FORK- 2014 32 FLOAT 29

Travel

- 3.9 in./100 mm
- 4.7 in./120 mm
- 5.1 in./130 mm

Features/Adjustments

Factory FIT iCD; 100; Kashima coated upper tubes, 1-1/8" straight or 1.5" tapered steerer, Electronic Climb/Descend mode, rebound, air spring pressure.

Factory FIT CTD w/Adj; 100, 120, 130; Kashima coated or anodized upper tubes, 1-1/8" straight, 1.5" tapered, or 1.25"-1.5" tapered steerer, lever actuated Climb/Trail/Descend (3 position), Trail adjust range (1, 2, 3), rebound, air spring pressure.

Factory FIT CTD Remote; 100, 120, 130; Kashima coated or anodized upper tubes, 1-1/8" straight or 1.5" tapered steerer, remote actuated Climb/Trail/Descend (3 position), rebound, air spring pressure.

Factory FIT Terralogic®; 100; Kashima Coated or anodized upper tubes, 1-1/8" straight or 1.5" tapered steerer, Terralogic threshold, rebound, air spring pressure.

Performance FIT CTD; 100, 120, 130; Anodized upper tubes, 1-1/8" straight, 1.5" tapered, or 1.25"-1.5" tapered steerer, lever actuated Climb/Trail/Descend (3 position), rebound, air spring pressure.

Evolution CTD; 100, 120, 130; Anodized upper tubes, 1-1/8" straight, 1.5" tapered, or 1.25"-1.5" tapered steerer, lever actuated Climb/Trail/Descend (3 position), rebound, air spring pressure.

Evolution CTD Remote; 100, 120, 130; Anodized upper tubes, 1-1/8" straight or 1.5" tapered steerer, remote actuated Climb/Trail/Descend (3 position), rebound, air spring pressure.

Lower leg

- 15QR thru axle system, post style disc brake mounting
- 9 mm open dropout, post style disc brake mounting

Spring

Air

Riding style

XC, Trail, AM

Sections

- Before You Ride
- Setting Fork Air Pressure
- Adjusting Rebound
- Climb, Trail, Descend
- Adjusting Trail Mode
- Using the CTD Remote
- Using the iCD System
- Adjusting Terralogic® Threshold

Before You Ride

Make sure that your fork is ready to ride

1. Check that quick-release levers are properly adjusted and tightened.
2. Inspect the entire exterior of your fork. The fork should not be used if any of the exterior parts appear to be damaged. Contact your local dealer or FOX for further inspection and repair.
3. Check your headset adjustment. If loose, adjust it accordingly to your bicycle manufacturer's recommendations.
4. Check that all brake cables or hoses are properly fastened.
5. Test the proper operation of your front and rear brakes on level ground.
6. Before every race or ride, clean the outside of your fork with only mild soap and water, and wipe dry with a soft dry rag. Do not spray water directly into the seal/upper tube junction. **Do not use a high pressure washer on your fork.**

Setting Fork Air Pressure

32 FLOAT maximum air pressure is 125psi

Sag should be set to 15 – 20% of total fork travel

1. Unscrew the blue air cap on top of the left fork leg counter-clockwise to expose the schrader valve.

2. Attach a FOX High Pressure Pump to the schrader valve.
3. Pump your fork to the appropriate pressure as listed in the 'Suggested starting points for setting sag' table below, then remove the pump.
4. Using your forks sag setting o-ring on the left upper tube (or temporarily install a zip tie to the upper tube), slide the o-ring (or zip tie) down against the fork dust wiper.

5. Rotate the CTD lever to the Descend mode (the riders 1 o'clock position).
    - If you have a Remote CTD fork, click the black release lever once to set the fork to Descend mode.
    - If you have a Terralogic® fork, turn the blue Terralogic® threshold adjust knob fully counter-clockwise.
6. Dressed to ride (including a filled hydration pack, if you use one), position your bike next to a wall or table to support yourself. Mount your bicycle. Assume your riding position for at least 10 seconds, allowing the suspension to fully settle. Make sure you distribute your weight evenly between the saddle, handlebars and pedals.
7. While in your riding position, slide the o-ring (or zip tie) down against the fork dust wiper.
8. Dismount your bike without bouncing, to avoid further moving the o-ring or zip tie. Measure the distance between the dust wiper and the o-ring or zip tie. This is your sag measurement. Suggested sag measurements are listed in the table below.
9. Add or remove air pressure until your sag measurement is between 15-20% of your forks total travel.
10. Repeat steps 2-8 and recheck sag measurement.
11. When sag measurement is correct, screw the blue air cap on clockwise until snug.

Suggested Starting Points for Setting Sag				
Rider Weight lbs/kgs		100mm	120mm	130mm
≤125	≤57	55psi	50psi	60psi
125 - 135	57 - 61	55psi	50psi	65psi
135 - 145	61 - 66	60psi	55psi	75psi
145 - 155	66 - 70	70psi	65psi	80psi
155 - 170	70 - 77	80psi	75psi	85psi
170 - 185	77 - 84	85psi	80psi	90psi
185 - 200	84 - 91	90psi	85psi	100psi
200 - 215	91 - 98	95psi	95psi	110psi
215 - 230	98 - 104	100psi	100psi	120psi
230 - ≥250	104 - ≥113	110psi	110psi	120psi

Suggested Sag Measurements		
Travel	15% sag (Firm)	20% sag (Plush)
3.9 in./100mm	.58 in./15mm	.76 in./20mm
4.7 in./120mm	.70 in./18mm	.94 in./24mm
5.1 in./130mm	.76 in./20mm	1 in./26mm

Adjusting Rebound

Rebound controls how fast the fork extends after compressing

The red rebound adjuster is located at the bottom of the right fork leg (the rebound knob on Terralogic forks is located at right topcap). Rebound controls the rate of speed at which the fork extends after compressing. Turning the knob clockwise (in) slows down rebound; turning the knob counter-clockwise (out) speeds up rebound. Rebound damping should only be set after first setting your air pressure by measuring sag.

1. Make sure your CTD fork is in Descend mode (fully counter-clockwise). If you have a Terralogic fork, turn the blue Terralogic threshold adjust knob fully counter-clockwise.
2. Starting with the rebound adjuster fully open (counter-clockwise) push on the fork to compress it and feel its return speed.
3. Increase rebound damping by turning the red rebound knob in clockwise until when tested, the fork returns quickly but does not top out.

Top out is felt when a fork fully extends too quickly and comes to an abrupt stop when it reaches full extension (you will hear/feel a small noise). Top out should be avoided through proper rebound setting.

Climb, Trail, Descend

Easy on-the-fly adjustments for unprecedented control and performance

The blue CTD lever lets you to switch between the Climb, Trail, and Descend modes. Each mode is optimized for each specific type of terrain, providing exceptional performance and riding enjoyment with your fork. CTD allows for complete rider control as one can experiment using different modes on various different types of terrain.

Climb Mode:

Rotate the blue CTD lever fully clockwise to set the fork in Climb mode. Climb mode is a very firm low-speed compression setting (not designed to be a solid lockout). This setting is most useful for climbing and sprinting.

Trail Mode:

Rotate the blue CTD lever to the middle setting to set the fork in Trail mode. Trail mode offers less compression damping than Climb mode. Use this setting when pedaling on undulating terrain, and for preventing excessive travel in technical riding situations (such as low-speed drops). Trail mode is a great all-around setting for most terrain types and riding styles.

Descend Mode:

Rotate the blue CTD lever fully counter-clockwise to set the fork to Descend mode. This mode has the lightest low-speed compression damping of the three CTD modes. Descend mode offers the most plush ride to ensure optimal traction over varied terrain.

Adjusting Trail Mode

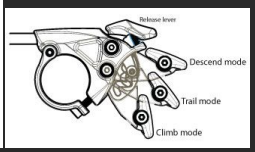
FIT CTD w/Trail Adjust models allow for added fine tuning

Factory CTD w/Trail Adjust model forks feature a three-position Trail Adjust control that regulates low-speed compression damping only in Trail mode. For firmer low-speed compression in Trail mode, turn the black Trail Adjust knob clockwise. For lighter low-speed compression, turn the Trail Adjust knob counter-clockwise.

Trail adjustments (soft, medium, firm) only function in Trail mode.

Using the CTD Remote

Easy on-the-fly adjustments for unprecedented control and performance



The CTD Remote lets you to switch between the Climb, Trail, and Descend modes while riding. Each mode is optimized for a specific type of terrain, providing best performance and riding enjoyment. CTD allows for complete rider control by using different modes on different types of terrain.

Climb Mode:

- Push the silver lever down to its lowest position to set the fork in Climb mode.

Climb mode is a very firm low-speed compression setting (not designed to be a solid lockout). This setting is most useful for climbing and sprinting.

Trail Mode:

- From Climb mode, push the black release lever once and then push the silver lever down one click to the middle position to engage Trail mode.
- From Descend mode, push the silver lever down one click to the middle position to engage Trail mode.

Trail mode offers less compression damping than Climb mode. Use this setting when pedaling on undulating terrain, and for preventing excessive travel in technical riding situations (such as low-speed drops). Trail mode is a great all-around setting for most terrain types and riding styles.

Descend Mode:

- Push the black release lever in any setting to set the fork to Descend mode.

Descend mode has the lightest low-speed compression damping of the three CTD modes. Descend mode offers the most plush ride to ensure optimal traction over varied terrain.

Using the iCD System

Fast activation and almost effortless operation

iCD Pre-Installation Guide Download »

iCD Owner's Guide Download »

FLOAT iCD elevates cross country and trail riding to the next level. FLOAT iCD integrates an electronic actuated system into proven FOX FLOAT fork and shock designs, to quickly and optimally adjust between Climb and Descend modes.

This system offers fast activation and almost eff ortless operation. FLOAT iCD shares features with the Shimano E-Tube electronic shifting technology. FLOAT iCD uses Power-Line-Communication (PLC) that facilitates data and power flow through a single wire, permitting minimal wiring and ease of setup.

By default, the switch has a two position configuration, the same configuration as that most commonly used by FOX world class racers. For a full suspension setup, both fork and rear shock are actuated simultaneously. The switch can be operated by rotating it with your thumb using the thumb actuation indentation, or with the index finger actuation lever.

Climb Mode:

Rotating the switch down actuates climb mode for a right-mounted switch; if you have the switch mounted on the left side, rotating the switch up actuates climb mode. Climb mode is a very firm low-speed compression setting (not designed to be a solid lockout). This setting is most useful for climbing and sprinting.

Descend Mode:

Rotating the switch up actuates descend mode; if you have the switch mounted on the left side, rotating the switch down actuates descend mode. Descend mode has the lightest low-speed compression damping of the two iCD modes. Descend mode offers the most plush ride to ensure optimal traction over varied terrain.

The Optional PC linkage device can be used to connect a PC to the bicycle (system or unit), and an E-tube Project* can be used to carry out tasks such as, problem diagnosis of single units and the whole system, updating firmware*, and customizing.

- * E-tube Project: the PC application
- * Firmware: the software inside each unit

The E-tube project application download can be found here: http://e-tubeproject.shimano.com

Adjusting Terralogic® Threshold

Set the firmness of your platform on Terralogic forks

The Terralogic damper contains a weighted inertia valve (Brassmass™), that freely slides on a shaft to open and close compression oil flow ports in the damper.

The Brassmass assembly automatically responds to the impact of trail bumps or depressions, opening the compression oil flow ports and allowing the flow of damping oil. The Brassmass assembly does not respond to input from above (rider input such as pedaling, sprinting, G-outs, etc), keeping the compression flow ports closed and maintaining the pedaling platform or fork lockout.

The 15-position blue Terralogic threshold adjust knob located on the bottom of the right fork leg allows you to fine-tune your pedaling platform anywhere between lockout-firm and fully open plush damping (or zero pedaling platform).

To make pushing through the fork travel harder and increase the pedaling platform, turn the blue threshold adjust knob clockwise. Turning the adjust knob completely clockwise makes the fork feel locked out—until the Brassmass is activated by hitting a bump.

To make pushing through the fork travel easier and decrease the pedaling platform, turn the threshold adjust knob counter-clockwise. Turning the knob fully counter-clockwise bypasses the Brassmass assembly entirely.

