



YOUR RACING TOOL



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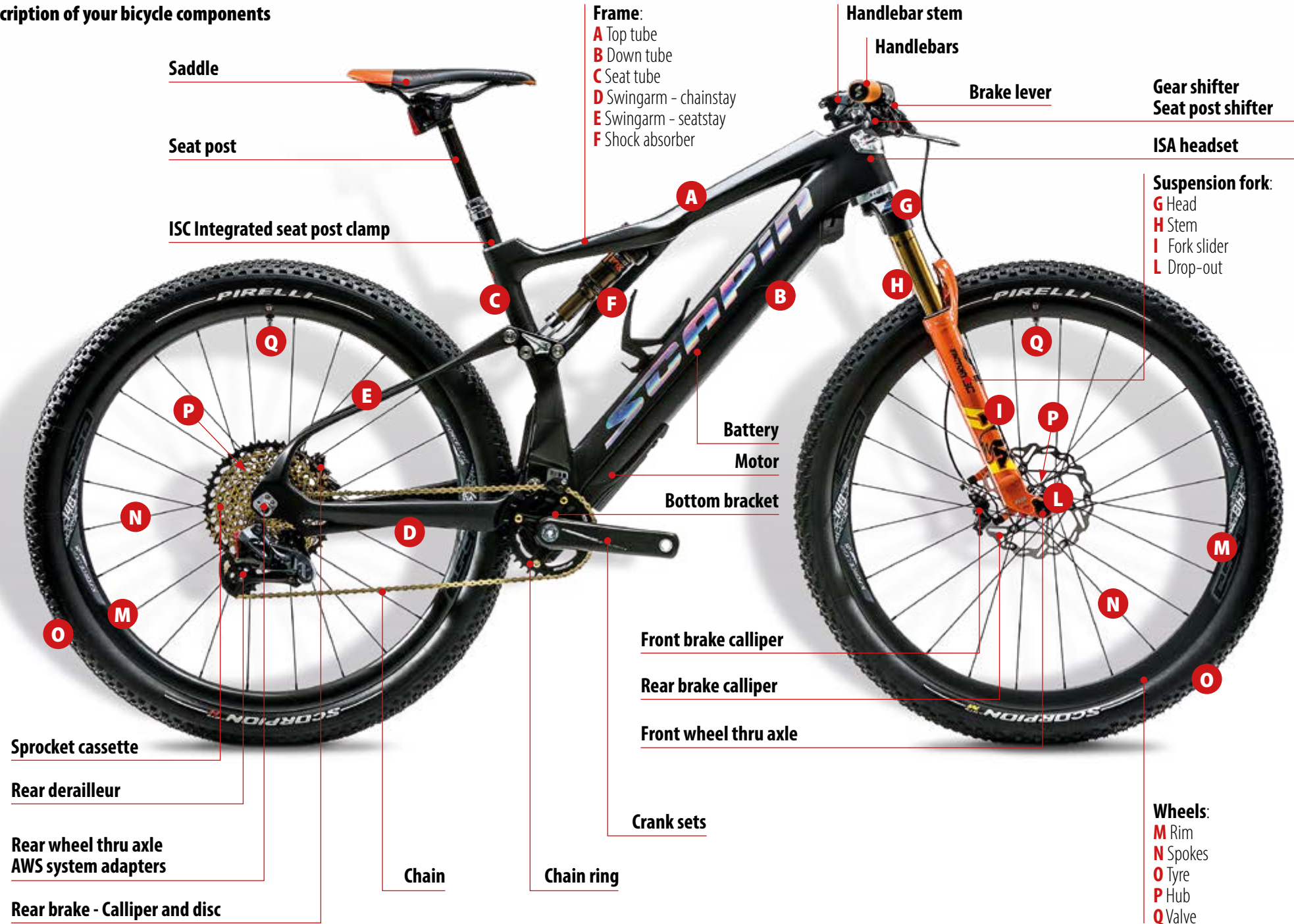


Use
and maintenance
manual >

USER MANUAL SUMMARY

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Description of your bicycle components



INTRODUCTION

Your bike doesn't come from an assembly line.

Each Scapin is lovingly hand-built by craftsmen, one at a time.

While the main characteristics remain the same
we reserve the right to update component details during production.

IMPORTANT

This manual contains important safety, performance and maintenance information for your bicycle. Please read it carefully before using your bicycle and keep it for future reference.

Additional information about the safety, performance and maintenance of specific components such as the suspension or pedals or accessories such as helmets or lamps is also available. Make sure you have received all the information materials provided by the manufacturers along with your bike or accessories. If there are any discrepancies between the instructions in this manual and the information provided by the manufacturer of a specific component, always refer to the latter.

Be responsible for your safety and please contact us if you have any questions or concerns.

NOTE

This manual is not intended to be a complete user, service, repair, and maintenance manual. **For any service, repair or maintenance, please contact Scapin** or a trusted professional, who can also direct you to schools, courses or books on operation, service, repair or maintenance.

You own one of the most beautiful bicycles in the world. The following pages will provide you with the information you need for proper use, repair, maintenance and service of your new bike, so you can get the most satisfaction out of every ride.

It is essential that you read this manual carefully before using your bike: we understand your enthusiasm, but trust us - it will only take a few minutes, after which you can freely express the full potential of your Scapin.

Please pay special attention to the safety information and precautions throughout this manual, as they are designed to help you avoid serious injury and damage.

Should your bicycle experience problems not covered in this manual, please contact us directly: Scapin is at your disposal to help you solve problems, recommend the best equipment and accessories to complete your bike and help you find the best set-up.

Thank you for purchasing a Scapin.
We are proud to be your favourite brand.


GENERAL WARNING


1. As with any other sport, riding a bike involves a risk of injury or damage


By choosing to ride a bike, you accept the responsibility for these risks, so you must be familiar with and adhere to the rules relating to safety and responsible use, as well as comply with the regulations of use and maintenance. Responsible use and proper maintenance of the bike will reduce the risk of possible personal injury and damage.

This manual contains numerous **warnings** and **precautions** regarding the consequences of a failure to carry out maintenance or inspect your bike and its components and a failure to observe safe cycling practices.

In this regard, we have used the following symbols to indicate different situations:

 **ATTENTION** Indicates a potentially hazardous situation which, if not avoided, could result in serious personal injury or death.

 **CAUTION** Indicates a potential hazardous situation which, if not avoided, could result in minor or moderate injury, or indicates a warning against hazardous behaviour.


 **WARNING** Indicates a situation which, if not avoided, could cause serious damage to the bike or invalidate the warranty conditions.

Many warnings and precautions include the expression **loss of control and falling**. Since any fall could potentially cause serious personal injury or even death, we will not always repeat the warning that explicitly indicates **possible personal injury or death**.

Because it is impossible to predict every situation or condition that may occur while riding, this manual is not intended to be a complete summary of safe cycling in all circumstances. **There are risks associated with the use of any type of bike that cannot be predicted or avoided and which are the sole responsibility of the cyclist.**

2. Special note for parents and biking companions

As a parent or companion, you are responsible for the activities and safety of the child, which involves ensuring that the bike is suitable for the child's physical make-up, is in good condition and in safe operating conditions. As a companion, you should read this manual carefully and review the warnings and functions of the bike, as well as the operating procedures together with the child, before allowing him or her to ride the bicycle.

 **ATTENTION** Make sure that your child always wears a protective helmet when using the bicycle, but also make sure that the child understands that the protective helmet should only be worn when using the bicycle and should be removed in all other circumstances. Helmets should not be worn when playing, in play areas, when using equipment in play areas, while climbing trees or in any other circumstances other than cycling. Failure to comply with this warning could result in serious personal injury or death.

GETTING STARTED

NOTE

We recommend that you **read this manual thoroughly** before riding your bike. At the very least, read all the points in this section and make sure you understand them and consult the sections mentioned for any topic that is not completely clear to you. Please note that the features described in this manual are not common to all bicycles.

A. Bike sizing

- 1. Is your bike the right size for you?** Check with an expert. If the bike is too big or too small, you may lose control and fall off.
- 2. Is the saddle adjusted to the right height?** To check, see the corresponding section. To adjust the saddle height, carefully follow the instructions for the “minimum seat post insertion” value.
- 3. Are your saddle and seat post safely secured?** A correctly secured saddle will not allow any saddle movement in any direction.
- 4. Are the handlebar stem and handlebar adjusted to the correct height?** Refer to the explanation pages to make the necessary adjustments.
- 5. Can you operate the brakes easily?** If not, you should be able to adjust the lever angle and distance from the handlebars. See the sections on this topic to make adjustments.
- 6. Do you understand how to use your new bike?** If not, ask a professional before using it.


B. Safety first

- 1. When cycling,** always wear an approved protective helmet and always follow the helmet manufacturer’s instructions on how to wear, use and take care of it.
- 2. Do you have all the necessary and recommended safety equipment?** Please read section 2 carefully for information. It is your responsibility to familiarise yourself with applicable laws and regulations and to observe them.
- 3. Do you know how to secure the wheels correctly?** Consult the instruction pages to be sure. Using the bicycle with incorrectly installed wheels can result in serious personal injury or death.
- 4. Is the bike equipped with quick-release pedals?** Make sure you understand how they work. These types of pedals require technical expertise and specific skills. Follow the manufacturer’s instructions when using, adjusting and maintaining the pedals.
- 5. Is there contact between tip of the shoe and the front wheel under the headset?** This could happen with small bikes. Read the dedicated section to check if you have a contact problem between the shoe and wheel.
- 6. The bike is equipped with suspension.** Suspension can change bike performance. For the use, adjustment and maintenance of the suspension, follow the manufacturer’s instructions in addition to these instructions.

C. Mechanical safety checks

Regularly check the conditions of your bike before each ride.

Nuts, bolts, screws, and other fasteners: to ensure that the bike couplings and fasteners are tightened correctly, refer to the recommended tightening torques table in this manual or the fastener specifications in the manufacturer's instructions. A correctly calibrated torque wrench must be used to properly tighten fasteners. This must be done by a specialised mechanic equipped with the appropriate equipment. If you decide to service your bike yourself, you will need to use a torque wrench and carefully use the torque values provided by Scapin or the component manufacturer. If you have to carry out work at home or on the road, we recommend that you pay special attention and have the work you have done checked by a professional as soon as possible.


 **ATTENTION** It is important to apply the correct tightening torque to the couplings and fasteners on your bike (nuts, bolts, screws). If the tightening torque is insufficient, the fastener may not hold component position effectively. If tightening is excessive, it may cause the fastener to deform, stretch or break or deform the thread. In either case, incorrect clamping force may damage the component, resulting in loss of control of the bike and falling.

