



**PRINCIPIA**

2004 Owner's Manual  
Frames and Complete Bikes

**Read p. 4  
before your first ride  
Before every ride check  
your bike according to p. 23**





## CONTENTS




### **PART 1: COMPLETE BIKE**

- 4 Before your first ride
- 4 Before every ride
- 7 Accessories and retrofits
- 7 Legal requirements for road users
- 7 How to use the quick-releases
- 8 Adjusting the bike to the rider
- 11 How to use clip-less pedals
- 11 The brake system
- 13 The gears
- 16 The wheels and tires
- 19 The head set
- 19 The suspension fork
- 20 Taking your bike by car
- 21 Transporting baggage
- 21 General notes on care and inspection
- 23 Service and maintenance schedule

### **PART 2: THE PRINCIPIA FRAME**

- 25 General aspects
- 26 Mounting of components
- 28 Forks
- 31 Warranty
- 33 Index
- 35 Principia Distributors

#### **Notes on the operating instructions:**

-  **Danger:** This symbol means that your life and health may be endangered if the relevant instructions on how to act are not followed or if you do not take the relevant safety measures.
-  **Caution:** This symbol is a warning against incorrect behaviour likely to entail material and/or environmental damage.
-  **Note:** This symbol is an idea or extra information, that could be useful.



#### **Dear Customer,**

Thank you for choosing a PRINCIPIA bicycle. You have acquired a high-quality bicycle frame, which, like all PRINCIPIA frames, meets the highest demands in terms of design and quality. These operating instructions contain important facts about your new complete bike (part 1) and your new PRINCIPIA frame set (part 2).

Please read these operating instructions carefully - as you can imagine, there has been a development in bicycle engineering just like in so many other areas. New gear and brake systems as well as newly developed frames with front suspension require that you make yourself familiar with the functioning of these systems (page 2). You will find that by using these systems correctly you will enhance your safety and cycling comfort and get more pleasure from your PRINCIPIA bike.

Due to the fact that PRINCIPIA only builds and distributes frame sets, PRINCIPIA can't be held responsible for every possible component somebody mounts on the frame/bike. Therefore it is absolutely impossible for PRINCIPIA to cover the complete range of possibilities in this manual. We thus strongly recommend that you always study the manuals of the other parts thoroughly!


To make sure that cycling gives you the greatest possible enjoyment, as well as for your own safety's sake, you should always carry out the minimum functional check before you use your bike. Please refer to p. 4 in this manual for instructions.

In addition to notes on technology and operation, this manual contains important information on the necessary maintenance and care your PRINCIPIA bike needs for safety's sake and in order to maintain its value. You will also find many other useful tips.

If you build up the bike by yourself, please follow the instructions and notes in part 2, "The PRINCIPIA frame," beginning on p. 25. Be aware of risks and only use approved quality parts!

For your own safety's sake, never work on your bike unless you feel absolutely sure about it. If you should have any further questions or problems, your PRINCIPIA dealer will be pleased to help you.

We wish you the greatest possible pleasure with your new PRINCIPIA bicycle.

 **Danger:** Do not use the bike unless it has passed the complete functional check!

# BEFORE EVERY RIDE

## 1. What roads can I use with the bike?

Only use your PRINCIPIA road- or triathlon-bike for training or competition on paved roads. The trekking frame is made for travelling on hard-surface tracks and paved roads as well. Use bicycle lanes wherever available. These PRINCIPIA bikes are not made for off-road use.

Mountainbike and Cyclocross models can also be used off road, as they are cross-country bikes. Observe the regional road use regulations. The PRINCIPIA bikes are not designed for downhill, dual slalom and other comparable competitive disciplines.

PRINCIPIA bikes do not have a lighting set as required by some road traffic regulations! Ask your dealer about the rules in your country.

## 2. Are you familiar with the brake system?

Check whether you can apply the front wheel brake with the hand movement you are accustomed to. If this is not the case, you will have to practice to become used to the new arrangement; inadvertent use of the front brake can result in a crash.

Modern brakes have far stronger brake power than older types you may be used to! Be sure to first practise using the brakes off public roads! You will find more information about brakes on p. 11.

## 3. Are you familiar with the type and functioning of the gears?

If not, make yourself familiar with the gears in a place clear of traffic.

You will find more information about gears on p. 13.

## 4. Are the saddle and handlebars 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.

You will find more information about the seat position on p. 8 of this manual.

## 5. Have you ever used clip-less, or step-in pedals and the compatible shoes?

Make yourself familiar with the lock and release mechanism in standing before your first ride with this type of pedal. Be sure also to read the attached instructions for use before setting out for the first time with these pedals. Further details on the subject of pedals are given on page 11 of this bicycle manual.

## Before every ride check the following points

1. Are the quick-release levers of the front and rear wheel properly closed?

For more information see p. 7.

2. Are the tires in good order; is there enough pressure in both tires?

Spin the wheels to check whether the rims are true. Inspect the wheels for burst tires and broken hubs and spokes. For more information see p. 16.

3. Test the brakes while standing by firmly pulling brake levers towards the handlebars. The brake blocks must hit the rim with their entire surface without touching the tire. You should not be able to pull the lever all the way to the handlebars! For more information about the brakes see p. 11.

4. Check the lighting set. Make sure that all reflectors and lamps are clean. For more information see p. 7.


5. Let the tires bounce on the ground from a small height ((10 cm).

Investigate any rattling noises.

Check bearings and tighten connections if necessary.

6. Don't forget to take a high-value lock with you on your ride. The only way to effectively protect your bike against theft is to lock it to an immovable object.

**⚠ CAUTION:** To avoid damage to your bike it is not allowed to tow a trailer behind the bike. Observe the maximum total weight of the bike plus the rider of: 100kg for all models.

 **Danger:** Don't use your bike if it fails on any of these points!

**⚠ CAUTION:** For your own safety's sake, don't do any work on your bike that you're not quite sure about. If in doubt ask your PRINCIPIA dealer for advice!

Finally a few points that are very important to cyclists need mentioning: Always ride carefully so as not to endanger yourself or others. Observe the traffic rules in order not to aggravate other road users. Respect nature when touring through forests, meadows and other areas. Only use your bike on signposted, paved roads. Observe the legal regulations when using the bike off the road. These regulations may differ regionally. Never ride without a helmet and be sure always to wear suitable clothing and sturdy shoes.

**⚡ Danger:** Never ride on immediately after falling from your bike: first check the gears (page 13) and all the other parts of the bike as described above, as you will otherwise risk another accident.

# GLOSSARY

1. Handlebar	8. Pedal
2. Stem	9. Rear Derailleur
3. Saddle	10. Front Derailleur
4. Seatpost	11. Wheel
5. Shift-/Brake Lever	12. Brake
6. Headset	13. Valve
7. Quick Release	





# PART 1: COMPLETE BIKE

## What should I look out for when mounting accessories or retrofitting?

The PRINCIPIA frame is designed for serious training and competition use only. Therefore it is not advisable to mount child carriers, luggage carriers, mudguards, locks, non-detachable lighting devices and other equipment, which may result in overloading the frame. Any damage caused by such equipment is not covered within the warranty. This of course does not apply to the RSL AS, which is designed to be mounted with luggage carriers and mudguards.

Before buying additional bells, horns, or lighting equipment check carefully whether these accessories are allowed on the road, and if they are tested.

Handlebars, handlebar stems, and forks should always be replaced at a PRINCIPIA dealer if necessary.

If you decide to have clip-less pedals, you should carefully read the operating instructions enclosed with the pedals before using them.

Tighten all safety-relevant connections to the prescribed torque in the manuals of the components.

## Legal requirements

If you want to use your bike on public roads, it has to be equipped according to your area's regulations. This applies in particular to the lighting set! Ask your PRINCIPIA dealer about the regulations in your country.

## How do I use the quick-releases?

Quick-releases have repeatedly been the cause of accidents resulting from improper use. The quick-release retention mechanism essentially consist of two parts:

- The hand lever on one side of the hub which creates a clamping force via a cam when you close it.
- The tightening nut on the other side of the hub with which to set the preliminary tension on the threaded rod.

## How to fasten the wheels securely:

- Open the quick release lever.
- Move the lever back as if to close it. Over the first half of its travel the lever should move very easily, i.e. without clamping the wheel.
- Over the second half of its travel, the force you need to move it should increase considerably. Towards the end of its travel the lever should be very hard to move. Use the ball of your thumb to press the lever in all the way.
- In its end position the lever shall be parallel to the bike, i.e. it should not stick out to the side. The locking lever shall be positioned in such a way that it cannot be opened accidentally.
- To check whether the lever is securely locked try to turn it while it is closed.
- If you can turn the lever around in a circle, the wheel is not securely fastened. Open the lever again and screw the tightening nut clockwise by half a turn to increase the initial tension.
- Close the lever and check the wheel again for tightness. If the lever can no longer be turned, it is properly fastened.

**⚡ Danger:** Components that have been improperly mounted can come loose or break off, possibly causing serious accidents.

**⚡ Danger:** Retrofitting accessories such as child carriers, mudguards, bar ends etc. can impair the functioning of your bike. If in doubt, ask your PRINCIPIA dealer for advice.

**⚡ Danger:** Switch your lights on as soon as it starts getting dark. The performance of some generators can diminish when riding in heavy rain or snow. If necessary use an additional battery set. Riding without lights can lead to accidents.

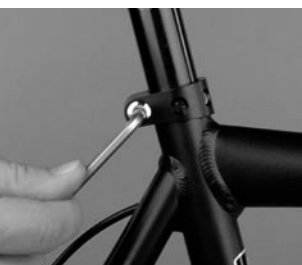
**⚡ Danger:** Make sure that the levers of both quick-releases are always on the left side of the bike. This will help you to avoid mounting the front wheel the wrong way round.



- Finally lift the bike so that the wheel is suspended a few centimetres from the ground and hit the tire from above. If it is properly fastened the wheel will remain firmly fixed in the dropouts of the frame.