As no two riders are the same (weight, strength, riding style, terrain choices, or simply personal preference with riding feel), FOX encourages you to spend time exploring the possibilities with Terralogic threshold adjustment, to discover the "sweet spot" that feels right to you on your terrain.

ORBEA

www.orbea.com

ORBEA

INSTRUCTIONS AND MAINTENANCE MANUAL

MANUAL SPECIFICATIONS

This manual has been prepared to help you enjoy your new bike to the fullest. Please read it carefully. This manual provides guidelines for the periodic checks you need to carry out, so that you can properly maintain your bike.

If you have any questions or concerns after reading this manual, do not hesitate to talk to your regular Orbea dealer. There you will find personnel you can trust for the most complicated tasks and the best advice available.

Any deviation from the instructions contained in this manual will be the responsibility of the user of the bicycle.

All individuals must, at least, read the chapter on “Guidelines for the safe use of your bicycle” in this manual. Parents and guardians of minors must explain the chapter “Guidelines for the safe use of your bicycle” to children who are unable to read and comprehend it. It is very important that you read the chapter “Guidelines for the safe use of your bicycle” before riding your new bike even if you have been riding for years.

This manual covers all Orbea models. There are numerous Orbea models with different specifications. Therefore, this Manual will contain some information that does not apply to your bicycle model. Some illustrations may vary with respect to the models in the current catalog.

Note: We may refer you to the supplier manual for suspension forks and several other parts. If you have not received the manual corresponding to those parts, you can download it from the supplier’s website. If you are not able to do so, please contact us or your authorized dealer.

If you have any questions after reading this manual or the Orbea website, please talk with your authorized Orbea dealer. If you have a problem that your authorized dealer is unable to resolve, please contact us by email, phone or online.

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CONGRATULATIONS

You have chosen a bicycle that WE have proudly manufactured. We thank you for your trust in us. We have been manufacturing bicycles for more than a century, and all of our products are the result of our lengthy experience.

Your bicycle is the product of continuous research and infinite testing that have led to its manufacture with the best components and highest levels of quality.

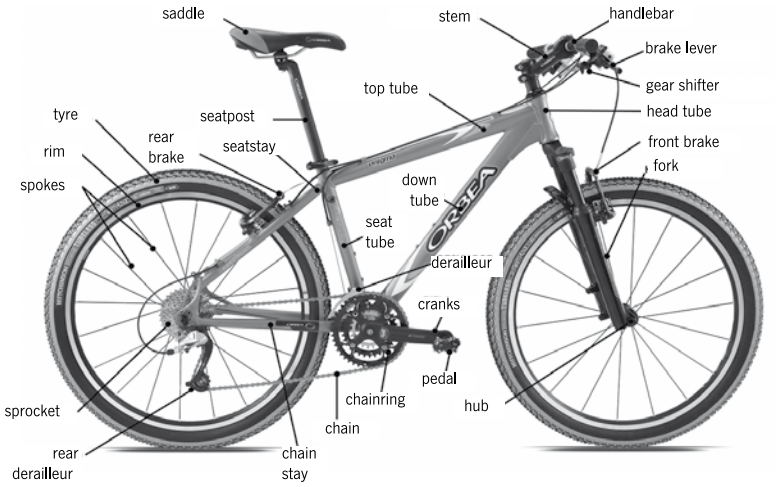
The assembly and initial adjustment of your Orbea bicycle requires special tools and skills; for that reason, it should only be performed by your authorized dealer.

DEFINITIONS

In this manual, the word WARNING indicates potentially hazardous situations which, if not avoided, could result in serious injury or even death.
In this manual, the word CAUTION indicates potentially hazardous situations or unsafe practices that could result in minor to moderate injury.

This manual covers the entire Orbea bicycle range, which is made up of two types of bicycles.

Below is a diagram to help you identify the most important elements of your bike. Understanding them will help you to better comprehend this manual.



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GUIDE TO USING YOUR BICYCLE

IMPORTANT!
READ AND FOLLOW THE INSTRUCTIONS IN THIS MANUAL BEFORE USING YOUR BICYCLE

A bicycle is small means of transport that is less powerful than other vehicles; therefore, your safety cannot be stressed enough. This chapter contains recommendations that will help you ride as safely as possible.

CONDITIONS FOR USE
Not using your bicycle in line with the specified conditions for use would imply restrictions to your warranty.
Bicycles are designed to resist the weight of a person up to 100 kg and 10 kg of cargo.
Mountain bikes. For use on an asphalt, gravel surfaces or rough trails, and any type of terrain in which the tires could momentarily lose contact with the ground.
Road bikes. For use on asphalt surfaces where the tires are always in contact with the ground.
Recreation bikes. For use on asphalt and gravel surfaces or rough terrain where the tires are always in contact with the ground.

1. BEFORE YOUR FIRST RIDE
Your authorized dealer should provide you a bicycle that fits you correctly. In a standing position on your bike, make sure there is adequate space between your groin and the top tube:
For MTB bikes, this distance should be between 50-75mm.
For all other bikes, this distance should be 25mm.

Practice at slow speeds
Before riding at high speeds or under adverse conditions, you need to learn the functions and characteristics of all of your bike's mechanisms by riding on flat roads without traffic. That way, you can get to know all of the features of your bicycle.
If you want any operational features other than those that come standard to your bicycle (for example: a brake force modulator), consult your authorized dealer.

Avoid excessive vibrations or imbalances on the front wheel

Heavier cyclists with large bikes sometimes experience "excessive vibration," "harmonic oscillation" or "frame vibration" at certain speeds. If you experience this, reduce your speed and take your bike to an authorized dealer for inspection and repair.

WARNING *Excessive vibration can cause you to lose control and fall. If you feel excessive vibration, immediately reduce your speed and take your bicycle to your authorized dealer.*

Make sure your accessories are compatible and safe:

To personalize your bike, various components can be changed and different accessories can be added. Not all accessories are compatible or safe. If you are not sure if a component is adequate or safe, talk to your authorized dealer.

CAUTION *Inappropriate components or assemblies on your bicycle could exert unknown tension on your bike. This stress could cause a failure that makes you lose control and fall. Before adding or changing any element on your bicycle, talk to your authorized dealer.*

2. BEFORE EACH RIDE: CHECK YOUR BIKE

Before each ride, check your bike and its components using the following checklist. This list provides some guidelines, but is not to be considered a complete inspection. Remember that if you detect any problems with your bike, and you are not able to repair them, you must take your bike to your authorized dealer.

Check that the wheels are trued

Spin each wheel and check for brake pad and frame clearance. If the wheel spin is not uniform, take your bike to an authorized dealer.

Check tire pressure

Inflate your tires to the pressure indicated on the side of the tire. You should also take your own weight into consideration. High pressure yields better performance on hard surfaces like asphalt, while lower pressures are best for off-road rides.

CAUTION Air hoses at gas stations inflate wheels too quickly and indicate inaccurate pressures. Always use hand pumps to inflate your tires.

Check your brakes

The brake lever on right side of the handlebar activates the rear brake and the lever on the left activates the front brake, unless local legislation indicates otherwise.

Check that the front and rear brakes are working properly. Orbea uses different types of brakes:

- *Rim brakes:* the brake levers are connected to brake shoes that squeeze the wheel rim.
- *Disc brakes:* the brake levers are connected to brake pads that squeeze the brake disc.
- *Drum brakes:* the brake levers are connected to the hub of the wheel by a cable, and a minimum of 15mm is needed to stop the bike.

- *Coaster brakes:* the braking action is carried out by pedaling backwards.

Follow the inspection instructions for the type of brakes on your bike. If your brake system does not pass the inspection specified in the "Inspection, adjustment and lubrication of your bike" chapter, take your bike to your authorized dealer.

WARNING *If your brakes are not working correctly, you may lose control and fall. Carefully inspect the brake system before each ride. Do not use the bike until any problem that may arise with the brake system has been resolved.*

Check that both wheels are secured

For a safer ride, your bike wheels must be firmly secured to the fork and frame. The wheels are secured by way of bolts or quick-release mechanisms, which allow you to install and remove wheels without tools.

Check the handlebar and stem for signs of fatigue or increased tension

Carefully inspect the handlebar and stem for signs of fatigue: scratches, cracks, dents, deformities and discoloring. If any part shows signs of fatigue or damage, change it before riding your bike. Likewise, check that the handlebar ends and extensions are plugged.

Check the adjustment of the suspension

Make sure that the suspension components are adjusted to your preference, and that no suspension element is at its limit. The suspension system affects your bike's performance; therefore, proper adjustment is very important. If the suspension system is compromised to a point where the fork is blocked, you could lose control. For more information about how to adjust the suspension system, see the chapter on "Inspection adjustment and lubrication of your bike" or the manual for the suspension system that may have come with your bike.

Check the lighting system

Inspect the angles and function of the front and rear lighting and signaling systems. These should be kept clean to work properly.

Check the handlebar

Make sure the stem and the handlebar are correctly positioned and tightened, and that the bell is working properly.

Check the saddle

The saddle must be positioned at the proper height for your use and height. Moreover, you must also check that the seatpost and seat are correctly positioned and tightened.

3. RIDING SAFELY

Wear a helmet

You must ALWAYS WEAR A HELMET, and when riding on public roadways, you must use the SIGNALING SYSTEMS provided with your bike.

An unprotected head is very fragile, even in the event of a minor bump, but wearing a helmet that complies with EC safety regulations or other recognized legislation could reduce that risk. Eye protection and proper clothing are also recommended.

Be aware of local traffic laws for bicycles

Most states have specific laws for cyclists. Cycling clubs or the Department of Transportation (or its equivalent) in your area should be able to provide you information in that regard. Some of the most important regulations are:
- Use the appropriate hand signals
- When riding with other cyclists, form a single-file line
- Ride on the correct side of the road; never against traffic
- Expect the unexpected and ride defensively. Cyclists are difficult to see, and many drivers are unaccustomed to recognizing the rights of cyclists.

Do not perform stunts or other unsafe activities with your bike

Many cycling accidents can be avoided by using common sense. Some examples:
- Do not ride "no hands": the slightest imperfection in the road could cause a vibration or sudden turn of the front wheel.
- Do not ride with objects hanging from the handlebars or any other part of the frame: they could get stuck in the spokes and cause the handlebars to jerk suddenly, making you lose control of your bicycle.
- Do not ride under the effects of alcohol or medicines that cause drowsiness. Bicycles require good coordination of movements, and your must always be alert to your surroundings.
- Do not carry anyone on your bicycle. Standard bikes are not designed to hold the additional weight of a second rider. Moreover, the extra weight makes the bicycle much harder to turn and stop.

Ride defensively

To pedestrians, drivers and other cyclists, you are not as visible as a car. You must always beware of dangerous situations and be prepared to stop.

Watch the road

Be prepared to avoid potholes, sewer grates or shoulders, since they could cause your wheels to skid. When maneuvering around an obstacle, try to do so at a 90º angle, and if you are unsure

of the conditions, get off your bike.

Watch the cars you are going to pass

If a car suddenly crosses your path or someone suddenly opens the door of a parked car you are going to pass, you could have a serious accident. Install a bell on your bike to alert others of your presence.

Be careful when riding in low-light conditions

Your bike is equipped with a complete range of reflectors. Keep them clean and properly positioned. Though reflectors help you to be seen, they do not provide emit light. Use a front and rear light when riding in low light.

Also, you should wear light-colored, shiny and reflective clothing, especially at night, to make you more visible.

WARNING *A cyclist without the proper lighting equipment may not have adequate visibility, and others may not see him/her either. This could cause accidents with severe consequences for the cyclist. Avoid these situations by installing a front and rear light, in addition to wearing light-colored, easily-visible clothing.*

Avoid letting water enter any bearings

Your bike's bearings allow the various parts of the bike to move smoothly. Corrosion occurs when water comes into contact with metal; therefore, it should be avoided.

Avoid cleaning your bike with power washing systems like those used for cars.

Use caution when braking

Always maintain a safe distance from vehicles and other objects. Adjust the distance to your braking capacity.

If your bike has two brake levers, squeeze them at the same time. Excessive use of the front lever, and braking with the front brake lever alone, could cause the rear wheel to lose contact with the ground and make you lose control.