Make sure that none of the fasteners are loose: lift the front wheel 5-7.5 cm off the ground, then let it bounce back on the ground. Is there anything that seems, sounds or appears loose? Perform a thorough and complete inspection of the entire bicycle. Are there any loose parts or accessories? If so, tighten them. If you are unsure, ask someone more experienced than you to check.

Tyres and wheels: make sure the tyres are inflated to the correct pressure. Check this by placing one hand on the saddle and the other on the middle of the handlebars, then put your weight the bike while watching the tyres compress. Compare what you observe with what the tyres should look like when inflated correctly. Adjust the pressure if necessary.

Are the tyres in good condition? Turn the wheels slowly and check for cuts in the sides and tread. Replace damaged tyres before riding your bike.

Are the wheels centred? Spin one wheel at a time to make sure it does not wobble sideways. If a wheel wobbles sideways even slightly (if the wheel is buckled, take your bike to a qualified retailer to adjust the centring.

 **CAUTION** The wheels must be centred. Wheel centring is an operation that requires special tools and expertise. Do not try to centre the wheels if you do not have the expertise and tools necessary to perform the operation correctly.


Brakes: make sure that the brakes are working properly. Operate the brake levers. Are all control tubes correctly and securely positioned? Is it possible to brake sharply without the levers coming into contact with the grips at the end of travel? If not, you must adjust the brakes. Do not ride your bike before the brakes have been adjusted by an experienced mechanic.

Wheel fastening system: make sure the front and rear wheels are properly secured.

Seat post: the seat post is equipped with a height adjustment fastener. Make sure it is properly adjusted and in the closed position.

Handlebar and saddle alignment: make sure the saddle and stem are aligned along the bike's longitudinal axis and locked in position to prevent rotation and misalignment.

Handlebar ends: make sure that the grips are properly secured and in good condition. If not, replace them or have them replaced by your mechanic. Make sure that the handlebar end caps are firmly inserted. If not, position them properly before riding your bike. If the handlebars are equipped with bar ends, make sure they are secured so that they cannot rotate. If not, position them properly before riding your bike.

 **ATTENTION** If the grips or bar ends are loose or damaged, this could result in loss of control and falling. Incorrectly inserted grips or bar ends can result in cuts or serious personal injury, even in a minor accident.

Very important safety note

Read and gain full knowledge of the important information about the useful life of your bicycle and its components in **Appendix B**.

D. Your first ride

When you strap on your helmet and get ready to take your first ride to get comfortable with your new bike, make sure you choose a protected environment, away from traffic, other cyclists, obstacles or hazards. Familiarise yourself with the controls, features and performance of your bike.

Get to know the behaviour of the bike when braking. Test the brakes at low speed, shifting weight to the rear and progressively apply the brakes, starting at the rear. Sudden or excessive application of the front brake can cause the bike to overturn, causing the cyclist to be thrown over the handlebars. Applying the brakes too hard or too abruptly can cause the wheels to lock, which can result in loss of control of the bike and falling. Skidding is an example of what can happen when a wheel locks.


If your bike is equipped with quick-release pedals, practice putting your feet in and out of the pedals. Your bike is equipped with suspension: check its behaviour with respect to the action of the brakes and load transfers due to your weight.

Practice varying ratios. Remember to never move the gear shifter while pedalling backwards, nor pedal backwards immediately after activating the gear shifter, as such actions could cause the chain to fall off and cause serious damage to the bike. Check the manageability and response of the bicycle and check its comfort.

If you have any questions or if you think there are any faults, contact an expert before using the bike again.


SAFETY

A. Essential information

 **ATTENTION** The area or route you choose may require the adoption of specific safety devices. It is your responsibility to be familiar with and comply with the laws in the area you are visiting and to equip yourself and your bicycle with parts that comply with legal requirements.

Observe all local laws and regulations regarding bicycle use. Pay close attention to the applicable regulations: bicycle lighting system, any necessary license plates (required in the USA), sidewalk traffic, laws on the use of bicycle lanes and nature trails, laws on safety helmets, special traffic regulations, and laws on the transporting of children. It is your responsibility to know and observe laws.

1. Always wear a protective helmet that complies with the latest regulations and is appropriate for the type of use. Always follow the helmet manufacturer's instructions on how to wear, use and take care of the helmet. The most serious injuries recorded when using bicycles are head injuries, which could be avoided if the cyclist were protected by an appropriate helmet.

 **ATTENTION** Not wearing a helmet when using the bicycle could cause serious personal injury or death.

- 2. Always perform mechanical safety checks** before riding your bike.
- 3. Become familiar with the controls on your bike:** brakes, pedals, gear and telescopic seat post.
- 4. Avoid body contact with other objects** with gear teeth, moving chain, pedals, chainring and wheels in motion.
- 5. Always wear:**
 - Properly sized shoes that have a good grip on the pedals. Make sure that the shoelaces do not get caught in moving parts. Never pedal barefoot or with sandals.
 - Visible, bright colour and comfortable clothing that is not too loose, so it does not get tangled in the bike or in branches on the side of the road or path.
 - Glasses to protect eyes from dirt, dust and insects and equipped with tinted lenses in bright sunlight and clear lenses in other conditions.
- 6. Jumping with a bicycle**, especially if it is a BMX or mountain bike, can be fun, but can subject the bike and its components to high and unpredictable stress. Riders who insist on jumping run the risk of causing serious damage to their bikes and themselves. Before attempting to jump, perform particular stunt riding, or compete with your bike, read and make sure you understand the pages of this manual.

7. In case of a collision or fall, have the bike checked by an expert technician.

8. Ride the bicycle at a speed appropriate to the circumstances. Higher speeds increase risk.

B. Cycling safely

- 1. Respect all rules** of the road and all traffic laws.
- 2. Do not forget that the road must be shared** with other users: motorists, motorcyclists, pedestrians and other cyclists. Respect their rights.
- 3. Pedal carefully.** Remember that you are more at risk of an accident than other road users.
- 4. Look ahead and be ready to avoid:**
 - Vehicles slowing or turning, entering the road or lane ahead of you, or following you;
 - Opening parked car doors;
 - Suddenly appearing pedestrians;
 - Children or animals playing near the road;
 - Potholes, manholes, rails, expansion joints, road or sidewalk construction sites, debris and other obstructions that could cause you to skid in traffic, jam the wheel or cause an accident;
 - Many other dangers and distractions that may occur during your ride.

5. Use designated bike paths, designated bike routes or ride as close as possible to the side of the road, in the direction of traffic flow or in accordance with the provisions of the applicable laws.

6. Stop at stop signs and traffic lights, slow down and look both ways at intersections. Remember that, when a bicycle collides with a motor vehicle, the bicycle will always be worse off, so be ready to give way even if you have the right of way.

7. Use the approved hand signals to indicate your intention to turn and stop.

8. Never ride with headphones on. They disguise traffic noise and emergency vehicle sirens, distract you from your concentration and what is happening around you, and their wires can get caught in the moving parts of your bike, making you lose control.

9. Never carry a passenger unless a small child is wearing an approved protective helmet and is restrained in a child seat mounted on the bicycle or in a child carrier attached to it.

10. Never carry anything that obstructs your view or prevents you from having complete control of the bike, or that could get caught in its moving parts.

11. Never attempt to be pulled along by holding onto another vehicle.

12. Do not do stunts, wheelies or jumps. If you are going to do stunts, wheelies, jumps or want to compete with your bike despite our invitation not to do so, read the section on Downhill, extreme uses and competition. Before you decide to accept the risks that this type of use involves, think carefully and seriously evaluate your skills and abilities.

13. Do not zigzag through traffic and do not make sudden movements that may surprise people on the road with you.

14. Be respectful and give way.

15. Never ride a bicycle when you are under the influence of alcohol or drugs.

16. If possible, avoid cycling when visibility is poor, at dawn, at dusk, at night, or when you are very tired. All of the above conditions increase the risk of accidents.

C. Off-road safety

We recommend that children not ride their bikes on rugged terrain unless accompanied by an adult.

1. The variable conditions and dangers of off-road riding require a great deal of attention and specific skills. To improve your skills, start gradually, choosing easy and accessible terrain. Your bike is equipped with suspension; any increase in speed also increases the risk of losing control and falling. Learn how to ride your bike safely before you increase speed or switch to more rugged routes.

2. Wear safety equipment appropriate for your intended use.

3. Do not tackle isolated areas or inaccessible paths alone. Even when you go out in company, make sure that someone knows the route and estimated time of return.

4. Always carry an ID with you so that people can know who you are in the event of an accident, and carry a cell phone to call for help and have emergency services trace you, your health card with allergies and blood type, and bring cash to buy food, cold drinks or make an emergency call.

5. Give way to pedestrians and animals. Ride your bicycle in such a way that you do not frighten them or put them in danger and leave them enough space to prevent their unexpected movements from putting you in danger.

6. Be prepared. If something goes wrong during an off-road trip, you may not find help in the immediate vicinity.


7. Before attempting to jump, perform stunts, or compete with your bike, read and make sure you understand this manual.

Observing rules during an off-road ride

Observe local laws governing where and how you can off-road and respect private property. You may find yourself on a track with other people: hikers, people on horseback, other cyclists. Respect their rights. Stay on the designated path. Do not contribute to soil erosion by crossing muddy areas or skidding unnecessarily. Do not alter the ecosystem by tracking a new personal path or cutting through vegetation or streams.

It is your responsibility to minimise your impact on the environment. Leave the routes in the condition in which you found them and do not leave waste along the way.

D. Cycling in the rain

 **ATTENTION** Rain reduces traction, braking and visibility, both for the cyclist and other vehicles on the road. The risk of accidents increases significantly in rainy weather conditions.

In wet conditions, your braking system capacity (as well as the brakes of other vehicles on the road) is significantly reduced and also the tyres do not provide optimal grip, making it more difficult to control speed and facilitating loss of control. To make sure you can slow down and stop without danger in wet conditions, travel more slowly and apply the brakes earlier and more gradually than you normally do on dry roads.

E. Riding at night

Night riding is much more dangerous than day riding. It is very difficult for motorists, motorcyclists and pedestrians see cyclists. Therefore, children should never ride their bikes at dawn, at dusk or at night. Anyone who decides to go out cycling at dawn, twilight or at night must pay much more attention both when using their vehicle and when choosing specific equipment that contributes to reducing the risks. Contact a specialised retailer, who will advise you on the equipment needed for safe night-time riding.

