

**WELT** 1991-2023



**BICYCLE OWNER'S  
MANUAL**



## CONGRATULATIONS ON YOUR NEW WELT BICYCLE!

We are delighted that you have chosen a high-quality bicycle that will provide you with years of enjoyment. We did our utmost to ensure that your bicycle remains functional, comfortable and safe throughout its lifetime. To enjoy your bicycle, please remember to follow all maintenance and repair instructions.

Caution: if you have purchased a WELT bicycle for your child, please read this Owner's Manual carefully and make sure that your child has a clear understanding of the basic rules of safe riding and of safe operation of the bicycle in order to avoid any risk of serious injury.



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**IF YOU HAVE ANY QUESTIONS  
OR DO NOT UNDERSTAND  
ANY PART OF THIS MANUAL,  
TAKE RESPONSIBILITY FOR  
YOUR OWN SAFETY AND  
CONSULT WITH A QUALIFIED  
BICYCLE MECHANIC IN YOUR  
BIKE SHOP**

## **NOTE:**

This owner's manual is not intended as a comprehensive use, maintenance and repair guide. Please contact your dealer specialised workshop for all repairs or maintenance of your bicycle. Your dealer may also be able to advise you on additional documentation, training programs or classes on bicycle use, maintenance and repair.



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## INTRODUCTION

While equipment varies by specific bicycle model, this Manual provides general information only. Various parts and components described in this Manual may vary from those your bicycle model is equipped with. Therefore, if you have any further questions regarding your bicycle model, please contact your bicycle dealer.

The manufacturer strongly recommends that all assembly, adjustments and repairs should be done by a qualified and authorised mechanic. Each authorised dealer (hereinafter referred to as "Dealer") has trained and skilled technicians, as well as special equipment for repairs and adjustments which go beyond the scope of the present Manual.

The Dealer is not responsible for any defect, injury or damage due to incorrect assembly, repair or maintenance of the bicycle carried out by the Bicycle Owner or by persons not authorised by the manufacturer or the dealer.

With this Manual you will learn:

- the structure of your new bicycle;
- how to adjust your bike to your height and other parameters to make it more comfortable;
- how to use your bicycle safely and maintain it properly;
- the detailed anatomy of your bicycle to check its functions and adjustments of the main mechanisms.

Please note that the initial assembly and adjustment of a new bicycle requires special tools and should only be performed by your authorised dealer.



## GENERAL SAFETY INSTRUCTIONS

1. You must always wear a helmet that complies with EC safety regulations when riding your bike to reduce the risk of injury in the event of a road accident.
2. Wear special full-finger cycling gloves with palm padding.
  - cycling gloves are much more than just a simple accessory, they are intended to help you complete the following tasks:
  - protect your hands from palm and wrist injuries in the event of an accident;
  - ensure a good grip on the handlebar, avoid hands slipping and prevent possible accidents;
  - reduce vibrations which can induce the ulnar nerve damage and cause temporary numbness in the hand or fingers if riding without gloves.
3. Never ride with headphones, listening to the music or the radio. They distract you from concentrating on what's going on around you and can cause you to have an accident.
4. As a road user, obey all rules of the road, traffic lights, road markings and signs; ride only in the permitted direction, etc. Adults should regularly explain the Rules of the Road to children and teach them to ride safely.
5. Ride the right side of the road.
6. Yield right of way to pedestrians. Avoid sidewalk (footpath) riding as you risk hitting a child appearing in your path. In many countries riding on the sidewalk is strictly prohibited by law.
7. Watch out for vehicles starting or turning left ahead of you. When riding, always maintain a safe distance from vehicles to avoid sudden car doors opening.
8. Never carry a passenger or luggage which obstructs your vision or your complete control of the bicycle and reduces braking efficiency.
9. Make sure that the brakes are operating properly and always maintain your bicycle in good technical condition. When braking, apply the rear brake first (using the right brake lever). Sudden application of the front brake can cause you to lose stability due to loss of grip or locking up of the front wheel or the handlebar jerking suddenly.
10. Avoid excessive maneuvering on the road and do not maneuver between stationary (parked) vehicles. Lack of visibility makes it impossible for car drivers to see you or anticipate the situation, which increases the risk of an accident (crash).
11. Wear light coloured or reflective clothing to make you more visible for other road users. Clothing should be tight-fitting without restriction, allowing entire movement. Loose or flowy clothing can be tangled in the wheels or other rotating mechanisms of the bicycle.

### WARNING:

If you exceed the maximum authorised force on the front brake lever, you may be pitched over the handlebar. When turning on uneven or rocky road surfaces, use the rear brake first, as applying the front brake increases the risk of losing control and may cause an accident.

12. Be careful when approaching railroad or tram tracks. Always cross them at a right angle, with the front and rear wheels in a straight line.

13. Use the appropriate hand signals for turning, braking and stopping. Left arm extended straight out to the left means turning left, right arm extended or left arm bent upwards at the elbow means turning right.

## BICYCLE SAFETY

The manufacturer informs you that a bicycle, like any other means of transport, presents a high risk to life and limb. Therefore, you must obey the Highway Code and all other national and local laws relating to road safety when using your bicycle. You must also be aware that there is no universal safety measure that can completely eliminate the risks associated with cycling. Respecting the Highway Code and learning to ride safely can reduce, but not completely eliminate, the risks associated with cycling. We recommend taking a safe riding course offered by national or regional associations. The weight of an adult cyclist should not exceed 110 kg for a proper and safe use of the bicycle.

## NIGHT RIDING

Riding a bicycle at night or under conditions of poor or reduced visibility (fog, rain, dusk) is extremely dangerous! Although only 12% of cyclists ride at night occasionally and only 3% do it regularly, 40% of cycling accidents occur between dusk and dawn. When a cyclist collides with a truck or a car, he is always at a disadvantage and risks serious injuries or even death. We strongly advise you not to ride your bicycle at night!

All bicycles are equipped with front, rear and side reflectors (retroreflectors). Reflectors must be securely and properly positioned and must be visible at night. Replace damaged reflectors immediately. If you have to ride in low visibility conditions or at night, remember that reflectors alone do not provide sufficient safety or visibility. In addition, in many countries it's illegal to cycle at night without lights.

## WET WEATHER RIDING

**NOTE:** The different components of your bicycle are not designed for riding in the rain, as moisture can significantly decrease the overall lifespan, usage time, or even make them completely unusable. Try to avoid riding in the rain and partially or fully submerging your bicycle in water.

**The brakes are less effective in rainy (wet) conditions than they are in dry, so the increased braking distance must be taken into account.**

**CAUTION!** Tyre adhesion is dramatically reduced on wet surfaces! In rainy conditions braking efficiency and manoeuvrability are significantly reduced. In wet conditions try to ride more slowly than you would under normal conditions, avoid sudden braking and rapid maneuvers.

Be especially careful when riding on metal plates or painted road sections, etc. In addition, when riding on slippery roads, pay attention to the front brake and do not apply too much pressure on the lever, as excessive application of the front brake may lock up the front wheel, which could cause skidding and accidents.

**NOTE:** Rain reduces visibility significantly. Therefore, the same precautions should be taken as for night riding: wear light coloured and reflective clothing, use reflectors, a front and rear light and wear a helmet.