Many new brake models are very powerful and are able to stop the bike on wet or muddy terrain. If you notice that your brakes are too strong for your needs, take your bike to your authorized dealer for adjustment or to change the braking system.

WARNING *If you apply excessive force, the rear wheel could lose contact with the ground, or the front wheel could slip, making you lose control and fall. Brake with both sides at the same time and shift your weight to the back of the bike when braking.*

Be careful when riding in wet conditions

There is no brake, regardless of design, that is as efficient in wet conditions as in dry. Though the brakes are trued, lubricated and in good operating conditions, in wet conditions, the braking system requires greater force in the levers and braking distance.

Rain reduces both visibility and traction. Ride at lower speeds around curves, manhole covers and crosswalks in rainy or wet conditions.

Be especially careful when riding off the asphalt

- Ride in marked areas.
- Avoid rocks, branches and dips.
- Never ride on an unpaved road or path with a road or urban bike.
- Wear proper clothing and protection, such as a helmet, glasses and gloves.
- When nearing a descent, slow down, and keep your weight back and low. Use the rear brake more than the front.

Keep your bicycle in perfect conditions

Bicycles are not indestructible: like any machine, each part of the bike has a service life limited to tension and fatigue. Fatigue refers to minor tensions that, when repeated a finite number of cycles, can compromise the integrity of the material. The service life varies according to its design, material, use and maintenance. Lighter frames generally have a longer service life than heavier frames, and premium bikes need greater care and more frequent inspections.

Be careful

It is preferable that you always ride accompanied. Your companion will be able to help you immediately in the event you have any trouble or an accident. Also, you should never forget to take a puncture repair kit or a spare inner tube and tire levers with you on all of your rides. You should also consider taking a multi-tool specific to your bike and a first aid kit if you are planning to ride long distances.

4. GENERAL RECOMMENDATIONS

Keep your bike clean

In order for your bike to work properly, it must be kept clean.

Store your bike in an appropriate place

When you are not using your bike, keep it in an area where it is protected from the rain, snow and sun. Rain and snow can cause the metal to corrode. Ultraviolet rays from the sun can disco-

lor the paint or dry rot the bike's rubber or plastic components.

When storing the bike, lift it off the ground and leave the tires at half their pressure. Do not leave the bicycle near electric motors, since the ozone emitted by the motors destroys rubber and paint. Before using the bicycle again, make sure it is in optimum condition.

Protect your bicycle from thieves

Your new bicycle is very attractive to thieves. You can insure your bike in several ways:
- Register your bicycle in a local police file.
- Purchase and use a lock. A good lock is effective against knives and saws. Follow the recommendations for use. Never leave your bike unlocked.
- If you have quick-release mechanisms on the wheels, lock the wheels to the frame. If there is a quick-release mechanism on the saddle, you should take the saddle with you when the bicycle is locked. However, you should avoid allowing water to enter the frame through the seatpost.

Protect your bicycle from possible bumps

Always park your bike in areas where it is out of the way of moving vehicles and ensure that it is in a stable position so that it does not fall. Do not lean the bike against the cassette, since it can be damaged or become dirty. Keep the bike from falling, since this could damage the handlebars or the saddle, etc.
Also, the improper use of a luggage carrier could damage the bike.

Use the proper technique when shifting gears

Some Orbea bikes are equipped with two gear shifting systems:
- One is a "derailleur" drivetrain in which the chain moves from one toothed cog to another.
- In the others, the shifting system is situated in the rear internal hub.
Read the instructions below depending on the gear shift system you have:

Traditional shifter

The left shifter controls the front derailleur, and the right shifter controls the rear derailleur. Choose the gear ratio that offers you the most comfort when pedaling.

You can only shift when the chain is moving forwards. Never try to shift gears when stopped or moving the chain backwards. Whenever you are going to shift, reduce the force transmitted to the chain, since this could hinder the shift and wear out the chain and cassette. You should never shift on uneven surfaces.

Internal shifter

This system can shift when the chain is moving forward, but it can also shift when stopped or moving backward. Whenever you shift, reduce the force transmitted to the chain to facilitate the shift. Choose the gear ratio that offers you the most comfort when pedaling.

Prevent the handlebar from striking the frame

In some bikes, the front wheel can rotate to extreme angles, and the handlebar can strike the frame. Avoid this impact by adding pads to the end of the handlebar or to the frame itself.

Never change the fork, frame or components

A modification to any part of the bicycle, including the frame, fork or any other component could make your bicycle unsafe. For example, poor paintwork could reduce the rigidity of the frame.

Changing the fork of your bicycle could affect the bicycle's headset or create undesired tension.

Never install a suspension fork on a road bike.

If you want to change the fork of your bicycle, talk to your authorized dealer about the different compatible options.

Any modification to the frame, fork or components means that the bicycle no longer complies with our specifications and, therefore, would render the bicycle's warranty void.

CAUTION *Never modify the frameset. Never sand, drill, fill or disassemble any excess retaining devices or the like. An improper modification could cause you to lose control and fall.*

5. CHILDREN

Proper supervision of children and all who are learning to ride a bike, practicing safety on the road and abiding traffic regulations are critical to their training. Explain everything presented in this first chapter to your child before he or she rides the bike for the first time. Make the following basic rule very clear to your child:

CHILDREN MUST ALWAYS WEAR A HELMET WHEN RIDING A BICYCLE OR TRICYCLE.

Training wheels

Some Orbea models are equipped with training wheels. This way, children can learn to ride with these wheels and develop proper control of the bike. Until the child's skill on the bike has been fully developed, the child should always be supervised by an adult.

Installing training wheels

- Check that the tires of the bike are correctly inflated.
- Position the bicycle on a flat surface.

- Loosen the nuts of the rear hub and follow the specifications in chapter 2.
- Put the bicycle upright and position the training wheels about 6mm from the ground. Make sure the height is the same on both sides of the bicycle.
- Retighten the nuts as specified in the chapter “Inspection, adjustment and lubrication of your bicycle”, including how to adjust the tension of the chain.
- Inspect the anchoring of the wheel as specified in that chapter.

Readjust the wheels as the child becomes more skilled

As the child becomes more comfortable on the bike, gradually increase the distance of the training wheels from the ground until the child no longer needs them.

INSPECTION, ADJUSTMENT AND LUBRICATION OF YOUR BICYCLE

This chapter addresses the inspection intervals to follow for each component of your bicycle, as well as the instructions for adjustment and lubrication. If during inspection, you find that any of the pieces does not satisfy the requirements for operation, the bicycle should not be used until that issue has been repaired, the piece replaced or the bike taken to your authorized dealer.

The inspection interval for each component is based on a regimen of normal use. If you use your bicycle more than normal, under adverse weather conditions, like rain or snow, or on unpaved roads, maintenance should be performed more often than indicated in this chapter.

Bicycles are not indestructible: like any machine, the different parts of the bike have a service life limited to wear and tear, tension and fatigue. Fatigue refers to small magnitude forces that, due to repetition in a large number of cycles, could compromise the integrity of the material. The service life of the different parts varies according to its design, material, use and maintenance. Some possible signs of bicycle fatigue are: dents, cracks, scratches, deformities and discoloring.

WARNING *If during inspection, you find that any of the pieces does not satisfy the requirements for operation, the bicycle should not be used until that issue has been repaired, the piece replaced or the bike taken to your authorized dealer.*

What is torque?

Torque is a measure of the force needed to rotate an object about an axis, like a screw or bolt. These measurements are made using a dynamometric wrench. The indicated specifications for torque are guidelines to help you determine the correct tightness of the different pieces and their threads.

It is important to respect the torque specifications so the threads are not over-exerted. Applying greater torque than recommended to a piece does not provide greater fastening, but could cause the piece to be damaged or rendered unusable.

1. HANDLEBAR, BAR ENDS AND STEMS

The handlebar is the part of your bike that you hold with your hands when riding. Controlling the bicycle is the responsibility of the rider. Moreover, the handlebar and saddle define the cyclist’s position on the bike. You must make sure that the position is as ergonomic as possible. The handlebar is connected to the rest of the assembly through the stem. This section will explain how to inspect, adjust and lubricate handlebars, stems and bar ends.

Never allow the bar ends to come into contact with any object that could cause you to lose control of the bicycle. The bar ends have been designed exclusively to support your hands during ascents. Make sure the bar ends are facing forward at an angle greater than 15_ with respect to the ground.

There are two types of stems:
- *Traditional (quill) stem:* has a tube that fits inside the fork steerer tube using an adjustable wedge.
- *Ahead (threadless) stem:* attaches to the outside of the steerer tube.

Inspection

If you have any doubts about the reliability of your handlebar, take your bicycle to your authorised dealer. Once a month, you must ensure that the stem is aligned with the front wheel. Check the connection between the stem and the handlebar by moving it against the front wheel. You should also inspect the safety of the handlebars and the bar ends by checking that the handlebars do not turn independently of the stem and that the bar ends to do not move independently of the handlebar. Make sure no cables are stretched or crimped when rotating the handlebar. Check that all bolts are tightened. You should always heed the torque indicated by the piece. If that information is not available, it will vary based on the size of the Allen wrench required for the bold:

	Nm		Lb.In		Kg.cm	
Allen wrench size (mm)	Min.	Max.	Min.	Max	Min.	Max.
3	2,5	3	22	27	25	31
4	4	5	35	44	41	51
5	6	8	53	71	61	82
6	11	15	97	133	112	153

Adjustment

The handlebar position and angle depend on the user and his/her comfort, efficiency and balance. Your hands must be in a comfortable position in which the controls can be easily handled. If your hands, arms or shoulders are in an uncomfortable position, you should adjust the handlebar or look for components that better meet your needs. Check with your authorized dealer. Some handlebars have marks that indicate where they can be cut. If your handlebar does not have these marks, do not shorten it. If you want to shorten it but are unsure, please check with your authorized dealer.

Adjusting the handlebar angle

- Loosen the bolt in the stem clamp enough to be able to turn it.
- Position the handlebar at the desired angle, and check that the stem is centered.
- Tighten it as specified in the inspection.

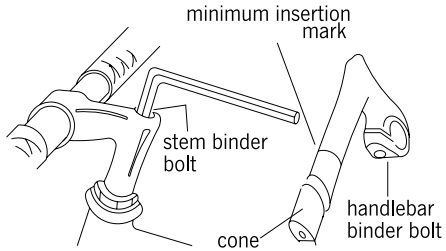
Adjusting the stem inclination angle

- Loosen the stem angle adjuster bolt until you can turn it.
- Position the stem at the desired angle.
- Adjust the bolt as specified in the inspection.

Changing handlebar height with a traditional (quill) stem

Al requerirse ciertos conocimientos y herramientas especiales, es conveniente que sea hecho
Since this process requires certain skills and special tools, we recommend it be performed by your dealer.

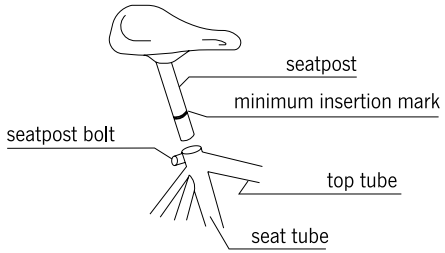
- Loosen the stem binder bolt with two turns counterclockwise.
- Lightly tap the bolt with a wooden or plastic mallet to unlock the stem cone.
- Adjust the stem to the desired height.
- Re-tighten the bolt and verify that the handlebar is perpendicular to the front wheel. Do not over-tighten the bolt; it could break and seriously compromise your safety.
- Check that the handlebar binder bolt is sufficiently tightened by applying lateral pressure to the handlebar while holding the wheel between your legs.



Note: If your bicycle is equipped with an ahead (threadless) stem, there are practically no options for regulating handlebar height. Therefore, we ask that you consult your dealer and do not perform any adjustments yourself.

2. SADDLE AND SEATPOST

The saddle is where you sit on the bike when riding, and it is supported by a seatpost. The seatpost is connected to the frame with a clamp or quick release. Proper adjustment of each component is important for your safety, comfort and pedaling efficiency. This section will talk about how to inspect, adjust and lubricate your saddle, seatpost and clamp.