**⚠ CAUTION:** Quick release levers make it easy for thieves to steal parts of the bike. Be sure to secure these parts by locking your bike to an immovable object. This is the only way to reliably prevent theft.

**⚠ Danger:** All of the following tasks require a little experience, appropriate tools and manual skill. Be sure always to make a short check (see p. 2) and do a test ride in an unfrequented place or on a quiet road after adjusting. This will allow you to check in safety whether everything is in good order.



**⚠ Danger:** Never ride your bike with the seat post drawn out too far. A minimum insertion of 100mm has to remain in the seat tube. The limit, maximum, or stop mark should never be visible, as this could cause the seat post to break or damage the frame.

**⚠ Danger:** The stem is a load bearing part of your bike. Alterations can impair your safety.

**⚠ Danger:** If your bike is built up with a Carbon fork, please read carefully the chapter, "Forks," in part 2 before you start the adjustment.

**⚠ Danger:** Note that the screwed connections of the stem and handlebars have to be tightened to the specified torques. You will find the prescribed values in part 2 or in the attached instructions of the component manufacturers. If you disregard the prescribed values, the handlebars or stem may come loose or break. This can lead to serious accidents.

## Adjusting the bike to the rider

Your sitting position is important for your comfort and pedalling power. By choosing a specific type of bike you already roughly determine the posture you will be riding in. Your body height is the decisive criterion for the frame size you need. Be sure also to adjust the saddle and handlebars of your bike to your needs as accurately as possible. If you are unsure about how to perform an operation it will be better just to check your sitting position.

**ⓘ NOTE:** When mounting or adjusting components observe the torque table and any mounting instructions provided by the component manufacturer(s).

## Adjusting the saddle to the correct height

The correct saddle height is the height, which gives maximum pedalling comfort and efficiency.

**Important:** When pedalling, the balls of your feet should be positioned above the centre of the pedal spindles. With your feet in this position you should not be able to stretch your legs completely at the lowest point. If your saddle is too high, you will find it uncomfortable passing this point and your pedalling will become awkward. If the saddle is too low, your knees will soon start hurting. You can check the height of your saddle in the following simple way. This is best done wearing flat-soled shoes.

- Sit on the saddle and put one of your heels on the pedal at its lowest point. In this position your leg should be fully stretched and your hips should not be tilted to either side.
- To adjust the saddle height un-tighten the seat post clamp.
- Now you can shift the saddle to the desired height. Be sure not to pull the seat post out too far. A minimum insertion of 100mm has to remain in the seat tube. The maximum limit mark on the seat post should also remain within the seat tube. Make sure that the part of the seat post inside the seat tube is always well greased. (Exception: carbon seat posts - No grease at all!). Do not use brute force if the seat post does not move easily inside the seat tube. If in doubt, ask your PRINCIPIA dealer.
- Align the saddle with the frame using the bottom bracket or top tube as a reference.
- Clamp the seat post tight again (maximum torque: 6,5 Nm).
- Check that the seat post is tight by taking hold of the saddle at both ends with your hands and trying to turn it. If you can't turn the saddle, the seat post will be tight enough.
- Does the leg stretch test now produce the right result? Check by putting your foot in the ideal pedalling position. If the ball of your foot is exactly above the pedal centre your knee should be slightly bent. If this is the case, you have adjusted the saddle height correctly.

## Adjusting the height of the handlebars

The height of the handlebars determines how much your upper body will be inclined forward. The lower the handlebar is, the more you have to lean forward. This makes you more streamlined and brings more weight to the front wheel, but an extremely forward leaning posture is tiresome and uncomfortable because it increases the strain on your wrists, arms, upper body, and neck.

With the "Aheadset"™ system the stem is part of the headset. Finding the right position is more difficult with this system because you have to dismount and remount the stem.

On bicycles with an "Aheadset" the stem also serves to adjust the head set bearings. If you change the position of the stem you have to readjust the bearings (see p. 19 on how to do this). The only way to change the height is to change the arrangement of the spacers or, in the case of "flip-flop" models, to turn the stem around.

- Release the screw at the top of the fork tube and remove the cap. The screw serves to adjust initial bearing pressure.
- Release the screws on either side of the stem and pull the stem off the fork.
- Remove the spacers.
- Slip the spacers you have removed onto the fork tube above the stem
- If you want to turn the stem around you also have to remove the handlebars. If the stem opens to the front, you can release the screws, which hold the handlebars in place. After turning the stem around tighten the handlebars again.
- Adjust the bearing, align the stem and then tighten it. Check for secure setting by twisting it against the wheel.

**⚠ CAUTION:** *Adjusting the headset requires a certain amount of experience. It is therefore advisable to let your PRINCIPIA dealer do this.*

**⚠ NOTE:** *By removing spacers you also have to shorten the fork tube. This change is irreversible. When you are sure of the position you want ask your PRINCIPIA dealer to do the job for you.*

### Correcting the position and horizontal tilt of the saddle

The inclination of your upper body, and hence your riding comfort and pedalling power, are also influenced by the distance between the grips of the handlebars and the saddle and by the horizontal tilt of the saddle.

This distance can also be altered slightly by changing the position of the saddle struts on the seat post. This also influences your pedalling: Depending on whether the saddle is positioned more to the front or more rearwards, your legs will reach the pedals to a greater or lesser extent from behind.

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 handlebars to prevent yourself from slipping off the saddle.

**⚠ NOTE:** *The setting range of the saddle is very small. Replacing the stem allows you to make larger changes to the fore-to-aft position, because stems come in lengths differing by more than ten centimeters. In this case you usually also have to adjust the length of the cables. If you want to replace the stem, you should definitely consult your PRINCIPIA dealer.*



**⚠ Danger:** When replacing the saddle, note that seat posts are generally designed for saddle struts of seven millimeters diameter. Differently dimensioned struts can cause the seat post to fail and throw the rider off the bike.



### Adjusting saddle position and tilt:

- Release the Allen screw(s) at the top of the seat post. Turn the screw two to three turns anticlockwise.
- Move the saddle forward or backward to the desired position. You may have to give it a light blow to move it.
- Make sure that the top of the saddle is not tilted as you tighten the screw(s). The bike should be standing on level ground while you adjust the saddle tilt.
- 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. If the saddle struts move relative to the seat post, increase the clamping force gradually.

**⚠ Danger:** Note that the screwed connections of the stem, handlebars, bar ends, and brakes all have to be tightened to their specified torque. You will find the prescribed values in part 2 or in the attached instructions of the component manufacturers. If you disregard the prescribed values, the components may come loose or break. This can lead to bad accidents.



## Adjusting the tilt of handlebars, bar ends and brake levers

### Road bike:

The handlebars of your bike can be modified in position. Position the handlebars to a setting in which your wrists and hands are relaxed in all positions.

- Release the Allen screw(s) at the front side of the stem by two turns at the most.
- Turn the handlebars to the desired position.
- Make sure that the handlebars are clamped to the stem exactly in the centre.
- If there are two screws, tighten them symmetrically so that the gap is the same at the top and bottom. Tighten the screws to the prescribed torque.  
After adjusting the handlebars you might have to adjust the Dual Control or Ergo-power levers. In this case you also have to use a new handlebar tape.
- Release the Allen screw at either grip binder, which are hidden by the bracket covers.
- Turn and shift the grip relative to the handlebars. Sit in the saddle and check if your hand feels comfortable on top of the brackets. Place your fingers on the brake levers when you are in the downward position. Check whether your fingers reach the brake lever.
- Turn and shift the grip until the best position is found.
- Fasten the grips again.
- Check that the handlebars are securely fixed by gripping the body of the brake levers firmly. You should not be able to turn the handlebars downwards, not even by vigorous effort. If necessary carefully tighten the clamping screws.

### Mountainbike:

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

- Release the two Allen screws at the front side of the stem by two turns at the most.
- Turn the handlebars to the desired position.
- Make sure that the handlebars are clamped to the stem exactly in the centre.
- Tighten the screws symmetrically so that the gap is the same at the top and bottom. Tighten the screws to the prescribed torque.

After adjusting the handlebars you also have to adjust the brake and gear levers.

- Release the Allen screw at either grip binder.
- Turn the grip relative to the handlebars. 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 back of your lower arm.
- Turn the grip until this is the case.
- Fasten the grips again.
- Check that the handlebars are solidly fixed by gripping the handlebars and brake levers firmly. You should not be able to turn the handlebars downwards. If necessary carefully re-tighten the clamping screws.

Bar ends give you additional ways of gripping the handlebars. They are usually fixed in a position that gives the rider a comfortable grip when pedalling in standing, i.e. almost parallel to the ground or tilted upwards by about 25 degrees.

- Release the screws underneath the bar ends by one or two turns.
- Move the bar ends to the desired position making sure that the angle is the same on both sides.
- Tighten the screws again to the required torque.
- See whether the bar ends are firmly fixed by trying to twist them out of position.

## Adjusting the gripping distance of mountainbike brake levers

The distance between the brake levers and the handlebar grips is adjustable. This gives riders with small hands the convenience of being able to bring the brake grips closer to the handlebars. The length of the rider's fingers also determines how the lever position for first brake contact should be set.

- Determine the point, back and front, at which the brake blocks touch the rims. If this point is reached after the lever has only travelled a short distance, you will have to

readjust the brakes when altering the gripping distance (see p. 12 on this point). Otherwise the brakes could rub on the rim after you have changed the gripping distance. On the other hand, if the brake blocks hit the rim after the lever has already travelled half its range, there will be enough room for reducing the gripping distance of the levers.

- On most bikes there is a small screw near the point where the brake cable enters the brake lever mount. Screw the screw in and watch how the lever moves as you do so. In some cases the brake levers can be adjusted with a screw located underneath the brake lever mount, which acts on a cam.
- When you have set the levers to the desired gripping distance, be sure to check whether there is still enough travel for the brake levers to move a little before the brake blocks hit the rim.