## BICYCLE COMPONENTS DIAGRAM



### Frame:

- 1 Top tube
- 2 Seat tube
- 3 Down tube
- 4 Stem
- 5 Chain stay
- 6 Seat stay

### Wheel:

- 7 Hub
- 8 Spoke
- 9 Tyre
- 10 Rim
- 11 Valve core

### Drivetrain:

- 12 Front Derailleur
- 13 Rear Derailleur
- 14 Chain
- 15 Cassette
- 16 Crankset

### Other components:

- 17 Fork
- 18 Headset
- 19 Stem
- 20 Grips
- 21 Handlebar
- 22 Brake levers
- 23 Brake
- 24 Pedals
- 25 Seatpost
- 26 Saddle



## INFORMATION CONCERNING TORQUE TIGHTENING: FORCE AS SPECIFIED:

BICYCLE PART:	FORCE (IN NM)
handlebar at the stem level	4-5 (6 max)
thru axles of the wheels	12
saddle (fixing the seat post in the seat tube)	8

## CHOOSING AND FITTING YOUR BICYCLE

Bicycle frames are available in different sizes. To choose a bicycle that fits you correctly, follow these guidelines. Stand straight with the bicycle between your legs. For mountain bikes the distance between the frame's top tube and your groin should be at least the width of your hand; for road bikes it should be at least 5 cm. A ladies bicycle should be chosen one size smaller than the equivalent men's bike chosen using this method. Choosing the appropriate frame provides comfortable riding and ensures safety in difficult road situations. The table below shows the wheel sizes of WELT kids and teenage bicycles based on the child's age and weight.

## MAINTAINING AND SERVICING YOUR BICYCLE

Follow our maintenance recommendations for your bicycle, designed to ride in normal conditions. If you use your bicycle more regularly, for off-road rides or under adverse weather conditions, like rain or snow, maintenance and service should be performed more often. Technically more demanding components such as hydraulic brakes, suspension forks, rear shocks, planetary hubs, etc., require maintenance and service in accordance with the manufacturer's instructions for use, adjustment and care. If you have any doubts about the operation of your bicycle, do not use it: contact your authorised dealer for technical assistance.

## FRAME

The frame is the main load bearing structure of the bicycle. All other parts and components are fitted onto the frame.

There are two types of frames: full suspension (featuring both front and rear shock) and hardtails (with front suspension only). The bicycle frame is a technically complex and demanding component and cannot be repaired by you. All frame repairs should be performed by a qualified bicycle mechanic using the correct tools and auxiliary materials. Attempting to repair or modify the frame assembly yourself may damage it or cause internal defects, increasing the risk of the frame collapsing while riding and of an accident.

The frame geometry must not be modified. In case of the frame damage, contact your dealer.

On WELT aluminium frames the rear derailleur hanger is a separate removable component made of a low-strength material in order to prevent the frame from breaking in the event of a fall or rear derailleur impact. Sometimes a broken or deformed derailleur hanger can save the rear derailleur from damage. If your bicycle's derailleur is bent or broken, contact your dealer for repair or replacement. For the rear derailleur to function properly, the use of a special tool to straighten the hanger precisely is necessary; in most cases you will need to replace it.

Installing and adjusting many components on a bicycle frame requires special tools and specific skills. Such components as chain tensioners, bottom brackets, headset, etc. should only be installed by authorised specialised bike workshops that have all the special tools.

## HEADSET AND FORK

The fork is the part of a bicycle that holds the front wheel. The headset is the set of bearings that allows the fork and handlebar to rotate. Check headset adjustment once a month. Stand over the top tube of the bike with both feet on the ground. Squeeze the front brake to block the front wheel. Try to move the bicycle forward and back by applying force to the handlebar. If the headset is too tight, this movement will be difficult and you may hear a grinding or other noise coming from the headset. If the headset doesn't turn easily or is loose, do not ride your bicycle. Contact your dealer to perform adjustments.

**CAUTION:** Adjusting and maintaining the headset requires special tools and specific skills. Therefore, it should only be performed by an authorised mechanic. We recommend that you contact your dealer.

**WARNING:** Never use an a-head (threadless) stem with a quill steerer tube. This can cause damage to the steerer tube leading to an accident. There should be no more than a 2-3 mm gap from the top of the stem to the top of the steerer tube, otherwise the stem or the steerer tube may be deformed when tightening the fixing bolts.

**CAUTION:** There should be no gaps between handlebar, stem, steerer tube and headset, but the handlebar must be able to turn freely. If there are any gaps or difficulty turning the handlebar, take your bicycle to your dealer for a bearing check and headset adjustment.

## HANDLEBAR, BAR ENDS, STEM

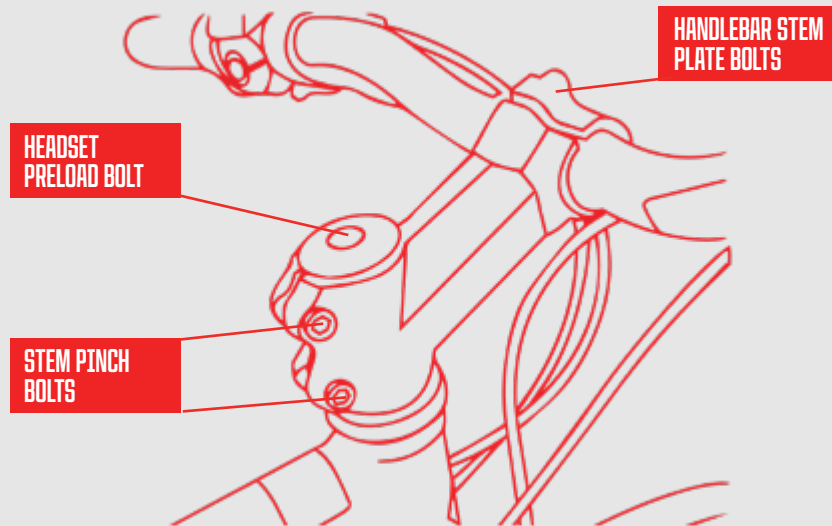
The handlebar is the steering control for the bicycle. The handlebar, together with the stem and the saddle, ensures comfortable and efficient pedalling.

To check the handlebar, the stem and the steerer are securely fixed to each other, hold the front wheel tight between your knees and attempt to twist the handlebar in different directions. Cables and housings should not be stretched or buckled during the handlebar rotation.

The handlebar angle and height depend on the user morphology. Your hands must be in a comfortable position in which the controls can be easily handled. If your hands, arms or shoulders are tired, numb or in an uncomfortable position for riding, you should adjust the handlebar or look for components that better meet your needs. Contact your dealer for advice.

To adjust the handlebar angle, loose the stem pinch bolts enough to be able to turn the handlebar. Position the handlebar at the desired angle, and check that the stem is centred. Once adjustment is done, fix and tighten the stem bolts.

The adjustment of the handlebar height on the a-head (threadless) stem, mounted on the WELT bicycles, can be done by shortening the steerer tube or by mounting additional spacers. This adjustment requires special tools and specific skills. We recommend that you ask your dealer for this operation.

