releases and Thru Axles”.

If you have **disc brakes**, check before mounting the wheel whether the brake pads rest snugly in their seats in the brake calliper body. The gaps between the brake pads (c) and the wheel should be parallel and the wear indicators in their correct position. Make sure you guide the rotor carefully between the brake pads.

After mounting the wheel and tightening the quick-release or the thru axle pull the brake lever (d) (several times, if you have disc brakes). To do so lift the bicycle off the ground and spin the wheel with your hand. With the wheel spinning the rotor should not drag along the brake calliper or the brake pads and the rim should keep off the (rim) brake pads.

⚠ WARNING

- ***If you have disc brakes, pull the brake lever several times after mounting the wheel. You must reach a precise positive braking response.***
- ***If you have rim brakes, make sure you hook up the brake cable immediately after the wheel mounting!***
- ***If you have hydraulic rim brakes, hook up the brake calliper immediately and close the quick-release! Make sure the brake calliper does not touch the rim, the tyre or the spokes, when spinning the wheel.***
- ***Before setting off again check whether the brake surfaces and/or rotors are still free of grease or other lubricants after the wheel mounting.***
- ***Check whether the brake pads hit the rotors or brake surfaces of the rims. Make sure the wheel is properly seated and firmly fixed in the drop-outs. Always do a brake test as described in chapter “Before Every Ride”!***



HEADSET

The headset connects the fork to the frame, but allows it to move freely. It must turn with virtually no resistance, if the bicycle is to run straight, stabilising itself as it travels. Shocks caused by uneven road surfaces expose the headset to considerable levels of stress. In this way it can become loose and go out of correct adjustment.

⚠ WARNING

Riding the bicycle with a loose headset increases the loads on the fork and the bearing. The fork can break. Risk of accident!

Checking and Readjusting

Check the headset for play by placing your fingers around the upper headset cup (e).

Bring your weight to bear on the saddle, pull the front brakes with your other hand and push the bicycle firmly back and forth with the wheel remaining on the ground (f). If the bearing has play, you will feel the upper head tube race moving in jerks relative to the lower head tube race – visible as a small gap in between the head tube races.



To check whether the headset runs smoothly, lift the frame up until the front wheel no longer touches the ground. The handlebar should turn from far left to far right without feeling roughness or tightness at any point. With a gentle tap on the handlebar the fork should turn easily from the middle position (g).

If you face any problems during the test, contact your authorised dealer.

⚠ WARNING

Check the secure fit of the stem after adjusting the headset by taking the front wheel between your legs and trying to turn the handlebar and stem relative to the wheel (h). Otherwise, a loose stem can cause an accident.

SAFETY INSTRUCTIONS

Adjusting the headset requires a certain amount of experience and should therefore be left to your authorised dealer.

Threadless Headset – Aheadset®

(Aheadset® is a registered trade mark of Dia-Compe)

The distinct feature of this system is that the stem does not sit within the fork steerer tube, but rather slips over the fork steerer tube, which in this case is threadless. The stem is thus an important part of the headset, as the stem clamping fixes the adjustment (a). Instead of special tools you need in most cases only one or two Allen keys as well as a torque wrench to adjust the Aheadset®. Release the clamping bolt(s) located on the side of the stem by one to two turns (b). Gently tighten the countersunk adjusting bolt on top a little, e.g. by a quarter turn (c), by using an Allen key.

Realign the stem to ensure that the handlebar is at right angle to the wheel. Make sure the front wheel is in line with the top tube and the stem. Tighten the clamping bolts of the stem. Use a torque wrench and never exceed the maximum torque values (d)! You find the prescribed values in chapter “**Recommended Torque Values**”, directly on the components and/or in the manuals of the component manufacturers. Check the headset for play as described above. Do not to overtighten the headset. Risk of headset failure.



⚠ WARNING

- **Bear in mind that by overtightening the bolts the stem can crush the steerer tube. In particular forks with carbon steerer tubes are highly sensitive to overtightening the steerer tube clamping at the stem. Risk of breakage! Follow the adjusting instructions of the carbon fork manufacturer, when you want to change the headset or stem adjustment.**
- **Check the secure seat of the stem by taking the front wheel between your legs and trying to turn the handlebar and stem relative to the wheel. A loose stem can cause an accident.**
- **Never change the preload mechanism inside the fork steerer tube. Never install a star nut in carbon fork steerer tubes.**

NOTICE

- **Do not overtighten the upper bolt, it only serves to adjust the headset play.**

SAFETY INSTRUCTIONS

- **If you do not succeed in adjusting the headset, this can have several reasons. If you are not absolutely sure, ask your authorised dealer for help.**

SUSPENSION

Glossary

Suspension fork

Bicycle fork absorbing and damping shocks through moving components. The most common among these forks are the telescopic suspension forks (e). What is designated as stanchion tubes are the thinner tubes press fitted or screwed to the fork crown of a telescopic fork. What is designated as lower legs are the lower tubes the stanchion tubes slide into.

Rear shock

The rear shock is the element which combines the spring as well as the damping in the rear frame (f) of a full-suspension bike. Often the rear shock is also referred to as shock absorber.

Spring rate or hardness

The force that is required to compress the spring by a certain travel – measured in Newton per millimetre (N/mm) or pound per inch (lbs/in). A higher spring rate requires more force for the travel. With air spring elements a higher rate means a higher pressure.

Spring preload

In the case of the widespread air spring systems, the air pressure in the fork (g) is crucial for the spring rate and the spring preload. Observe your manufacturer's recommendations.

Within a certain range a preload can be applied to the steel springs. Then the suspension only reacts when a greater load is applied. The spring rate remains, however, unchanged. Heavier riders cannot compensate a too soft spring rate with a higher preload.

Negative spring travel – "sag" (h)

The spring travel of the rear frame or the fork during compression when the rider takes up his or her usual riding position at a standstill. This is usually specified as a percentage of the overall spring travel.

Travel adjust

In most cases the spring travel of the suspension fork is reduced by turning a knob. There are some forks where the reduction is only realized after a deep spring compression. In the case of full-suspension rear frames this is typically done by screwing off segments on which the rear shock is mounted or by loosening or readjusting screws.



Compression damping

In most cases a blue adjusting knob (a). Decelerates or slows down the force that moves a fork or shock through its travel. Prevents the suspension fork from bottoming out when compensating very fast impacts.

Especially high-quality suspension elements distinguish between "high speed" (for hard impacts = rapid spring compression) and "low speed" (for slow compression, e.g. bouncing when riding out of the saddle) compression damping.

Rebound damping (b)

In most cases a red adjusting knob. Decelerates and/or slows down the speed at which the fork or shock recovers or bounces back. Prevents bike bobbing.

Lockout

In most cases a lever on the suspension element or the handlebar (c). A device to block the fork or the rear shock so that the suspension element does not cause bob when riding on asphalted roads or smooth surfaces. Must not be used off road.

Platform damping (d)

Increases the (low speed) compression damping rate and suppresses bobbing. In contrast to the lockout function, the suspension is not blocked completely.



SUSPENSION FORKS

Most mountain bikes are equipped with suspension forks (e+f). This feature gives you better control of your bicycle when riding cross-country or on rough road surfaces and ensures more ground contact for the tyre. It noticeably reduces the strain on you and your bicycle caused by the mechanical shocks from the terrain.