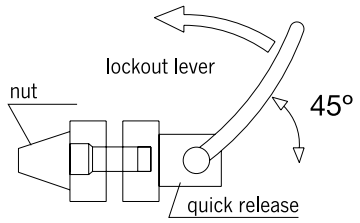


Inspection

Once a month, you need to inspect the quick-release of the seatpost or seat tube clamp. Make sure that the saddle is secured to the frame assembly and has no horizontal, vertical or rotational movement with respect the axis of the seat tube. If you notice any of these types of movements, properly readjust all connections.
You should always heed the torque indicated by the piece. If that information is not available, it will vary based on the size of the Allen wrench required for the bold:

	Nm		Lb.In		Kg.cm	
Allen wrench size (mm)	Min.	Max.	Min.	Max	Min.	Max.
3	2,5	3	22	27	25	31
4	4	5	35	44	41	51
5	6	8	53	71	61	82
6	11	15	97	133	112	153

If you have a quick-release on the saddle clamp, it works exactly the same as the quick-release for your wheels. Follow the instructions for securing it. Never open the quick-release while you are riding.



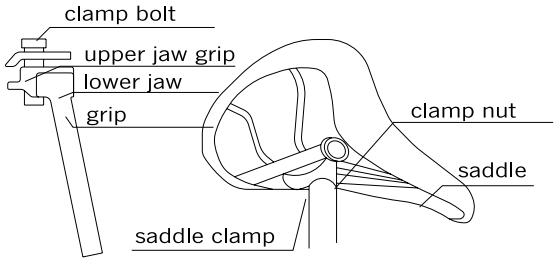
Adjustment

Saddle height is very important for your comfort, safety and pedaling efficiency. The incline of the saddle affects your comfort. Changing the saddle angle affects the distribution of weight between the handlebar and the saddle.
When properly adjusted, the saddle is reasonably comfortable even when riding long distances.

WARNING *A poorly adjusted saddle or unsuitable support of the pelvic area could affect the nervous system and blood vessels with extended use of your bike. Change the saddle if it causes pain or numbness.*

Adjusting the saddle angle

- Loosen the saddle bolt so that it can move somewhat.
- The adjustment of the saddle is very personal. Start with the saddle parallel to the ground, or slightly angled forward on full suspension bikes.
- Tighten the saddle bolt, as indicated in the inspection.



Adjusting saddle height

- Loosen the quick-release or saddle bolt.
- Raise or lower the seatpost. The average height of the saddle is calculated such that you can touch the ground on tiptoes of both feet at the same time.
- Always ensure that the seat post is inserted within the seat tube above the minimun insertion levelRe-tighten the quick-release or saddle bolt.

WARNING *A seatpost that is too high could damage the bicycle and cause you to lose control and fall. Make sure the minimum insertion mark of the seatpost is inside the seat tube.*

Lubrication

The seatpost should be lubricated annually. To do so:
- Loosen the quick-release or saddle bolt to remove the seatpost from the frame.
- Clean the seatpost and remove the old grease if necessary.
- Apply a new layer of lubricant.
- Insert the seatpost in the frame.
- Adjust the seatpost height, align the saddle with the frame and tighten the quick-release or the saddle bolt.

3. PEDALS

Pedals are the part of the bicycle where you put your feet. Your control and safety on the bike depend on the security of the connection between the pedal and your foot. For recreational use in flat areas, a pair of soft-soled shoes is sufficient. For more intense use, the pedal system should help keep your feet on the pedals.

Orbea uses different types of pedals:
- Clipless pedals that snap into a cleat in the sole of the cyclist's specialized shoe.
- Pedals without any type of attachment system.

If your bicycle is equipped with pedals that do not satisfy your needs, talk to your dealer about this issue.

WARNING *While riding your bike, your shoes should be in contact with the pedals; otherwise, you could lose control of your bicycle and fall. When you are nearing a stop, you should be able to easily remove your feet from the pedals. Always remove one foot from the pedal before completely stopping the bike.*

Before using your bicycle for the first time, if you have clipless pedals, you should familiarize yourself with them and practice getting into and out of the pedals in a stationary position. Once

this movement is natural, practice in a flat area without traffic. While pedaling, watch the road. If you are looking at the pedals, you may not see the obstacles ahead.

Do not use clipless pedals with street shoes, since your feet will not have a good support base on the pedal.
Remove at least one foot from the pedal before stopping the bicycle completely.

Inspection

Before every use, you should clean both the cleats and the pedals, since any dirt could interfere with the proper functioning of the mechanism.

Every three months, check that the pedal reflectors are clean and correctly positioned. Make sure the pedals are properly secured to the crank arms.

To check that the pedal bearings are well-adjusted, move the pedals up and down and left to right. If you feel that anything is loose or too stiff, take the bicycle to your dealer so they can be adjusted, lubricated or replaced. The pedal-to-crank arm torque should be 40-43Nm.

Adjustment

Improper installation of the cleats could cause physical injury; therefore, cleats should be positioned by the authorized dealer. In most clipless pedals, the force needed to insert and remove your foot can be regulated.

Getting into clipless pedals

Fit the front of the cleat into the front of the pedal and push downwards with your foot. It will "click" when it is in position.

Check that the connection is secure by rotating the pedal. If your shoe comes out, repeat the previous step.

To mount your bike, push the pedal downwards while pushing forwards with the other foot, while sitting on the saddle.

Once in motion, insert your other foot into the pedal using the same technique.

Getting out of clipless pedals

Twist your heel laterally with respect to the central line of the bike.
To stop, put your foot on the ground.

4. THE DRIVETRAIN: PEDALS, CHAINRING, CHAIN AND CASSETTE

The bicycle's drivetrain transmits power to the back wheel through:
- Pedals
- Chainring and crank arms
- Chain
- Cassette

This section will explain how to inspect, adjust and lubricate the drivetrain. For bikes with rear internal hub gears, see the section on "Internal hub gear system".

Inspection

When the drivetrain is functioning properly, shifting is easy and silent.

Once a month, check that the cassette and chain are clean and well oiled. All links in the chains should pivot well without squeaking. Likewise, check that no links are deformed. Remove the rear wheel and spin the cassette. If you hear a strange noise or if the cassette stops as soon as you let go, it may need to be repaired or replaced; take the bike to your authorized dealer.

Once a month, if your bike has a chainguard, check that it is securely attached and aligned. Try to move the chainguard from one side to the other and tap it. Lift the rear wheel and turn the crank arms to hear if the chain or the chainring is rubbing against the chainguard. Realign the chainguard and adjust the screws so it is secure.

Inspect your pedals every three months. Check that the pedal reflectors are clean and correctly positioned. Make sure the pedals are properly secured to the crank arms.

To check that the pedal bearings are well-adjusted, move the pedals up and down and left to right. If you feel that anything is loose or too stiff, take the bicycle to your dealer so they can be adjusted, lubricated or replaced.

Every three months, inspect the crankset and check that the bolts are secured. The following torques should be applied:
Single chainring binder bolt: 40-50Nm
Crank arm binder bolt: 15Nm
Chainring bolts: 8-10Nm

Chainring adjustment check

- Shift the chain to the largest chainring.
- Spin the chainrings until the crank arms are parallel to the seatpost.

- Put one hand on the crank arm and one on the seatpost; try to move the crank arm towards and against the seatpost. If it is loose, it needs to be checked by your dealer.
- If, when turning the chainrings, you notice that they are loose or you hear a strange noise in the bearings, they need to be checked by your dealer.
- Clean the chainrings and inspect them for any damage. If any tooth is bent or damaged, the chainring must be replaced by your authorized dealer.

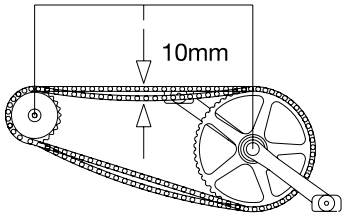
Check the chain for wear every three months. Every complete link of a chain measures one inch (25.4mm). If twelve links measure more than 30.8cm, the chain must be replaced. With a properly maintained road bicycle, the chain generally lasts between 1600 and 2400 km. The service life for mountain bikes is slightly less. Special tools and know-how are required to change the chain. Therefore, you should take your bike to your authorized dealer.

Adjustment

Adjusting the drivetrain (cassette, chain, chainring and pedals) must be performed by an authorized dealer, since it requires specific tools and special skills.

Adjusting the chain on a single speed bicycle

Gradually loosen the nuts of the wheel hub.
In single-speed bikes, or bicycles with internal hub shifters, chain tension has to be adjusted so that, halfway between the wheel hub and bottom bracket, there is 1cm of slack in the chain. Tighten the nuts until the wheel is uniformly secured.



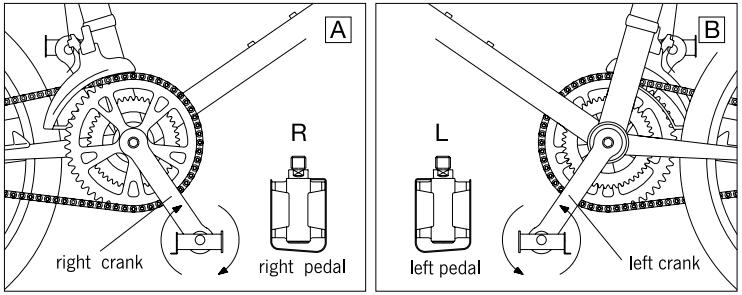
Lubrication and cleaning

Once a month, clean and lubricate the cassette and the chain. You should always keep a cloth behind the chain so that oil does not drip on the rest of the bicycle. Once the chain is lubricated, clean any excess off the chain.
Do not use gasoline to clean the cassette. It is highly flammable and leaves a thin film of grease after it evaporates. Clean the cassette with a degreasing fluid and brush.
Once a year, lubricate the pedal bearings, the clipless pedal mechanism and the part of the pedal that screws into the crank arms. Some bearings are sealed and do not require lubrication. Lubricating the bearings requires specific tools and special know-how, and should only be performed by an authorized dealer.

Note: The left and right pedals have a mark stamped on the corner indicating the side to which they pertain.

Greasing the thread of the pedals

- Remove the pedals; spin the right pedal counterclockwise and the left pedal clockwise.
- Apply a thin layer of lubricant.
- Install the pedals on the corresponding side
- Tighten the pedals until they are securely connected to the crank arms.



5. GEAR SHIFTER

TRADITIONAL DRIVETRAIN

Attachment of the rear derailleur to the frame: 6-8Nm
Attachment of the front derailleur to the frame: 5-6Nm
Attachment of the shifting levers to the handlebar: 6-8Nm
This gear shifting system changes the chainring and cassette by derailing the chain, removing it from one cog or chainring to another.

Inspection

The following terms will be used in this section:
Upshifting: shifting to a gear that is harder to pedal: a larger chainring or a smaller cog
Downshifting: shifting to a gear that is easier to pedal: a smaller chainring or a larger cog
Proper adjustment of the gear shifting system will make it silent. If there is temporary noise every time you shift, the shifter may need adjustment. If you cannot adjust it or the noise increases, take the bike to your authorized dealer.

Once a month, check that the cables are not twisted, rusted, have any broken wires or frayed

ends. You should also check the housing for loose cables, bent ends, cuts and signs of wear. If you think there is a problem with the cables, do not ride your bike. Change the cable or take your bike to your authorized dealer.

Once a month, check the function of the left shifting lever or front derailleur. Every time you change the chainring, the front derailleur must be in a position that it does not rub against the chain. Furthermore, the chain must not fall off the outside or inside chainring at any time.

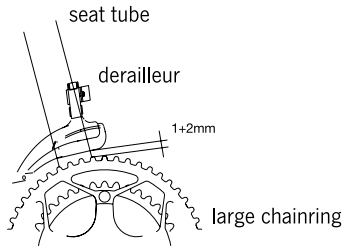
Once a month, check the function of the right shifting lever or rear derailleur. Every time you shift, the cog should be situated so that the chain can run smoothly without jumping. Furthermore, the chain should not fall off the outside or inside cog at any time.

Adjustment

Shifter adjustment must be performed with the bike firmly secured to a work bench, or with someone holding the rear wheel in the air, so that the gear shifting system and drivetrain can work in a stationary position.