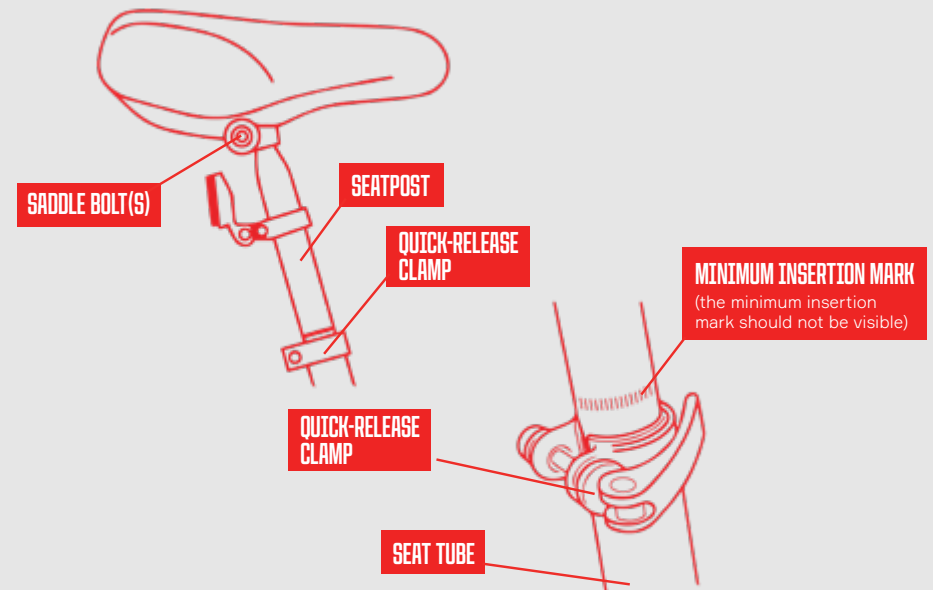


**CAUTION:** Shortening the handlebar from its original size may lead to weakening of the structure, and, consequently, to loss of control and possible injury. If you are not sure about the safety of the steering system, stop using your bicycle and consult your dealer. For an a-head set (threadless) stem, the top of the steerer tube should be 2 to 3 mm lower than the top of the stem itself.

## SADDLE AND SEATPOST

The saddle and the seatpost are your main support on the bicycle. The saddle and seatpost adjustment determines your comfort and pedalling performance. Ensure that the chosen adjustment meets your expectations for comfort and pedalling efficiency. Make sure the saddle and the seatpost are securely clamped.

Once a month, you need to inspect the quick-release clamp and seatpost bolt to be locked and well tightened. Turn the lockout lever of the quick-release to the OPEN position to open the quick-release. To tighten the quick-release bolt, move the lever to the intermediate position between OPEN and CLOSE and tighten the bolt with your hand. Turn the lever of the quick-release to the CLOSE position for locking. You should feel increasing resistance while doing this. If there is no resistance or insufficient resistance, repeat the previous steps. Approach the bicycle from the rear and firmly try to turn the saddle clockwise and counterclockwise relative to the seatpost. Do not tighten the quick-release without the seatpost inserted in the frame, as this may cause the frame damage.



The incline of the saddle and its positioning relative to the handlebar affects your comfort and the distribution of weight between the handlebar and the saddle. Adjusting the saddle height is important for comfort, safety and pedalling efficiency. The correct saddle adjustment will ensure your comfort, even on long rides. If you feel numbness or discomfort, you should adjust the saddle position or choose a saddle more suited to your morphology. Contact your dealer for advice.

To adjust the saddle angle, loosen the saddle bolt(s). The lower part of the saddle should be parallel to the ground. Try different positions to find the best one for you. On full suspension bicycles the saddle should be slightly angled forward so that it takes a horizontal position under your weight.





For better comfort you can adjust the fore and aft position of the saddle, this allows for some forward and backward movement. To do this, loosen the saddle bolt(s) as in the previous case.

To ensure the best pedalling efficiency, the saddle height should be adjusted as follows:

- Put the cranks in a vertical position. Ask someone to hold the bike upright.
- Get on the bicycle and sit on the saddle (barefoot).
- The straight leg should not be bent at the knee and toes should be pointed when contacting the pedal in the low position. This saddle position provides maximum pedalling efficiency and knee protection by ensuring that the knee joint will be slightly bent when you put your shoes on and place your foot on the pedal.

**CAUTION:** always ensure that the seatpost is inserted within the seat tube above the minimum insertion level. The seatpost must be inserted into the seat tube at a minimum of 100 mm. In the event of non-compliance with this instruction, collapsing of the frame and/or the seatpost and an accident may occur.

## PEDALS

The left and right pedals have R (right) and L (left) markings at the end of the pedal axle. Screw the right pedal on the chainring side and the left pedal on the opposite side of the bicycle. Carefully secure the pedals by screwing them into the cranks with a pedal wrench.

Every three months, check that the pedals are properly secured to the crank arms. Please note that the right pedal is installed in clockwise direction, and the left in counterclockwise direction. Check that the pedal bearings are well-adjusted. To do this, rotate and move the pedals up and down and left to right. If you feel any play or irregular rotation, then pedals may need adjustment, lubrication, repair or replacement. Contact your dealer.

Once a year, replace the lubricant in the pedal bearings and the bottom bracket. This operation requires special tools and specific skills. Therefore, refer this servicing to an authorised bike workshop.

**NOTE:** Some pedal and bottom bracket models are not intended to be disassembled and serviced. For this reason, no annual lubrication is required for them.

**CAUTION:** the left pedal has left-hand threads, meaning this pedal is tightened by turning to the left, counterclockwise!

## PEDALS AND PEDAL CRANKS: TROUBLESHOOTING AND SOLUTIONS

Fault	Solution
Grinding or clicking noise	A. Check the pedals to be properly secured to the cranks and cranks to the bottom bracket. B. Check the bottom bracket cups to be properly secured. C. Check the chainring bolts to be tightened well.
Clicking noise or vibration	A. The bottom bracket cups are not adjusted. B. The pedal bearings may need to be lubricated or replaced. C. The bottom bracket bearing may need to be lubricated or adjusted. D. The bottom bracket bearings may need to be replaced.



## DRIVETRAIN

The drivetrain is the group of components that converts a cyclist's pedalling effort into forward motion.

The drivetrain consists of: cranks and crankset, which includes the right crank arm with chainrings, bottom bracket, chain, cassette (some models have it combined with a pawl mechanism), front derailleur and rear derailleur.

Your bicycle is delivered to you with the gear shifting system adjusted and ready to use. We recommend that you ask your dealer to show you how to use the shift levers (shifters) on the handlebar. If you have any questions regarding the adjustment and operation of these units, contact your dealer. Since modern gear systems are quite complex and the different drivetrain parts must be adjusted to function properly, we recommend that you ask your dealer to perform all necessary adjustments within the first two or three weeks of use.

For all bicycles, first gear is always the lowest (most adapted for the steepest hills). First gear (the lowest) corresponds to the chain position on the smallest chainring (front) and the largest sprocket (rear). The highest gear is always the hardest in terms of pedalling and is better for descending. The highest gear corresponds to the chain position on the largest chainring and the smallest sprocket.

When riding on flat roads, you'll be more comfortable using intermediate gears.

Note: try to shift before you begin the climb in order to shift gears with as little load as possible. Avoid shifting gears applying pressure on the pedals, as this slows down the shifting process and can damage drivetrain parts.

Once a month, check that the cassette and chain are clean and well oiled. Clean the cassette and lubricate the chain once a month. Avoid applying chain lubricant on other bicycle parts, especially on the rims and brake rotors. Use only synthetic lubricant. After lubrication, wipe off excess lubricant with a cloth. Use a degreaser and a brush to remove dirt from the cassette surface. Never use gasoline! It is highly flammable and leaves an oily film when evaporated.

Do not remove the pawl. Once a year replace the grease on the pedal threads, screwed into the cranks arms.