**⚡ Danger:** You should not be able to pull the brake levers all the way to the handlebars. Your maximum brake force should be reached short of this point! If you have any questions ask your PRINCIPIA dealer.

### How to use clip-less pedals

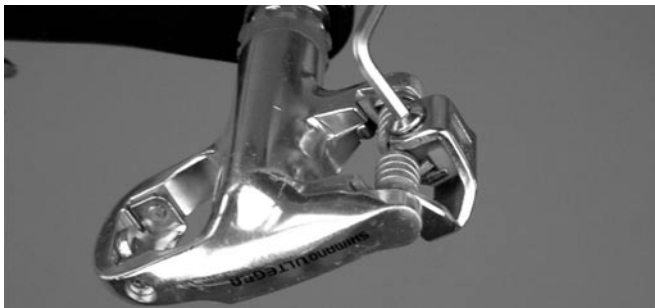
Clip-less pedals come with a special type of cycling shoe which locks onto the pedal similarly as a ski boot does onto a ski. Turn the pedal to the horizontal position using the tip of the cleat (the plate on the sole of the shoe) and then rest your foot on it. Mountain bikes are often equipped with a double-sided lock-in mechanism, so that the pedal may face either way. The shoe engages with the pedal with a click that you will hear and feel clearly.

With all commercially available systems the shoe is disengaged from the pedal by twisting the heel outward. With most systems you can adjust the force needed for locking in and disengaging the shoe by means of a key. Be sure to try out the pedal in standing after adjusting it. Lean against a wall or ask someone to support you when you try to engage and disengage the shoe from the pedal.

Functional differences between pedal systems concern the shape of the cleat, the release angle and the rigidity of the connection. Cyclists predisposed to knee trouble should choose a pedal system that allows some float, so that the heel can move sideways a little while the shoe is locked to the pedal.

**⚠ CAUTION:** *Taking up the pedals, engaging the shoes and disengaging them by twisting the heels should first be practised while the bike is standing. Later you can refine your technique on a quiet road.*

**📖 NOTE:** *Read the instructions of the pedal and shoe manufacturers carefully. Your dealer will be pleased to answer any questions you may have.*



## Information on cycling, service and maintenance

### The brake system

Brakes on a bicycle are usually used for adjusting one's speed to the traffic situation. However, in an emergency the brakes must also be able to grip the wheels powerfully and bring the bike to a halt as quickly as possible. Such crash-halts are also a study in physics. In the process of braking the rider's weight shifts forward, thus reducing the load on the rear wheel. The rate of deceleration is primarily limited by the danger of overturning, and only in the second place by the road grip of the tires. This problem becomes particularly acute when riding downhill. During a crash-halt you have to try to put your weight back as far as possible in order not to overturn.

**⚡ Danger:** PRINCIPIA bikes are usually equipped with powerful rim or disc brakes and have no back-pedalling brake. Carefully make yourself familiar with your brakes. Practice emergency stops in a place clear of traffic until you have perfect command of your bike. This can save you from having accidents.

Actuate both brakes simultaneously. Bear in mind that due to the weight transfer the front brakes take by far the greater part of the load.

The front brake is operated by means of the left brake lever. Make yourself familiar with this configuration or have the brakes refitted as you want them or are used to them.

Examine the brakes occasionally and adjust them as necessary to ensure their safe operation.

Water, dirt or oil on the rims or brake blocks reduces braking power.

**[i]NOTE:** *There are various kinds of hydraulic brakes and disk brakes on the market. The manufacturers have well made instructions available. Have a close look to these manuals whenever you want to check the wear of the brake pads, if you have to dismount the wheels or if you are unsure about the correct function. Ask your PRINCIPIA dealer if there is none included with your bike.*

**[⚡] Danger:** Wet weather reduces your braking power. Reckon with longer stopping distances when riding in the rain. When replacing brake blocks be sure to use ones that match your rim.

**[⚡] Danger:** Brake cables, which are damaged, e.g. frayed, should be replaced immediately, as they can otherwise fail in a critical moment, possibly throwing you off your bike.

### Rim brakes:

The friction produced by braking causes wear to the brake blocks as well as to the rims! Frequent use in wet conditions hastens wear on both engaging surfaces. Once the abrasion of the rim has reached a certain critical point, the rim can rupture under the tire pressure. This can cause the wheel to jam or the tire to burst, both of which can throw you off your bike! Examine the remaining thickness of the rims when you are through your second set of brake blocks at the latest.

Ensure that braking surfaces are absolutely free of wax, grease and oil.

Have your rims checked by your PRINCIPIA dealer at the latest after wearing down your second set of brake blocks. Over worn rims can lead to tire bursts, possibly throwing you off your bike!

**[i]NOTE:** *Regularly clear the brake blocks for any foreign matter caught in them.*



### Checking the rim brakes

Functional check:

- Check whether the brake blocks are perfectly aligned with the rims and are still sufficiently thick. You can tell this by the grooves in the brake facing. If these are worn down to the bottom it is due time to replace the blocks.
- Brake blocks should first touch the rim with the front portion of the facing. At the moment of first contact the rear portion of the facing should be one millimeter away from the rim. Viewed from the top the brake facings form a "V" with the trough pointing to the front. This

**[⚡] Danger:** Adjusting the position of the brake blocks relative to the rims requires a considerable degree of skill. Improper adjustment can cause brake failure and lead to accidents. Improperly adjusted brakes can result in accidents!

V-shaped setting prevents screeching when the brakes are applied.

- The two brake blocks should hit the rim simultaneously when you actuate the brake lever.
- The brake lever must always remain clear of the handlebars. You should not even be able to pull them all the way to the handlebars in the event of a crash-halt.

### Adjusting the brakes and synchronizing unsymmetrical brake yokes:

Mountain bike:


- If the travel of the brake lever is too long, release the knurled lock ring located at the point where the brake cable enters the brake lever on the handlebars.
- Release the knurled, slotted adjusting screw a by a few turns. In this way you shorten the free travel of the brake lever.
- Keeping the adjusting screw fixed, tighten the lock ring against the brake lever mount. This prevents the adjusting screw from coming loose by itself.
- Ensure that the slot of the screw faces neither forward nor upward, as this would permit water or dirt to enter.
- V-brakes are equipped with an adjusting screw on one of the yokes for adjusting the

initial spring tension. Adjust this screw until the distance between brake surface and rim is the same on either side.

Road bike:

- If the travel of the brake lever is too long, grab the knurled ring located where the brake cable enters the brake caliper on the fork or the frame.
- Only a few turns will shorten the free travel of the brake lever.
- Dual Pivot-brakes are equipped with an adjusting screw for adjusting the initial spring tension. Adjust this screw with a small Allen key until the distance between brake surface and rim is the same on either side.



 **Danger:** Be sure not to wear flared trousers or else use trouser clips or the like. In this way you avoid your trousers getting caught in the chain or chainwheels and save yourself from getting thrown off your bike.

## The gears

The gears on your bike serve to adjust your pedalling power to the slope of the road, wind conditions, and the desired speed. A low gear allows you to climb steep hills with moderate pedalling force, but you also have to pedal relatively fast.

High gears are for riding downhill. Every turn of the pedals takes you many meters forward at correspondingly high speed.

To ride economically you will frequently have to switch gears.

On level ground your pedalling speed, also referred to as cadence, should be higher than 60 strokes a minute. Racing cyclists pedal at a rate between 90 and 110 strokes a minute on level ground. When climbing, your cadence will naturally fall off somewhat. Your pedalling should always remain fluent however.


## Functioning mode and operation

Depending on the type of bicycle the shifting can be operated on the handlebar or with the shift levers, mounted on the down tube or on a triathlon handlebar in different ways.

Shimano equipped bikes: On both switching units mounted on the handlebars, the large shifting lever (brake lever on road bikes!) is for changing to larger gearwheels. The small lever, from the rider's viewpoint located in front of the handlebars on mountain bikes or behind the brake lever on road racing bikes, shifts the chain to a smaller gearwheel.

Campagnolo equipped bikes: On both switching units mounted on the handlebars, the shifting lever behind the brake levers is for changing to larger gearwheels. The small key, located on the inner side of the lever bracket, shifts the chain to a smaller gearwheel.

This means that actuating the large shifter on the right with your right hand (rear derailleur) gives you a lower gear, whereas moving the key on the left with your left hand (front derailleur) gives you a higher gear!


 **NOTE:** For triathlon bikes and SRAM equipped bikes read these instructions or ask your dealer!

An important point to bear in mind when shifting gears is that you should keep pedalling smoothly and without excessive force as long as the chain is still moving between the sprockets or chainwheels!

Modern bikes are equipped with special guides on the gearwheels that allow the rider to shift gears while pedalling with force.

Shifting gears while pedalling hard considerably shortens the service life of the chain. It is therefore advisable to avoid shifting while pedalling hard, especially with the front derailleur.



 **Danger:** Practice changing gears in a place clear of traffic. Make yourself familiar with the functions of the various levers. Practicing on normally frequented roads could distract you from possible dangers.

**⚡ Danger:** Adjusting the front and the rear derailleur should be left to an experienced mechanic. Improper adjustment can result in serious damage or, if the chain jumps off, in an interruption of the power train. This can throw you off your bike! Observe the operating instructions provided by the manufacturer of the derailleur system. Consult your PRINCIPIA dealer if you have any problems with your gears.

Your bike is equipped with up to 30 gears. These include certain combinations which you should avoid using. Gears involving an extremely oblique run of the chain can only be operated with considerable friction. This curtails efficiency and hastens wear. An unfavourable run of the chain is when the smallest chainwheel (front gearwheel) is being used with one of the two or three outermost (smallest) sprockets (rear gearwheels) or when the largest chainwheel is being used with one of the inmost (largest) sprockets.