⚠ ATTENTION Reflectors are not a replacement for the lights required by law. Riding at dawn, twilight, at night or other hours of poor visibility without proper bicycle lighting and without reflectors is dangerous and could result in serious personal injury or death.

Bicycle reflectors are designed to reflect car and street lights, helping to make you more visible and identifiable as cyclists in motion.

⚠ CAUTION Periodically check your reflectors and their fastening brackets to make sure they are clean, intact and securely mounted. Straighten or tighten bent or loose reflectors. Damaged reflectors should be renewed.

Front and rear reflector fastening brackets are often designed as safety latches to prevent the transverse brake cable from getting caught in the tyre tread if the control cable breaks or slips.

⚠ ATTENTION Do not remove the front or rear reflectors or the reflector brackets from the bike: they are an integral part of the bike's safety system.

Removing the reflectors reduces your visibility to other road users. Being hit by other vehicles can result in serious personal injury or death.

If you choose to ride your bicycle in poor visibility, be sure to comply with the regulations governing night cycling and take the following precautions that we recommend you follow carefully:

- Purchase and install battery-operated or generator-operated front and rear headlights that comply with all regulations and provide adequate visibility.
- Wear colourful clothing and accessories, such as jackets, arm and leg bands, protective helmet stripes with reflective inserts, flashing lights attached to your body and/or bicycle. Any reflective devices or light sources that move will help to draw the attention of motorists, motorcyclists, pedestrians and other approaching traffic vehicles.

- Ensure that your clothing or any other object you carry on your bicycle does not conceal or partially obscure either the reflectors or the headlight beam.
- Ensure that your bicycle is equipped with reflectors that are securely mounted and correctly positioned.

Cycling at dawn, dusk or at night:

- Proceed slowly.
- Avoid areas where lighting is particularly poor and those with fast and heavy traffic.
- Avoid dangers on the road.
- If possible, cycle along known routes.

If riding in traffic:

- Make your movements known in advance; pedal in such a way that vehicles can see you and predict your actions.
- Be cautious. Ride carefully and be prepared for unexpected occurrences.

F. Downhill, extreme use and competition

Regardless of what they are called, Aggro, Hucking, Freeride, North Shore, Downhill Racing, Jumping, Stunt Riding, Racing, or any other name, you risk personal injury if you attempt these types of extreme and aggressive use, so be aware that you voluntarily assume a greater risk that can lead to personal injury, including serious injury and even death.

Not all bicycles are designed for these types of use and those that are may not be suitable for all types of use. Check the suitability of the bicycle before using it in extreme conditions.

When riding a downhill bike, you can reach speeds similar to those of a motorcycle, thus exposing yourself to similar risks and dangers. Have your bike carefully checked by a qualified mechanic and make sure it is in perfect condition. Talk to experienced bikers, qualified local staff and race officials about the conditions and recommended equipment for the track or route you plan to use your bike on. Wear appropriate safety equipment, including a full-face helmet, long-fingered gloves and special protection to protect your body from impact. It is your responsibility to have the appropriate equipment and knowledge of the profile and conditions of the route you will be riding.

⚠ ATTENTION Although there are many catalogues, advertisements and articles on cycling that talk about this extreme type of events, it is actually an extremely dangerous activity, which in addition to increasing the risk of personal injury also increases the severity, up to death. Remember that the activities described are carried out by professionals with many years of training and experience. Learn your limits and always wear an appropriate helmet and safety equipment. When practising dangerous specialities, such as jumping, stunt riding and Downhill both outside and in competition, you could be seriously injured or die, even if you are equipped with the latest safety equipment.

⚠ ATTENTION The strength and integrity of bicycles and their components have limits. This type of use may exceed these limits.

Precisely because of the increased risk, we recommend that you refrain from this type of use; however, if you decide otherwise, at the very least:


- Take a lesson from a competent instructor.
- Start with simple learning exercises and gradually and progressively develop your skills before facing more difficult or dangerous situations.
- Use only the areas designated for acrobatics, jumps, competitions, or equipped downhill courses.
- Wear a full-face helmet, adequate protection and all necessary safety equipment.
- Understand and evaluate with awareness that the stresses to which your bicycle is subjected in this type of activity may cause breakage or damage to certain parts and invalidate the warranty conditions.
- If any component breaks, bends or, more generally, suffers damage, take your bike to your mechanic. Do not use the bicycle if parts of it are damaged. If you practice Downhill, Stunt Riding or if you participate in competitions, be aware of the limits imposed by your skills and experience. Finally, it is your responsibility to avoid personal injury.

SADDLE SET-UP


G. Replacing components or installing accessories

There are many components and accessories available to improve the comfort, performance and appearance of your bike. However, if you replace components or add accessories, you do so at your own risk. This is because, in general, the bike manufacturer may not have tested that particular component or accessory on your bike to determine its compatibility, reliability or safety.


Before installing any components or accessories, including different size tyres, contact a trusted professional and make sure they are compatible with your bike. We encourage you to read, understand and follow the instructions included with the products you purchase for your bicycle.

 **ATTENTION** Problems related to the compatibility of components, their installation, operation and maintenance, can cause serious personal injury or death.

We repeat, it is practically impossible for the manufacturer of your bike to assess the compatibility of every product available on the market.

 **ATTENTION** Replacing original parts with other non-original parts may compromise the safety of your bicycle and invalidate the warranty conditions. Contact a trusted expert before replacing your bicycle components.

NOTE: correct bike set-up is an essential element for the safety, performance and comfort of the bike. Bicycle adjustment operations necessary to achieve the correct set-up for your body and conditions of use require experience, skills and the use of specific tools. Always have an experienced professional perform adjustments on your bike; or, if you are an expert, have the skills and tools to do the job yourself, ask a trusted professional to check your set-up before riding.

 **ATTENTION** If your bike is not set up properly, you may lose control of it and fall off.

Before buying your new bike, consider very carefully whether it is suitable for your body and the type of use you intend to make of it.

A. Standover height

The standover height is the guiding element in choosing bike size. It is defined as the distance between the ground and the top tube of the bike frame at the point where your crotch area is straddling the bike. The standover height does not apply to bikes with low frame top tube. In this case, the correct size definition is determined by the height adjustment range allowed for the saddle. You must be able to adjust the saddle position as described below, without exceeding the limits set by the vertical tube and the minimum or maximum insertion reference allowed by your bike frame.

B. Saddle position


Correct adjustment of the saddle is an important factor in optimising the performance and comfort of your bike. If the position of the saddle is not comfortable, adjust its position or contact a professional. You can adjust the saddle according to three parameters:

1. Vertical adjustment. To verify that the saddle height is correct:

- Sit on the saddle.
- Position your heel on the pedal.
- Rotate the crank set until the pedal and heel reach the lowest position and the crank set arm is aligned with the seat tube.


If the leg does not extend fully, the saddle height must be adjusted. If the hips have to swing for the heel to rest on the pedal, the saddle is too high. If your leg is bent at the knee with the heel resting on the pedal, the saddle is too low.

Once you have adjusted the saddle height, make sure the seat post does not extend from the frame beyond the minimum or maximum insertion reference.

 **ATTENTION** If the seat post is not inserted into the vertical tube as indicated above, the seat post may break and cause you to lose control and fall.

2. Horizontal adjustment. To obtain an optimal position on your bike, you can adjust the saddle horizontally with respect to the seat post. Ask a trusted professional to adjust the saddle to achieve the optimal position on your bike and have them show you how to do it yourself. If you decide to do this yourself, make sure that the seat post clamp is tightened along the straight part of the seat post, avoiding the curved part of the rail, and make sure you apply the recommended tightening torque to the clamp.


3. Setting saddle inclination. Most people prefer a perfectly horizontal saddle; however, some prefer to have the tip slightly tilted up or down. Your professional can adjust the angle or teach you how to do it. If you decide to adjust the angle of the saddle yourself, it is very important that you loosen this bolt just enough to allow any mechanism to be released before adjusting the angle. Then reset the mechanism and tighten the bolt to the recommended torque.

 **ATTENTION** always make sure that the clamp surfaces are not worn when checking the inclination of the saddle. If the clamp surfaces are worn, they could compromise the stability of the saddle resulting in loss of control of the bike and falling.


Always tighten the seat post clamp to the correct torque. If the bolts are too tight, they may stretch and/or warp. If the bolts are too loose, they may move and suffer mechanical fatigue. Both cases could result in sudden breakage of the bolt, causing you to lose control and risk falling.

Note: your bicycle is equipped with a telescopic seat post. This mechanism may require periodic service or maintenance. Contact the manufacturer for recommended intervals for performing the above checks.

Small variations in saddle position can significantly affect both performance and comfort. Make only one adjustment at a time to find the optimal saddle position.


 **ATTENTION** After each saddle adjustment, make sure that the adjustment mechanism is correctly positioned and tightened before using the bicycle. If the saddle clamp or seat post clamp is loose, it may cause damage to the seat post or result in loss of control of the bicycle and falling. A properly secured saddle adjustment mechanism will not allow any saddle movement. Periodically check and make sure the saddle adjustment mechanism is tightened.


You may need to replace the saddle model if you are unable to achieve satisfactory comfort despite careful adjustment in height, inclination, and longitudinal adjustment of the saddle. The current offer of saddles includes models that differ in shape, size and comfort. An experienced professional will help you choose a saddle that will offer the desired comfort once correctly adjusted to your physical make-up and pedalling style.


 **ATTENTION** In the opinion of some people, pedalling for a long time with a saddle that is poorly adjusted or that does not support the pelvic area properly can cause perineum area nervous and vascular system disorders or even lead to impotence in the short or long term. If your saddle causes you pain, numbness or other discomfort, pay attention to these symptoms and stop cycling and do not continue to ride until you have talked to your professional to have your saddle adjusted or choose a different one.


C. Handlebar height and inclination

You can adjust the handlebar height by moving the spacers from below the handlebar stem to above, or vice-versa. Otherwise, you will need to get a different length or inclination handlebar stem. Contact a professional when choosing a stem. Don't try to do it yourself, as the operation requires specific skills.

 **ATTENTION** On some bicycles, replacing the handlebar stem or changing its height may compromise the extension of the brake lines, tensioning or loosening them in such a way as to prevent them from working properly or causing them to deteriorate. Always check that the brake lines are not too tight by turning the headset to the end of travel on both sides.

 **ATTENTION** Always tighten the fastening devices to the correct torque. If the bolts are too tight, they may stretch and/or warp. If the bolts are too loose, they may move and suffer mechanical fatigue. Both cases could result in sudden breakage of the bolt, causing you to lose control and risk falling.