Listen to your bicycle. A properly adjusted bicycle drivetrain is virtually silent and noiseless. If you hear noise when shifting, it's very possible that the derailleur cable tension simply needs to be adjusted. If, after adjustment, the noise doesn't disappear, stop and try to locate the source of the noise. The next steps to eliminate the noise will depend on the gear shifting system of your bicycle. If you cannot solve the problem yourself, contact your dealer.

Once a month, check the shifter cables for wear, mechanical damage and frayed ends. You should also check the cable housings for mechanical damage and dirt. Do not ride your bicycle if you discover any cable and/or cable housings defects. Replace a damaged cable and/or hose according to the instructions or consult your dealer.

Once a month, check the shifters, front and rear derailleur for proper operation. Each click action should cause the chain to move to a different crank or cassette sprocket. No sprocket combination should cause the chain to fall off.

Every month, lubricate the moving parts of both derailleurs (including the rear derailleur pulleys) with synthetic lubricant. Remember to lubricate the cables and hoses when replacing them.

## PEDAL CRANKS AND BOTTOM BRACKETS

Adjusting cranks and bottom brackets requires special tools. All adjustments and repairs should be performed by a qualified authorised mechanic.

Every three months, inspect the condition and the tightness of the left and right cranks, the bottom bracket (shaft and bearings condition) and the bottom bracket bearing system, as well as its adjustment. To do this, remove the chain from the cranks, rotate one of the cranks until it is parallel to the seat tube. Grip the crank with one hand and the seat tube with the other and rock it from side to side. If you feel play or hear it squeaking, the crank arm is loose or the bottom bracket bearings need to be adjusted. Contact your dealer.

Rotate the cranks. If they are difficult to rotate or make a strange noise, they may need adjustment, lubrication or repair. Contact your dealer again.

## CHAIN

Inspect the chain and the cassette monthly. The chain should be clean, free of rust and properly lubricated. The chain links should not be deformed and should pivot smoothly without squeaking.

The cassette should also be clean. To inspect the cassette or pawl condition, remove the chain and spin the cassette by hand. If the cassette spins with a grinding noise or stops as soon as you let go, it may need to be repaired or replaced. Contact your dealer for help.

Every three months, check the chain for wear using a special chain wear gauge or a ruler. Each link in a new chain is one inch (2.54 cm). If 12 links in the chain are spaced more than 12 inches apart, the chain should be replaced. The average lifespan of a chain is 1 000 to 1 500 miles (1 600 to 2 400 km). Extreme loads and poor maintenance significantly reduce the lifespan of a chain. Replacing a chain requires special tools and specific skills and should be performed by your dealer.

On single-speed bicycles, check the chain tension monthly; the maximum chain slack between the front chainring and the rear sprocket should be 6 to 12 mm.

**WARNING:** The chain length is determined by the bicycle specifications. Replacing a chain requires special tools and specific skills and should be performed by a qualified mechanic.

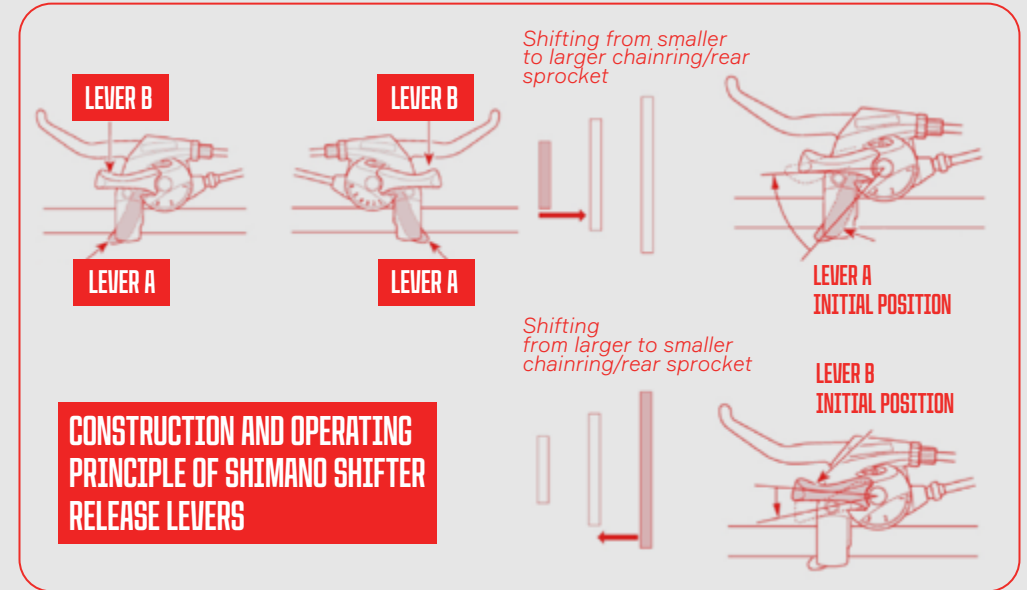
**NOTE:** lubricate the chain regularly with liquid lubricant, especially if you use the bicycle in rainy weather or on dirty roads.

## CHAIN: TROUBLESHOOTING AND SOLUTIONS

Fault	Solution
Grinding or clicking noise	A. Lubrication is required.
Chain skipping and slipping	A. Check the chain for wear. B. Check the chainring for wear, the chain and the chainring may need to be replaced. C. Check the rear derailleur, if the bicycle is equipped, to be properly adjusted. D. Check that there are no stiff (stuck) link in the chain. E. The crank bolt may need to be tightened. F. Lubrication is required.

## RELEASE SYSTEM (RAPIDFIRE PLUS AND TRIGGER SHIFTERS)

The shifter release levers are very precise, but allow you to shift gears in sequence (except for shifting from smaller to larger chainring/rear sprocket). Both derailleurs automatically return to their initial position when released after shifting. When operating either lever, always shift gears when the pedals are rotating and under little pedalling load. Be especially careful when shifting gears riding uphill.

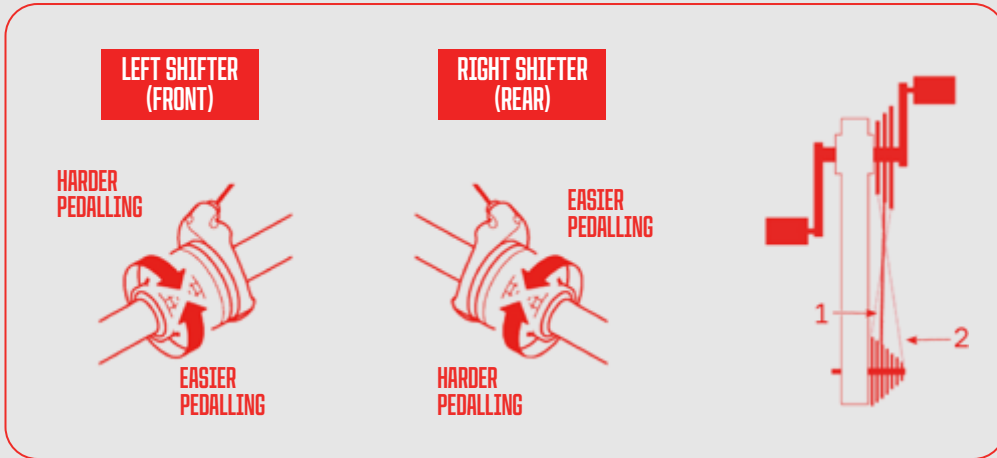


To shift from a smaller to a larger chainring/rear sprocket: place the lever to the required position depending on the desired gear. With the Rapidfire Plus system, up to three gear changes are possible.