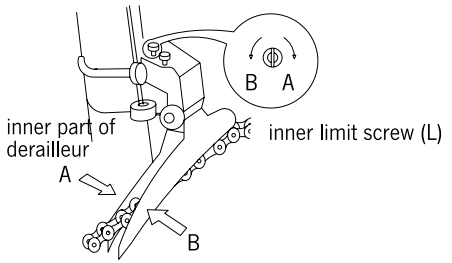
Positioning and adjusting the front derailleur

To correctly position the front derailleur:
- The cage plates must be perfectly parallel to the chainrings.
- Vertically, the position should be such that, with the front derailleur and the chain on the middle chainring, the gap between the bottom of the outer cage plate of the front derailleur and the top of the outer chainring teeth is between 1 to 3mm, as shown in the figure below.

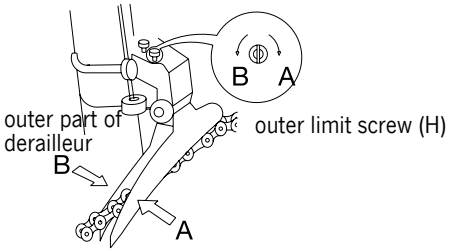


For proper regulation of the front derailleur motion, it should have two screws regulating the inner and outer limits of the motion that can be positioned in different places depending on the front derailleur model. The adjustment should be performed as follows:

- Place the chain, rear derailleur and front derailleur in the inside chainring-inside cog position.
- Turn the inner limit screw (L), so that when pedaling, the chain moves as close as possible to the inner part of the inner cage of the front derailleur without rubbing at any point (see figure).



- Place the chain, rear derailleur and front derailleur in the outside chainring-outside cog position.
- Turn the outer limit screw (H), so that when pedaling, the chain moves as close as possible to the inner part of the outer cage of the front derailleur without rubbing at any point (see figure).

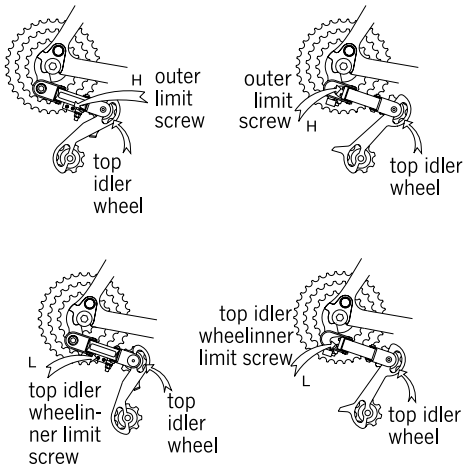


To confirm, try pedaling with all of the chainring-cog combinations possible.
If the chain falls off onto the crank arm in any of the combinations, turn the outer limit screw (H) one quarter turn clockwise.
If the chain falls off onto the bottom bracket in any of the combinations, turn the inner limit screw (L) one quarter turn clockwise.
If the front derailleur makes noise or the chain does not shift from one chainring to another smoothly in the intermediate positions, turn the barrel adjustment on the derailleur lever to achieve the optimum adjustment.

Adjusting the rear derailleur

Like the front derailleur, the rear derailleur has inner and outer screws to limit the motion of the rear derailleur that can be positioned in two different places, depending on the derailleur model. The process is very similar to that used to regulate the front derailleur and is explained below:

- Position the upper jockey wheel of the rear derailleur in line with the smallest cog using the outer limit screw (H).
- Position the jockey wheel of rear derailleur in line with the largest cog using the inner limit screw (L).

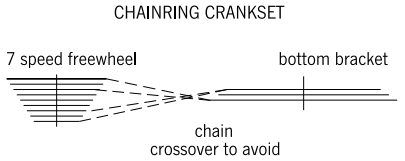


To confirm, try pedaling with all of the chainring-cog combinations possible.
- If the rear derailleur makes noise or the chain does not shift from one cog to another smoothly in the intermediate positions, turn the barrel adjustment (located on the shifting lever, or on the derailleur itself) to achieve the optimum adjustment.
- If the chain falls from the outside cog, tighten the outer limit screw (H) one quarter of a turn.
- If the chain cannot shift to the outside cog, from the outside cog, loosen the outer limit screw (H) one quarter of a turn.
- If the chain falls from the inside cog towards the spokes, tighten the inner limit screw (L) one quarter of a turn.
- If the chain cannot shift to the inside cog, loosen the inner limit screw (L) one quarter of a turn.

If the cassette cannot be aligned as indicated, take the bicycle to your authorized dealer.

Optimizing use of the rear derailleur

If your bike is equipped with a double or triple chainring kit, you will be able to ride anywhere easily, saving your strength and maintaining a uniform pedal stroke regardless of the terrain or your speed.
However, to avoid any mechanical issues, (chain skipping, noise when pedaling, etc.) follow these recommendations:
- Select the correct gear by shifting just before the start of an ascent or the obstacle you are maneuvering.
- When you are about to shift gears, keep pedaling normally without excessive force and use the shifting levers until the chain is correctly positioned on the desired cog and chainring.
- Avoid shifting when straining, even if the synchronized systems allow for it in a tough situation.
- Strictly avoid extreme combinations, such as the inner chainring with the two outermost cogs, or outer chainring with the two innermost cogs. These situations, as shown in the figure below, lead to a diagonal chain line that jeopardizes the performance of the drivetrain and durability of your components (premature wear).



Replacing the gear wire:

- Position the chain on the inner chainring and outer cog.
- Loosen the pinch bolt holding the wire and pull it through the shifting lever.
- If you cannot access the wire due to the type of shifter, talk to your dealer.
- Inspect the housing. Change it if it is worn or rusted.
- Grease the new wire and insert it through the lever and all guides and housing.
- Follow the instructions for adjusting the cassette.
- Cut the wire so that it does not overhang more than 5cm from the pinch bolt.
- Attach a metal end cap to the wire to prevent the end from fraying.

Lubrication

Every month, lubricate all of the pivot points of both the front and rear derailleurs, as well as on the jockey wheels.
Any wires that have been replaced must be lightly greased in those areas where it passes through housing or rubs against anything.

INTERNAL GEAR HUB DRIVETRAIN

Some bicycles are equipped with a type of shifter inside the rear hub.

Nexus 7/8 speed

The internal gear hub drivetrain is made up of the following specific components:

- Shifters
- Rear hub
- Gear cable.

The drivetrain is sealed; therefore, it stays lubricated with little maintenance. This section will explain how to inspect, adjust and lubricate the internal drivetrain.

Inspection

A well-adjusted drivetrain is silent. If it makes any noise when shifting, or while you are pedaling, the gear cable may need to be adjusted. If the noise gets louder after adjusting it, stop the bicycle and analyze the origin of the noise. If necessary, take your bike to your authorized dealer.

Once a month, make sure that the shifters are correctly adjusted.
In a Nexus 8-speed hub, set the shift lever to 4. Check to be sure that the yellow setting lines on the cassette joint bracket and pulley are aligned.

Once a month, check that the cables are not twisted, rusted, have any broken wires or frayed ends. If you have any issues with the gear cable, do not use the bicycle. Change the gear cable or take it to your authorized dealer.

Adjustment

Adjusting the rear drivetrain

- Set the shift lever to 4.
- Align the indicator on the pulley of the rear wheel hub with the cassette joint bracket.
- If they cannot be aligned, adjust the cassette cable tension to do so.
- Move the lever to 1 and then to 4, and check the adjustment.

Changing the drivetrain cable

- Loosen the cable fixing bolt.
- Unscrew the bolt and hold the fixing nut at the end of the cable.
- Slide the fixing nut from the end of the cable forwards.
- Make a note of the length of the old cable for installing the new cable.
- Install the new cable.
- Attach the cable fixing nut.
- Attach the shifter casing.
- Attach a metal end cap to the wire to prevent the end from fraying.
- Follow the instructions to adjust the rear drivetrain.

Lubrication

The rear drivetrain must be lubricated once a year. This process requires specific tools and special know-how. It should only be performed by an authorized dealer.

The cable must be lubricated whenever it is replaced.

6. FORK AND HEADSET

The headset is the set of bearings that allows the fork, stem and handlebar of the bicycle to rotate. This section will explain how to inspect, lubricate and adjust the fork and headset.

If your bike is equipped with a suspension fork, read the chapter on suspension forks. If your bicycle has an aluminum or carbon fiber fork, read the chapter on caring for your fork and frame.

Inspection

Once a month, inspect your bike's headset and check that it is not too loose or tight. If it is, do not use the bicycle. Take it to your authorized dealer.

Checking headset play

- Stand over the horizontal tube of the bike with both feet on the ground.
- Squeeze the front brake while moving the bicycle forward and back.
If your bicycle does not have a front brake, turn the front wheel so that it is perpendicular the force applied.
- Watch, listen and feel if the headset is loose.

Checking the tightness of the headset adjustment

- Stand over the horizontal tube of the bike with both feet on the ground.
- With the front wheel on the ground, turn the fork and the handlebar left to right and vice versa.
- Watch, listen and feel if the headset is tight, or if it makes noise or gets stuck at certain points.

WARNING *An improper adjustment of the headset could cause you to lose control and fall. Make sure the headset is correctly adjusted prior to use.*

Adjustment

Adjusting the headset requires special tools and specific skills. Therefore, it should only be performed by your authorized dealer.

Lubrication

The headset must be lubricated once a year. This requires special tools and specific skills. Therefore, it should only be performed by your authorized dealer.

BRAKING SYSTEM

The braking system allows you to reduce your speed, a critical function of your bicycle. This section will explain how to inspect, adjust and lubricate your bicycle's brakes. You should also read the specific information corresponding to each type of brake used.

Suggestions for all braking systems-all systems

The different types of brakes have different braking capacities. If you are not satisfied or comfortable with your braking system, talk to your authorized dealer.

With any braking system, a failure in the adjustment, maintenance or use of the brakes could cause you to lose control of the bicycle and suffer the consequences that could entail. If you are unsure about the adjustment of your brakes, or if you suspect there is a problem, do not use the bicycle. Take it to your authorized dealer.

It is difficult to adjust the braking system if you do not have the necessary knowledge, experience or materials. We highly recommend that you have your authorized dealer adjust your brakes.

Not all brakes are compatible with all levers. Only use levers that are compatible with your brakes, such as those that originally came with your bike.

WARNING *Never use the bicycle if the braking system is not working correctly, or if you suspect there could be some problem, either with the brakes, cables or hydraulic system. Poor brake function could cause you to lose control and fall. If your bicycle is not functioning properly, readjust it and take it to your authorized dealer.*

RIM BRAKING SYSTEMS

Introduction

This system is made up of different brake families, such as Cantilever, V-Brake and Caliper.
In these systems, the levers are connected to the brake through cables or hydraulic systems.
When squeezing the levers, the brake shoes act on the rim and slow the wheels, which reduces the speed of the bicycle.
These systems are made up of the following components:
- Rim
- Braking levers / Fluid reservoir
- Brake cable and housing / Hydraulic hose
- Brake shoes

Brake fluid from the hydraulic system is highly corrosive. Avoid contact with the skin or bicycle, as it could corrode the paint.

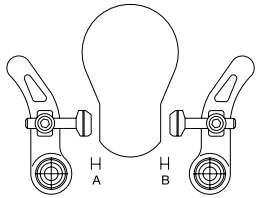
Never use rims designed for disc brakes with these systems. The rims must have a flat surface on which the brake shoes can act.

Inspection

Before using your bike, squeeze the brake levers firmly. The lever should never come in contact with the handlebar. If the lever touches the handlebar, the reach should be regulated as explained below. If you have a hydraulic systemic, it must be purged. This action must be performed by your authorized dealer, since it requires specific materials and know-how.

Likewise, if you have a hydraulic system, check that there are no crimps or leaks in the hose. Replace any hydraulic part that does not pass inspection. This replacement requires specific tools and know-how. Therefore it should be done by an authorized dealer.

When the brakes are not being applied, the shoes should be 1-2mm from the rim. The brake shoes must be aligned with the rim surface. If your brakes are too loose, tight or misaligned with the rim, adjust them prior to using the bicycle.