 **ATTENTION** A handlebar stem, handlebar collar and extension bolt tightened to an incorrect tightening torque can compromise the headset action, causing you to lose control, resulting in a fall. Place the front wheel of the bike between your legs and attempt to rotate the headset/handlebar stem assembly. If you can rotate the handlebar stem relative to the front wheel, or the handlebars relative to the stem, or the extensions relative to the handlebars, it means that the bolts are not sufficiently tightened.

 **ATTENTION** The use of handlebar extensions reduces control of the bike and the ability to make turns. Remember also that, in case of need, you will have to put your hands back on the brake levers, resulting in a longer braking reaction time.


TECHNIQUE


D. Adjusting the position of the controls

The inclination and position of the gear shifter levers and brakes can be changed. To do so, we recommend that you contact a trusted professional. If you decide to adjust the position of the levers yourself, be sure to re-tighten the retaining collars to the recommended torque.

E. Adjusting brake distance

Your bike is equipped with adjustable brake levers to be positioned at a more accessible distance for the cyclist ("reach"). You can adjust the distance if you have small hands or have difficulty operating the brake levers.


 **ATTENTION** The shorter the brake lever travel, the more attention must be paid when adjusting the brakes so that maximum braking force can be achieved within the lever travel. If the brake lever travel is not sufficient to apply maximum braking force, you may lose control of your bike, resulting in serious personal injury or death.

 **ATTENTION** Moving the position of the brake levers may compromise the extension of the brake lines, tensioning or loosening them in such a way as to prevent them from working properly or causing them to deteriorate. Always check that the brake lines are not too tight by turning the headset to the end of travel on both sides.

It is very important for your safety, performance and fun to understand how things work on your bike. We urge you to seek clarification from experienced professionals on how to conduct the operations described in this section before attempting to do so yourself and, once you have done so, submit them to a trusted professional before using your bike. If you have the slightest doubt about the correct understanding of something written in this section of the manual, ask an experienced mechanic.

A. Wheels

The wheels of a bicycle are designed to be removable for easy transport and to repair any punctures on the tyre. Your bicycle uses what is called a thru axle wheel mounting system. Read the mounting instructions carefully to understand how the locking system works.

 **ATTENTION** Using a bicycle with wheels that are not properly secured may cause the wheels to wobble or fall off the frame, which could result in serious personal injury or death. Therefore, it is essential:

1. Read the wheel mounting description section carefully or ask an experienced cyclist to help you understand how to install and remove your wheels safely.
2. Understand and apply the correct technique to lock your wheels in place.


3. Check that the wheels are securely locked each time before you ride your bike.

Correct locking of the wheel means that it is gripped by the knurling of the locking stop on the surface of the drop-outs.

1. Secondary safety retention system on the front fork

Most bicycles have a fork with a secondary safety system to reduce the risk of a wheel accidentally coming out when locked in its incorrect position. The secondary retention system does not replace the correct fixing of the front wheel.

Your bicycle's secondary fork retention system is integrated, then moulded, cast, or machined into the outer surfaces of the front fork drop-outs.

 **ATTENTION** Do not remove or disable the secondary retention system. As its name implies, it is for emergency support in the event of a poor wheel fastening. If the wheel is not locked properly, the secondary retention system may reduce the risk of the wheel coming out of the fork. Removal or disabling the secondary retention device will void the warranty. The secondary retention device should not be considered a replacement for correct wheel locking. Incorrect wheel locking can cause the wheel to swing or slip, which could result in loss of vehicle control and falling, resulting in serious personal injury or death.

2. Wheels with cam-operated locks

There are currently several types of locking mechanisms operated by a cam: the conventional eccentric cam and a system with cam and ring nut. Both are based on the action of the eccentric cam to secure the bicycle wheels in position. Your bicycle can be equipped with a cam and ring nut retention system on the front wheel and a conventional cam system on the rear wheel.

a. Adjustment of the conventional cam-operated mechanism:


The wheel hub is fixed in position by the force exerted by the eccentric cam which, in closed position, pushes against the side of one drop-out, pulling the tension adjustment nut against the other drop-out by means of the through pin. The amount of force required to close is controlled by the tension adjustment nut. Turn the tension adjustment nut clockwise while holding the locking lever in place to prevent rotation, increasing the clamping force applied. Turn this nut counter-clockwise while holding the locking lever in place to prevent rotation, reducing the clamping force. Less than half a full turn of the clamping force adjustment bolt can make the difference between a safe closing force and an unsafe closing force.

• All the force that the cam action is capable of must be applied to fasten the wheel securely. If you hold the adjustment nut with one hand and rotate the lever, like a wing nut, with the other hand until it is completely tight, you will not be able to operate the cam mechanism to secure the wheel in the drop-outs.

b. Adjusting the cam mechanism and ring nut:

The cam and ring nut system on your front wheel will have already been properly adjusted. Always check or have the adjustment checked. Do not use the wheel with cam lock and ring nut on any bicycle other than the one you have adjusted.


3. Removing and installed wheels

 **CAUTION** Your bike has disc brakes. Use extreme caution when touching the disc and calliper. The disc has sharp edges and both disc and calliper can reach very high temperatures during use.

a. Removing a front wheel with disc brake:

- If your bike has a cam-type front wheel retention system, move the cam lever from the locked or CLOSED position to the OPEN position. If your bike's front wheel has a through-bolt or bolted axle system, loosen the lock/s a few turns counter-clockwise using an open-ended wrench, Allen key, or integrated lever.
- If your front fork has a secondary clip-on retention device, unhook it. If your front fork has an integrated secondary retention device and a conventional cam-type locking system, loosen the clamping tension by adjusting the nut just enough to allow removal of the wheel from the respective drop-outs. If your front fork uses a cam and ring nut type locking system, bring the ring nut and cam lever closer together while removing the wheel. No part rotation is required in the case of a cam and ring nut system.
- When removing the wheel from the front fork, it may be necessary to tap the top of the wheel with the palm of your hand.

b. Installing a front wheel with disc brake:

 **CAUTION** If your bike is equipped with a front disc brake, be careful not to damage the disc, calliper or brake pads when you reinsert the disc inside the calliper. Never pull the brake control lever until the disc is properly inserted into the calliper.

• If your bicycle has a wheel equipped with a cam-operated retention system, move the cam lever outward from the wheel. This is the OPEN position. If your bike has a through-bolt or bolted axle system, go to the next step.

• Keeping the fork straight, insert the wheel between the fork stays until the axle is firmly engaged inside the drop-outs. If present, the cam lever should be on the left side of the bike with respect to the rider on the saddle. If your bike has a secondary clip-on retention system, insert it.

• If you have a conventional cam mechanism: hold the cam lever in the middle position with your right hand, adjust the closing tension by adjusting the nut with your left hand until it clicks firmly against the drop-out. If you have a cam and ring nut system: the nut and ring nut must engage in the fork tip housing, and no further adjustment is required.

• Hold the wheel firmly in the upper stop of the drop-out housing and, at the same time, centre the wheel rim inside the fork:

(a) With a cam-operated system, move the lever toward the top and turn it to the CLOSED position. The lever should now be parallel to the fork stay and face the wheel. To apply proper closing force, you will need to grasp the fork stay with your fingers to grip a lever point and push the locking lever with the palm of your hand. The locking lever should leave an impression on the palm of your hand.

(b) With a through-bolt or bolted axle system, tighten the fasteners to the specified torque or according to the component manufacturer's instructions.

Note: using a conventional cam-operated system, if you are unable to bring the locking lever into a position parallel to the fork stay while applying all the force you have, return the lever to the OPEN position. Then turn the tension nut counter-clockwise for a quarter turn and then try tightening the lever again.

⚠ CAUTION Fastening the wheel securely with a cam-operated system requires considerable force. If you can fully close the cam lever without using your finger grip on the fork stay to get more leverage, the locking lever will not leave an impression on the palm of your hand, and the wheel lock tightening will be insufficient. Open the lever. Turn the tension adjustment nut clockwise a quarter turn, then try again.

- Rotate the wheel to make sure it is centred in the frame, then operate the brake lever and make sure the brake pads work properly when braking.

a. Removing a rear wheel with disc brake:

- Move the rear derailleur chain to the smallest sprocket in the cassette.
- Pull the gear body toward the rear with your right hand.
- Using a cam-operated locking mechanism, move the wheel quick-lock lever to the OPEN position. With a through-bolt or bolted axle mechanism, loosen the fasteners with an appropriate tool, lock the lever or integrated lever, then push the wheel toward the front just enough to remove the chain from the rear cassette sprocket.
- Lift the rear wheel a few inches off the ground and remove it from the rear drop-outs.

d. Installing a rear wheel with disc brake:

⚠ CAUTION Take care not to damage the disc, calliper or brake pads when you reinsert the disc inside the calliper. Never pull the brake control lever until the disc is properly inserted into the calliper.

- With a cam-operated system, move the cam lever to the OPEN position. The lever should be on the side of the wheel opposite the gear and sprocket cassette.
- Make sure the rear derailleur is always in the outermost position, that of the longest derailleur (smallest gear), then pull the derailleur body back with your right hand. Position the chain above the smallest sprocket in the rear cassette.

- Insert the wheel into the drop-outs on the frame, then pull the wheel towards the rear so that the axle of the hub correctly hits the drop-outs.
- With a cam-operated system, move the cam lever up and turn it to the CLOSED position. The lever should now be parallel to the down stays or rear horizontal stays, bent toward the wheel. To apply sufficient force, you will need to grasp the carriage stay with your fingers to grip a lever point and push the locking lever with the palm of your hand. The lever should leave an impression on the palm of your hand.
- With a through-bolt or bolted axle system, tighten the fasteners to the specified torque or according to the manufacturer's instructions.

Note: using a conventional cam-operated system, if you are unable to bring the locking lever into a CLOSED position while applying all the force you have, return the lever to the OPEN position. Then turn the tension nut counter-clockwise for a quarter turn and then try tightening the lever again.

⚠ ATTENTION Fastening the wheel securely with a cam-operated system requires considerable force. If you can fully close the cam lever without using your finger grip on the down stays or horizontal stays on the rear carriage to get more leverage, the locking lever will not leave an impression on the palm of your hand, and the wheel lock tightening will be insufficient. Open the lever. Turn the tension adjustment nut clockwise a quarter turn, then try again.

- Rotate the wheel to make sure it is centred in the frame and turns freely, then operate the brake lever and make sure the brake pads work properly when braking.

B. Brakes

Your bike is equipped with disc brakes (which work by clamping a disc mounted on the wheel hub that rotates inside a calliper equipped with brake pads) and are operated by levers mounted on the handlebars.