To shift from a larger to a smaller rear sprocket: click once to shift.

## GRIP SHIFT SYSTEM

The Grip Shift system is a shifter that allows you to shift gears by twisting it. To shift from a smaller to a larger chainring/rear sprocket, twist the grip towards you while pedalling. To shift from a larger to a smaller chainring/rear sprocket, turn the shifter in the opposite direction. You can shift multiple gears at once if you need it. A click of the twisted shifter means that a gear is reached.



The image on the left shows some gear combinations. Try to avoid combinations B and C.

When shifting gears, regardless of the derailleur or shifters, always try to avoid combinations that result in excessive chain bending in the longitudinal plane (combinations where the chain is simultaneously on a large chainring and a large rear sprocket or on a small chainring and a small rear sprocket).

## SHIFTING LEVERS (SHIFTERS)

Shifting levers (or shifters) are bicycle parts that allow you to shift gears directly from the handlebar.

When shifting gears, anticipate your maneuvers. Do not attempt to shift gears while stationary or pedalling backwards. Ease your pedalling when shifting gears. Excessive chain tension makes shifting more difficult and increases chain and chainrings wear. Avoid shifting while crossing railroad tracks or riding on rough terrain, as the chain may fall off the sprockets.

The left shifter controls the front derailleur and the right shifter controls the rear derailleur. Do not use both of them at the same time. Choose the most comfortable gear ratio for each situation.

## FRONT DERAILLEUR

The front derailleur is used to shift the chain between the larger and smaller chainrings. Shifting gears modifies the gear ratio.

To adjust the lower limit of the front derailleur, put the chain on the largest rear sprocket and the small chainring. Loosen the inner cable fixing bolt. Turn the low limit screw (often labeled with an "L") until the space between the chain and the front derailleur's inner plate is about 0,5 mm. Then, shift to the small ring and turn the L-screw clockwise until it stops, tighten the cable and cable fixing bolt.

To adjust the high limit of the front derailleur use the right shifting lever to put the chain on the smallest rear sprocket. Turn the high limit screw (often labeled with an "H") counterclockwise until the derailleur cage stops responding to the screw rotation. Then, rotate the crank by hand and put (using the left shifting lever) the chain on the largest chainring. Turn the H-screw clockwise until the gap between the chain and the derailleur's outer plate is about 0,5 mm.

The H-screw (the high limit screw) adjustment is intended to prevent the chain from falling off the largest chainring to the crankset.

## FRONT DERAILLEUR: TROUBLESHOOTING AND SOLUTIONS

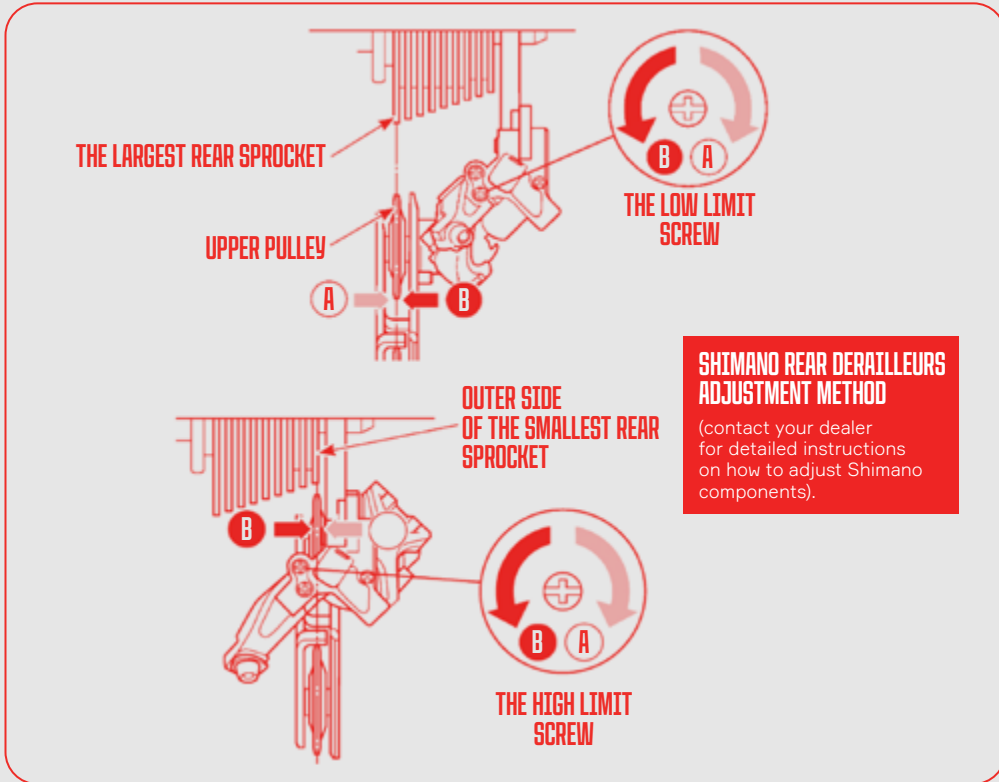
Fault	Solution
Chain falls off the smallest chainring	A. Check the L-screw to be set properly. B. Check the front derailleur to be in a correct position relative to the seat tube. Ensure that the derailleur cage is parallel to the chainrings.
Chain falls off the largest chainring	A. Check the front derailleur height (recommended space is 3 mm above the largest chainring) B. Check the cables and their housings for kinks or damage. C. Cables may need to be lubricated. D. The cable tension may be incorrect
Chain is rubbing the front derailleur cage	A. The front derailleur position should be adjusted. B. Chainrings are deformed.

# REAR DERAILLEUR

The rear derailleur shifts the chain at the rear sprockets (cassette).

Shifting gears modifies the gear ratio.

To adjust the high limit of the rear derailleur, put the chain on the largest chainring and the smallest rear sprocket.



Loosen the rear derailleur inner cable fixing bolt. Stand at the rear of the bicycle and check visually the alignment of the derailleur pulleys, small rear sprocket and small chainring. Turn the high limit screw (labeled with an "H") until the derailleur pulleys, the chain and the small rear sprocket are aligned.

Use the right shifting lever to put the chain on the small rear sprocket and tighten the shifting lever barrel adjuster until it stops. Turn the shifting lever barrel adjuster clockwise until it stops, then go back for one turn. Pull the cable firmly, insert it into the slot and tighten the fixing bolt.

The next step is to adjust the rear derailleur lower limit. Turn the low limit screw (labeled with an "L") counterclockwise to a position where the screw rotation no longer affects the rear derailleur motion.

Rotate the pedals slowly and use the shifting levers to shift the chain to the smallest chainring and the largest rear sprocket. Turn the limit screw clockwise until the rear derailleur pulleys, the chain and the large rear sprocket are aligned. Be careful as the chain may fall off the sprocket and slide between the cassette and the spokes, which can damage the chain and other bicycle components.

The H-screw (the high limit screw) adjustment is intended to prevent the chain from falling off the smallest rear sprocket and to be stuck between the sprocket and the frame. The L-screw (the low limit screw) adjustment is intended to prevent the chain from falling off the largest rear sprocket and to be stuck between the spokes and the sprocket or between the sprocket and the spoke protectors. These screws should be adjusted by your dealer before the bicycle's delivery.

**WARNING:** If the limit screws are adjusted wrong, it may result in the spokes damaged by the rear derailleur, which can cause an accident and serious damage to certain components. If you have any doubts or notice any signs that the derailleurs are misadjusted, do not use your bicycle, ask your dealer for readjustment.