**ⓘ NOTE:** Avoid gears that involve a very oblique run of the chain.

## Checking and adjusting the gears

Your derailleur system was carefully adjusted before delivery. However, Bowden cables may stretch a little on the first kilometers, making gear changing imprecise. This will result in the chain failing to climb onto the following larger sprocket.



Fig. 1



Fig. 2



Fig. 3



Fig. 4

### Rear derailleur:

- Increase the tension of the Bowden cable by turning the adjusting screw at the entry to the shift lever or gear changer or near the steering tube (fig. 1 and 2).
- Increase the tension gradually, checking each time whether the chain readily climbs onto the next larger sprocket. To check you either have to turn the cranks by hand or ride the bike.
- If the chain readily climbs onto the next larger sprocket, check whether it also readily shifts to the small sprockets when you change to a higher gear. You may need several tries to get the derailleur system properly adjusted.

**ⓘ NOTE:** If in doubt leave it to your PRINCIPIA dealer to adjust the gears.

### Checking limit stops:

The gear changer is equipped with limit screws which limit the swivelling range of the gear changer, thus preventing the gear changer and chain from colliding with the spokes or the

chain from dropping off the smallest sprocket. The limit screws do not alter their position during normal use.

- Check the function of the limit screws by carefully shifting the chain to the largest sprocket, so that it runs closest to the spokes (fig. 3).
- Spin the rear wheel and press the gear changer towards the spokes with your hand. The gear changer should not touch the spokes, nor should the chain pass beyond the largest sprocket towards the spokes (Fig. 4).

If you crash your bike, the gear changer or its mount can get bent.

**ⓘ CAUTION:** Have the swivelling range of the rear derailleur checked by your PRINCIPIA dealer after an incident with your bike or after replacing the wheels. Otherwise there will be a risk that the gear changer might run into the spokes, causing damage to the bike.

### Front derailleur:

As with the rear gear changer, the cable of the front derailleur is subject to lengthening and hence to reduced precision in gear changing.

- If necessary, increase the tension of the Bowden cable (fig. 2) by turning the adjusting screw through which it passes at the entry to the gear lever or near the steering tube.



Adjusting the swivelling range of the front derailleur requires a great deal of experience. The range within which the derailleur keeps the chain on the chainwheel without itself touching the chain is very small.

It is often better to let the chain drag slightly on the derailleur than to risk having the chain fall off the chainwheel, thus interrupting the power train. Consult your PRINCIPIA dealer if the chain tends to jump off the chainwheels.



### Chain maintenance

It still holds true today that proper lubrication makes for enjoyable riding. Not the quantity, rather the distribution and regular application of lubricant is what counts.

- Clean the dirt and oil off your chain from time to time.
- Having cleaned the chain as thoroughly as possible, apply chain lubricant to the chain links.
- To lubricate the chain, drip the lubricant onto the rollers while you turn the crank.
- Pedal through several chain lengths and then let the chain rest for a few minutes so that the lubricant can disperse.
- Finally rub off excess lubricant with a rag so that it doesn't spill during riding or attract dirt.



**[i] NOTE:** For the sake of the environment, only use biodegradable lubricants. Bear in mind that some of the lubricant will always end on the ground, especially in wet conditions.

**[⚡] Danger:** An improperly fitted chain can break, possibly throwing you off your bike. Replacing the chain is a job best left to your PRINCIPIA dealer.

### Chain wear

Although the chain is one of the wearing components of a bicycle, there are still ways of influencing its service life. Make sure that the chain is regularly lubricated, especially after riding in the rain. Try only to use gears, which allow a more or less straight run of the chain. Get in the habit of pedalling fast (more than 60 - 70 strokes a minute).

Chains running on derailleur gears can already be worn out after just 1,500 to 3,000 km. Heavily lengthened chains impair the operation of derailleur gears. In addition they considerably hasten the wear of sprockets and chainwheels. Replacing these components is relatively expensive compared with the cost of a new chain.

- It is therefore advisable to check the condition of the chain at regular intervals. For this purpose run the chain on the large chainwheel. Take the chain between your thumb and index finger and try to lift it off the teeth. If you can lift it off clearly, it is seriously lengthened and in need of replacement.



There are accurate measuring instruments available for precise chain inspection. Replacing the chain should be left to an expert because most chains nowadays do not have a master link. Instead they have a continuous design and require a special tool for mounting. If you need help, ask your dealer to select and mount a chain appropriate to your gear system.

# THE WHEELS AND TIRES

**Danger:** Never inflate your tires beyond the maximum admissible pressure! Otherwise it could come off the rim or burst during use, possibly throwing you off your bike!

## Tires, tubes, rim tapes, valves and tire pressure

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

If you want to replace a tire, you need to know the dimensions of the old tire. These are usually written on the side of the tire. There are two designations, the precise of which uses millimeters. The number sequence 50 - 559 means that the tire is 50 mm wide when fully inflated and has an inner diameter of 559 millimeters. The other designation for this tire reads 26 x 1.90, which refers to inches.

Tires have to be inflated to the correct air pressure in order to function properly. Properly inflated tires are also more resistant to flats. An insufficiently inflated tire can easily get pinched ("snake-bite") when it goes over a sharp edge.

The filling pressure recommended by the manufacturer is given on the side of the tire or on the type label. The lower of the two pressure specifications makes for better cushioning and is therefore best for off-road riding. Rolling resistance decreases with growing pressure, but so does comfort. High tire pressures are therefore most suitable for riding on paved roads. Pressure is often given in pounds per square inch.



**Danger:** Make sure that the valve diameter matches the size of the hole in the rim and that the valve stands upright! Replace tires with a worn tread or brittle sides. Dampness and dirt penetrating the tire can cause damage to its inner structure. Replace spoilt rim tapes immediately. Damage to your tires can make them burst, possibly causing an accident!

**Danger:** Do not ride with untrue wheels. In the case of extreme side-to-side wobbles the brake blocks can miss the rim and get caught in the spokes! This normally instantly jams the wheel, possibly throwing you off your bike!

The Sclaverand or Presta valves used on sports bikes are provided with plastic caps to protect them against dirt. Screw the cap off and unscrew the nut on the valve till the end. Give the opened valve a push so a little bit of air comes out. Now you can inflate the tire with a pump that can build up the high pressure.

The car tire valves (Schraeder) just need the cap to be unscrewed before they can be inflated using a suitable pump or compressed air dispenser at a filling station. Actuate the compressed air dispenser in short blasts as you may otherwise over inflate the tire and make it burst. To let off air, press the needle in the centre of the valve.

Hand pumps are often unsuitable for inflating tires to high pressures. Better choices are stand pumps equipped with a manometer that enable you to check the pressure.

Bear in mind that there are different types of valves when buying a spare tire. Using the wrong type of valve can result in a sudden loss of air, possibly causing an accident.

**NOTE:** Always ride your bike with tires inflated to the prescribed pressure. Check the tire pressure at regular intervals.

## Rim trueness, spoke tension

Although wheels are manufactured with great care and delivered accurately trued, this does not prevent the spokes from losing a little tension on the first kilometers. It may well be that you have to true up the wheels after running them in over around 200 to 400 kilometers.

Check the wheels regularly after running them in. It will rarely be necessary to tighten the spokes. If the tension of single spokes changes, e.g. as a result of riding fast over a bump or of spoke breakage, the tensile forces acting on the rim become unbalanced and the wheel will no longer run true.

The functioning of your bike may even be impaired before you notice the untrue wheel by its wobbling.

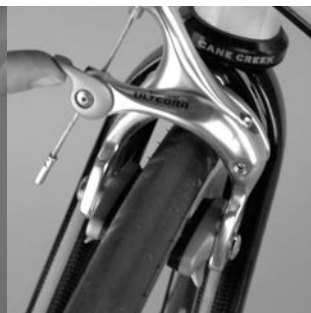
It is therefore advisable to check the wheels for trueness from time to time. For this purpose lift the wheel from the ground and spin it with your hand. Watch the gap between the rim and the brake blocks. If the gap varies by more than one millimeter, you should have your PRINCIPIA dealer true up the wheel.

## Repairing punctures

Tire punctures can happen to any cyclist. As long as you have three tire levers, a pump, and a spare tube or tire repair kit, this needn't mean the end of your ride.

## Dismounting wheels

- First open the quick-release of caliper brakes of racing bikes, or disengage the brake cable from the brake yoke of the V-brakes. To open V-brakes grip around the wheel with one hand and press the brake blocks and yokes together. Have a look to the manual of the hydraulic brake or disk brake, if you intend to dismount the wheel.
- When removing the rear wheel you should first shift the chain to the smallest (outermost) sprocket. This shifts the rear gear changer right to the outside where it doesn't interfere with the removal of the wheel.
- Open the quick-release lever as described on p.7.
- You will not yet be able to remove the front wheel after opening the quick-release lever because the wheel is still held in place by the drop-out catches on the drop-outs. Open the quick-release adjusting nut by a few turns and slip the wheel past the catch.
- You will find it easier to remove the rear wheel if you pull the gear changer rearwards a little.
- Lift the bike off the ground a little and give the wheel a light blow with your hand so that it drops out.



## Dismounting tires:

- Screw the valve cap and the fastening nuts off the valve and deflate the tire completely.
- Press the tire from the sides towards the centre of the rim. You will find it easier to remove the tire if you do this around its entire circumference.
- Apply the tire levers to one bead of the tire at either side of the valve and lever the tire out of the rim at this place. Hold the tire lever in its position.
- Slip the third tire lever between rim and tire at a point about ten centimeters beyond the first levers and lever the next portion of the bead over the edge of the rim.
- After levering a part of the tire bead over the edge of the rim you should normally be able to slip off the whole tire on one side by moving the tire lever around the whole circumference.
- Now you can pull out the tube. Take care that the valve doesn't get caught as this can damage the tube.