⚠ ATTENTION

1. Pedalling with improperly adjusted brakes or worn brake pads could cause serious personal injury or death.

2. Applying the brakes too hard or too abruptly can cause the wheels to lock, which can result in loss of control of the bike and falling. Sudden or excessive application of the front brake can cause the cyclist to be thrown over the handlebars, a situation that can lead to serious personal injury or death.

3. Disc brakes are extremely powerful. Use caution when becoming familiar with these brakes and be especially careful when using them.

4. Disc brakes can reach very high temperatures during use. Be careful not to touch brake discs until they have had time to cool down.

6. Take careful note of the manufacturer's instructions for servicing your brakes and for determining when brake pads need to be replaced. If you do not have the manufacturer's instructions, ask an expert or contact the brake manufacturer.

7. Use only original spare parts approved by the manufacturer when replacing worn or damaged brake system parts.

1. Brake commands and their features

It is very important for your safety that you learn and immediately remember which brake lever controls which brake body on your bike.

Traditionally, in countries that drive on the right, the right brake lever controls the rear brake and the left brake lever controls the front brake. If you live in a country that drives on the left then the conventional position of the levers is usually reversed. If your Scapin is not supplied with the correct orientation of lever positions for your location, consult a specialist cycle expert to swap the brake hose connections in order to conform to local legislation.

But, to make sure that your bike corresponds to this set-up, try to operate one brake lever at a time and observe which brake it corresponds to, front or rear. Do the same with the other lever.

Make sure that your hands can easily reach and pull the brake lever in completely comfortably. If your hands are too small to operate the levers comfortably, contact an expert before riding your bike. The distance between the lever and the handlebars should be adjustable, or you may need a different design brake lever. Check that the brakes are working properly each time before riding your bike.

2. How the brakes work

The braking action of a bicycle is a direct function of the friction developed between the braking surfaces. Keep your brake discs and brake pads thoroughly clean and dust-free for maximum braking performance.

Brakes are designed to control your speed, not just to stop the bike. The maximum braking effect for each wheel is achieved at the point just before it locks, beyond which skidding begins. Once the tyre starts to slip, most of the braking effect and direction control is lost. You will then have to practice slowing down and stopping progressively without incurring wheel lock. This technique is called progressive braking modulation. Instead of acting quickly and abruptly on the brake lever, pull the lever progressively, gradually increasing the braking force. If you feel the wheel beginning to lock, loosen your grip on the brake on the lever just a little to keep the wheel in rotation, preventing it from locking. It is important to develop some sensitivity in exerting grip to the lever needed for each wheel, at different speeds and for different ground surfaces. To better understand this behaviour, experience it by pedalling your bike at low speed and applying different levels of grip to each of the two brake levers until the wheel locks.

When you apply one or both brakes, the bike begins to slow down, but your body continues to move at its initial speed by inertia. This effect produces a transfer of the load to the front wheel or, under the action of vigorous braking, around the axle of the front wheel hub, which could cause you to spin over the handlebars.

A wheel loaded down with an increased weight will accept more braking

force before it locks. A wheel lightened by the weight on top of it will tend to lock even under the effect of a lower braking force. Therefore, when you apply the brakes, your body weight will transfer to the front of the bike and you will need to move your centre of gravity to the rear of the bike. In this way, part of the load will be brought back to the rear wheel; at the same time, you will need to decrease the braking force applied at the rear and increase the one applied at the front. What is described here is even more important when going downhill, since, due to the slope, your weight tends to be shifted to the front.

The two key elements for effective speed control and safe stopping are wheel lock control and weight distribution on the bike. The importance of the effect of the transfer of weight is even more important on a bike, equipped with front suspension. Under the braking action, the front suspension tends to compress, thus increasing the transfer of weight to the front. Practice your braking and weight transfer technique in the absence of traffic and danger, away from situations that can keep you from focusing.

Everything changes when you ride your bike on soft surfaces or in wet conditions. Stopping distances become larger on loose surfaces or in wet conditions. The grip of the tyres is reduced and this leads to a decrease in tread traction both when turning and when braking, and the wheel can come to a standstill even if little braking force is applied. Moisture or dust on the brake pads tend to reduce their coefficient of friction on the disc. The only way to maintain control on soft or wet surfaces is to reduce speed.

C. Changing gear ratios

Your bike has variable speed gear ratios that act through a gear and chain transmission.

1. How a gear transmission works

Your bike has a transmission system with a gear; the variation of the ratio will be managed by:

- A rear cassette with cogset and freewheel
- Rear derailleur
- Gear shifter
- Transmission chain

a. Varying gear ratios

Reducing the gear ratio means shifting to a lower (or slower) gear, making it easier to pedal. Increasing the gear ratio means shifting to a higher (or faster) gear, making it harder to pedal. For example, you can select a gear ratio that will make it easier for you to pedal uphill (and therefore reducing the gear ratio), bringing the chain to the largest gear in the rear cassette, the one with the most teeth. The best way to simplify things is to remember that moving the chain inwards with respect to the bike lets you accelerate and pedal uphill more easily, thus shortening the gear ratio. Moving the chain outwards with respect to the bike frame instead allows you to gain more speed, therefore a lengthening the gear ratio.

Transmissions equipped with a gear always require that the top run of the transmission chain moves towards the front and be subjected to at least minimum tension. The gear will only perform its function correctly when pedalling forward.

CAUTION Never attempt to vary the gear ratios engaged while pedalling backwards, nor pedal backwards immediately after operating the gear shifter. This could cause the chain to get stuck and cause serious damage to the bike.


b. Operating the rear derailleur

The rear derailleur is controlled by the shifter on the right side of the handlebars.

The function of the rear derailleur is to move the transmission chain from one sprocket to another. The sprockets with the smallest diameter in the cogset are those that develop the highest transmission ratios. Pedalling at the highest gear ratios requires more physical effort, but allows you to move a greater distance with each full turn of the crank set. The sprockets with the largest diameter in the cogset are those that develop the lowest transmission ratios. Using them requires less physical effort, but lets you move a shorter distance for each full turn of the crank set. Moving the chain from the smallest gear in the cogset to the largest shortens the gear ratio. Instead, moving the chain from the largest of the pinions in the cogset to the smallest elongates the gear ratio. The bicycle user must pedal forward to allow the rear derailleur to move the chain from one sprocket to another.

c. Which gear ratio should be used?

The position of the chain on the largest rear sprocket is suitable for riding on the most demanding climbs. The position of the chain on the smallest rear sprocket is suitable for biking at high speeds. Shifting is carried out sequentially. It will be advisable to identify the basic gear ratio that is optimal for your level of preparation, i.e. a gear ratio that is challenging enough to allow you to develop a good speed but agile enough to use even in the relaunch phase, and experiment with the variation of the ratio, lengthening and shortening it, to acquire a certain sensitivity to the different positions. To get started, practice shifting in a place without obstacles, dangers or vehicular traffic, until you develop practical experience and the movements become more automatic. Learn to anticipate shifting and act on the shortest gear ratio before climbing becomes too demanding. If you are having difficulty shifting, the problem may lie in the mechanical adjustment of the system. Contact a specialist for help.


 **ATTENTION** Never change on larger or smaller gears if the gear does not do its job smoothly and precisely. The gear could be poorly adjusted and the chain could get stuck, leading to loss of control and falling.

d. What to do if you cannot change the gear ratio?

If, while repeatedly acting on the gear shifter, you are not able to get the chain to pass to another gear, it is possible that the system is out of adjustment. Rely on a trusted professional to restore proper adjustment.

D. Seat post


Your bike is equipped with an integrated seat post collar; refer to the assembly instructions to adjust the seat height or disassemble and reassemble the seat post collar.

 **ATTENTION** Riding a bicycle with an improperly secured seat post allows the saddle to move or rotate, risking loss of control and falling. Therefore:

1. Read the assembly instructions carefully or ask an expert to help you understand how to tighten your seat post tube correctly.
2. Understand and apply the correct technique to position and lock your seat post in place.
3. Before riding your bike, check that the seat post is correctly positioned and locked.

E. Pedals

1. It may occur that there is contact between the tip of the shoe and the front wheel when you are in steering conditions, while the pedal is in the most forward position (toe overlap). This situation occurs more frequently in the case of small bikes. It can be avoided by making tight turns with the inner crank set up and the outer crank set down. With any type of bike, this technique will prevent the inner pedal from rubbing against the ground during turns.


 **ATTENTION** Contact of the shoe tip with the front wheel under the headset may result in loss of control and falling. Be sure to determine if the combination of frame size, crank set arm length, pedal design and the shoes you are using can cause this problem. Reducing the length of the crank set arm or replacing the tyre with one with a smaller section may contain the problem of contact between the shoe tip and front wheel under the headset. Regardless of the occurrence of the problem, it is very good practice to keep the inner pedal at the top in a corner and the outer pedal at the bottom, especially on tight corners.

2. Some bicycles are equipped with pedals with potentially dangerous sharp surfaces. These surfaces are designed to increase the grip between the sole of the shoe and the pedal. If your bicycle is equipped with these types of pedals, you will need to use extra caution to avoid serious personal

injury that such surfaces could cause. Depending on your pedalling style or skill level, a less aggressive pedal design or shin guards may be preferable. An expert can recommend a number of options and provide you with useful recommendations.

3. Quick release pedals (also called automatic or clipless pedals), are useful for positioning the foot correctly and achieving the maximum pedalling efficiency. These pedals are equipped with a plate (called cleat), placed on the sole of the shoe that hooks onto a spring loaded connection on the pedal body. They engage and disengage exclusively through specific foot movement, which you must retry several times until it becomes acquired automatic movement. You need shoes and cleats compatible with the brand and model of pedal used for quick release pedals.


Many quick release pedals are designed to allow cyclists to adjust the energy needed to engage or disengage the foot from the pedal. Follow the pedal manufacturer's instructions or ask an expert to show you how to do this. Use the most comfortable release setting until engaging and disengaging the pedal becomes a reflex action, but make sure there is always enough tension to prevent accidental disengagement.

 **ATTENTION** Quick release pedals should be used with shoes specially designed to keep the foot firmly attached to the pedal. Do not use shoes that do not allow the cleat to engage properly on the pedal.


You will need to practice to learn how to engage and disengage the foot safely with a quick release pedal system. Until it becomes an unconditional reflex, this operation will require concentration and may distract you and cause you to lose control of your bike, resulting in falling. Practice engaging and disengaging the quick release pedals in places free of obstacles, hazards or vehicular traffic and be sure to follow the pedal manufacturer's assembly and service instructions. If you do not have the instructions, contact an expert or the manufacturer directly.