To fine-tune the rear derailleur, put the chain on the large chainring and the small rear sprocket. Rotating the pedals, shift to first gear with the right shifting lever.

If the shifting fails or there is an unusual noise, turn the rear derailleur barrel adjuster counterclockwise (to add tension) until the rear derailleur pulleys line up with the second rear sprocket. Turn the adjuster slowly to find the optimal position for smooth and silent operation. Shift to the third rear sprocket. If there is any noise, inspect the rear derailleur pulleys to be aligned with the third sprocket. If they are not, correct the fault by turning the barrel adjuster clockwise or counterclockwise. While shifting gears with the shifting lever, check the derailleur adjustment in different combinations. Check the smooth shifting operation.

To fine-tune the front derailleur (whenever possible), set the chain on the innermost chainring and the innermost rear sprocket. Use the front derailleur barrel adjuster to move the derailleur cage setting the gap between the chain and the outer plate to 0,5 mm. Check the operation with different gear combinations. Check that the chain is not slipping between the chainrings and is not rubbing the front derailleur cage.

## REAR DERAILLEUR: TROUBLESHOOTING AND SOLUTIONS

Fault	Solution
Chain falls off the smallest chainring	A. Check that the rear derailleur and the rear sprocket are not damaged. Check also that the derailleur hanger is not bent. B. Check the limits screws to be set properly. C. Check the stands of the rear wheel axle for damage
Chain falls off the largest chainring	A. Check the cable to be lubricated, it should slide easily through the housing. B. Check the cables and their housings for kinks or damage. C. The derailleur may need a fine tuning. Contact a qualified mechanic.



## CASSETTE (REAR SPROCKETS)

The cassette is the set of multiple sprockets that attaches to the hub of the rear wheel. Shifting the chain from one sprocket to another modifies the gear ratio.

Inspect the cassette regularly for worn or damaged teeth and for bent sprockets. Worn or damaged sprockets can cause the chain jamming or dropping and should be replaced. Worn or damaged sprockets reduce the riding efficiency and can cause an accident. Clean the cassette after each ride. Make sure there is no sand or dirt on the cassette.

**WARNING:** Do not apply a thick layer of a lubricant to the sprockets, as it could have a significant and negative impact on the drivetrain operation and cause a premature wear of the components due to the excess lubricant contamination with sand and dirt particles.

Inspect the cassette condition monthly. The cassette should be clean and the sprocket teeth should be straight. To check the cassette condition, remove the chain and spin the cassette by hand. If the cassette spins with a grinding noise or stops quickly, it should be adjusted or replaced. Contact your dealer for any necessary assistance.

## BRAKING SYSTEM

The braking system allows you to control your bicycle speed and is therefore the key element of your safety. The braking system adjustment requires special tools and specific skills. If you are unsure about the adjustment of your brakes or if you suspect there is a problem with the braking system, do not use your bicycle. Take it to your authorised dealer. We highly recommend that you have your authorised dealer adjust your brakes. If you need more specific information about your bicycle's braking system, contact your dealer.

When the braking system is properly assembled, the right brake lever activates the rear brake and the left brake lever activates the front brake. For optimal braking, use both brakes and apply the rear brake first (using the right brake lever) before applying the front brake (the left brake lever). Avoid sudden and excessive application of the front brake as you may be pitched over the handlebar.

**CAUTION:** Before each ride, inspect the brakes to make sure they are working properly.

**WARNING:** Avoid touching the rotor or spokes when the wheel is spinning, even on low gear. It may result in injury.

**WARNING:** Disc brakes can become very hot when rotating. Do not touch the rotor for 10 minutes after the last braking.

## BRAKE LEVERS

If the brake levers touch the handlebar when you pull them, you should adjust the brake cable length.

On some bicycle models the brake lever position relative to the handlebar can be adapted to the cyclist's hand size. The adjustment is made with a special screw. Adjust the handlebar position to your hand. Then, adjust the brakes according to the instructions below.

If the brake levers touch the handlebar when squeezed, you should adjust the brake cable length. To do that, use the barrel adjuster on the brake lever.

Turn the barrel adjuster counterclockwise to decrease tension in the cable or clockwise to increase it. If you are unable to achieve the desired adjustment, turn the barrel adjuster clockwise until it stops, then loosen the bolt on the brake caliper, pull the cable and tighten the caliper bolt back up. Readjust. Once the adjustment is done, check the cable to be tightened well by applying maximum force on the brake lever. Ensure that the cable stays in place.



## INSTALLING CABLES

Once a month, check the cables and the housings of the braking system for mechanical damage, wear, dirt and fraying. Repair or replace any component that does not pass inspection. Inspect regularly the cable end caps and the cables. The cables with damaged housing, crimped, rusted or broken cables must be replaced immediately.

To replace the brake cable, note the joint line of the old cable, loosen the cable fixing bolt and remove the defective cable. Turn the barrel adjuster on the brake lever and/or on the brake clockwise until it stops.

Lubricate the new cable and thread it into the old housing. Check the cable end and the housing to be properly fixed in the brake lever. Adjust and fit the cable. Cut the cable leaving no more than 51 mm from the cable clamping point. To prevent the cable end from fraying, add the end cap and crimp it on with pliers or a crimping tool.

## DISC BRAKES

**CAUTION:** New disc brakes installed on your bicycle, as well as old brakes after the rotors or pads replacement, may require a mutual "bedding" of the pads to the rotor. Depending on the brake model, you may need to apply the brakes 25-100 times before the braking system reaches its full potential.

Before each ride, inspect the brakes to make sure they are working properly. Check that the brake pads are correctly positioned at a distance between 0,25 and 0,75 mm from the disc when the brakes are not applied. Do not touch the rotors. Do not touch the rotors for 30 minutes after riding, as they can overheat. Depress the brake levers just before using the bicycle. When fully depressed, the brake lever should never touch the handlebar. The system should be bled: contact your dealer. If your bicycle has hydraulic brakes and the brake lever feels "soft" or doesn't press firmly, do not use the bicycle: contact your dealer to bleed the brake system.

Once a month, check the brakes fixing bolts to be tightened well.

The brake rotor is the part of the braking system, therefore, you should always keep it clean. Check that there is no oil, grease or dirt on the disc. Remove the brake pads from the brake mechanism before washing or repairing it with lubricant or other chemicals. Do not use cleansers, degreasers or solvents to clean the disc. Only use isopropyl alcohol for cleaning.

Once a month, check there are no crimps, leaks and damage in the brake hoses. Replace any hydraulic part that does not pass inspection. Hydraulic hoses should not be repaired. After hydraulic hoses replacement the braking system should be adjusted (bled), which requires special tools and specific skills. Therefore, this operation should only be performed by your dealer's after-sales service centre.

Once a month, check the brake cables and the housings of mechanical disc brakes for mechanical damage, wear, dirt and fraying. Repair or replace any component that does not pass inspection. Once a month, check the brake pads for wear. If the brake pads have a thickness less than 1,0 mm, they should be changed.

The disc brakes, if properly mounted and centered over the brake rotor, should not require adjustment for an extended period of time.