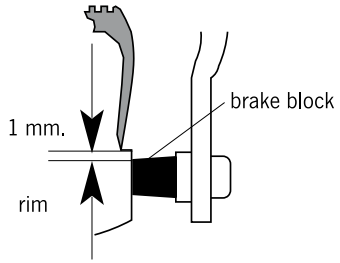


The angular alignment of the brake shoe must be considered to prevent the brakes from squeaking. Used brake shoes and some new V-Brake types may not require this alignment.

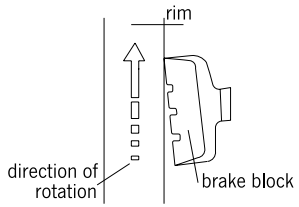
Once a month, check the status of the brake shoes. The brake shoes have small channels on the friction surface. If any of these channels is less than 2mm deep, or less than 1mm in V-Brakes,

the brake shoes must be replaced. If the original brake shoes did not have channels, replace them when the end of the rubber pad is only 3mm from the metal support.

Regulating the brake shoe vertically should be such that the edge of the rim is 1mm above the end of the shoe. The shoe must come in contact with the rim exactly perpendicular to the braking surface, as shown in the figure below.

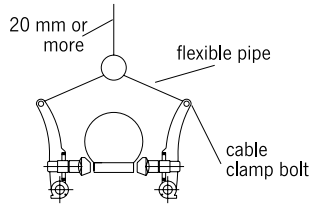


The shoe must be slightly inclined in the direction of the wheel's rotation. Otherwise, braking will be deficient and could cause bothersome noises when the brakes are applied.

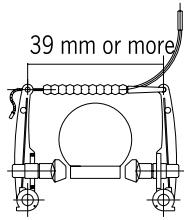


Once a month, check the brake cables for twisting, rust, broken threads and frayed ends, and check that the housing is not crimped, cut or worn. Replace any component that does not pass inspection.

In Cantilever brakes, there should be a distance of 20mm between the link unit and the end of the brake cable housing support.



In V-Brakes, if the perpendicular distance to the braking surface can be regulated, make sure that Distance A, as shown in the diagram below, is greater than or equal to 39mm.

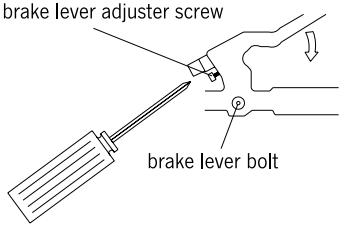


Every 3 months, tighten the bolts in the brake levers and shoes.
Brake lever mounting bolt: 6-8Nm
Every 3 months, tighten the bolts in the Cantilever, V-Brake and Caliper brakes.
Brake shoe holder: 8-10Nm
Brake mounting bolt: 8-10Nm
Cable fixing bolt: 6-8Nm

Adjustment

Adjusting brake lever reach

It is possible to regulate the reach of some brake levers. Find the reach adjustment screw for the lever. To increase the reach, turn the screw clockwise. To reduce the reach, turn the screw counterclockwise.
On some occasions it is necessary to readjust the distance between the shoes and the rim after adjusting lever reach.



Adjusting the distance between the shoes and the rim

To increase the distance to the rim, turn the reach adjustment screw clockwise. Turn it counter-clockwise to reduce the distance.
If you cannot adjust the shoes in this manner, loosen the pinch bolt and tighten the cable again,

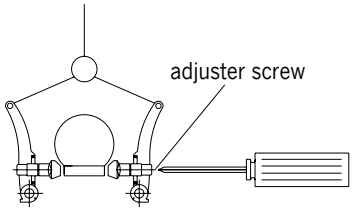
as explained in the section for installing a brake cable, but without removing it.

Centering V-Brake, Cantilever and Caliper brakes.

Turn the central screw in short intervals, checking the centering often.

Adjusting the alignment of the brake shoes

- Loosen the brake shoe holder bolt.
- Follow the instructions for inspecting the alignment and tightening the shoes.
- After the brakes are adjusted, fully depress the levers 10 times. Make sure the cables do not come loose, the shoes remain in the correct position with respect to the rim and that the tires do not come in contact with the shoes.



Installing a brake cable

The installation of the cable in Cantilever brakes requires specific tools and know-how. Therefore it should be done by an authorized dealer.
- Determine the reach of the old cable, loosen the brake cable anchor bolt and disassemble the old cable.
- Grease the new cable and install it, positioning it with the same reach as the old cable.
- Check that the end of the cable is well-secured and properly adjust the housing.
- If necessary, follow the instructions for adjusting brake shoe alignment.
- Turn the bolt clockwise so the shoe is not above or outside the rim.
- Hold the shoes against the rim and tighten the bolt.
- Cut the end of the cable so that only 5mm of cable overhangs from the bolt.
- Attach an end cap to the end of the cable.
- Follow the inspection and adjustment instructions.

Opening the brake to remove the wheels:

Note: you must follow the inspection instructions in the wheels section to complete this installation.

- For most brakes, lift the brake release lever to the Open position. To close it, turn the lever to the Closed position.
- For Cantilever and Caliper brakes: release the straddle cable. With one hand, squeeze the brake shoes against rim, and with the other, pull the cable end cap away from the retention holder. Once the shoes are released, the brake will open. To close the brake, follow these instructions in reverse.
- For V-Brakes: disconnect the noodle from the noodle holder. With one hand, squeeze the brake shoes against rim, and with the other, pull the noodle backwards from the holder and lift the noodle. Once disconnected, the brake will open when you release the shoes. To close the brake, follow these instructions in reverse.

Lubrication

- Every 3 months, lubricate the brake lever pivots with synthetic lubricant as you would for the chain.
- When you are going install a brake cable, you should grease it with a thin layer of synthetic lubricant.

HYDRAULIC DISC BRAKES:

Introduction

Instead of a shoe exerting pressure on the rim of wheel, a pad acts on a disc located in the front or rear hub. The disc fits onto the hub with bolts on the left side. The braking system is made up of:
- Braking levers / Fluid reservoir
- Hydraulic hose
- Disc brake pad

Brake fluid from disc brakes is highly corrosive. Avoid contact with the skin or bicycle, as it could corrode the paint.

Disc brakes can become very hot after use. Be very careful when inspecting them. Like with other parts of your bike, avoid inserting your fingers in the disc.

WARNING Disc brakes can even burn your skin. Moreover, the corners can be sharp and cut you. Avoid touching the disc and brakes when they are hot or rotating.

You should not depress the brake levers when the disc is not inside the caliper. If the lever is depressed when the disc has been removed, the distance between the pads is almost null due to the self-adjuster. Therefore, you will not be able to reassemble the disc. If this were to happen, consult the disc brake manual or go to your authorized dealer.

Inspection
Before using your bike, squeeze the brake levers firmly. The lever should never come in contact with the handlebar. If the lever touches the handlebar, the system should be purged. This action must be performed by your authorized dealer, since it requires specific materials and know-how.

Check that there is no oil, grease or other type of dirt on the disc. The disc is an essential part of the braking system; therefore, it must be kept clean. Remove the brake pads from the calipers when you are going to deep-clean. Do not use cleansers, degreasers or solvents to clean the disc. Only use isopropyl alcohol.

Once a month, make sure that the disc brakes are not worn. If the brake pads have a thickness less than 1mm, they should be changed. You must also check that the brake pads are correctly positioned at a distance between 0.25 and 0.75mm from the disc when the brakes are not applied. Turn the wheel. When the levers are not depressed, the brake pads should touch the discs as little as possible.

The torque for disc brake bolts is:
Caliper mount bolts: 11.5-12.5Nm
Caliper bridge bolt: 11.5-12.5Nm
Disc screws: 5-6Nm
Handlebar Master Cylinder Clamp Screw: 3-4Nm

Check there are no crimps or leaks in the hose. Replace any hydraulic part that does not pass inspection. This replacement requires specific tools and know-how. Therefore it should be done by an authorized dealer.

Adjustment
Adjusting brake lever reach

- Locate the reach adjustment screw between the lever and the handlebar, near the lever pivot.
- To increase the reach, turn the screw clockwise. To reduce the reach, turn the screw counterclockwise.

Aligning the brake with the disc

- Loosen the caliper mount bolt.
- Depress the lever as much as possible and gradually tighten the bolts as specified in the inspection section.

Removing brake pads

- Remove the wheel.
- With your fingers or needle-nose pliers, pull the tab of the brake pad.

Removing the wheel

Removing the wheel with disc brakes does not require you to take apart the braking system. Carefully slide the disc out of the brake.

When you are going to replace the wheel, carefully guide the disc between the brake pads. If you press the edge of the disc against the pads, they can crack or be damaged and need to be replaced.

Lubrication
Lubricate the pivots every three months with synthetic lubricant, as you would with the chain. The brake pads do not need to be lubricated.

MECHANICAL DISC BRAKES

Introduction
Instead of a shoe exerting pressure on the rim of wheel, a pad acts on a disc located in the front or rear hub. The disc fits onto the hub with bolts on the left side. The brake is activated using a cable that extends out of the lever. The braking system is made up of:
- Brake lever
- Brake cables and housing
- Disc brake pads

Disc brakes can become very hot after use. Be very careful when inspecting them. Like with other parts of your bike, avoid inserting your fingers in the disc.

WARNING Disc brakes can become very hot and even burn your skin. Moreover, the corners can be sharp and cut you. Avoid touching the disc and brakes when they are hot or rotating.

Inspection
Before every use, squeeze the brake levers firmly 10 times. The lever should never come in contact with the handlebar.
Check that there is no oil, grease or other type of dirt on the disc. The disc is an essential part of the braking system; therefore, it must be kept clean. Remove the brake pads from the calipers when you are going to deep-clean. Do not use cleansers, degreasers or solvents to clean

the disc. Only use isopropyl alcohol.

Once a month, make sure that the disc brakes are not worn. If the brake pads have a thickness less than 1mm, they should be changed. You must also check that the brake pads are correctly positioned at a distance between 0.25 and 0.75mm from the disc when the brakes are not applied. Turn the wheel. When the levers are not depressed, the brake pads should touch the discs as little as possible.

The torque for disc brake bolts is:
Caliper mount bolt: 11.5-12.5Nm
Caliper bridge bolt: 11.5-12.5Nm
Disc screws: 5-6Nm
Pinch bolt: 6-8Nm

Once a month, check the brake cables of your bike for twisting, rust, broken threads and frayed ends and check that the housing is not crimped, cut or worn. Replace any component that does not pass inspection.

Adjustment

Adjusting the reach of the brake levers

- Locate the reach adjustment screw between the lever and the handlebar, near the lever pivot.
- To increase the reach, turn the screw clockwise. To reduce the reach, turn the screw counter-clockwise.

Adjusting the gap between the pad and the disc

- Turn the pad adjuster bolt. To increase the pad gap, turn the adjuster clockwise. To decrease the pad gap, turn the adjuster counterclockwise.

Aligning the brake with the disc

- Loosen the caliper mount bolt.
- Depress the lever as much as possible and gradually tighten the bolts as specified in the inspection section.

Removing brake pads

- Remove the wheel
- With your fingers or needle-nose pliers, pull the tab of the brake pad.

Removing the wheel

- Removing the wheel with disc brakes does not require you to take apart the braking system. Carefully slide the disc out of the brake.

- When you are going to replace the wheel, carefully guide the disc between the brake pads. If you press the edge of the disc against the pads, they can crack or be damaged and need to be replaced.

Lubrication

- Lubricate the pivots every three months with synthetic lubricant, as you would with the chain.
- The brake pads do not need to be lubricated.

Installing the cable

Follow the installation instructions explained for Cantilever, V-Brake and Caliper brakes.

DRUM BRAKES

Introduction

The braking mechanism is found within the rear hub, but unlike coaster brakes, it is applied by hand. The lever is connected to the brake through a cable, and the system has the following components:
- Brake lever
- Brake cables and housing
- Rear hub

Inspection

You should check that the bolts of the braking system are well tightened and that the brake cables have no rust, broken threads or frayed ends. You must also check that the housing is not crimped, cut or worn. Replace any pieces that do not pass your inspection.

Adjustment

Reducing lever reach

- Loosen the adjustment barrel and turn the screw. To increase the reach, turn it clockwise. Turn it counterclockwise to reduce the distance.
- After adjusting the reach, tighten the barrel.