Suspension forks differ in their types of spring elements and damping. The suspension is usually provided by coil springs, special types of plastic (elastomers) or sealed air compartments or combinations of these options. The damping is usually done by oil or by the self-damping properties of the elastomers.

SAFETY INSTRUCTIONS

Suspension fork manufacturers normally include manuals with their deliveries. Read them carefully before changing any settings or doing any maintenance work on your suspension fork.

Adjusting the Spring Rate

To work perfectly, the fork has to be adjusted to the weight of the rider, the sitting posture and the intended use. The suspension fork should yield by about 10–25 % of its total travel under the rider's weight. Be sure to have this adjustment carried out by your authorised dealer at the moment of delivery.

If you can hear the fork hit the end of its travel in the terrain or on poor road surfaces, the spring is adjusted too soft. In this case the spring preload/the pressure must be increased (g). If the adjustment range of the coil springs is too small, have the springs replaced by your authorised dealer.

⚠ WARNING

Suspension forks are designed in a way to absorb shocks. If the fork is too rigid and jammed, shocks hit the frame undiminished. In these areas the frame is normally not designed to bear these loads. If your suspension fork has a lockout mechanism (h), do not activate the lockout function when riding in rough terrain, but only when riding over smooth terrain (roads, field tracks).

The suspension fork must be designed or set in a way that it bottoms out only in extreme cases. A spring rate which is too soft (or too low an air pressure) can usually be heard or felt as a "clunk" type noise. This noise is caused by the sudden complete compression of the suspension fork as it reaches bottom out. If the suspension fork frequently reaches bottom out, it will sustain damage over time, and so will the frame.



Adjusting the Damping Control

The damping is adjusted by inside valves. The oil circulation through these valves slows down the speed with which the suspension fork is extended or compressed and prevents the suspension “bouncing” after hitting an obstacle. This is a way to optimise the reaction to obstacles.

Suspension forks with adjustable **rebound damping** have an adjusting knob (mostly red) (a) to slow down or accelerate the rebound movement. If a second (mostly blue) knob (b) is available, the compression speed can be set and/or the lockout function can be activated.

Start the setting with a completely open damping (rebound and compression on “-”). Take hold of the handlebar with both hands and pull the front brake. Lean with your entire weight on the fork (c) and remove your weight immediately. The fork will extend at the same speed as you made it compress.

Turn the red adjusting knob in the direction “+” until you hear a click. Compress the fork once again with the front wheel brake pulled and then remove the weight abruptly once again. You will note that the fork extends more slowly.

Repeat the compression and the release by continuously turning the rebound damping. You will get a feeling for the working of the rebound damping.

The typical setting of the rebound damping is an extension of the suspension components at reduced speed, however not at a sluggish pace. A rebound movement at reduced speed ending up in a sluggish movement is definitely a too high damping.

Ride over an obstacle (e.g. down a kerb) subsequently and turn the rebound damping in small steps towards the “+” setting. You have found the proper rebound setting when the suspension fork does not cycle more than once. Always check a changed adjustment during a test ride in the terrain (d).



Some suspension forks also have a **compression damping** (e). The typical compression damping, or on some suspension forks the high-speed compression damping, slows down the compression when riding at high speed over an obstacle. A high compression speed would possibly make the fork bottom out.

A weaker damping ensures a good responsive performance, leads however to an excessive compression of the suspension fork when riding at high speed over obstacles, e.g. steps, or to a bouncing when riding out of the saddle under certain conditions. A too strong damping hardens the suspension and thus reduces the riding comfort.

If you have set the sag correctly, as above described, and the fork works properly during a normal test ride, but bottoms out in an extreme situation, you can increase the compression damping (f).

Proceed click by click because a too strong compression damping prevents the suspension fork from using the complete spring travel. The setting of the compression damping can be a long process which must be carried out consciously and always in small steps.

Start with the lowest level, i.e. the adjusting knob must be turned fully towards the marking “-“ or “open”.

Always check a changed adjustment during a test ride in the terrain. If you are not sure about how to adjust the damping (g) or if you face any problems during adjustment, contact your authorised dealer and follow the respective instructions in the suspension fork manufacturer's manual.

⚠ WARNING

- A too strong damping (rebound damping) of the fork can result in the fact that the fork no longer extends when riding over a quick series of obstacles. Risk of accident!**
- Do not turn any screws by using tools in the vague hope of adjusting them somehow. You could release the fastening mechanism, thus causing a fall. Normally, the adjustment devices are operated with the fingers and are marked by all manufacturers with a scale or with “+” (for stronger damping/harder suspension) and “-” signs (h).**



⚠ WARNING

When mounting a new front tyre, make sure there is enough clearance between tyre and fork crown as the fork compresses entirely. If necessary, deflate the suspension fork completely and press the handlebar forcefully downward (a) to check this. The front wheel can get jammed. Risk of accident!

Do not ride your bicycle, if the suspension fork bottoms out. This could damage the suspension fork itself as well as the frame. The spring rate should always be adjusted to the weight of the rider and the luggage (b) as well as to the riding conditions.

SAFETY INSTRUCTIONS

Contact your authorised dealer and follow the respective instructions in the fork manufacturer's manual.

Lockout

When taking long uphill rides involving hard pedalling out of the saddle, a suspension fork is typically bobbing. It is advisable to lock the damping, if the suspension fork has a lockout mechanism (c). For downhill rides on uneven ground the lockout mechanism must be open stringently.

⚠ WARNING

Do not actuate the lockout function when riding over rough terrain (d), but only when riding over smooth terrain (roads or field tracks).



Maintenance

Suspension forks are components of sophisticated design that require regular maintenance and care. This has led almost all suspension fork manufacturers to establish service centres where you can have your fork thoroughly checked and overhauled at regular intervals according to use, e.g. once a year. Be sure to have all bolted connections checked at regular intervals by your authorised dealer.

The following routines are essential for maintenance:

Make sure the sliding surfaces of the stanchion tubes are absolutely clean. Clean the fork with water and a soft sponge (e) when soiled.

After washing your bike, spray the stanchion tubes of the suspension fork with a little grease spray (f) approved by the manufacturer or apply a very thin film of hydraulic oil. Compress the fork several times and wipe off excess lubricant with a clean rag before you set off for your next ride.

Do not use a steam jet (g) or aggressive cleaning agents for cleaning! Ask your authorised dealer for an appropriate lubricant.

If your fork has an elastomer filling, you should regularly clean and lubricate the synthetic springs with a non-corrosive resin-free grease. Some fork manufacturers supply special greases (h) for fork maintenance. Strictly observe the recommendations of the manufacturers. Suspension forks with air spring have to be checked regularly for air pressure, as the air escapes over time.

NOTICE

Suspension forks are constantly exposed to water and dirt spraying up from the front wheel. Clean them with lots of water after every ride.

SAFETY INSTRUCTIONS

Suspension elements are of sophisticated design. The maintenance routines and above all the disassembly of the suspension elements are jobs best left to your authorised dealer.

Have your bicycle with suspension fork checked by a service centre of the fork manufacturer once a year at least.