**CAUTION:** You should not depress the brake levers if the disc or brake pads are removed.

## BRAKE SYSTEM: TROUBLESHOOTING AND SOLUTIONS

Fault	Solution
Squealing noise when braking	A. Check the brake pads to be properly mounted and adjusted, make sure the rims are clean. B. Check all the fixing bolts to be tightened well.
Grinding noise	C. Check there is no hard objects (e.g. small stones) under the brake pad. D. Check the brake pads to be properly aligned with the rim. E. Check the brake pads for wear. F. The derailleur may require a fine tuning. Contact a qualified mechanic.
Brakes don't stop the bicycle	A. Check the cables not to be loosened and tighten them if necessary. B. Check the brake pads for excessive wear or damage. C. Check the brake pads to be properly aligned with the rim. D. Check the rims to be dry and free of all lubricant, ice and dirt. E. Check the cable housing and cable itself for damage.
Brake pads rubbing on rim/rotors	A. Check the brake adjustment with the rim. B. Check the brake pads to be properly aligned with the rim/rotor.
Brake levers are stuck	A. Check the cables, pivots or axle holding units for sufficient lubrication. B. Check the spring adjustment of the rim brake lever. C. Check the cable housing or cable itself for damage and cracks.
Jerks while braking	A. Check the brake pads for wear. B. Check the rim/the rotor for deformation. C. Check that the brake pads are properly aligned with the rim/the rotor and do not rub against the tyres.

## RIM BRAKES

Before each ride check that the brake pads are in the correct position. The rims are an integral part of the braking system and therefore, they should be kept clean.

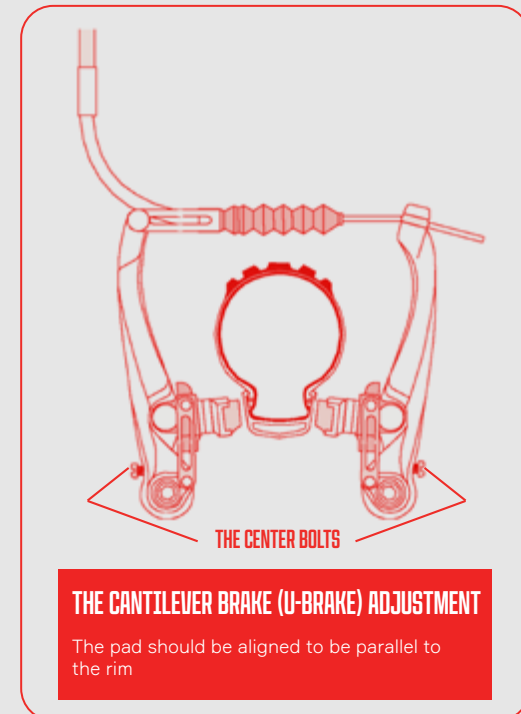
Make sure the brake pads and the working surface of the rims are free of any oil, lubricant, dirt, etc. Once a month, check the brake pads for wear (and once a week, if you ride frequently or intensively). The brake pads have slots and if any of these slots are less than 2 mm deep, the pads must be replaced.

Check and retighten the brake shoe fixing bolts every three months. The normal position of the brake shoes is 1,5 to 2 mm above the rim surface in the loose position. To adjust the distance between the brake pad and the rim use the barrel adjuster on the brake lever or on the brake: turn it counterclockwise to move the pads closer to the rim, and clockwise to move them out from the rim.

If it is not possible to adjust the brake pads as described above, loosen the brake cable bolt to release the cable. Tighten the fixing bolt clockwise. Retighten the cable. Install the brake pads.

**WARNING:** Always check that the brake pad does not touch the side of the tyre tread, as it may cut tyres and lead to an accident and injuries.

Once the brakes are adjusted, tighten the shoe fixing bolts. Use the center bolts to center the brakes. After the brake adjustment, test the brakes by applying the maximal force to the brake levers. Make sure that the cables are not pulled and the pads are properly positioned and do not touch the tyres.





## WHEELS

The wheels are one of the most important parts of a bicycle. Their durability and interaction with the brakes determine the overall riding safety.

The quick-release is a mechanism that allows the wheel to be easily mounted and dismantled by simply pulling the hub lever, which makes it easier to transport and repair the bicycle since the wheel can be dismantled without any tools.

**WARNING:** poor installation and adjustment of wheels with quick-release hubs could cause the wheels to loosen or fall off unexpectedly while riding, which may cause an accident. To properly and safely adjust the quick-release mechanism, carefully read and follow the instructions below:

1. Check both wheels before each ride. 2. Turn the lever of the quick-release to the OPEN position and insert the wheel in the blades of the bike.
3. Move the lever of the quick-release to the central position between the OPEN and CLOSE, and tighten the bolt opposite to the quick-release with your hand until it stops.
4. Move the lever of the quick-release to the CLOSED position using your thumb. At the end the movement should be done with effort.
5. If the quick-release closes with no effort, repeat step 4.
6. Position the quick-release lever so that the lever doesn't rub against the frame structure and its attachments and doesn't catch any foreign particles in the wheel rotation area.
7. Perform two operations to verify the wheels are properly aligned:
  - lift the front wheel and strike the upper part easily. The wheel should not drop out, loosen, move from side to side or be off-center;
  - try to rotate the quick-release lever, if you succeed, repeat steps 2 to 6 to achieve the desired result.
8. For the rear wheel repeat steps 2 to 7.

**NOTE:** When removing the rear wheel, set the chain on the smallest front and rear sprockets. On a single-speed bicycle detach the brake lever collar from the frame, if any.

**CAUTION:** Spin the wheels to check the rims for vertical or horizontal play. If you notice any play or the loosen spokes, contact your dealer.

**CAUTION:** If you notice any play in the hub bearings, do not use your bicycle. Take the bicycle to your bike workshop for repairs.



## INSTALLING TYRES

**CAUTION:** make sure that the size of mounted tyres is adapted to your frame. Contact your dealer for compatibility questions.

You can find the tyre size as well as the recommended pressure range for the inner tube (or tyre, for tubeless sets) on the tyre side.

Check that the inner tubes are inflated to the recommended pressure.

Before each ride, check the tyres for cuts, punctures, exposed cords, worn tread sides or other damage. Damaged tyres should be changed.

If your bicycle is equipped with directional tyres, check that they are properly installed. You will see an arrow on the side indicating the correct direction of rotation.

**WARNING:** improper tyres pressures (over- or underinflated tyres) cause increased wear and can damage tyres while riding.

Follow this procedure to replace a flat or worn tyre:

1. Completely deflate the inner tube. Remove the tyre from the rim using your hands or tyre levers. Never use sharp objects, i.e. a screwdriver, as you may damage the inner tube.
2. If you are repairing a punctured inner tube, repair it with a patch or replace the inner tube. Check that there are no foreign particles or damages in the inner part of the tyre and the rim. Check that the rim tape is installed and covers all the spoke nipples. Check the tyre for wear or damage. If the tyre is cut or punctured, it should be changed.
3. Slightly inflate the inner tube (to let it take its shape). Position it in the tyre. Insert the valve through the opening in the rim and install the tyre using your hand. Be careful not to pinch or twist the inner tube in the tyre or rim.
4. Inflate the tyre to about half the required pressure to check that the tyre is properly fitted into the rim. Check that the tyre bead is sitting properly and evenly on the rim. Once this check is done, adjust the pressure of the inner tube to the recommended level.
5. Install the wheels into the frame or fork. Make sure the wheel axle is installed properly.