Removing the rear wheel

First, disconnect the rear derailleur and brake cables. To disconnect the brake cable, be careful not to touch the rear hub since it may be hot even 30 minutes after use.

To disconnect the gear cable, shift to the outside cog. Pull the cable housing and turn the mounting nut until the washers align with the groove. Once this is completed, you can remove the cable.

To uninstall the hub from the frame, turn the hub bolts gradually in small movements so that the adjustment of the bearing axis is not affected.

To install the rear wheel, follow the instructions above, inversely, including the slow tightening of the bolts. Once this is completed, check the tension of the derailleur cable and inspect the wheel.

Lubrication

You must lubricate the pivots of the brake lever every three months. Every time a new brake cable is installed, it must be lubricated.

COASTER BRAKES

Introduction

Instead of being applied with your hands, coaster brakes are applied using your feet and pedaling backwards. The chain transmits the movement of the pedals to the rear wheel hub where the braking mechanism is located. This braking system consists of:
- Rear hub
- Chain and chainring-crank arm set

Inspection

Once a month, you must make sure the sprocket bolt is tight and the driver system is well fit to the sprocket.

Once a month, or whenever you replace a wheel, make sure to check the tension of the wheel. Without proper tension, the chain can fall off, causing the brake to malfunction. Chain adjustment is explained in previous chapters.

Removing the rear wheel

- To remove the brake arm, loosen and remove the brake arm bolt.
- To uninstall the hub, loosen the hub bolts gradually in small increments so that the adjustment of the bearing axis is not affected.
- Slightly loosen the nut on one side of the hub by turning it one quarter of a turn.
- Slightly loosen the nut on the other side of the hub by turning it one quarter of a turn.
- Continue loosening the nuts carefully until you are able to remove them from the hub.

Replacing the rear wheel

- Place the chain on the hub, not on the cog, and slide the hub towards the teeth.
- Push the wheel to the proper position in the rear fork, lift the chain to position it on the cog, pulling on the wheel to obtain good tension.
- While you are holding the wheel in the frame and maintaining the chain tension, follow the instructions to remove the wheel backwards, including the gradual adjustment of the bolts. If necessary, you will have to re-tense the chain.
- Re-install the brake arm, and tighten the brake arm bolt.
- Follow the inspection steps in the wheels section of this chapter to complete installation.
- Spin the wheel to see if it spins freely and is centered.
- Verify that the brake is functioning properly.

Lubrication

Coaster brakes do not need additional lubrication. Follow the recommendations in the Wheels section for the lubrication of the hub bearings.

7. WHEELS

Introduction

Bicycle wheels allow the bike to travel smoothly; therefore, their integrity is essential. The relationship between the wheels and the braking system is extremely important.
This section will explain how to inspect, adjust and lubricate the wheels of your bike.

Inspection

The best type of maintenance you can perform on a wheel is preventive. Be aware of any problems that could arise and correct them before they occur.

Before each use, check that the quick-release is in the Closed position or that the nut is well tightened. For more information about tightening the wheel, read the corresponding section, or ask your authorized dealer. Check that the wheels are trued and centered by spinning them. If the rim spin is not uniform, talk to your authorized dealer. Make sure the wheels are inflated and the tire pressure is correct. Inflate the tires using a hand pump. Never inflate your tires at a gas station. Check the tires for wear or any other type of damage. If a tire has any cuts or openings that allow you to see the inner tube, change it before riding. Check that the wheels are clean. A dirty or greasy wheel could impede proper brake function. Clean the rims with a clean cloth or

wash them with soap and water. Rinse and allow to air dry.

Every week, make sure there are no loose, damaged or broken spokes. If a wheel is not in good condition, the efficacy of the brakes and the rigidity of the set will be severely reduced.

WARNING An improperly adjusted hub could cause you to lose control and fall. Carefully inspect the hub system before each ride, and do not use the bike until any problem that may arise during the inspection has been resolved.

Once a month, check that the front and rear hubs are well adjusted. Lift the front wheel and try to move the rim from left to right. Watch and feel for any play in the rim. Spin the wheel and listen for any strange sounds in the movement. If the hub appears to be loose or makes strange noises, the hub will need to be adjusted. Repeat this process with the rear wheel.

Every month, check the wear of your rims. In some adult bicycles, there are indicators for wear on the braking surface. If the rim is so worn that you cannot see the wear indicators, the rim change should be performed by your authorized dealer.

Before installing the rim, make sure the rim tape is installed, so that the spoke nipples or ends do not puncture the inner tube.

WARNING Make sure the rim tape covers all spoke ends and nipples. If any are left uncovered and puncture the inner tube, the wheel will lose pressure suddenly, making you lose control and fall.

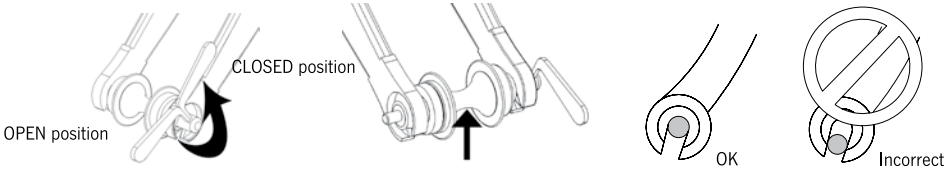
Adjustment

Adjusting the front hub

This procedure requires specific materials and know-how. Therefore, it should only be performed by an authorized dealer.

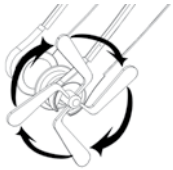
Adjusting the quick-release mechanism

To properly and safely adjust the quick-release mechanism, carefully read and follow the instructions below.



- Turn the lever of the quick-release to the Open position, and insert the wheel in the blades of the bike and make sure the axle is securely positioned.
- Now move the lever to 45 and tighten the quick-release bolt clockwise with your hand until you cannot turn it anymore.
- Move the lever to the tightening position. Once closed, it should be in the Closed position as shown in the upper left figure.

Do not tighten the quick-release as if it were a bolt; the attachment will not be tight enough to keep the wheel in position.



WARNING A quick-release that is not properly adjusted could cause the wheel to loosen or fall out unexpectedly, and cause you to lose control or possibly fall. Be sure that the quick-release is correctly adjusted and closed before using the bicycle.

- If the lever can be easily moved to the Open position (less than 50 Newton), that means that the fastening force is insufficient. In this case, re-tighten the quick-release bolt clockwise and turn the lever to the Closed position. If the force needed to turn the lever is excessive (more than 200 Newton) repeat the operation above but loosening the bolt counterclockwise. Repeat these operations as many times as needed until you find the optimum fastening force.
- The quick-release should be oriented in such a way that it does not interfere with other bike accessories.
- If the quick-release mechanism fails, take your bike to your authorized dealer.

Checking the quick-release mechanism adjustment

- Lift your bike and strike the upper part of the wheel. The wheel should not drop out, loosen or move from side to side.
- Make sure the quick-release lever cannot rotate in parallel with the tire.
- If you need more than 200 N force to close the quick-release, it is too tight and you must readjust it.
- If you need less than 53 N to close the quick-release, it is too weak and you must readjust it.

Adjusting with bolts

- Install the wheel into the blades (of the frame or fork) and make sure the axle is securely inside the slots.

- Insert the clamp nut.
- Gradually turn the nuts on either side of the axle in opposite directions. The following torques should be applied:
Front wheel: 20-28 Nm
Rear wheel: 27-34 Nm

Check that the nuts are properly adjusted as specified in the section below. If the nuts are not correctly positioned, repeat the adjustment procedure or take your bike to your authorized dealer.

Checking the clamp nuts are properly adjusted

Lift your bike and strike the upper part of the wheel. The wheel should not drop out, loosen or move from side to side.

Adjusting tire pressure

If you cannot maintain proper tire pressure, it is most likely punctured or has a leak. Repairing a puncture is explained in the tire inspection section. If you do not have the proper tools to complete the repair, take your bicycle to your authorized dealer.

REMOVING AND INSTALLING WHEELS WITH GEAR SHIFTING MECHANISMS

Some parts of this chapter refer to parts that have already been explained, such as wheels and braking systems.

Note: to remove the rear wheel with coaster braking systems, follow the instructions specified in the brake section.

Removing the wheel

- Position the chain on the outermost cog.
- Open the brakes as indicated in the braking section
- Open the quick-release of the wheel or loosen the hub nut.
- Slide the wheel out of the fork ends.

Installing a wheel

- For the rear wheel, rotate the chain to position it on the outermost cog.
- Insert the wheel in the frame or fork, making sure that the hub is well inserted in the fork ends.
- Readjust the quick-release or tighten the hub nut as explained in the wheels section.
- Check the brakes and make sure they are well-adjusted.
- Spin the wheel and check that it is trued and spins freely without rubbing against anything.

Lubrication

- Grease the hubs once a year. This process requires specific tools and special know-how. It should only be performed by an authorized dealer.
- Lubricate the quick-release lever with a synthetic lubricant ever year.

SCHRADER AND PRESTA VALVES

There are two types of valves: Schrader and Presta. Follow the criteria below when inflating your tires.

Schrader valve: remove the valve cap, attach a pump with the proper head fitting for this type of valve and inflate the wheel. Once inflated, replace the cap so that the valve does not become dirty.

Presta valve: Remove the cap, if any. Unscrew the valve stem lock nut and push down on the valve stem to free it up. A small amount of air will be released. Inflate the wheel using a pump with the proper head fitting. After inflating, tighten the valve stem lock nut.

TUBELESS WHEELS

Some bicycles are equipped with a tubeless tire system. This is made up of the tire, a rim and a specific valve for use without an inner tube.

A normal tire can fit onto the rim without using an inner tube without a problem. However, you will have to install a tube since the tire is not sufficiently sealed to maintain the pressure. This section explains the requirements of this system and includes instructions for assembly.

WARNING A normal tire is not able to maintain air pressure without an inner tube. If an inner tube is not used, you could lose control and fall. Always use an inner tube with standard tires.

Repairing punctures in tubeless tires.

A well-installed tubeless tire can lose up to 0.25atm per day. If the loss is greater than that, look for a leak. Dirt, sand, mud or possible grooves could weaken the seal between the rim and the tire and cause leaks. Check that the valve is firmly in position. Check for punctures and the sealing surface.
- Tire with rim
- Valve with rim

If the tire has a puncture hole smaller than 3mm, it can be repaired from inside the tire with an appropriate patch. If the opening of the tire is greater than 3mm, the entire tire must be

replaced.

A tubeless tire must be completely sealed to the rim

Before inflating a tubeless tire, you must make sure that the connection between the rim and tire is correct. This connection must be even more secure than that of the conventional tire. If you are using tire levers, be careful not to damage the rim or the tire itself. If any of the surfaces is scratched, installing the tire could cause leaking problems.

If the tires are well fit to the rim, the interior pressure of the tire is enough to maintain the seal. You do not need a compressor to fill the tires. A good pump will suffice.

Installing the valve

- Align the holes of the rim and the rim tape for the valve.
- Align the valve head with the holes above and push the valve through the rim tape and rim.
- Screw the tubeless valve stem lock nut with your hand. There should be no space between the rim and the valve.
- Check that the rim tape is properly in place.

Installing tubeless tires

- We recommend dampening the rim and tire with soap and water to facilitate installation.
- Starting with the area opposite the valve, insert one side of the tire inside the rim.
- Repeat this action with the other side of the tire.

Inflating tubeless tires

- Inflate the tires until the pressure reaches 4atm.
- Most tires have lines or markings just above the chafer.
- When the tire is properly positioned, these markings should be uniform around the rim.
- Once the tire is properly fit onto the rim, finish inflating it.

WARNING If tubeless tire pressure is low, you could lose control and fall. Do not use tires with under 2atm of pressure.

Removing tubeless tires

The area of the rim where the tire rests is very thin. Therefore, you will need to rotate the tire to remove it from the rim.
Allow all of the air to be released from the tire.
Spin the tire while removing one of the beads of the tire from the rim. Once it has come out completely, remove the other bead, starting at the valve.

Installing an inner tube and tire

A standard tire can be used with an inner tube.
Make sure the rim tape is covering all spoke ends and nipples.
Install the inner tube and tire as you normally would.