F. Suspension


Your bike is equipped with suspension. There are many types of suspension on the market, so that it is practically impossible to discuss them all individually in this manual. Please read and follow the service installation instructions provided by the manufacturer. If you do not have the instructions, contact your local expert or the manufacturer directly.

 **ATTENTION** Failure to perform correct maintenance and proper checks of the suspension could cause the suspension to malfunction, leading to loss of control and falling.

Since your bicycle is equipped with suspension, the possible increase in speed also increases the risk of personal injury. For example, when braking, the front suspension tends to compress and, if you are unfamiliar with this behaviour, you may lose control and fall. Learn how to safely make the most of your suspension.

 **ATTENTION** Changing the setting and calibration of the suspension can lead to changes in the handling and braking of your bike. Do not change the suspension setting unless you are fully familiar with the suspension manufacturer's instructions and recommendations, and always check for changes in the handling and braking characteristics of your bike after you have adjusted the suspension.

The suspension is able to increase bike control and comfort, as it allows the wheels to better follow the profile of the ground. This increased capacity could allow you to ride faster; however, it is important not to confuse the increased technical potential of a bike with your cycling ability. You need time and practice to increase your ability. Proceed with caution until you have learned to fully manage the complete potential of your bike.


 **ATTENTION** Not all bikes can be compatible with all suspension types. Before upgrading your bike with a new suspension (fork or rear shock absorber), check that the operation you intend to perform is compatible. Failure to do so could result in sudden structural failure.

G. Tyres and inner tubes


1. Tyres

Bicycle tyres are available on the market with different designs, profiles, dimensions and technical characteristics. There are models suitable for general use up to models designed to give their best in specific weather or terrain conditions. If, once you have gained some experience with your new bike, you realize that a different tyre might be better suited to your cycling needs, a trusted professional can help you select the most appropriate model.

The dimensions (diameter and section), inflation pressure values and, on some high performance tyres, the specific recommended use, are the information that can be found on the sidewall of the tyre. However, the most important part of this information for you is the operating pressure.

 **ATTENTION** Never inflate tyres beyond the specified limit. Exceeding the recommended maximum pressure value could cause the tyre to come off the rim, which could cause damage to the bicycle and injury to the user and third parties.

The best and safest way to adjust the correct inflation pressure of a tyre is to use a bicycle pump equipped with a pressure gauge.

 **ATTENTION** There is a safety risk when using compressed air from a service station or air compressors. These systems are not designed for bicycle tyres, as they move a large volume of air in a short time, increasing the pressure in your tyres suddenly, which could lead to tyre loosening or inner tube bursting.

The pressure data can be provided both as a maximum recommended pressure value and as a range of usable pressures. Tyre performance on different terrain or in different weather conditions depends largely on the pressure at which the tyre is inflated. Using a tyre close to the maximum recommended operating pressure allows for minimum rolling resistance, but also low riding comfort. An operating pressure that tends to be high will therefore be better suited on dry, smooth terrain.

Very low pressure, close to the minimum pressure indicated in the range of those recommended, lets you give your best on particularly uneven ground, increasing traction, on compact clay and on loose ground, such as those covered by a deep layer of dry sand. Tyre pressure that is too low for your weight and for ground and path conditions can cause the inner tube to puncture due to the high deformation of the tyre, which can lead to the inner tube being pinched by the rim shoulders.

CAUTION Pen-type, automotive use pressure gauges do not allow accurate pressure measurement and should not be used as a reference for reliable and accurate measurements. Use a good quality pressure gauge instead.

Ask a trusted professional to recommend the ideal tyre pressure for your usual bicycle use and to inflate them to the recommended pressure. Then check the pressure to verify the appearance and consistency of correctly inflated tyres so that you can evaluate the pressure on other occasions even if you do not have a pressure gauge. Some tyres need to be pressurised every week or two, so it is important **to check the tyre pressure before each ride**.

Some types of tyres have a one-way tread pattern: their tread pattern is designed to work better in one direction rather than the other. There will be an arrow on the sidewall of a unidirectional tyre to show the correct direction of rotation. If your bike has a unidirectional tread, make sure that its mounting direction corresponds to the correct direction of use.

2. Valves

There are basically two types of inner tube valves for cycling use: the Schrader valve and the Presta valve. The bicycle pump you use must have the appropriate connection for the type of valve used on your bicycle.


The Schrader valve is similar to the one on car tyres. To inflate a tube with a Schrader valve, remove the cap and attach the pump head to the end of the valve shaft. To vent air from a Schrader valve, press the end of the centre pin of the valve shaft with the tip of a wrench or other appropriate object.

The Presta valve has a smaller diameter shaft and can only be found on bicycle tyres. To inflate an inner tube equipped with a Presta valve, use a pump with a Presta pump head, remove the valve cap, unscrew (counter-clockwise) the shaft locking nut and press on the valve to release the locking mechanism. Then push the pump head fitting onto the valve and inflate. To inflate a Presta valve with a pump with a Schrader fitting, you will need a Presta adapter (available at any bicycle store) that will engage the external thread of the valve. The adapter will then connect to the Schrader pump head. Close the valve after inflation. To vent air from a Presta valve, unscrew the closing nut on the centre rod and press down on it.


ATTENTION We recommend that you always carry a spare inner tube (two in the case of different wheels) with you when cycling. Repairing the inner tube should be considered an emergency intervention. If this repair is not carried out correctly, the inner tube may not be air-tight, leading to the tyre deflation, which could cause loss of control and a fall. Replace the inner tube as soon as possible.



SERVICE

 **ATTENTION** Technological advancement has made bicycles and components increasingly complex and the pace of their innovation has accelerated. It is therefore virtually impossible to guarantee all the information necessary to repair and/or maintain your bike in this manual.

To reduce the possibility of an accident and/or possible personal injury as much as possible, it is essential that repairs and maintenance not specifically covered in this manual be performed by a specialist. It is also important that your specific maintenance needs be determined according to your riding style and conditions of use. Consult an expert about this.

 **ATTENTION** Some maintenance and repair work requires specific expertise and appropriate equipment. Do not begin any adjustments or maintenance on your bicycle until you have learned how to perform them properly from an expert. Inappropriate adjustments and/or maintenance may cause damage to the bicycle and/or lead to accidents that may cause personal injury or death to the user.

If you want to learn how to perform major maintenance and repair work on your bike:

1. **Refer to the manufacturers' websites** to download installation and maintenance instructions for components mounted on your bicycle or contact the manufacturer of these components.
2. **Ask a trusted professional** to suggest a good book on bicycle repair.
3. **Ask a trusted professional** about bicycle maintenance courses organised in your area.

We recommend that you ask a trusted professional to check the quality of your work the first time you service your bicycle to make sure you have done the work properly.

We also recommend that you ask a trusted professional for advice on which replacement parts, such as inner tubes, lamps, etc., are best suited for you, once you learn how to replace such parts when necessary.

A. Maintenance intervals

Some service and maintenance work can and should be performed by the owner, and does not require any special tools or expertise beyond that presented in this manual. Below are some examples. All other service, maintenance and repair should be performed in a specialised workshop

by a qualified mechanic who has the appropriate equipment and is familiar with the manufacturer's procedures.

1. Bedding-in period: Your bike will last longer and work better if you run it in for a bedding-in period before using it intensively. Wheel controls and spokes may require adjustments after you have ridden a few kilometres on the saddle. The section **Mechanical Safety Checks** will help you identify some components that need adjustment. But even if everything appears to be in order, it is still better to carry out a periodic general check. If you think something is wrong with your bike, have it checked by a qualified specialist before using it again.

2. Before every ride: Mechanical safety check, refer to the Mechanical safety checks **section on page 7** ▶


3. After every long or challenging ride: If the bike has been exposed to water or slush; at least every 15 hours of use: **clean the bike and lightly lubricate the chain rollers using good quality chain lubricant. Dry the excess lubricant with a lint-free cloth. The right lubrication depends on the climate. Ask an expert what the most suitable lubricant is and how often lubrication is suggested.**

Always avoid contaminating brake discs and brake pads with lubricant!

4. After each long ride, conducted at an intense pace or at intervals of use between 10 and 20 hours overall:

- Pull the front brake lever and rock the bike back and forth. Does everything seem all right? If you feel bumps every time you rock the bike back and forth, the bike's headset probably has clearance problems. Ask a trusted professional to check it.
- Lift the front wheel off the ground and try turning the handlebars from side to side. Do the handlebars turn smoothly? If you feel any roughness, spikes or resistance, the headset may be excessively tight. Ask a trusted professional to check it.
- Grasp one pedal and try pushing it back and forth relative to the centreline of the bike; then do the same with the other pedal. Does anything seem loose? If so, ask a trusted professional to check it.
- Check the brake pads and brake discs. Check them for wear and check their alignment.
- Check the hydraulic brake lines carefully. Have them replaced if there is any oxide, abnormal bending, cracks or leaks.
- Press each pair of adjacent spokes between the index finger and thumb on either side of the wheel, making sure that the force used is almost always the same. If at any point you feel more yielding, ask your professional to check the tension and alignment of the wheel.
- Check tyres for excessive wear, cuts or swelling and replace if necessary.
- Check the wheel rims for marks, dents, cracks or scratches. Consult a trusted professional if you find any damage to the rims.
- Check that all parts and accessories are secured, tighten the fastenings of those that do not appear to be secure.

• Check the frame, handlebars, stem, and seat post tube for any signs of scratches, cracks or discolouration. These are signs produced by material fatigue stress and indicate that the component may be at the end of its useful life and needs to be replaced.

 **ATTENTION** As with any mechanical device, the bicycle and its components are subject to wear and stress. Different materials and mechanisms wear out or accumulate fatigue at a different rate and can therefore have different life cycles.

If you exceed the life cycle of a component, it can break suddenly and catastrophically, causing serious damage or even the death of the user. Scratches, cracks, fraying and discolouration are symptoms of accumulation of stress fatigue and indicate that the part in question has reached the end of its useful life, thus requiring immediate replacement.

Although the materials and construction of your bike or its individual components are covered by a manufacturer's warranty on defective parts, valid for a specific period of time, there is no guarantee that the life of the product will correspond to the warranty period. The life of the product is often related to the type of use and treatment to which you submit the bike. The warranty is not intended to suggest that the bicycle can never break or that it should last forever, but simply specifies that the bicycle is covered by warranty under the terms of the warranty itself.