## TYRES: TROUBLESHOOTING AND SOLUTIONS

Fault	Solution
Tyre or wheel moves from side to side	A. Check that the hub nuts and cones are well tightened and the quick-release is closed. B. Check the rims for deformation. C. Check if the spokes require additional tightening
Wheel or tyre moves up and down	A. Check the tyres to be properly mounted on the wheels. B. Check the rims for deformation.
Hubs squeaking	Hubs may require adjustment (lubrication) or bearing replacement

## TYRES: TROUBLESHOOTING AND SOLUTIONS

Fault	Solution
Sudden jerks and wobbles while riding	A. Check the tyres to be properly mounted on the wheels. B. Check the tyre for deformation or bulge (exposed cord). Damaged tyre should be replaced. C. Check that the spokes do not require additional tightening.
Deflated inner tube	A. Check the tyre tread for foreign objects (remove if any) that could damage the inner tube when you inflate the wheel. Use a patch to repair the inner tube or replace the inner tube. B. Check the valve core to be closed (tightened). Retighten it. C. Check the inner tube for cuts or damage.



## SUSPENSION FORKS

Your bicycle can be equipped with the front suspension fork. This type of fork improves the bicycle's handling on rough terrain and significantly absorbs bumps and shocks energy, reducing rider fatigue.

**CAUTION:** Although suspension forks do not require serious maintenance, the complexity of many fork models is such that the manufacturer highly recommends that all the maintenance and general inspection of the forks are only performed by qualified repair shops, authorised by the manufacturer of the suspension fork.

Suspension forks require regular servicing and preventive maintenance. All bolts must be tightened and clearances adjusted.

Every 10 to 15 hours of riding or even after a short ride in bad weather (snow, rain), lift the dust covers, check the condition and clean the surface in the crown area. Remove all dirt and clean the surface of the bushings with a soft cloth. Do not use solvents or other cleaning products which may damage the fork grease.

Make sure that the dust covers are correctly fitted and protect the fork from any dirt.

Do not use your bicycle if the minimum space between the tyre and the fork lower leg is less than that specified in the suspension fork user manual.

Some forks come with a spring compression adjustment, which is also known as preload. First, set the preload so that the fork sag takes up 15% of fork travel when you are on the saddle. After your first ride with this setting, try changing the stiffness to suit your riding style.

When changing the preload settings, you must comply with the requirements specified in the fork user manual.

Suspension forks require regular lubrication and maintenance for smooth operation and long lifespan of the dust covers.

## FRAMES AND SUSPENSION FORKS COMPATIBILITY

If your bicycle is originally equipped with a suspension fork, this means that the frame geometry has been specially adapted by the manufacturer for this type of fork. If you replace a suspension fork with a rigid fork, you must order a special rigid fork with extended lowers.

If you buy a standard length rigid fork instead of a suspension fork, the head angle will increase, making the handlebar too sensitive and the bicycle less stable.

If your bicycle was originally equipped with a rigid fork, it is possible that the frame geometry is not adapted to a suspension fork. If you replace a rigid fork with a suspension fork, it may cause excessive inertia of the bicycle and the frame and fork to break.

**WARNING:** Never modify the suspension fork height yourself, as this could be extremely dangerous. Contact your dealer for any suspension fork changes.



## REAR SUSPENSION

If your bicycle is equipped with a rear suspension, check that it is in good condition before each ride. Every 15 hours of riding, check that the bracket bolts and shock absorber bolts are tightened well.

When adjusting the saddle height, do not set the seatpost of a bicycle with rear suspension too low to avoid a possible contact of the seat post with the rear shock absorber, frame or wheel when the suspension is operating. Doing so may damage the bicycle and lead to a fall and injury.

Recommendations for the preload settings of a rear shock absorber with an air or coil spring are related to the suspension sag when the bicycle is under load. Correct adjustment suggests that the rear shock absorber should run at 15-20% sag when you sit on the bicycle.

To increase the preload of oil spring shock absorbers, turn the spring nut in the direction of spring compression. To soften the suspension, turn the nut in the opposite direction. If the spring does not allow the suspension to adjust within the desired range, it may be necessary to replace it with a stiffer spring. Contact your dealer for assistance. Modifying the suspension settings will cause a modification to the steering and braking characteristics. Once the adjustment is done, make sure that you are familiar with your bicycle behaviour on the easiest sections of your route. Bicycles with rear suspension don't require lubrication of the support joints and the rear shock absorber. The support joint uses pre-injected Teflon grease. Avoid the use of any lubricant that could damage the bearings. Clean the rear shock absorber and joints with soapy water for its long lifespan.

Each frame is designed to be used with a specific shock absorber model. Using a different shock absorber, even if it is compatible with your frame's mounting eyelets, may damage the frame or the shock absorber. Consult your dealer before replacing the rear shock absorber.





# BICYCLE WARRANTY CARD

During the warranty period, the manufacturer/dealer will replace or repair components and parts of the bicycle if they are found to have material and/or manufacturing defects, provided that the product is used properly and there are no signs of mechanical damage. In this case, at the discretion of the manufacturer/dealer, the bicycle will be exchanged for a quality product or repaired under the warranty.

**WELT offers its customers a lifetime warranty on frames and forks from the date of purchase.**

The warranty is granted from the date of purchase for a period of six months on sold spare parts and drivetrain.

If the warranty card does not bear the date of purchase, the seller's seal and the purchaser's signature, no claims will be accepted. Components and bicycles sold in accordance with the legal provisions (see Point 2) cannot be subject to repair or replacement under the warranty in the following cases:

- normal and natural wear and tear of parts;
- consequences of a fall, an accident or a road accident;
- inappropriate use, not conforming to the intended use;
- negligent handling leading to a reduction in the lifespan or failure of components or the bicycle;
- consequences of improper assembly, adjustment, repair or maintenance carried out by purchaser or by persons not authorised by the manufacturer/dealer to carry out maintenance or repair work.

Chips, scratches, cracks, dents, corrosion, paint damage and other damage caused by improper installation or careless use of components are not covered by the warranty.

The warranty does not cover the use of components that are not compatible or not designed to work together, the use of components with other defective or worn bicycle components, or the use of adapters not supplied by the manufacturer.

The warranty on bicycles and components does not cover the consequences of using the bicycle in winter, at temperatures below 0°C or in the rain, nor the total or partial immersion of the components in water or mud.

The warranty does not apply if the bicycle or the bicycle components have been used, even once, in stunts, sports competitions, ramp jumps, high jumps, acrobatic exercises or other similar particularly difficult operating conditions.

The consumer warranty does not in any way remove the purchaser's responsibility for regular inspections and routine maintenance, as it is the purchaser's responsibility to monitor the technical condition and timely replace worn parts and components.

The bicycle and its various components are individually adapted to the purchaser's weight, size, riding style, riding conditions and intensity, as well as to the compatibility of the other parts and components mounted on it. Therefore, the warranty applies to the original purchaser only, whose signature must appear on the warranty card.

The costs of shipping for the product are not covered by this warranty. The warranties listed begin on the day of purchase and are only valid for products sold by authorised representatives of the manufacturer/dealer. The warranty does not cover damages incurred in the event of personal injury, breakage and damage to components or other losses due to road accidents, improper use of components, failure to comply with assembly or maintenance instructions.

\_\_\_\_\_ I have read and accept the warranty conditions.

\_\_\_\_\_

\_\_\_\_\_  
*(signature, name and surname of purchaser)*

Date of Purchase: \_\_\_\_\_

Serial Number (if available) and Product Name \_\_\_\_\_

*Seller's Seal:*

**WELT** SENSE 2015



**RIDE  
YOUR  
LIFE**



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