REAR SHOCK

Full-suspension bikes (a) do not only have a suspension fork but also movable rear stays which are sprung and damped by a rear shock (b). This feature gives you better control of your bicycle when riding cross-country or on rough road surfaces. It noticeably reduces the strain on you and your bicycle caused by the mechanical shocks from the terrain. The rear shock normally works with an air spring element or – less frequently – with coil springs. Damping is usually achieved with oil. Depending on the system the rear shock has one or more bearing axles.

What to Bear in Mind when Adjusting the Seating Position

Depending on the rear shock adjustment the saddle can tilt a little backwards. Keep this in mind when adjusting the saddle tilt. If you have trouble sitting, try lowering the nose of the saddle a little compared to your usual position.

SAFETY INSTRUCTIONS

Full-suspension bikes have a greater ground clearance than bicycles without suspension. If the saddle is adjusted to its proper height you will normally not be able to reach the floor with your feet. Set the saddle a little lower to begin with and practise getting on and off the saddle.



Adjusting the Spring Rate

To work perfectly, the rear shock (c) has to be adjusted to the weight of the rider, the sitting posture and the intended purpose (d). Be sure to have this adjustment carried out by your authorised dealer at the moment of delivery.

If you can hear the rear shock hit the end of its travel in the terrain, the spring is adjusted too soft. In this case the spring preload/the pressure must be increased. If the adjustment range of the coil spring is too small, have the spring replaced by your authorised dealer.

⚠ WARNING

In the case of full-suspension bikes the frame is designed in a way to absorb shocks. If the rear shock is too rigid and jammed, shocks hit the frame undiminished. In these areas the frame is normally not designed to bear these loads. If your rear shock has a lockout mechanism, do not activate the lockout function when riding in rough terrain, but only when riding over smooth terrain (roads, field tracks).

SAFETY INSTRUCTIONS

Rear shock manufacturers normally include manuals with their deliveries. Read them carefully before changing any settings or doing any maintenance work on your rear shock.

⚠ WARNING

The rear shock must be designed or set in a way that it bottoms out only in extreme cases. A spring rate which is too soft (or too low an air pressure) can usually be heard or felt as a “clunk” type noise. This noise is caused by the sudden complete compression of the rear shock as it reaches bottom out. If the rear shock frequently reaches bottom out, it will sustain damage over time, and so will the frame.

Adjusting the Damping Control

The damping is adjusted by inside valves. The oil circulation through these valves slows down the speed with which the rear shock is extended or compressed and prevents the suspension from “bouncing” after hitting an obstacle. This is a way to optimise the reaction to obstacles.

Rear shocks (e) with adjustable **rebound damping** have an adjusting knob (mostly red) (f) to slow down or accelerate the rebound movement. If a second (mostly blue) knob is available, the compression speed can be set and/or the lockout function can be activated.

Start the setting with a completely open damping (rebound and compression level on “-” or “fast”). Hold the saddle with both hands. Lean with your entire weight on the saddle (g) and remove your weight immediately. The rear shock will extend at the same speed as you made it compress.

Turn the red adjusting knob in the direction “+” or “slow” until you hear a click (h). Press the saddle down once again and remove your weight abruptly. You will note that the rear shock extends more slowly. Repeat the compression and the release by continuously turning the rebound damping. You will get a feeling for the working of the rebound damping.

The typical setting of the rebound damping is an extension of the suspension components at reduced speed, however not at a sluggish pace. A rebound movement at reduced speed ending up in a sluggish movement is definitely a too high damping.

Ride over an obstacle (e.g. down a kerb) subsequently and turn the rebound damping in small steps towards the “+” or “slow” setting. You have found the proper rebound setting when the rear frame does not cycle more than once. Always check a changed adjustment during a test ride in the terrain.



Some rear shocks also have a **compression damping** (a+b). The typical compression damping – or in the case of some rear shocks the high-speed compression damping – reduces the rate at which the rear shock compresses when riding at high speed over an obstacle. Otherwise a high compression speed could make the rear shock bottom out.

A weak damping ensures good response behaviour, may however lead under certain conditions (when riding too fast over obstacles, e.g. steps) to a too strong compression of the rear frame or to a bouncing when riding out of the saddle. A strong damping hardens the suspension, i.e. reduces the riding comfort.

When you have set the sag correctly, as above described, and when the rear shock works properly during a normal test ride, but if then the rear shock bottoms out nevertheless, you can increase the compression damping a little.

Proceed in this case also click-by-click because a too strong compression damping prevents the rear shock from using the complete spring travel. The setting of the compression damping can be a long process which must be carried out consciously and always in small steps.

Start with the lowest level, i.e. the adjusting knob must be turned fully towards the marking “-” or “firm”.

Always check a changed adjustment during a test ride off road (c).

If you are not sure about how to adjust the damping or if you face any problems during adjustment, contact your authorised dealer and follow the respective instructions in the rear shock manufacturer's manual.

Lockout

When taking long uphill rides involving hard pedalling out of the saddle, a rear frame is typically bobbing. It is advisable to lock the damping, if the rear shock has a lockout mechanism. For downhill rides on uneven ground the lockout mechanism must be open stringently.

Many mountain bikes have a lockout lever on the handlebar. In the case of Fox suspension elements the “Climb mode” corresponds to a lockout (d).



⚠ WARNING

Do not turn any screws in the vague hope of adjusting them somehow. You could release the fastening mechanism, thus causing a fall. All manufacturers normally mark adjustment devices with a scale or with "+" (for stronger damping/harder suspension) and "-" signs (e).

Do not ride your bicycle, if the rear shock often bottoms out. This could damage the rear shock itself as well as the frame. Always adjust the spring rate to the rider's weight and riding conditions.

A too strong damping of the rear shock (rebound damping) can result in a sluggish rebound movement with a rear frame that will not recover when exposed to a quick series of impacts. Risk of accident!

When mounting a new rear tyre, make sure there is enough clearance between tyre and frame as the rear frame compresses entirely. If necessary, deflate the rear shock completely and press the saddle forcefully downward to check this. The rear wheel can get jammed. Risk of accident!

Do not actuate the lockout function when riding over rough terrain (f), but only when riding over smooth terrain (roads or field tracks).

Maintenance

Rear shocks and rear frames are components of sophisticated design that require regular maintenance and care. This has led almost all rear shock manufacturers to establish service centres where you can have your rear shock thoroughly checked and overhauled at regular intervals according to use, e.g. once a year. Be sure to have all bolted connections checked at regular intervals by your authorised dealer. The following routines are essential for maintenance:

Rear shocks with air spring have to be checked regularly for air pressure, as the air escapes over time. Make sure the sliding surfaces of the piston rod are clean. Clean the rear shock and the rear frame, in particular the bearings with water and a soft rag after every ride (g). After having washed the bike, apply a little grease spray approved by the damper manufacturer (h) on the piston rod of the rear shock and the bearings or apply a very thin layer of hydraulic oil.



Compress the rear frame several times (a) and wipe off excess lubricant with a clean rag before you set off for your next ride.

Do not use a steam jet (b) or aggressive cleaning agents for cleaning! Ask your authorised dealer for an appropriate lubricant.

Check the proper fit of all bolted connections of the rear frame regularly. Also check whether the rear frame bearings show lateral or the bearing of the rear shock vertical play.