5. If one or both brake levers do not meet the conditions listed in the Mechanical Safety Check on page 7, do not ride your bike. Go to a trusted professional and have him/her check the brakes. If the chain is not able to shift smoothly and you hear noise and rubbing between gears, the derailleur is poorly adjusted. Ask a trusted professional to check it.

6. After every 25 hours of intense off-road use or after 50 hours of on-road use: take your bike to a trusted professional for a general check.

B. If your bike is subjected to an impact

First, check that you are not injured. If you are, take care of yourself to the best of your ability. Seek medical assistance if necessary.


Then check your bike for damage. Bring your bike to your professional for a complete check after any and every impact. Carbon composites, frame, wheels, handlebars, stem, chainring, brakes, etc. that have been subjected to impact should not be used until they have been disassembled and thoroughly examined by a qualified mechanic.

 **ATTENTION** A crash or other type of impact can exert exceptional stress on bicycle components, causing premature fatigue.

Components that are subjected to stress and fatigue can break suddenly and catastrophically, resulting in loss of control, serious physical damage or death.

APPENDIX A

APPROPRIATE USE OF YOUR BICYCLE

 **ATTENTION** It is important to understand the limitations of your bike and the types of use that it is suitable for. Choosing the wrong bike for your desired use can be very dangerous. Using your bike inappropriately is dangerous.

There is no type of bicycle that can be considered suitable for all situations. An experienced professional can help you choose the most compatible tool for a particular use and help you understand its limitations. There are many models of bikes and many variations within each type: mountain bikes, road bikes, racing bikes, hybrids, touring bikes, cyclo-cross and tandem bikes.

There are also bicycles that mix together functional characteristics. For example, there are road/racing bikes with triple gear chainring. These bikes have the short ratio typical of touring bikes, the handling of a racing bike, but are not suitable for carrying heavy loads on a sightseeing tour.

Within a range of bicycles is a model that can represent the ideal compromise for certain objectives. Visit scapin.com and ask experienced cyclists who live in your area for useful information. Sometimes even seemingly small changes, such as a different choice of tyres, can improve or worsen bike performance for a given application.

On the following pages, you will find a general description of the types of use that we suggest for the various bicycle models.

The classification of the conditions of use is of a general nature and is constantly evolving. See our website about the type of use of your bike - www.scapin.com ▶

Scapin bicycles are manufactured and tested on the basis of a total load (bike + user + load) of 140 kilograms; however, in some circumstances, the acceptable total load limit is higher than 140 kilograms. If you have particular needs, please find out more information before using an inappropriate bike.



Road bikes for competitive/competition use

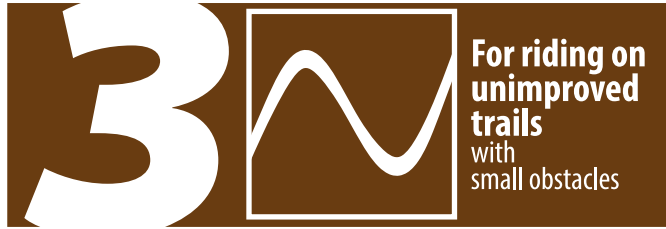
- **CONDITION 1:** Bicycles designed for riding on paved surfaces where the tyres always remain in contact with the ground.
- **SUITABLE:** For use on paved roads only.
- **NOT SUITABLE:** For off-road, cyclo-cross, tourism with the use of luggage racks and bags.
- **CHARACTERISTICS:** The materials used represent the best compromise in offering both a limited weight and high performance. It is necessary to understand that (1) this type of bike is designed to give a performance advantage to aggressive or competitive cyclists, even with a shorter product life; (2) less aggressive cyclists will be able to count on a longer frame life; (3) you are opting for a more lightweight frame (shorter frame life) compared to a heavier frame with longer life and durability; (4) you are opting for a lighter frame over a more dent-resistant or stronger frame that weighs more. All very lightweight frames require frequent inspection. These frames are more susceptible to damage or breakage in an accident. They are not designed to be subject to overuse.

Non-competitive use

- **CONDITION 2:** Bicycles designed for use in the conditions indicated with 1, with the addition of moderate difficulty gravel tracks and beaten paths, where the rubber does not lose contact with the ground.
- **SUITABLE:** For paved roads, gravel or dirt roads in good condition and cycle paths.
- **NOT SUITABLE:** For off-road use in general and for any type of jump. Some of these bicycles are equipped with shock absorbers, but this equipment is designed for the sole purpose of increasing ride comfort, not to make the vehicle suitable for off-road use. Some of these bicycles are equipped with relatively wide tyres that are suitable for riding on gravel or dirt roads. Others are equipped with relatively narrow tyres that are more suitable for fast travel on paved surfaces. If your use involves riding on gravel and dirt roads, carrying heavy loads, or if you feel you need a longer tyre life, ask your professional for advice on larger section tires.

Cyclo-cross

- **CONDITION 2:** Bicycles designed for Condition 1, with the addition of gravel roads, moderately busy beaten paths where the tyres do not lose contact with the ground.
- **SUITABLE:** Both in training and competition for cyclo-cross. The typical cyclo-cross courses cover terrain and surfaces of various consistencies, including with dusty or muddy bottoms. Cyclo-cross bikes are also well-suited for road use and to get from home to work and back.
- **NOT SUITABLE:** For off-road use or jumps. Cyclists who use cyclo-cross bikes often get off the saddle when they encounter an obstacle, carrying the bike over the obstacle and then climb back on the saddle once they have passed it. Cyclo-cross bikes are not designed for use similar to mountain biking. The relatively large diameter of the wheels (road-type) that equip them are faster than the smaller mountain bike wheels, but they are not as strong.



Cross-Country, rigid frames at the rear and cushioned at the front (hardtails)

- **CONDITION 3:** Bicycles designed for use in Conditions 1 and 2, with additional slightly beaten paths, small obstacles and areas with fairly regular technical passages, including areas where wheels may momentarily lose contact with the ground. NO jumps. Mountain bikes without rear shock absorber fall under Conditions 3 as well as some lightweight models with rear shock absorber.
- **SUITABLE:** For cross-country and competition use; from hiking to competitive use on medium difficulty terrain (i.e.: valley trails with small obstacles such as roots, rocks, loose surfaces, hard and compact terrain). The equipment used in cross-country and marathon competitions (tyres, shock absorbers, frames, traction systems) tend to be lightweight and favour speed and agility rather than brute force. The suspension travel is relatively short because the bike is moving fast on the ground.
- **NOT SUITABLE:** For use in aggressive Freeride, Downhill, Dirt Jumping, Slopestyle, for extreme or very aggressive use. Not for use with violent jumps or landings and harsh riding to overcome obstacles on courses.
- **CHARACTERISTICS:** Cross-Country bicycles are lightweight, suitable for uphill riding, and are more agile than an All-Mountain bike model. Cross-Country bicycles renounce greater robustness in favour of greater efficiency in pedalling and uphill speed.

All Mountain

- **CONDITION 4:** Bicycles designed for use under Conditions 1, 2, and 3, with multiple challenging technical areas, medium sized obstacles and small jumps.
- **SUITABLE:** For use on trails and uphill climbs. All-Mountain bicycles are: (1) More robust than a cross-country bike, but less robust than a Freeride bike; (2) more lightweight and more agile than a Freeride bike; (3) heavier and with suspension with more range than a cross-country bike, which allows them to tackle more difficult terrain, pass over larger obstacles and make moderate jumps; (4) they are intermediate on the scale of suspension excursion values and use components that correspond to off-road use intended as intermediate; (5) very versatile; within the range you can find models with different characteristics in terms of robustness. Talk to your dealer about your needs in relation to these models.
- **NOT SUITABLE:** For extreme use, type of riding/jumps such as hardcore mountain, Freeriding, Downhill, North Shore, Dirt Jumping and Hucking etc. Not suitable for overcoming great height differences (drops), jumps or platform jumps (wooden structures, docks and leaping jumps) that require long excursion suspension or very stress resistant components; not for violent landings as a result of jumps and harsh riding to overcome obstacles on courses.
- **CHARACTERISTICS:** All-Mountain bicycles are more robust than cross country bikes, so they are better suited for difficult and uneven terrain. All-Mountain bicycles are heavier and more challenging to ride uphill than cross country bikes, but they are more lightweight, more agile and easier to ride uphill than the bikes considered as Freeride. All-Mountain bikes are not as robust as Freeride bikes and should not be considered suitable for the most extreme terrain and heavy-duty use.

Gravity, Freeride and Downhill

- **CONDITION 5:** Bicycles designed to tackle jumps and subsequent landings, high-speed descents, aggressive and harsh riding on rugged tracks, jumps and landings on flat surfaces. We will point out once again that this type of use is extremely dangerous and subjects the bike to unpredictable stresses that can overwhelm the frame, fork or other parts and components. If you choose a bike for this type of use, you should consider appropriate precautions and the use of equipment that can increase safety in case of falls, as well as more frequent inspection of the bike and any necessary replacement of equipment. You will also need to wear a complete set of safety accessories, such as a full-face helmet, appropriate armour and specific impact protection (vests, bodices with composite protectors, and forearm and shin guards).
 - **SUITABLE:** Use on very technical and uneven terrain, for very experienced cyclists, with excellent technical and athletic abilities. Gravity, Freeride, and Downhill are the terms that describe hardcore mountain, north shore, and slopestyle. These are extreme uses and the terms that describe them are constantly evolving. Bicycles for this type of use are: (1) heavier and with greater suspension travel than All-Mountain bikes, which allows them to be ridden on the most difficult terrain, overcome larger obstacles, and make larger jumps; (2) they use suspension with the greatest available travel and use rugged components designed for the heaviest of uses. Given all these considerations regarding the type of use, there is no guarantee that their use in extreme conditions will not cause bicycles or their components to break.
- The type of use and type of terrain for which Freeride bikes are designed are inherently dangerous and this fact is not changed by using appropriate equipment or a suitable bicycle. In this type of use, poor judgement, bad luck, or attempting to ride above your ability can easily lead to an accident

in which you could sustain serious personal injury, become paralysed, or lose your life.

- **NOT SUITABLE:** For extreme use or to try any kind of evolution.
- **CHARACTERISTICS:** Freeride and Downhill bikes are more robust than All-Mountain bikes and designed for use on difficult terrain, but are heavier and more difficult to ride uphill than All-Mountain bikes.