**[NOTE]:** If you have a puncture en route, don't pull the whole tube out of the tire. Leave the valve sticking in the rim and first look for the hole where the air is escaping. Pump up the tube to make it easier to find. When you have found the hole look for the corresponding place on the tire and examine it. Often you will find a foreign body sticking in the tire, in which case you should remove it.

- Use a new tube or repair the puncture according to the instructions of the manufacturer of the repair kit.

- If you have removed the tire, you should also check the rim tape. The tape should lie squarely in the base of the rim, covering all spoke ends, and should not be torn anywhere or brittle. In the case of rims with a double base - known as double chamber rims - the tape must cover the entire floor of the rim. Rim tapes for this type of rim should only be made of textile or durable plastic. Ask your PRINCIPIA dealer if you are in doubt about what kind of rim tape to use.

- If necessary you can remove the whole tire by

pulling the other tire bead off the rim.

### Mounting tires:

When mounting a tire, make sure that no foreign matter such as dirt or sand gets inside the tire and that you don't puncture the tube.

- Slip one bead of the tire onto the rim. Using your thumbs, press the bead over the edge of the rim over the entire circumference. This should always be possible without using tools, regardless of the type of tire. Stick the valve of the tube through the hole in the rim.
- Inflate the tube slightly so that it becomes round and push it into the tire all the way round. Make sure not to leave any folds in the tube.
- To finish mounting the tire start at the point opposite the valve. Using your thumbs, press the second bead of the tire over the edge of the rim as far you can.
- \* Make sure that the tube does not get pinched and squashed between the tire and rim. You can prevent this from happening by using your index fingers to push the tube into the hollow of the tire as you work along.
- Work the tire into the rim, approaching the valve symmetrically from both sides. Towards the end you will have to pull the tire vigorously downwards to make the already mounted portion of the tire slip towards the deepest part of the rim base. This will ease the job noticeably on the last centimeters.
- Check again that the tube lies properly inside the tire and press the last stretch of tire over the edge of the rim using the balls of your thumbs.
- If this doesn't work you will have to use the tire levers. Make sure that the blunt ends point towards the tube and that the tube doesn't get damaged.
- Press the valve deep into the tire so that the tube does not get caught between the rim and the tire beads.
- \* Does the valve stand upright? If not, dismount one bead again and reposition the tube.
- To make sure that the tube does not get pinched between rim and bead, inflate the tire a little and then move it sideways back and forth between the sides of the rim. In this way you can check whether the rim tape has been displaced.
- Inflate the tube to the desired pressure.  
The maximum pressure is indicated on the side of the tire.
- Check that the tire is properly seated and the wheel runs true.

**[⚡ Danger]:** Before riding on, check whether the brake blocks hit the rim properly. Make sure that the wheel is correctly and firmly fixed in the dropouts. Check whether the sides of the rim are free of grease and other lubricants. Under all circumstances, do a brake test!

**[⚡ Danger]:** Riding the bike with a loose headset subjects the fork and bearings to extreme stress. This can cause damage to the bearings or rupture the fork, possibly with serious consequences!

## Mounting wheels

To mount a wheel follow the reverse procedure of wheel removal. Make sure that the wheel sits correctly in the dropouts and is accurately centred between the blades of the fork or seat and chain stays. Check that the quick-release (p. 5) is properly positioned and be sure that you immediately close the brake or connect the brake cable at mountain bikes again.



## The head set

The headset connects the fork, stem, handlebars and front wheel to the frame but allows them to turn freely as a unit. It must afford virtually no resistance to turning if the bike is to go straight, stabilizing itself as it runs. Shocks caused by uneven road surfaces subject the headset to very considerable stress. In this way it can become loose and maladjusted.



## Inspecting and adjusting the headset

- Check the headset for play by placing your fingers around the upper head set cup.
- Actuate the front brakes with your other hand and push the bike vigorously back and forth on the ground.
- If the bearing has play, you will feel the upper cup moving relative to the lower cup.
- Another way to check the headset is to lift the front wheel off the ground a little and then let it drop. A rattling noise tells you that the bearing has play.
- To check the bearing for ease of running, lift the frame until the front wheel is suspended in the air. Move the handlebars left and right. The front wheel should turn very easily left and right through its full range without catching anywhere. A light tap on the handlebars should be enough to turn the wheel to the side.

**⚠ CAUTION:** *Adjusting the headset requires a certain amount of experience and should therefore be left to your PRINCIPIA dealer.*

### "Ahead set"

The special feature of this system is that the stem is not encased by, but rather clamped on to the fork tube, which in this case is threadless. The stem is an important component of the headset bearings. Its clamping force secures the bearing in its set position.

- Release the clamping screws located on either side or on the rear face of the stem.
- Using a fixed spanner, gently tighten the countersunk adjusting screw a little.

**⚠ CAUTION:** *Don't tighten the screw completely: you are using it to adjust the play!*

- Align the stem again with the frame so that the handlebars are not slanted when the wheel points straight ahead.
- Tighten the clamping screws on the sides of the stem again.
- Check for play as described above. Take care again not to tighten the bearing too much.

To check the stem for tightness, stand in front of bike and fix the front wheel between your knees. Hold the handlebars at the brake levers and try to twist them against the front wheel. Tighten the clamping screw(s) a little more if you find you can twist the handlebars.

## The suspension fork

Your PRINCIPIA mountainbike is probably equipped with a suspension fork for good riding comfort and safe handling. This feature also gives you better control of your bike when riding cross-country or on rough road surfaces. It noticeably reduces the strain on you and your bike caused by mechanical shocks.

**⚠ Danger:** If your bike is built up with a Carbon fork, please read carefully the chapter, "Forks", in part 2 of this booklet before you start the adjustment.

**⚠ Danger:** After adjusting the bearing, check that the stem is securely fastened so that it can't be turned relative to the wheel! A loose stem can cause bad accidents!

**⚠ Danger:** Before and after adjusting the fork, check whether the screwed connection at the top of the upper fork tubes is still tight. In most suspension forks this screw accommodates the adjusting mechanism. The screw can come loose while you adjust the fork!

**⚠ Danger:** Leave all maintenance work on the suspension fork to your dealer, especially if this involves taking it apart. If you want to check the screws on the suspension fork, observe the torques prescribed by the manufacturer of the fork and be sure to use a suitable torque wrench!



**Danger:** When buying a new tire for your front wheel, make sure that it doesn't reach so high that it can touch the fork crown when the suspension fork is fully retracted. This could otherwise jam the front wheel and throw you off your bike.

## Adjustment and maintenance

In order to function optimally the fork has to be adjusted to the weight of the rider and its intended purpose.

- Before you start adjusting the fork the initial spring tension should be at its lowest.
- When you sit on the bicycle the fork should yield by about 10 to 25% of its total travel. Ask a helper to measure the distance from the top edge of the fork crown to the ground, once with and once without you in the saddle.
- If the fork retracts too far, increase the initial spring tension, or pump the fork with a special pump.
- If the fork retracts too little, check whether the initial spring tension is at its lowest, or check the air pressure. Replace the springs if necessary.
- Ride your bike on different kinds of surface. If you can hear the fork hit the end of its travel, the spring is too flexible. Create some initial tension. If this doesn't help, you should have the spring replaced by your PRINCIPIA dealer.

**[I] NOTE:** *Adjusting the fork spring accurately can be a long and tedious job. Under all circumstances, first read the instructions of the manufacturer. If in doubt, ask your PRINCIPIA dealer.*

## Suspension fork maintenance

Suspension forks are quite intricately designed and require a considerable amount of maintenance and care. This is a good reason to have your bike inspected by your PRINCIPIA dealer according to the maintenance schedule so that he can thoroughly check and overhaul the fork at regular intervals.

## Taking your bike by car

There are several ways of transporting a bike by car:



**Danger:** If your bike comes off the roof carrier, it will seriously endanger other road users.



**Danger:** Do not buy a carrier on which the bike has to be taken upside down, i.e. with the handlebars and saddle fixed face down to the carrier. This way of fastening the bike subjects the handlebars, stem, saddle and seat post to extreme stress during transport and can lead to breakage!

### On the roof:

- You should only choose this option if you are able to heave your bike onto the roof. Secure the bike firmly at the wheels. Carrier systems for which the front wheel has to be removed to clamp the fork tight cause considerable stress to the arms of the fork. Suspension forks are particularly liable to break when fastened in this way.

**[I] CAUTION:** *Transportation of frame/bicycle on trailer or car rack using tube clamping system or similar will void the guarantee.*

- Read the instructions for your roof carrier and observe the maximum loading capacity and driving speed.

**[I] CAUTION:** *Bear in mind that your car has a greater overall height with the bike on it. Measure the overall height and attach a sign stating the height somewhere in the cockpit or on the steering wheel so that it can be easily seen. Otherwise an underground garage or a low bridge could mean the end of your bike.*

### On a rear carrier:

With rear carriers you don't have to lift the bike so high up to attach it. On the other hand, it is liable to get heavily soiled with road dirt, especially during bad weather.

- Make sure that the lights and the number plate of your car are not hidden from view.
- Your freight should not project beyond the overall width of your car.

**[I] CAUTION:** *Watch out for safety standards, GS labels and the like when buying a carrier.*

### In the boot:

Taking bikes inside the car consumes a lot of space, but it also protects them better against dirt, theft and damage.

- Take care that the sheathed cables, lighting set and cables and especially the gears don't get damaged. Pad the bike with blankets or the like. If your bike is heavily dirty, you should put a blanket or something similar underneath it so that the car seats don't get dirty.

**⚠ CAUTION:** Secure your bike, especially if you take it inside the passenger compartment. Loose objects pose an additional hazard to passengers in the event of an accident. It will often be necessary to remove the front wheel or both wheels when you take the bike inside the car. Be sure to read p. 18 and the following on this point!

**ⓘ NOTE:** Read the manual of disc brakes, if you dismount the wheels! Don't carry bikes with hydraulic brakes upside down!