Lift the bicycle by the saddle and try to move the rear wheel to the left and to the right. If you need help, ask a helper to hold the front part of the frame tight.

To check whether the rear shock has play, gently place down the rear wheel and lift it again subsequently (c). Listen for rattling noises. If you find any play, ask your authorised dealer to eliminate it immediately.

NOTICE

Rear shocks are constantly exposed to water and dirt spraying up from the rear wheel. Clean them with lots of water and a rag after every ride (d).

SAFETY INSTRUCTIONS

Rear shocks and rear frames are of sophisticated design. The maintenance routines and above all the disassembly of the suspension elements are jobs best left to your authorised dealer.

Have your bike with rear shock checked by a service centre of the manufacturer once a year at least.



THINGS WORTH KNOWING ABOUT BICYCLES AND CYCLING

Cycling Helmets and Glasses

Cycling helmets are a must when riding a bicycle. Your authorised dealer has a variety of styles and sizes (e).

Cycling helmets are only approved for use during cycling. Observe the manufacturer's instructions.

⚠ WARNING

Never ride without a helmet and glasses (f)! But remember that even the safest helmet is useless unless it fits properly and is correctly adjusted and fastened.

Apart from a cycling helmet and suitable clothing, cycling glasses are absolutely essential when you set off on your bicycle.

They do not only protect your eyes from the sun and the wind, but also keep out flies and other impurities that may impede your vision when they fly into your eyes. **Risk of accident!**

Your authorised dealer has a wide range of cycling glasses available and will be pleased to advise you!



Clothing

⚠ WARNING

Never ride with wide-cut trousers or skirts that might get caught in the spokes, chain or chainrings. To avoid any such mishap, use suitable clips or straps, if necessary (g).

For increased visibility to other road users be sure to wear bright-coloured clothing!

Pedals and Shoes

Cycling shoes should be made of solid material to provide firm support for your feet. In addition, they should have a stiff sole so that the pedal cannot press through. The sole should not be too wide; otherwise you will not be able to assume a natural foot position.

Special cycling shoes are particularly necessary when your mountain bike is equipped with clipless pedals (h). With these shoes small cleats are fixed to the sole. They give you a firm connection between shoe and pedal and allow an acceptable walking position.



The main advantage is that these cycling shoes and clipless pedals (a) prevent your feet from slipping off when pedalling fast or when riding over rough ground. They enable you not only to push but also to pull the pedals.

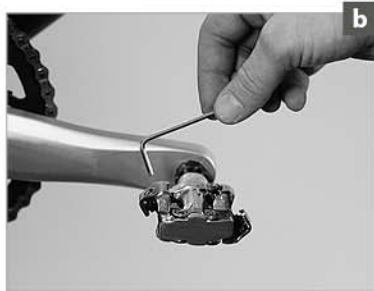
The usual way to engage with the pedal is to turn it from the lowest position of the crank to the horizontal using the tip of the cleat and push down on the back of it. Normally, the shoe engages with the pedal with a click which you will hear and feel clearly.

The release force of clipless pedals is adjusted by means of an Allen key (b). If there are any creaking or squeaking noises, which occur, some grease will solve the problem in most cases. These noises as well as lateral play of the shoe on the pedal can, however, be also signs of wear. Check the cleats at regular intervals.

⚠ WARNING

Make sure the fastening bolts of the cleats are properly tightened, as you will find it almost impossible to disengage your shoe from the pedal, if the cleat is loose. Risk of accident!

Taking up the pedals, engaging and disengaging the shoes should first be practised in standing (c). Later you can refine your technique in a place clear of traffic.



⚠ WARNING

Only use clipless pedals allowing you to engage and disengage smoothly. A defective pedal or a badly worn cleat can make the shoe disengage from the pedal. Or unclipping the shoe from the pedal is sometimes very difficult or even impossible. In both cases, there is the risk of an accident!

Make sure pedals and shoe soles are always free of mud and other impurities (d) and grease the lock-in mechanism with lubricant at regular intervals.

⚠ CAUTION

Some mountain bike pedals, also referred to as platform pedals, are designed for maximum grip of the shoes when dirtbiking and freeriding. For this reason they have sharp edges and/or bolted pins. As they enhance the risk of injuries during riding, you should wear protective clothing, e.g. knee and shin guards.

SAFETY INSTRUCTIONS

Read the pedal manufacturer's operating instructions and ask your authorised dealer to inform you about the different cycling shoe models.

Accessories

In purchasing this bicycle you laid the foundation for many years and miles of enjoyable cycling. Whatever you are planning to do with your bicycle, be sure to have proper equipment and to keep a few tips in mind. Your authorised dealer has a variety of useful accessories on offer enhancing both your safety and convenience.

Your bicycle can be equipped with various kinds of accessories (e). Make sure to observe the requirements according to the traffic regulations in your country and of the DIN EN standards. Any retrofitted part must be compatible with your bicycle.

⚠ WARNING

Improper accessories may change the qualities of your bicycle and even cause an accident. Therefore, before fitting any accessories contact your authorised dealer and observe the instructions regarding the intended use of your bicycle.

Bicycle Locks

Do not forget to take a high quality D-, folding or chain lock (f) with you on your ride. The only way to effectively protect your bicycle against theft is to lock it to an immovable object.



Puncture Kit

The most important accessories for a successful cycle tour are a tyre pump and a small tool kit. The tool kit should include two plastic tyre levers, the most commonly used Allen keys, a spare tube, a tyre repair kit, your mobile phone, if necessary, and a little cash (g). In this way you will be well prepared in the event of a puncture or some other mishap.

SAFETY INSTRUCTIONS

Retrofitted accessories, such as mudguards, pannier racks etc. can impair the functioning of your bicycle. Ask your authorised dealer for advice before mounting any kind of accessories to your bicycle.

Before buying any additional bells, horns or lighting accessories, inform yourself thoroughly whether they are permitted and tested and accordingly approved for use on public roads. Make sure additional battery/accumulator-powered lamps are marked with the wavy line and the letter "K" (h).



TRANSPORTING LUGGAGE

Transporting Luggage with Hardtail Frames

There are various ways of carrying luggage on a bicycle. Your choice will primarily depend on the weight and volume of the luggage and on the bicycle you want to use. Using a bicycle rucksack (a) is a convenient way of transporting luggage on a bicycle. You can also use pannier racks or handlebar bags, but some mountain bike models do not allow the mounting of these accessories. If you are in doubt or if you have any questions, contact your authorised dealer.

Some mountain bikes without rear shock can be equipped with a pannier rack (b). Ask your authorised dealer for the fixing points and suitable pannier racks.




It is advisable to carry luggage in stable pannier bags (c) with a very low centre of gravity.

When buying pannier bags, make sure they are watertight so that your belongings are protected and you will not have any unpleasant surprises after the first rain shower.

We generally recommend, however, that you do not fasten any luggage to suspension forks.

Make sure the weight of your luggage is favourably distributed when loading your bicycle. Heavy items should be carried as close to the ground as possible. Handlebar bags and bags mounted to the top of the pannier rack are only suited for light objects.