Converting to a tubeless tire

- Remove the tire and inner tube.
- Make sure the rim tape is covering all spoke openings.
- Follow the instructions for installing a valve.
- Follow the instructions for installing a tubeless tire and inflate it.

Removing the rim tape

- If the rim tape is going to be used again, be careful not to damage it.
- Follow the instructions on how to uninstall a tubeless tire and the valve stem.
- Insert a screwdriver through the valve opening of the rim tape, between the rim tape and the rim.
- Lift the rim tape with the screwdriver and insert a tire lever under the rim tape.
- Using the tire lever, lift and turn the rim tape upwards and outwards from the rim.

Installing rim tape

- There are two types of rim tape, one for symmetrical rims and one for asymmetrical rims. Confirm that you are installing the correct type of rim tape for your rim. If your rim is asymmetrical, make sure it is well aligned.
- Check that the rim tape is in good condition, without scratches, holes or deformities.
- Align the opening of the rim tape with the hole in the rim for the valve.
- Insert the valve stem through the rim tape opening.
- Using your fingers, lift and stretch the rim tape so it is situated in the rim cavity.
- Complete the tire installation procedure.

INSTALLING THE TIRE

These instructions apply to standard wheel systems where the air inside the tire is retained by an inner tube. Follow these instructions for repairing and replacing the inner tube or tire.

Removing the wheel

- Follow the instructions for opening the brake in the braking system section.
- Follow the instructions on how to remove the wheel in the wheels chapter.

Removing the tire from the wheel

Never use sharp object or a screwdriver to remove the tire. Use your hands or tire levers.
- Completely deflate the inner tube.
- Squeeze the sides of the tire around the entire rim.
- Starting with the area opposite the valve, start removing the tire from the rim.
- Continue removing the tire around the rim until it is completely free.
- Remove the tire and the inner tube.

Installing the tire

If you are repairing a puncture, repair the punctured area with a patch or replace the inner tube. Follow the inspection procedure in the wheels section to check the rim and inner part of the wheel.
If you are replacing an inner tube or tire, make sure the new tire is the same size as the previous one, or ask your authorized dealer about compatible options. You will be able to find the size on the side of the tire.
- Slightly inflate the inner tube.
- Position the inner tube in the tire.
- Insert the valve through the opening in the rim.
- Starting at the valve, insert the tire into the rim.
- Push the tire until it is completely installed with the inner tube inside the tire, and the tire inside the rim. Be careful not to pinch the inner tube in the tire or rim.
- Inflate the tire halfway and check that the tire is properly fit into the rim.
- Inflate the tire to the pressure indicated on the side.

Installing the wheel

Follow the instructions on how to install the wheel in the wheels chapter.
Follow the instructions for closing the brake in the braking system section.

8. REFLECTORS

Introduction

The reflectors of your bicycle reflect light shone on them. In conditions of low visibility, if a vehicle comes close to you with the lights on, the reflectors will help you be seen. Reflectors are an important part of the safety system. Therefore, you must not remove them.

Inspection

Every three months, make sure that all nuts and bolts holding the front, rear and pedal reflectors are correctly positioned and attached. Check that the front and rear reflectors are properly positioned and perpendicular to the ground. You must also check that all reflective surfaces are clean and in good condition. The rear reflector must be at least 75 mm below the saddle.

9. SUSPENSION SYSTEMS

Suspension systems: Forks

Suspension forks allow the front wheel to move in way that absorbs the shock from irregularities in your path and reduce the vibrations you feel.
Suspension forks must be regularly lubricated so that they can work smoothly and have a long service life. The section below is complementary to the information provided by the fork supplier. If you have not received said information, you can download it from the supplier's website or contact us.

Inspection

Before every use, make sure the suspension fork is working correctly. Never use the bicycle if there is not enough space between the fork and the wheel.

Adjustment

The suspension fork preload setting can be modified, as can the damper and coil spring speed. Changing the characteristics of the suspension fork will have an impact on the headset and braking system of your bicycle. After making any changes, ride in an area that is flat and free of traffic, so that you can check and familiarize yourself with your bike's new performance.

Lubrication

Follow the lubrication and maintenance instructions in the suspension fork manual.

WARNING An improper adjustment of the suspension fork could cause you to lose control and fall. Make sure the suspension fork bolts are properly adjusted, and that the distance between the tire and fork is adequate.

Suspension systems: rear suspension

Rear suspension allows for a vertical movement of the rear wheel to absorb the shock from irregularities in your path and reduce the vibrations you feel.
The section below is complementary to the information provided by the suspension supplier. If you have not received said information, you can download it from the supplier's website or contact us.

For optimum performance of your rear suspension system, the maintenance and care for each one its parts is very important:
- Frame
- Swing arm
- Bearings
- Mounting components
- Rear shock

For your system to work correctly, it is very important that the different components are securely tightened and the rear shock is adjusted according to your weight, way of riding and type of terrain on which you normally ride.

Keep the suspension components clean. Dirt, mud and other pollutants can cause wear or premature fatigue of the suspension. To clean the suspension system, use a cloth and soft-bristle brush with soap and water. Never use solvents or chemicals that could strip the lubrication from the bearings or rear shock.

Changing the characteristics of the suspension system will have an impact on the headset and braking system of your bicycle. After making any changes, ride in an area that is flat and free of traffic, so that you can check and familiarize yourself with your bike's new performance.

Lubrication

You should not lubricate the shock or pivot of the suspension system on your bike, since this could damage the cartridge or bearings. For the long life of your suspension system, only clean it with soap and water, or with water alone.

10. CARING FOR YOUR FRAME AND FORK

Orbea frames are constructed with a range of premium materials. For safety and durability purposes, take care of your bicycle and keep the following specifications in mind.

Inspection

Before each use, carefully inspect the entire frameset (frame and fork) for any signs of fatigue, such as scratches, cracks, dents, deformities or discoloring. If any of the components shows signs of fatigue or is damaged, replace it before using the bicycle.

Information about the frame

In aluminum and steel frames, the seatpost must be greased prior to inserting it in the frame. A special carbon compound should be used for this in the carbon frame. A thin layer of grease will insulate it and prevent corrosion.
The resistances for the various pressure adjusters or threads are extremely important. If you tighten a piece excessively, of if it is misaligned, the piece or the frame may break. In you apply too much torque, you could break the piece or damage the thread. You should always begin screwing with your hand and not a wrench. The torque for the lower mount is 50-70Nm. The torque for the cassette is 8-10Nm.
When cleaning the parts of the frame, do not use solvents or strong chemicals. Any dirt should be cleaned with a cloth and soap and water. The use of industrial solvents could damage the frame's paint.

Stripping the paint from the frame requires special techniques and much care. Some abrasives can strip part of the frame material, and thus weaken it. It is advisable that you contact your dealer.
The frame should not be exposed to extreme temperatures (65ºC), since they could damage the binding adhesive of the various components.
If the frame is modified in any way, the warranty is voided and the use of the frame could be hazardous.
Changing the fork could affect your bicycle's turning capacity or create excessive tensions.
Suspension forks can generate effects of fatigue on your bicycle. You must not add suspension to a road bike or modify the length of a fork. If you are going to replace the fork of your bicycle, talk to your dealer to make sure that the fork is compatible with the frame.

WARNING Never modify the frame assembly in any way. Sanding, drilling, filling holes, uninstalling excess devices or any other operation on the bicycle, in addition to improper modifications of the frame, fork or any other component could cause you to lose control of the bicycle and fall.

Carbon frames

It is essential that carbon frames have a chainstay guard in place in the event the chain falls inward. Check that the frame chain protectors are always in good condition. If they are damaged, go to your dealer so they can be replaced immediately.
Do not leave these frames exposed to the sun since they degenerate faster than aluminum or steel frames.

Frame repair

Most damage to the frame has to be repaired at the Orbea plant. The frame can be returned through an authorized dealer.

11. ACCESSORIES

Introduction

To improve the features of your bike, it can be equipped with different types of accessories, such as dynamos, lighting systems to improve visibility, luggage carriers or bells. All accessories must be properly maintained for optimum performance.

Inspection

Once a month, inspect the various accessory nuts and bolts and their respective mounting systems. The torque for the fender bolts is 3.5-4.5Nm and the connection between the fender and frame should be 6-7Nm.

Lighting systems

The lighting system has been designed to increase security in low visibility conditions, such as night-time or fog. These lighting systems can be powered by dynamos or batteries. If a dynamo is used, it must be properly installed and adjusted, so that it is in the “On” position thanks to the spinning motion of the wheel to provide the necessary power to the lighting system (at a minimum speed of 6km/h).

WARNING When the bike is stopped, the dynamo cannot generate energy for the light bulbs, thus reducing visibility and causing you to not be seen by other vehicles. In this case, use batteries or avoid stopping in poorly lit areas.

Once the dynamo is connected, make sure the light shines and is properly aimed so that you can have optimum light and luminosity. The lighting system must be kept clean.

Remember that your field of view is smaller at night; therefore, you should reduce your speed and adapt to the conditions. You are less visible at night than during the day, even if your lights are on. Ride defensively.

In addition, we recommend you change the light bulbs in your system every six months because there is no indicator to warn you if they are broken. You will run the risk of being left without functioning lights when you most need them.

Avoid pulling or cutting cables of the lighting system; if they are damaged, the lights will stop working.

Installation

If your bicycle does not have a set of lights and you would like to add them, we recommend you talk to your authorized dealer.

If you want to change the light bulbs in your lighting system, check the voltage and power of the original bulbs. If you have any questions, talk to your authorized dealer.

Installing a light bulb

- Find the screw for the cover behind the rear or front light.
- Unscrew it using a Phillips screwdriver.
- Take apart the light bulb so that you can unscrew the bulb itself. Be careful not to break the light bulb when removing it.
- Install the new light bulb in its place and follow the instructions in reverse.

MAINTENANCE SCHEDULE

BEFORE EVERY USE	WEEKLY	MONTHLY	EVERY 3 MONTHS	ANNUALLY
Check that the wheels are trued	Check that the screws in the various suspension systems are tight	Check the rims	Inspect and lubricate brake levers	Lubricate suspension forks
Check tire pressure	Lubricate the suspension fork	Check the adjustment of the bearings	Inspect the cassette and chainrings	Lubricate quick-releases
Check your brakes	Check the spokes	Inspect the adjustment of all accessories	Inspect the crank arms and pedals	Lubricate the seatpost
Check that both wheels are secure	Clean the bicycle	Check the chain tension		Lubricate the valve stem
Check the handlebar and stem	Check the lighting system and reflectors	Check the braking system		Lubricate the pedal threads and bearings
Check the suspension setting	Check the tire for cuts and rips	Check the internal shifter		Lubricate the wheel bearings
Check the lighting system		Inspect and lubricate the cassette and derailleur		Lubricate the fork crown bearings
Check the saddle		Inspect derailleur function		
		Check gear and brake cables		
		Check the chainguard and fender		
		Check the saddle and seatpost		
		Check the handlebar and stem		

We recommend taking your bike to your dealer for annual revision. If you have any questions about how to perform any of these checks, see the manual or talk to your dealer. This maintenance schedule is based on normal use. If you use your bicycle in the rain or snow, or if you ride on paths, more frequent maintenance is required. If any piece is damaged, inspect it and repair it immediately or talk to your dealer.

ORBEA RECOMMENDATIONS

Never forget that taking care of nature is everybody's responsibility. If you consider yourself a nature lover, do not go off paths or trails or ride through prairies or meadows. Always respect all living beings that cross your path, be they people or animals. Always grant them the right of way.
The best show of your good manners and sense of civic responsibility is to ensure that the only evidence of your ride through nature be the wonderful memories you have created.
If we all practice our favorite sport in perfect harmony with others and with nature, we will be able to do so for many, many years to come.

ADDITIONAL QUALITY GUARANTEE

Orbea bicycles comply with the following safety standards:
EN 14766 Mountain bicycles
EN 14781 Road racing bibycles
EN 14761 Utility bicycles

Since 1995, Orbea has been awarded ISO 9001 and IQNET quality assurance certification.

Orbea has satisfied the ISO 14001 Environmental Standard since March 2004.

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