### Transporting baggage

Your bike is not equipped to take a bag or basket on the carrier plate. If you intend to carry baggage, ask your dealer for the best way! That will probably be a backpack!

Only the RSL AS frame can be equipped with carriers!

**ⓘ NOTE:** Make sure that the weight is evenly distributed when carrying baggage. Heavy items should be carried as close to the ground as possible. Handlebar bags and baggage carrier tops are only suited for light objects.

### General notes on care and inspection

Your PRINCIPIA bike is a quality product. As with other vehicles though, you should still see to it regularly and have your PRINCIPIA dealer do the scheduled maintenance work. This is the only way to ensure that all its components function safely and reliably and that you can use it safely and with enjoyment for many years.

**⚠ CAUTION:** When working on your bike restrict yourself to jobs you feel confident with.

### Cleaning and caring for the bike

Dried sweat, dirt and salt from riding during the winter or in sea air harm your bike. You should therefore make a habit of regularly cleaning all its components and protecting them from corrosion.

The easiest way to remove dirt and minerals is with a steam jet. This cleaning method is quick, but it also has serious drawbacks. As it is ejected at high pressure in a narrowly focussed jet, the water is liable to pass through seals and penetrate bearings. This leads to the dilution of lubricants and consequently to greater friction and onset of corrosion. This destroys and impairs the functioning of the bearing races in the long term. Steam jet treatment also tends to abrade frame stickers.

**⚠ CAUTION:** Do not clean your bike with a strong water or steam jet from a short distance. A much more gentle way of cleaning your bike is with a soft water jet or with a bucket of water and sponge or brush.

After drying your bike you should impregnate its painted and metal surfaces with hard wax. Apply the hard wax also to spokes, hubs, screws and nuts. Use a hand-held atomizer for parts with small surfaces.

**ⓘ NOTE:** After finishing with cleaning you should check the chain and clean and lubricate it if necessary (see p. 13).

### Special treatment of the different surface finishes

**ⓘ NOTE:** Protect the top surface of the chain stay and other surfaces on which cables are liable to rub with foil, neoprene covers or the like. This helps you avoid ugly scratches and abrasion of paint.

### The anodised finish

Many PRINCIPIA frames have an anodised surface finish. The advantages of this finish are its high resistance towards scratches, its low weight and its easy cleaning.

When cleaning your anodised frame, use a standard washing up liquid or other cleaning soap. For the best cleaning result use the special polish sold by your authorised PRINCIPIA dealer.

**⚠ CAUTION:** Do not use chloride, acid or alkaline-based solutions, since these products may discolour the surface.

**⚡ Danger:** Don't overload your bike. Observe the load bearing capacity of your carrier. Baggage generally changes the riding behaviour of your bike and makes your stopping distance longer! Practice riding a loaded bike in a place clear of traffic.

**⚡ Danger:** While cleaning, watch out for cracks, scratch marks and bent or discoloured material. If in doubt, contact your PRINCIPIA dealer. Have defective components replaced immediately and touch up paint defects.

**⚡ Danger:** Keep cleaning agents and chain oil clear away from the brake blocks and sides of the rim or the disc brakes! This could impair the functioning of the brakes and cause an accident!

**⚡ Danger:** Do not use degreasing agents, which contain organic solvents (i.e. MEK, acetone, trichloroethylene, methylene chloride, toluene, xylene, etc.). Chemicals of this sort may damage the structure of the Carbon fibre thus leading to breakage of the fork.

### The wet-painted finish

The wet painted finish results in a very smooth surface, which is very easy to clean. When cleaning your wet painted frame simply wash it with a mild soap (washing up liquid) and rinse afterwards. Dry off pearls of water to avoid stains.

**[!]** CAUTION: *Never use any harsh chemicals when cleaning your wet painted PRINCIPIA frame. If in doubt please contact your PRINCIPIA dealer.*

**[i]** NOTE: *Some wet painted PRINCIPIA frames are filled. This means that the areas around the weldings have been filled before lacquering. In rare cases cracks may appear in this filling. This is not a crack in the frame itself but only in the filling. If cracks appear within the first year of ownership (only first owner), these are repaired by PRINCIPIA without cost.*

### The powder-coated finish

For cleaning powder coated frames follow the same procedure as for the wet painted finish.

### Carbon forks:

Clean the fork with a soft cloth. Only use petrol based solvents for cleaning tough stains of oil or grease.

**[!]** CAUTION: *To re-polish the fork use only silicon based products like for instance car wax. Please note that the use of polishing agents may harm the fork. If in doubt please contact your authorized PRINCIPIA dealer.*

### Sheltering and storing the bike

If you regularly attend to your bike during the season, you won't need to take any special precautions when parking it for a short time, apart from securing it against theft. It is advisable to park the bike in a dry and airy place.

There are some things to bear in mind when putting the bike away for the winter:

- Inflated tubes tend to gradually lose air when the bike is not used for a long time. If the bike is left standing on a flat tire for an extended period, this can cause damage to the structure of the tire. It is therefore better to hang the bike or else to check the tire pressure regularly.
- Clean the bike and protect it against corrosion as described above.
- Store the bike in a dry place.
- Switch the gear to the smallest chain wheel and the smallest sprocket. This relaxes the cables and springs as much as possible.

### Service and maintenance

It is advisable to do the first inspection after a relatively short time. The bike will be due for its first maintenance after 200 to 400 kilometers or 4 to 8 weeks. The running-in phase typically involves spokes losing tension, cables lengthening, gears becoming maladjusted, and bearings running in.

**[!]** CAUTION: *If you want to enjoy your bike for a long time, it will need regular maintenance.*

The schedule given in the table on p. 23 is a rough guide for cyclists who ride their bike between 1,000 and 3,000 km a year.

If your bike does harder service, either because your mileage is consistently greater or because you ride a great deal on poor road surfaces or cross-country, it will require correspondingly shorter maintenance periods. This also applies if you frequently use it in the rain or in a particularly humid climate.

With a reasonable amount of technical skill, a little experience and suitable tools, including a torque wrench, you should be able to do all checks marked with a „X“. Take appropriate countermeasures whenever and as soon as you discover a fault during an inspection. If you have any questions or problems, ask your PRINCIPIA dealer for advice.

Tasks marked with a „D“ should only be done by people who have a great deal of experience with bikes and really know what they are doing. If in doubt, ask your PRINCIPIA dealer.

**[!]** **Danger:** Starting from a low torque, gradually increase the torque towards the specified maximum. Often the component will already be firmly fixed before you reach the maximum value. Using a torque wrench, increase the torque bit by bit, checking every now and then whether the component is already solidly fixed. Check screwed connections for the first time after 200 to 400 km and then according to the maintenance schedule.

Service and maintenance schedule:

Component	Task	Before Every Ride	Monthly	Yearly	Other Intervals
Lighting set	check	x			
Tires	check pressure	x			
Tires	check tread and sides		x		
Brakes	check lever travel, wear of brake blocks, position of blocks relative to rim, test brakes in standing	x			
Brake cables/blocks	inspection		x		
Suspension fork	check screws		x		
Suspension fork	grease elastomers			x	
Rims (aluminum)	check thickness				AT THE LATEST AFTER SECOND SET OF BRAKE BLOCKS IS WORN OUT AND REPLACE IF NECES- SARY
Inside bearing	check play		x		
Inside bearing	re-grease			x	
Chain	check and grease if necessary	x			
Chain	check and replace if necessary				AFTER 1,000 KM
Cranks	check and tighten if necessary			x	
Frame surface	varnish				EVERY HALF YEAR
Wheels / spokes	check for trueness and tension		x		
Handlebars, aluminum	check				AT LEAST EVERY 2 YEARS AND REPLACE IF NECESSARY
Headset bearing	check play		x		
Headset bearing	re-grease			x	
Metal surfaces	varnish				AT LEAST EVERY HALF YEAR (EXCEPT FOR THE RIM SIDES)
Hubs	check play			x	
Hubs	re-grease			x	
Pedals	check play			x	
Gear changer / derailleur	clean, lubricate		x		
Quick-release hubs	check seat	x			
Screws and nuts	check and tighten if necessary		x		
Valves	check seat	x			
Stem, seat post	disassemble and regrease			x	
Cables of gears / brakes	disassemble and grease			x	



## PART 2: THE PRINCIPIA FRAME

### PRINCIPIA frames - General aspects

Special treatment of the different surface finishes

**[1]NOTE:** *Protect the top surface of the chain stay and other surfaces on which cables are liable to rub with foil, neoprene covers or the like. This helps you avoid ugly scratches and abrasion of paint.*

#### The anodised finish

Many PRINCIPIA frames have an anodised surface finish. The advantages of this finish are its high resistance towards scratches, its low weight and its easy cleaning.

When cleaning your anodised frame, use a standard washing up liquid or other cleaning soap. For the best cleaning result use the special polish sold by your authorised PRINCIPIA dealer.

**[1]CAUTION:** *Do not use chloride, acid or alkaline based solutions, since these products may discolour the surface.*



#### The wet-painted finish

The wet painted finish results in a very smooth surface, which is very easy to clean. When cleaning your wet painted frame simply wash it with a mild soap (washing up liquid) and rinse afterwards. Dry off pearls of water to avoid stains.

**[1]CAUTION:** *Never use any harsh chemicals when cleaning your wet painted PRINCIPIA frame. If in doubt please contact your PRINCIPIA dealer.*

**[1]NOTE:** *Some wet painted PRINCIPIA frames are filled. This means that the areas around the weldings have been filled before lacquering. In rare cases cracks may appear in this filling. This is not a crack in the frame itself but only in the filling. If cracks appear within the first year of ownership (only first owner), these are repaired by PRINCIPIA without cost.*

#### The powder-coated finish

For cleaning powder coated frames follow the same procedure as for the wet painted finish.