WARNING

-  ***If necessary, do not overload your bicycle (see "Bike Card") and also observe the maximum load capacity marked on or impressed in your pannier rack.***
-  ***Adjust the suspension fork (d) and the tyre pressure to the additional load.***
-  ***Luggage generally changes the riding characteristics of your bicycle and increases your stopping distance! Therefore, practise riding a loaded bicycle in a place free of traffic.***



TAKING CHILDREN WITH YOU

SAFETY INSTRUCTIONS

Prior to towing a trailer (e+f) with your bicycle, check that it is designed for this purpose. Have a look at the bike card or ask your authorised dealer for advice.

Prior to mounting a trailer system to your bicycle (g), check that it is designed for this purpose. Have a look at the bike card or ask your authorised dealer for advice.

The only possible and legal way of transporting children by bicycle is in special child seats (h) or trailers.

Child Seats

⚠ WARNING

Most mountain bikes do not allow the mounting of child seats. This applies in particular to extremely lightweight frames. Ask your authorised dealer for advice and have a look at the bike card. Also read the instructions of the child seat manufacturer.



Child Trailers

⚠ WARNING

If you intend to tow a trailer with your bike, make sure before you set off it is equipped according to the regulations prescribed in your country and switch on the lighting as soon as darkness sets in or with poor visibility.

Always secure the little passenger(s) with the seat belt, as erratic movements inside the trailer can make the bicycle or the trailer topple over.

Kids' Tandem Bicycles/Trailer Systems

⚠ WARNING

Make sure the child you are taking with you wears a helmet. A child seat or a trailer only provide insufficient protection in the event of an accident! Keep in mind that you always wear a helmet, as well.

Only buy tested child seats, child trailers and trailer systems (e.g. BSEN/GS tested systems) and have them properly mounted. The manuals of the manufacturers included in the deliveries, provide detailed information in this regard.

BICYCLE TRANSPORT

By Car

Nearly every car accessory dealer and car company offers carrier systems (a) that allow the transport of a bicycle without disassembly.

The usual design involves rails fixed to the roof of the car onto which the bicycles are fixed with clamps gripping the down tubes. This can result in irreparable damage to the frame. High-end, very thin-walled aluminium or carbon frames are particularly susceptible to such kind of damage. Due to the material properties of carbon, you may not see a severe damage at first sight. This can result in an unforeseeable severe accident at a later date. There are, however, special suitable models available in the car accessory trade.

Rear carriers are becoming more and more popular. Their big advantage over roof carriers is that you do not have to lift up the bicycle so high to attach it. Make sure the clamps do not cause any damage to the fork or frame. **Risk of breakage!**

Whatever system you opt for, make sure it complies with the relevant safety standards of your country!



Read the operating instructions of your bicycle carrier (b) and observe the maximum load capacity and recommended or prescribed speed limit. Observe the necessary drawbar load, if available.

⚠ WARNING

- **Make sure to remove all parts of your bicycle (tools, pannier bags (c), child seats etc.) which might come loose during transport. Risk of accident!**
- **Do not buy a carrier on which the bicycle has to be mounted upside down, i.e. with the handlebar and saddle fixed face down to the carrier. This way of fastening the bicycle exposes handlebar, stem, saddle and seat post to extreme stress during transport. Do not opt for a carrier system with crank arm fit. Risk of breakage!**
- **Check whether your bicycle is properly fastened before and at regular intervals during the ride. A bicycle that detaches from the roof carrier may endanger other road users.**

NOTICE

- **Secure the bicycles on the bicycle carrier with an additional lock (d) e.g. during a halt.**

⚠ WARNING

- Always secure the bicycle or bicycle components when putting it/them into the interior of your car (e). Parts shifting around can impair your safety.**
- Make sure the lights and the number plate of your car are not hidden from view. For some carriers, a second exterior rear view mirror is required by the road traffic regulations.**
- Pull the brake lever and secure it with a strong rubber band (f), when transporting a bicycle with hydraulic disc brakes horizontally or hanging.**

NOTICE

- Most clamps are a potential source of damage to large-diameter frame tubes (g) that are not designed to be fixed in such clamps! Do not use such systems with carbon frames.**
- Bear in mind that your car has a greater overall height with the bicycle on it. Measure the overall height and place a sign stating the height somewhere in the cockpit or on the steering wheel so that it can be easily seen.**
- If your bicycle has disc brakes, be sure to mount the safety locks (h) before transporting the bicycle with the wheels dismantled.**



By Rail / By Public Transport

In cities the regulations for taking bicycles by public transport differ. There are e.g. some places where you are only allowed to travel with your bicycle during off-peak hours and with an additional bicycle ticket. Inform yourself in time about the regulations of carrying the bicycle before you start the trip!

In some countries regional trains have special spaces for the storage of bicycles and other things. This is an option to take your bicycle with you. They are often at the front or end of a train and marked with a bicycle sign.

When taking a high-speed train check whether you can take your bicycle with you.

⚠ CAUTION

- Remove, if necessary, heavy or bulky pannier bags and luggage for an easier boarding and disembarking of the train.**

SAFETY INSTRUCTIONS

- Before you start your trip inform yourself in time about the conditions of carriage and also observe the regulations and rules about bicycle transport in the countries through which you intend to travel.**

GENERAL NOTES ON CARE AND SERVICING

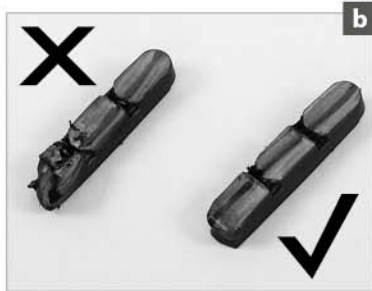
Maintenance and Servicing

Your authorised dealer will have assembled and adjusted your bicycle ready for use when you come to collect it. Nevertheless, your bicycle needs regular servicing (a). Have your local authorised dealer do the scheduled maintenance work. This is the only way to ensure that all components function safely and reliably for many kilometres/miles.






The first inspection is already due after 75 to 225 kilometres (45 to 140 miles) (category 3), 5 to 15 (categories 3 and 4) or 4 to 12 hours of initial use (category 5) or four to six weeks. The bicycle must be serviced, because in this initial "break-in" period of use, safety-relevant bolted connections and spokes can slightly lose tension or gears may go out of adjustment. This "break-in" period is unavoidable. Therefore, remember to make an appointment with your authorised dealer for the first inspection of your new bicycle. The first service is very important for both functioning and durability of your bicycle.

The intended use of the bicycle includes regular servicing and the replacement of worn out parts in time, e.g. brake pads (b) or Bowden and brake cables (c), and therefore has an influence on the liability for material defects and the warranty, as well.

It is advisable to have your bicycle serviced regularly by your authorised dealer after the "break-in" period. If you ride a great deal on poor road surfaces or cross-country, it will require correspondingly shorter service periods.



⚠ WARNING

-  **Servicing and repairs are jobs best left to your authorised dealer. If you have your bicycle serviced by anyone else than an expert, you run the risk that parts of your bicycle will fail. Risk of accident! When working on your bicycle restrict yourself to jobs for which you are equipped e.g. with a torque wrench including bits (d) and have the necessary knowledge.**
-  **If a component needs to be replaced, make it a rule to only use original spare parts. Wearing parts of other manufacturers, e.g. brake pads or tyres that are not of identical size, may cause harm to the safety of your bicycle. Risk of accident!**
-  **For your own safety, bring your category 3 bicycle to your authorised dealer for its first inspection after 75 to 225 kilometres (45 to 140 miles), 5 to 15 hours of initial use or four to six weeks, at the very latest, however, after three months.**
-  **For your own safety, bring your category 4 bicycle to your authorised dealer for its first inspection after 5 to 15 hours of initial use or four to six weeks, at the very latest, however, after three months.**
-  **For your own safety, bring your category 5 bicycle to your authorised dealer for its first inspection after 4 to 12 hours of initial use or four to six weeks, at the very latest, however, after three months.**

Cleaning and Caring for the Bicycle

Dried sweat, dirt and salt from riding during the winter or in sea air can harm your bicycle. You should therefore make it a habit of cleaning all components at regular intervals.

Avoid cleaning your bicycle with a pressure water washer. The high-pressure jet is likely to enter bearings by passing through the seals. This leads to the dilution of lubricants and consequently to greater friction. This destroys and impairs the functioning of the bearing races in the long term. Pressurised water also tends to abrade frame stickers.

A much more gentle way of cleaning your bicycle is with a low pressure water jet or a bucket of water and a sponge or a large brush. Cleaning your bicycle by hand has another positive side-effect: you may discover defects in the paint (e) as well as worn or defective components at an early stage.

Inspect the chain after you have finished cleaning and oil it, if necessary (f) (see chapter “Chain – Care and Wear”).

Apply a coat of standard hard wax (g) on painted, metal and carbon surfaces (except from brake surfaces). Polish the waxed surfaces after drying to give them a nice shine.

⚠ WARNING

- While cleaning, watch out for cracks, scratches, dents as well as bent or discoloured material. Have defective components replaced immediately and touch up paint defects. If you are in doubt or if you have any questions, contact your authorised dealer.
- Keep cleaning agents and chain oil free of the brake pads, rotors and rim sides (brake surfaces). This could render the brake ineffective (see chapter “Brake System”)! Never grease or lubricate the clamping areas of a frame made of carbon (h), e.g. handlebar, stem, seat post and seat tube. Once greased carbon fibre components may never again be clamped reliably!

NOTICE

- Do not clean your bicycle with a high-pressure water or steam jet and if you do, be sure to keep it at a distance.
- Only use petroleum based solvents for cleaning tough oil or grease stains from paint and carbon surfaces. Never use degreasing agents containing acetone, methyl chloride or the like, or solvent-containing, non-neutral or chemical cleaning agents that could attack the surface!



SERVICE AND MAINTENANCE SCHEDULE

You should have your bicycle serviced regularly after the initial “break-in” period of use. The schedule given in the table below is a rough guide for cyclists who ride their bike between 1,000 and 1,500 km (600 and 900 miles) or 50 to 100 hours of use a year.

If you consistently ride more or if you ride a great deal on poor road surfaces, the maintenance periods will shorten accordingly. This applies in particular to dirt, freeride, downhill bikes etc.

Component	What to do	Before every ride	Monthly	Annually	Other intervals
Lighting	Check function	■			
Tyres	Check pressure	■			
	Check tread and side walls		■		
Brakes (rim brakes)	Check lever travel, wear of brake pads and position relative to rim, if necessary; test brakes in standing	■			
Brakes, brake pads (rim brakes)	Clean		■		
Brake cables, pads, hoses	Visual inspection		■		
Brakes (disc brakes)	Check lever travel, wear of brake pads, check seals, test brakes in standing	■			
	Replace liquid (DOT-liquids)			×	
Suspension fork	Check bolts			×	
	All-inclusive service (change oil or grease elastomers)			×	
Rear shock	All-inclusive service			×	
Rims (of rim brakes)	Check thickness, replace if necessary				✗ After 2nd set of brake pads at the latest
Fork (rigid)	Check and replace, if necessary				✗ At least every two years
Height-adjustable/dropper or suspension seat post	Service			×	
	Check for play		■		
Rear shock	Check for bearing play		■		
	Check mounting bolts			×	

Component	What to do	Before every ride	Monthly	Annually	Other intervals
Bottom bracket	Check for bearing play		■		
	Dismount and regrease (cups)			×	
Chain	Check and grease, if necessary	■			
	Check wear, replace, if necessary				× After 800 km (480 miles) 40 hours of use
Crank	Check and retighten, if necessary		■		
Painted/anodized/carbon	Polish surfaces				■ At least every 6 months
Wheels/spokes	Check for trueness and tension		■		
	True or retighten				× If necessary
Handlebar and stem (aluminium and carbon)	Check and replace, if necessary				× Every 2 years at the latest
Headset	Check for bearing play		■		
	Regrease			×	
Metal surfaces	Polish (except rim sides of rim brakes, rotors)				■ At least every 6 months
Hubs	Check for bearing play		■		
	Regrease			×	
Pedals (all)	Check for bearing play		■		
Pedals (clipless)	Clean and grease locking mechanism		■		
Seat post/stem	Check bolts		■		
	Disassemble and regrease			×	
	Carbon: new assembly paste (no grease!)				
Front/rear derailleur	Clean and grease		■		
Quick-releases	Check seat	■			
Bolts and nuts	Check and retighten, if necessary		■		
Valves	Check seat	■			
Cables gears/brakes	Dismount and regrease			×	

If you have a certain degree of mechanical skills, experience and suitable tools, such as a torque wrench, you should be able to do the checks marked ■ by yourself. If you come across any defects, take appropriate measures without delay. If you are in doubt or if you have any questions, contact your authorised dealer.

Jobs marked × are best left to your authorised dealer.

RECOMMENDED TORQUE VALUES

All bolted connections of the bicycle components have to be tightened carefully and checked regularly to ensure the safe and reliable operation of the bicycle. This is best done with a torque wrench that disengages as soon as the desired torque value is reached or a click-type torque wrench. Tighten carefully by approaching the prescribed maximum torque value in small steps (0.5 Nm increments) and check in between the proper fit of the component. Never exceed the maximum torque value indicated by the manufacturer!

Where no maximum torque value is given start with 2 Nm. Observe the indicated values and follow the enclosed manuals of the component manufacturers.

⚠ WARNING

Some components have the maximum permissible torque value printed on them. Use a torque wrench and never exceed the maximum torque values! If you are in doubt or if you have any questions, contact your authorised dealer.

Component	Bolted connections	Shimano ¹ (Nm)	SRAM/Avid ² (Nm)
Rear derailleur	Mount (on frame/derailleur hanger)	8–10	8–12
	Cable clamp	5–7	4–5
	Pulley wheels	3–4	
Front derailleur	Mount on frame	5–7	3–7
	Cable clamp	5–7	5–7
Shift levers	Mount on handlebars	5	2–5.5
	Hole covering	0.3–0.5	
Brake lever unit	Mount on handlebars (Allen key)	4–8	3–5.5
Hub	Quick-release lever	5–7.5	
	Locknut for bearing adjustment of quick-release hubs	10–25	
	Sprocket cluster lock ring	29–49	40
Crank	Crank mount (grease-free square-head)	35–50	
	Crank mount (Shimano Octalink)	35–50	
	Crank mount (Shimano Hollowtech II)	12–14	
	Crank mount (Isis)		31–34
	Chainring mount	10–17	8–12
Sealed cartridge bottom bracket	Shell (square-head)	49–69	
	Shell (Shimano Hollowtech II)	35–50	
	Octalink	50–70	
Pedal	Pedal axle	35	

Component	Bolted connections	Shimano ¹ (Nm)	SRAM/Avid ² (Nm)
Shoe	Cleat Spike	5–6 4	
Brake (V-brake)	Cable clamp Brake shoe mount Brake pad fixing	6–8 6–8 1–2	6–8 6–8
Seat post	Patent clamping (saddle at seat post)	20–29	

These values are reference values of the above-mentioned component manufacturers. Please observe the values given in the enclosed manuals of the component manufacturers. These values do not apply to the components of other manufacturers.