### Noises

Being an aluminium frame, your PRINCIPIA frame is designed for optimum stiffness by increasing the diameter of the frame tubes. The large diameter and the thickness of the tubes make a hollow frame. This makes the frame a good amplifier of different sounds. These sounds come from the equipment mounted on the frame, since the tubes are cut in such a way that they after the welding are totally sealed together, thus making no gaps for noises to occur. The origin of the sounds is best found by your authorised PRINCIPIA dealer, but the following check list can be used to pin point the origin of the sound.

**[1]NOTE:** *Always contact your authorised PRINCIPIA dealer if sounds occur.*

**i** **Note:** Ask your dealer for the PRINCIPIA noise reduction strip!

Area	Problem	Solution
<b>Bottom bracket</b>	Bottom bracket loose	Grease and tighten
	Chain wheels loose	Tighten
	Crank arm loose	Tighten
	Clamp for front derailleur	Apply grease between clamp and frame and reset
<b>Head tube</b>	Headset not properly installed	Contact your PRINCIPIA dealer
	Headset loose	Grease and adjust and retighten
	Bolts in stem not lubricated or loose	Lubricate and tighten
	Handlebar or stem cracked	Check handlebar and stem and replace if in any doubt!
<b>Seat post</b>	Seat post not tightened	Grease (if not Carbon) and tighten
	Saddle / seat post contact area	Lubricate and retighten
<b>Rear wheel</b>	Quick release	Retighten or replace

**i** **Note:** Let your dealer check if the derailleur hanger is glued. If not, let him do so.

### PRINCIPIA frames - Mounting of components

The PRINCIPIA frame is designed for serious training and competition use only. Therefore it is not advisable to mount child carriers, luggage carriers, mudguards, locks, non-detachable lighting devices and other equipment, which may result in overloading the frame. Any damage caused by such equipment is not covered within the warranty. This of course does not apply to the RSL AS, which is designed to be mounted with mudguards and light luggage carriers.

**⚠ CAUTION:** Do not clamp the tubes of the frame in a work stand as the tubes could be damaged! First mount a seat post and then clamp it there!

### Fittings for equipment

Your PRINCIPIA frame should be equipped with parts only with the following measurements and specification.

**i** **NOTE:** Take a close look to the components manufacturers' torque tables!

### The seat post

Most PRINCIPIA frames accept seat posts with the diameter 27.2 mm. For Ellipse SX, Evolution and MSL Pro models, however, use only 31.6 mm seat posts. The maximum torque for the seat post binder bolt is 6,5 Nm.

**⚠ NOTE:** The seat post should be inserted to a minimum of 100 mm into the tube of the frame. Failing to do so will void the warranty.

If the seat post is being fitted to the frame via shims or any other fitting device, shorter than 100 mm, the warranty will be void.

**⚠ CAUTION:** Always apply grease to the seat post and within the seat tube before mounting the seat post. Exception: Carbon seat posts - Don't grease Carbon post or inside the tube!

**ⓘ CAUTION:** If the seat post diameter is more than 0.05mm smaller than the supposed diameter the frame might be damaged. The use of such a seat post is not covered by the warranty.

### The bottom bracket

Your PRINCIPIA frame has been threaded and milled in the bottom bracket from the factory. It is therefore not necessary to re-cut the thread. Any re-cutting of the bottom bracket thread, except performed by an authorised PRINCIPIA dealer, will void the warranty.

The thread in the bottom bracket is BSA 1.37" x 24TPI. The shell width is 68 mm.

**ⓘ CAUTION:** Never apply any glue (Loctite etc.) when mounting the bottom bracket. Always apply grease to the threads when mounting the bottom bracket.

### Distance between rear dropouts

All road and triathlon frames have the width of  $131 \pm 1$  mm between rear dropouts.

All mountain bike frames have the width of  $136 \pm 1$  mm between rear dropouts.

**ⓘ NOTE:** Never force the frame to accept a different size of hub than the one intended. Doing so will void the warranty.

### The derailleur hanger

PRINCIPIA frames are equipped with a replaceable derailleur hanger. This means that in the event of a crash where the rear derailleur is in contact with the road this dropout will break or bend thus preventing damage to the frame and/or the rear derailleur.

**ⓘ NOTE:** The replaceable dropout is attached to the frame with TORX screws and fastened with special glue. Never replace or dismount the dropout by yourself. This operation should be left to your authorised PRINCIPIA dealer.

**ⓘ NOTE:** The dropout is fitted with a steel thread (Heli-coil). Never try to re-thread the dropout.

### The bottle cage holder

Grease the threads and tighten the bottle cage holder screws up to a maximum torque of 3,0Nm.

### The Ellipse Project headset on Ellipse, SX, Evolution and Revolution road frames and MSL Pro Mountainbike frame:

The Principia Revolution, Ellipse, Ellipse SX and Evolution Road models and the MSL Pro mountainbike model come equipped with a special headset for these frames. The bearing cups have been pressed in the frame from the factory. The fork crown ball race has been set from the factory. For correct installation consult your authorised PRINCIPIA dealer.

**ⓘ CAUTION:** Never replace or dismount the bearing cups pressed in the frame. This operation should only be performed by an authorised PRINCIPIA dealer.

**ⓘ CAUTION:** Never try to readjust the fork crown ball race. This operation should only be performed by an authorised PRINCIPIA dealer.

Should you want to install the fork/headset-assembly yourself please refer to the owner's manual of the fork and headset or seek the advice of your authorised PRINCIPIA dealer.

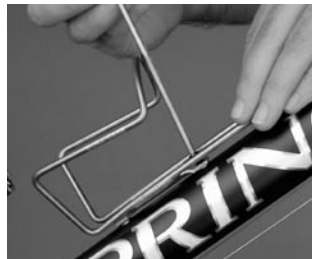
**ⓘ NOTE:** Read the owner's manual of the fork before installing.

**ⓘ NOTE:** The installation of the headset requires special tools. Never install the headset yourself. This operation should always be performed by your authorised PRINCIPIA dealer. Improper installation of the headset will void the warranty.

### The Headset On Principia RSL, RSL AS, RSL CC, TT2 and Triathlon:

The head tube on these models accept 1 1/8" headsets only. The inner diameter is 33,9mm.

**i Note:** PRINCIPIA recommends PRINCIPIA grease, for the best performance!



**[!]**NOTE: The installation of the headset requires special tools. Never install the headset yourself. This operation should always be performed by your authorised PRINCIPIA dealer. Improper installation of the headset will void the warranty.

### Forks

All PRINCIPIA frames, except mountain bike frames, are delivered with a front fork. The fork is not a product of PRINCIPIA, but it is thoroughly tested by both PRINCIPIA and a non-partial company. The demands set to a bicycle front fork are very high, since it plays a vital part in the safety of riding a bicycle. Hence the consequences of a broken front fork could be catastrophic and may lead to fatal injury. Therefore the mounting of the front fork is best left to your authorised PRINCIPIA dealer. Should you, nevertheless, want to mount the fork yourself please follow the following important guidelines.

### Carbon forks

Please read carefully through the following before installing and using the Carbon fork.

If your PRINCIPIA frame has been delivered together with a Carbon fork you are now the owner of an exclusive high-tech Carbon fork, especially if the column is also out of Carbon. This fork features excellent comfort qualities and extreme low weight.

As it is the case with all products made of Carbon fiber your new fork needs special care and attention. Carbon is extremely strong and durable at a very low weight making it perfect for producing light weight parts. However, Carbon is brittle causing the material not to bend but to break in the event of an accident. If the Carbon fork has suffered a large impact of any kind, this will not cause the fork to bend. This should not be taken as a sign that the fork is undamaged, since the internal Carbon fibers may have sustained serious damage. This makes it very dangerous to keep on using the fork after an impact.

**[!]**CAUTION: The shortening of the Carbon fork shaft, the mounting of the lower head set ball race and the installing of the fork into the frame must be done by an authorized PRINCIPIA dealer. Warranty is void by unauthorized handling and installing.

Please read carefully the safety measurements given below:

If the fork shows cracks, scratches, dents and discolouring seize using the fork immediately. Please consult your authorized PRINCIPIA dealer and let him check the fork.

### Care:

Clean the fork with a soft cloth. Only use petrol based solvents for cleaning tough stains of oil or grease.

**[!]**CAUTION: To re-polish the fork use only silicon based products like for instance car wax. Please note that the use of polishing agents may harm the fork. If in doubt contact your authorized PRINCIPIA dealer.

### Full Carbon fork with Carbon steerer (only for use with ahead set-system!):

Make sure to check the perfect fit of the headset crown race onto the fork. The inner diameter of the headset crown race must fit the diameter of the crown of the Carbon fork. Be advised, there are several different inner diameters of headset crown races.

Only use stems with a symmetrical clamping system. The stem must have contact with the fork all along the circumference of the steerer. The stem should under no circumstances have holes in the contact areas. The steerer must be covered with the entire clamping system.

If using adapters to fit for instance a 1 1/8" stem on a 1" steerer tube the spline in the adapter must not exceed 3.5 mm.

Carbon steerers are precision made. Therefore one should only use very little torque to tighten the stem. This is usually about 6-7 Nm. One should never exceed 8 Nm in torque when tightening the stem.

**[!]** Danger: Do not file off or otherwise remove the security notch on the dropout of the fork. This notch prevents the wheel from falling off in the event of quick release failure.

**[!]** Danger: Carbon forks are exclusively made for the use in road racing or triathlon events. Any other use, riding on unpaved roads, in rough terrain, show jumping or riding with luggage will cause the fork to fail. This may result in serious or fatal injury.

**[!]** Danger: In the event of any shock-like impact, for instance a crash, replace the fork immediately.

**[!]** Danger: Never powder coat your Carbon fork. The required temperatures hereto will cause the Carbon fibers to separate.

**[!]** Danger: Do not use degreasing agents, which contain organic solvents (i.e. MEK, acetone, trichloroethylene, methylene, chloride, toluene, xylene, etc.). Chemicals of this sort may damage the structure of the Carbon fiber, thus leading to breakage of the fork.