¹ <https://si.shimano.com>

² www.sram.com

³ www.magura.com

⁴ www.rideformula.com

Recommended Torque Values for Disc Brakes

Component	Shimano ¹ (Nm)	SRAM/Avid ² (Nm)	Magura ³ (Nm)	Formula ⁴ (Nm)
Brake calliper mount on frame/fork	6–8	9.5	6	9
Brake lever unit on handlebar				
– Single-bolt clamp	6–8	3–5.5	4	
– Two-bolt clamp		3		2.5
Union screws of cable at grip and normal cable at brake calliper	5–7	5	4	5 (aluminium) 7.8 (steel)
Brake cable connector at brake calliper (disc tube cable)	5–7	5	6	
Expansion tank cap	0.3–0.5		0.6	
Threaded pin (bleeder hole)	4–6		2.5	
Brake disc fixing (6-holes)	4	6.2	4	5.75
Eyelet connection at brake lever unit				8
Brake rotor fixing (centerlock)	40			

Sheltering and Storing the Bicycle

If you regularly service your bicycle during the year, you will not need to take any special precautions when storing it for a short time, apart from securing it against theft. It is advisable to store the bicycle in a dry and airy place.

There are some things to bear in mind, when putting the bicycle away for the winter: Inflated tubes tend to gradually lose air when the bicycle is not used for a long time. If the bicycle is left standing on flat tires for an extended period, this can cause damage to the structure of the tyres. It is therefore better to hang the wheels or the entire bicycle or to check the tyre pressure regularly (a).

Clean the bicycle (b) and protect it against corrosion. Your authorised dealer offers a variety of care products, such as spray wax etc. (c).

Dismount the seat post and let dry away possibly penetrated humidity. Spray atomized oil into the seat tube exclusively in the case of metal frames. Shift the gear to the smallest chainring and the smallest sprocket (d). This relaxes both cables and springs.

⚠ WARNING

Never apply grease or oil into a seat tube of a frame made of carbon, unless an aluminium sleeve is inside the frame. If you mount a carbon seat post, do not put any grease on it, even if the frame is made of metal. Once greased carbon fibre components may never again be clamped reliably!

SAFETY INSTRUCTIONS

There is usually minimal waiting time for repairs and servicing at your authorised dealer during the winter months. What is more, many dealers offer annual checks at a special price. Use the off-season to take your bicycle to your authorised dealer for inspection!



LEGAL REQUIREMENTS FOR RIDING ON PUBLIC ROADS

In **Great Britain** (as of January 2022)

According to the **Highway Code** in Great Britain your bicycle must be equipped as follows:

1. Lighting, rear lights, reflectors:

At night your bicycle must have:

- a white front light (e)
- a red rear light
- a red rear reflector
- four amber pedal reflectors (if manufactured after October 1, 1985)

In addition, it should be equipped with:

- a white front reflector
- spoke reflectors
- flashing lights are permitted, a steady front lamp is however recommended.

(Law RVL R regs 13, 18 & 24)

It is not required that the prescribed lighting is mounted upon sale of the bicycle. If it is, however, it must comply with these regulations. Bicycles that are only used with good daylight visibility, such as e.g. road racing bicycles, are exempt from the lighting regulations.



2. Brakes

Every bicycle must be equipped with at least one braking system (f).
(Laws PCUR regs 6 & 10)

3. Signalling devices

It is recommended that a bell be equipped.

4. Cycle helmets

Wearing a cycle helmet which conforms to current regulations in the correct size and securely fastened is recommended.

5. Child transport

There are no rules as to the transport of children with bicycles.

6. Trailers

Cycle trailers must be equipped with a red rear light as well as a triangular rear reflector with an ECE mark III or IIIA.

7. Hand held mobile phones

Cycling with a hand held mobile phone is not illegal as such. You could, however, commit an offence of "careless riding" or "riding without due care and consideration". For safety reasons, you are strongly advised against using a mobile phone during cycling.

8. Other issues

Using cycle lanes is not compulsory, but can make your journey safer. You must not cycle on a pavement.

Laws HA 1835 sect 72 & R(S)A 1984, sect 129

SAFETY INSTRUCTIONS

For more important information on cycling, see chapter "General Safety Instructions".

For further information see:

www.direct.gov.uk

www.dft.gov.uk

www.ctc.org.uk

WARRANTY AND GUARANTEE

Your bicycle was manufactured with care and delivered to you by your authorised dealer fully assembled.

As direct purchaser you have full warranty rights within the first two years after purchase. Please contact your authorised dealer in the event of defects.

To ensure a smooth handling of your complaint, it is necessary to present your receipt, your bike card, the handover report and the service reports. Therefore, keep these documents in a safe place.

To ensure a long service life and good durability of your bicycle, use it only for its intended purpose (see chapters **"Before Your First Ride"** and **"Intended Use"**). Observe the permissible weight specifications indicated in the bike card. In addition, you have to follow the manufacturers' mounting instructions of the (above all, the torque values of the bolts) as well as the prescribed maintenance schedule.

Observe the checks and routines listed in this manual or in any other manual enclosed with this delivery (see chapter **"Service and Maintenance Schedule"**) as well as any instructions as to the replacement of safety-relevant components, such as handlebars, brakes etc.

SAFETY INSTRUCTIONS

This warranty law is only valid in the countries that have implemented the EU Directive into national law. Inform yourself about the regulations in your country. In the United Kingdom, see the respective regulations in the Consumer Rights Act 2015 (CRA 2015).

A Note on Wear

Some components of your bicycle are subject to wear due to their function. The rate of wear will depend on care and maintenance and the way you use your bicycle (mileage, riding in the rain, dirt, salt etc.). Bicycles that are often left standing in the open may also be subject to increased wear through weathering.

The components below require regular care and maintenance. Nevertheless, sooner or later they will reach the end of their service life, depending on conditions and intensity of use. Parts that have reached their limit of wear must be replaced.

This concerns:

- Drive chain
- Brake pads
- Brake fluid (DOT)
- Brake discs/rotors
- Brake cables
- Brake cable housings
- Seals of suspension elements and dropper posts
- Rims of rim brakes
- Rubber grips
- Chainrings
- Illuminants
- Tyres and inner tubes
- Sprockets
- Saddle covering
- Bowden cables
- Bowden cable housings
- Pulleys
- Lubricants

SAFETY INSTRUCTIONS

Ask your authorised dealer about any additional guarantee given by the manufacturer of your bicycle and insist on having it as printed version.