Always make sure that the stem is securely fastened by turning the handlebar whilst keeping the front wheel fixed. Please make sure that the tightening torque of the steerer does not exceed the maximum limit indicated in the stem's manual.



**Danger:** Never try to cut the fork crown into fitting the headset. This will cause the fork to fail.



**Danger:** Cone-clamping systems, for instance Syncros, or unsymmetrical clamping f.e. ITM Big One may damage the Carbon structure.



**Danger:** Do not grease the contact area between the fork steerer and the stem.



**Danger:** Always use a torque tool when fixing the stem to match the recommended torque! Too much force on the screws will lead to failure.



**Danger:** Never thread a Carbon steerer.



**Danger:** Do not use star fangled nuts inside the Carbon steerer. These will damage the structure of the Carbon. Only use inserts that fit snugly into the steerer, for instance cone inserts.



# WARRANTY AND GUARANTEE

Your PRINCIPIA bike was manufactured with care and delivered to you by your dealer fully mounted.

As direct purchaser you have full warranty rights due to the European (EU) laws within the first two years after purchase. Please contact your PRINCIPIA dealer in the event of defects

In order for your claims to be processed smoothly it is necessary that you present your receipt and the delivery receipt. Therefore please keep these in a safe place.

To ensure a long service life and good durability of your bike only use it for its intended purpose (see owners manual). Please also observe the admissible load specifications. Be sure to follow the assembly instructions as well as the manufacturers' additional instructions given in the manuals (especially torque specifications for screws) and the prescribed maintenance intervals precisely. Please observe the tests and work routines listed in this manual and any other instructions that may be included in the delivery as well as any instructions on the replacement of safety-relevant components such as handlebars, brakes etc.

## **A note on wear**

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

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

This concerns:

- The chain
- The brake cables
- The handlebar grips / tape
- The chainwheels
- The paint
- The sprockets
- The chain rollers
- The gear cables
- The tires
- The saddle seat (leather)
- The lubricants
- The brake pads

Pads of caliper and disk brakes are inherently subject to wear. If you use your bike for competitive cycling or in hilly terrain they may have to be replaced quite frequently. Check your brake pads regularly and have them replaced by a PRINCIPIA dealer if necessary..

- Rims of bikes with caliper-, V-brakes or hydraulic caliper brakes

Braking causes wear not only to the brake pads but also to the rims. Therefore check your rims regularly, for example when pumping up the tires. Some rims have wear indicators such as rings, colored marks or grooves which become visible when the rim has reached its limit of wear. Observe the specifications given on the rim. Ask your PRINCIPIA dealer to examine the remaining thickness of the rims at the latest when you are through your second set of brake pads. Rim walls that become deformed or show hair cracks when tire pressure is increased have reached the end of their service life, and the rim must then be replaced.

- Bearings and seals of suspension forks

Seals and bearings are constantly in motion when the frame is subject to changing loads. These moving components are inherently subject to wear through weathering

(rain, dirt) and they must therefore be cleaned and maintained regularly. However, depending on the intensity of use, they may wear to a point where they have to be replaced, for example when bearings become slack.

- **Lighting and reflectors**

The lighting is essential for your safety on the road, especially at night. Check whether the reflectors are in good working order before every ride. Light bulbs are inherently subject to wear. Always have a set of spare bulbs with you so that you can replace one when it blows.

**[i] NOTE:** *Bicycles that are used on public roads must be equipped according to the laws of the relevant country! This applies in particular to the lighting.*

### **Guarantee on PRINCIPIA bicycles**

Your PRINCIPIA bike is guaranteed by the manufacturer as follows (starting from the date of purchase by the initial buyer)

- 3 years against rupture of the frame of Revolution and MSL Pro.
- 5 years against rupture of all other frames.

In a guarantee-activating event PRINCIPIA A/S reserves the right to provide a bike of the current successor model in an available color, or if no such bike is available a higher grade model. The guarantee covers neither assembly or refitting costs nor any new accessories that may be required (different dimensions of saddle pole, derailleur etc.).

Guarantee claims for suspension forks, Campagnolo, SRAM or Shimano components or other branded accessories will be processed not by PRINCIPIA A/S but by the component manufacturers' national distributors.

Your direct contact in any case should be your PRINCIPIA dealer, who will be pleased to answer your inquiries.

The manufacturer's guarantee only applies to claims made by the initial buyer and substantiated by presenting the customer's receipt, the delivery receipt and the bike card stating the date of purchase, dealer address and model and frame number.

**[! CAUTION:** *Riding on rollers or mounting the bike on other stationary training machines will void the guarantee!*

Guarantee claims will only be accepted if the bicycle:

- 's warranty card of this manual and the delivery receipt was sent to PRINCIPIA A/S
- has been used for none other than its intended purpose;
- has had an inspection during its first 500 km or the first six months after purchase;
- has been fitted with none other than original spare parts;
- has had its suspension systems serviced by a PRINCIPIA dealer at least once a year.

The guarantee does not cover labor and transport costs, nor does it cover follow-up costs resulting from defects.

The guarantee does not apply to bikes that have been used for jumping or subjected to any other kind of overstress.

It does not cover damage resulting from wear, neglect (insufficient care and maintenance), accidents, overstress caused by overloading, incorrect mounting or improper treatment or resulting from changes to the bicycle in connection with the mounting or alteration of additional components.

Diligent compliance with the manufacturers' mounting instructions and prescribed maintenance intervals is crucial to a long service life and good durability of the bicycle's components. Nonobservance of mounting instructions or maintenance intervals renders the guarantee null and void. Please observe the tests described in this manual as well as all instructions concerning the replacement of safety-relevant components such as the handlebars etc.

# INDEX:

7	accessories
11	brakes, general
12	brakes, block wear
28	Carbon forks
21	care
15	chain maintenance
15	chain wear
21	cleaning
5	clothing
5	crash
5	cross-country cycling
28	fork
13	gears
14	gears, adjusting (rear) derailleur
14	gears, adjusting (front) derailleur
31	guarantee
10	handlebars, bar ends
8	handlebars, replacing
8	handlebars, height
19	head set
19	head set, Ahead set
5	helmet
23	inspection schedule
7	lighting set
22	maintenance
23	maintenance intervals
26	noises
7	quick-release hubs
16	rim trueness
8	saddle height
9	saddle, horizontal position
9	saddle tilt
5	shoes
16	spoke tension
19	suspension fork
8	stem, Aheadset
22	storage
20	taking the bike by car
16	tires
17	tires, dismounting
16	tires, general
18	tires, mounting
17	tires, puncture
16	tubes
16	valve
31	warranty
4	weight, admissible total
4	weight, admissible towed
21	weight, admissible baggage
16	wheel
17	wheel, dismounting

Technical details in the pictures and text of these operating instructions are subject to alteration.  
No part of this book may be reprinted, copied or translated without written consent to do so.  
Copyright Oct. 2003: PRINCIPIA A/S, [www.PRINCIPIAbikes.com](http://www.PRINCIPIAbikes.com); Ingenieurbüro Zedler, [www.zedler.de](http://www.zedler.de)



## PRINCIPIA WORLDWIDE DISTRIBUTORS

### **Australia**

Blaxland Bicycles PTY Ltd  
3 Station Street  
2774 Blaxland  
Tel: +61 2 47 39 31 66  
Fax: +61 2 47 39 51 00  
daneimports@iprimus.com.au

### **Austria**

ACS-Vertrieb GmbH  
Marienberger Str. 6c  
D-38122 Braunschweig  
Tel: +49 531 287 2913  
Fax: +49 531 287 2916  
info@acs-vertrieb.de

### **Benelux**

Peza Trading  
Dr. Hustinxlaan 41  
NL-6416 GT Heerlen  
Tel: +31 (0) 45 571 99 31  
Fax: +31 (0) 45 571 60 70  
info@peza.nl

### **Denmark**

Principia A/S  
Fr. Raschsvej 15  
DK-9400 Nørresundby  
Tel: +45 98 19 37 37  
Fax: +45 98 19 37 38  
info@principia.dk

### **France**

Energy Lab  
9 rue du Moulin de Pierre  
F-92130 Issy les Moulinaux  
Tel: +33 1 46 45 56 35  
Fax: +33 1 40 95 00 36  
nm.energylab@wanadoo.fr

### **Germany**

ACS-Vertrieb GmbH  
Marienberger Str. 6c  
D-38122 Braunschweig  
Tel: +49 531 287 2913  
Fax: +49 531 287 2916  
info@acs-vertrieb.de

### **Great Britain**

RBS Performance Equipment  
65 Portsmouth Rd., Horndean  
Hampshire PO8 9LH  
Tel: +44 23 9257 0584  
Fax: +44 23 9259 6464  
rbs.perf.equip@ndirect.co.uk

### **Norway**

L. K. Sykkkel  
Haslumvegen 34  
N-3400 Lier  
Tel: +47 92660666  
Fax: +47 32846667  
l.k.sykkkel@bu.telia.no

### **Singapore**

Boon Bike Supply  
488 Changi Road  
419898 Singapore  
Tel: +65 242 8488  
Fax: +65 243 8488  
soonwatt@pacific.net.sg

### **Spain**

ACcycles, scp  
Marqués de Mulhacén 2  
E-08034 Barcelona  
Tel: +34 639335577  
Fax: +34 93 2036587  
accycles@telefonica.net

### **Sweden**

Quality Bike  
Södra Vägen 2  
S-51440 Limmared  
Tel: +46 325 71478  
Fax: +46 325 71078  
quality.bike@swipnet.se

### **Switzerland**

Roy Hinnen GmbH  
Stationsstrasse 21  
CH-8906 Bonstetten  
Tel: +41 1700 33 32  
Fax: +41 1700 33 36  
royhinnen@bluewin.ch

**PRINCIPIA A/S**

9400 Nørresundby

[www.principiabikes.com](http://www.principiabikes.com)