SERVICE SCHEDULE – STAMP FIELDS

1st service

Category 3: After 75–225 kilometres (45–140 miles) or 5–15 hours of use or after three months from date of purchase at the latest

Category 4: After 5–15 hours of use or after three months as of date of purchase at the latest

Category 5: After 4–12 hours of use or after three months as of date of purchase at the latest

Order no.: _____

Date: _____ Mileage: _____

☐ All necessary maintenance work carried out (see service and maintenance schedule); replaced or repaired parts:

Stamp and signature of the authorised dealer:

2nd service

Category 3: After 1,500 kilometres (900 miles) or 100 hours of use or after one year at the latest

Category 4: After 75 hours of use or after one year at the latest

Category 5: After 50 hours of use or after one year at the latest

Order no.: _____

Date: _____ Mileage: _____

☐ All necessary maintenance work carried out (see service and maintenance schedule); replaced or repaired parts:

Stamp and signature of the authorised dealer:

3rd service

Category 3: After 3,000 kilometres (1,800 miles) or 200 hours of use or after two years at the latest

Category 4: After 150 hours of use or after two years at the latest

Category 5: After 100 hours of use or after two years at the latest

Order no.: _____

Date: _____ Mileage: _____

☐ All necessary maintenance work carried out (see service and maintenance schedule); replaced or repaired parts:

Stamp and signature of the authorised dealer:

4th service

Category 3: After 4,500 kilometres (2,700 miles) or 300 hours of use or after three years at the latest

Category 4: After 225 hours of use or after three years at the latest

Category 5: After 150 hours of use or after three years at the latest

Order no.: _____

Date: _____ Mileage: _____

☐ All necessary maintenance work carried out (see service and maintenance schedule); replaced or repaired parts:

Stamp and signature of the authorised dealer:

5th service

Category 3: After 6,000 kilometres (3,600 miles) or 400 hours of use or after four years at the latest

Category 4: After 300 hours of use or after four years at the latest

Category 5: After 200 hours of use or after four years at the latest

Order no.: _____

Date: _____ Mileage: _____

☐ All necessary maintenance work carried out (see service and maintenance schedule); replaced or repaired parts:

Stamp and signature of the authorised dealer:

6th service

Category 3: After 7,500 kilometres (4,500 miles) or 500 hours of use or after five years at the latest

Category 4: After 375 hours of use or after five years at the latest

Category 5: After 250 hours of use or after five years at the latest

Order no.: _____

Date: _____ Mileage: _____

☐ All necessary maintenance work carried out (see service and maintenance schedule); replaced or repaired parts:

Stamp and signature of the authorised dealer:

7th service

Category 3: After 9,000 kilometres (5,400 miles) or 600 hours of use or after six years at the latest

Category 4: After 450 hours of use or after six years at the latest

Category 5: After 300 hours of use or after six years at the latest

Order no.: _____

Date: _____ Mileage: _____

☐ All necessary maintenance work carried out (see service and maintenance schedule); replaced or repaired parts:

Stamp and signature of the authorised dealer:

8th service

Category 3: After 10,500 kilometres (6,300 miles) or 700 hours of use or after seven years at the latest

Category 4: After 525 hours of use or after seven years at the latest

Category 5: After 350 hours of use or after seven years at the latest

Order no.: _____

Date: _____ Mileage: _____

☐ All necessary maintenance work carried out (see service and maintenance schedule); replaced or repaired parts:

Stamp and signature of the authorised dealer:

9th service

Category 3: After 12,000 kilometres (7,200 miles) or 800 hours of use or after eight years at the latest

Category 4: After 600 hours of use or after eight years at the latest

Category 5: After 400 hours of use or after eight years at the latest

Order no.: _____

Date: _____ Mileage: _____

☐ All necessary maintenance work carried out (see service and maintenance schedule); replaced or repaired parts:

Stamp and signature of the authorised dealer:

10th service

Category 3: After 13,500 kilometres (8,100 miles) or 900 hours of use or after nine years at the latest

Category 4: After 675 hours of use or after nine years at the latest

Category 5: After 450 hours of use or after nine years at the latest

Order no.: _____

Date: _____ Mileage: _____

☐ All necessary maintenance work carried out (see service and maintenance schedule); replaced or repaired parts:

Stamp and signature of the authorised dealer:

HANDOVER REPORT

The above-described bicycle was delivered to the customer ready for use, i.e. after its final assembly, inspection and functional check as described below (additionally required routines in parentheses).

- ☐ Lighting ☐ Brakes front and rear
☐ Suspension fork/rear shock (adjusted to suit customer)
☐ Wheels (trueness/spoke tension/tyre pressure)
☐ Handlebar/stem (position/bolts with torque wrench)
☐ Pedals (adjustment of release force, if necessary)
☐ Saddle/seat post (saddle height and position of saddle adjusted to suit customer, bolts with torque wrench)
☐ Gears (limit stops!)
☐ Bolted connections of add-on parts (with torque wrench)
☐ Other routines performed _____

☐ Test ride carried out

Name
authorised dealer _____

Street _____

ZIP code/city _____

Phone/Fax _____

E-mail _____

Delivery date,
 stamp,
 signature of
 authorised dealer _____

The customer confirms with his signature that he received the bicycle in proper condition along with the accompanying documents specified below and that he was instructed on the proper use of the bicycle.

☐ Manual/operating instructions

Additional instructions

- ☐ Brake system ☐ Gear system ☐ Pedal system
☐ Suspension fork ☐ Seat post, stem ☐ Rear shock
☐ Supplementary instructions "E-bike/Pedelec" ☐ Others

Name customer _____

Street _____

ZIP code/city _____

Phone/Fax _____

E-mail _____

City, date _____

Signature of
 customer _____

- ☐ I hereby expressly consent that my above-mentioned data are stored by the authorised dealer and made available to the manufacturer so that I can be contacted directly e.g. in the event of a recall. The data will not be transmitted to third parties or used otherwise.

Signature of
 customer _____

BIKE CARD

Manufacturer PIERER E-Bikes GmbH

Model _____

Frame no. _____

Rear shock
(manufacturer/model) _____

Suspension fork
(manufacturer/model) _____

Suspension fork –
serial number _____

Frame type _____

Frame size _____

Size of wheels and tyres _____

Colour _____

Special features _____

Intended Use

Use in accordance with

☐ category 3 ☐ category 4 ☐ category 5

Maximum permissible overall weight

Bicycle, rider, luggage and possibly trailer load _____ kg

Pannier rack allowed ☐ yes ☐ no

Permissible load _____ kg

Child carrier allowed ☐ yes ☐ no

Trailer allowed ☐ yes ☐ no

Permissible trailer load _____ kg

Brake levers – Brake assignment

Right lever: ☐ front wheel brake
☐ rear wheel brake

Left lever: ☐ front wheel brake
☐ rear wheel brake

⚠ WARNING

Read at least chapters "Before Your First Ride", "Intended Use" and "Before Every Ride" in these operation instructions.

Stamp and signature of the authorised dealer

(Hint to the authorised dealer: Copy the bike card and the handover report and keep one copy in your customer file. Send another copy to the bike manufacturer, if necessary. Make sure the customer confirms by his signature on the handover report that his personal data are made available to the manufacturer.)

PIERER

E-Bikes GmbH 

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