Dirt Jump

- **CONDITION 5:** Bicycles designed for jumping, hucking, high speeds, aggressive riding on rugged tracks and landing on flat surfaces. We will point out once again that this type of use is extremely dangerous and subjects the bike to unpredictable stresses that can test the frame, fork or other parts and components. If you intend your bike for this type of use, you should consider appropriate precautions and the use of equipment that can increase safety in case of falls, as well as more frequent inspection of the bike and any necessary replacement of equipment. You will also need to wear a complete set of safety accessories, such as a full-face helmet, appropriate armour and specific impact protection (vests, bodices with composite protectors, and forearm and shin guards).
- **SUITABLE:** For jumps and artificial obstacles, ramps, skate parks and terrains where riders need specific technical skills and bike control skills rather than relying on suspension. Dirt Jumping bikes are also used as sturdy BMX bikes. Please note that use of a Dirt Jumping bike does not automatically guarantee you the necessary jumping ability.
- **NOT SUITABLE:** For drop offs, landings or terrain where a significant suspension excursion is required, essential to absorb the impact of the landing and help maintain control of the bike.
- **CHARACTERISTICS:** Dirt Jumping bikes are more lightweight and more agile than Freeride bikes, but they are not equipped with rear suspension and the front suspension is characterised by a much shorter travel.

APPENDIX B

BICYCLE AND BICYCLE COMPONENT DURABILITY

1. Nothing lasts forever, including your bike

When the useful life of your bicycle has been exhausted, continuing to use it is dangerous.


Every bicycle and every component with which it is equipped are characterised by a useful life limit. The length of this life limit will vary depending on the materials used on the frame and components, the maintenance and care with which the frame and components have been provided over their lifetime and the type and duration of use to which the frame and components have been subjected. Use in competitive events, evolutions involving considerable loads on the frame and components, jumps, aggressive riding, use on challenging terrain, in severe climates, under high loads, commercial activities and other unusual types of use can drastically shorten the life of the frame and its components. One or a combination of more than one of the above conditions can cause sudden breakage.

Under the same conditions of use, lightweight bicycles and their components will be characterised by a shorter life than that of a heavier bicycle and its components. When choosing a lightweight bicycle or component, you are making a precise choice: you are deciding to opt for the high performance that derive from the light weight, thus renouncing greater longevity. Therefore, if you choose light weight, then make sure you schedule frequent maintenance for high performance equipment.

You should periodically check your bike and its components for signs of stress and/or potential breakage, including cracks, deformation, corrosion, paint stripping, dents and any other indications of a potential problem, inappropriate use or overuse. These are important safety checks that are very useful in preventing accidents, physical damage to the user and shortening of the product life cycle.

2. Overview

Modern high-performance bikes require careful inspection and frequent service. In this appendix, we will explain the basic elements of material science and how it relates to your bicycle. We will discuss some of the compromises made in the design of your bike and what you can expect from it; we will provide important guidelines on how to perform maintenance and inspection. However, we cannot teach you everything you would need to know to properly maintain and inspect your bicycle, which is why we urge you to bring your bicycle to a trusted expert who can offer professional care and attention.

 **ATTENTION** Frequent inspection of your bike is important for safety. Carry out the Mechanical Safety Checks in this manual before each ride. More thorough inspections of your bicycle are necessary at

regular intervals. How often these thorough inspections should be performed depends on you.

You, the user/owner, have control over and awareness of how often your bicycle is used, how heavy-duty its use is and how severe the environmental conditions in which you ride it are. Since no one else is able to keep track of your use, you are responsible for taking your bike periodically to an experienced and trusted professional for inspection and service. He/she can help you decide which frequency of inspection and service is most appropriate for your regular use of your bike. We urge you to read this appendix in its entirety for your safety and to ensure the utmost understanding/communication with your mechanic. The material used to build your bicycle determines in what way and how frequently to inspect it.

Ignoring this warning may lead to breakage of the frame, fork or other components that can cause serious personal injury or death.

A. Understanding metals

Steel is the conventional material used in bicycle frame construction. It has good features but, in high performance bicycles, steel has been largely replaced by aluminium and sometimes titanium. The main driving force behind this change in enthusiast preferences lies in the greater lightness required of bicycles.

Properties of Metals

We want you to understand that it is not possible to formulate simplistic definitions that generically characterise the use of different metals on bicycles. It is important to understand how, rather than the material itself, it is important to consider its specific use. You should more correctly look at how the bike has been designed, tested and built, together with the characteristics of the metal, rather than looking for a simplistic answer.

Metals have different corrosion resistance characteristics. The steel must be protected or rust will attack it. Aluminium and titanium develop an oxide film in a short time that protects them from further corrosion, and both are therefore quite resistant to corrosion. Aluminium is not perfectly resistant to corrosion and special care must be taken in areas where it comes into contact with other metals, where galvanic corrosion may occur.

Metals have different ductility characteristics; ductile means that they can bend, deform and stretch before breaking. Generally speaking, steel is the most ductile, followed by titanium and aluminium among the materials commonly used in bicycle construction.

Metals have different density; the density is the weight per unit of material. Steel weighs 7.8 g/cm^3 (grams per cubic centimetre), titanium 4.5 g/cm^3 , aluminium 2.75 g/cm^3 . Carbon fibre composites have densities of about 1.45 g/cm^3 .

Metals are subject to fatigue. Cracks may develop in the metals that lead to fracture after a certain amount of cycles of use conducted at a sufficiently high load. It is therefore very important that you read the following basic elements of metal fatigue.

Suppose you hit a sidewalk, a pothole, a rock, a car, another cyclist or any other object. Inertia will cause your body to move forward and you will then be thrown over the front of the bike. What happens to the frame, fork and other components is irrelevant and of secondary importance to what happens to your body.

What should you expect to happen to your metal frame? It depends on several factors, which is why we can tell you that impact resistance cannot be a design criterion. This being the case, we can tell you that if the impact is strong enough, the fork or frame could bend or warp. On a steel bicycle, the steel fork could become seriously damaged and the frame could stay intact. Aluminium is less ductile than steel, but you could still expect the fork and frame to bend or warp. A violent impact could cause the top tube to break due to tension and the down tube to deform. As a result of a violent impact, the top tube may break, the down tube may deform or break, causing the headset tube and fork to detach from the main triangle.

When a metal bike gets into an accident, you will usually see evidence of this ductility in the curvature, deformation or bending of the metal.

Scapin frames are made of carbon fibre, which involves different behaviour in case of impact with respect to metals.

Due to the relative ductility of the metals and the lack of ductility of the carbon fibre, you could expect that no characteristic deformation or bending of the metal will occur in the case of impact; on the contrary, the structure will break.

Below a certain load, the carbon fibre may come out intact from the impact; above a certain load, the carbon may break.

The basic elements of metal fatigue

Common sense tells us that nothing lasts forever. The more you use something, the harder you use it, the more you use it in the worst conditions, the shorter its useful life will be.

Fatigue is the term used to describe the accumulation of damage to a given component caused by a repeated load over time. To cause fatigue damage, the load acting on the part must be sufficiently high.

An elementary and recurring example is a common paper-clip bent back and forth (repeated loads) until it breaks.

This simple definition will help you understand that fatigue has nothing to

do with time and the passage of years. A bicycle stored in the garage will not be subject to fatigue. Fatigue is caused only through use.

But what kind of damage are we talking about? At a microscopic level, a crack is formed in a highly stressed area. As the stress recurs, the crack grows in size. At this point, the crack becomes visible to the naked eye. It could eventually become so large that the part becomes too weak to carry the load for which it was designed. At this point, you can expect immediate and complete breakage of the part in question.

You could design a certain part so strong that its fatigue resistance is almost infinite. However, this requires the application of a lot of material and consequently increased weight. Any structure that needs to be resistant but also lightweight will therefore have well-defined durability under the effect of fatigue stress. Aircraft, racing cars, motorcycles, all these machines use parts with a finite fatigue life. If you want a bicycle with an infinite fatigue life, it would have to weigh more than any bicycle on the market today. We all have to compromise: the exceptional performance and light weight we want require periodic inspection of the structure.

In most cases, the presence of a fatigue crack does not coincide with a product defect. It is a sign that the part has worn out, an indication that the part has reached the end of its fatigue life. When your car's tyres are worn to the point where the tread has worn completely, these tyres are not defective. These tyres are worn and their tread is saying: "it's time to replace me." When a metal part shows a fatigue crack, it is because the part is worn. The crack is saying: "it's time to replace me".

Material fatigue is not a predictable science

Material fatigue is not a perfectly predictable science, but there are some general factors that help you and your mechanic to determine how often your bike should be inspected. The more your individual profile falls within the product life reduction outline, the more frequently maintenance will be required.

Factors that shorten product life:

- Aggressive and harsh riding style.
- Impact, bumps, jumps, and other types of stress to the bike.
- High mileage.
- Heavy body weight.
- Energetic, physically fit cyclist with aggressive riding style.
- Corrosive environment (humidity, salty climate, sweat).
- Presence of abrasive mud, sand and dusty routes.

Factors that extend product life:

- Relaxed and fluid riding style.
- No impact, bumps, jumps, or other types of stress to the bike.
- Reduced mileage.
- Light body weight.
- Cyclist with less aggressive riding style.
- Non-corrosive environment (dry, non-saline climate).
- Clean routes.



ATTENTION Do not use the bike or components that have any cracks, swelling or dents, even small ones. Using a frame, fork or component with cracks could result in its complete breakage, with the risk of injury or death.

B. Understanding composite materials

Cyclists must understand the basic reality of composites. Composites made of carbon fibre are strong and lightweight but, in the event of an accident or overload of the structure, carbon fibres do not bend, they shatter.

What are composites?

The term “composites” refers to the fact that the part or parts are constructed using different components or materials. You may have heard the term carbon fibre bikes. This actually means bikes made of composite material. Carbon fibre composites are typically made of strong, lightweight fibres in a plastic matrix, machined in moulds to give them shape. Carbon composites are relatively lightweight materials compared to metals. Steel weighs 7.8 grams/cm³ (grams per cubic centimetre), titanium 4.5 grams/cm³, aluminium 2.75 grams/cm³. Carbon fibre composites weigh about 1.45 grams/cm³.

Composites with the best strength-to-weight ratio are made of carbon fibres in an epoxy resin matrix. The epoxy matrix acts as a binder between the different carbon fibres, transferring the stresses to the adjacent fibres and forming a smooth outer surface. The carbon fibres are the skeleton that supports the stresses.

Why use composites?

Unlike metals, which have uniform properties in all directions (technicians call it isotropy), carbon fibres can be positioned with specific orientations to optimise the structure for specific stresses. The ability to choose where to position carbon fibres gives technicians a powerful tool for creating lightweight, durable bikes. Technicians can also choose to orient the fibres to achieve other goals, such as comfort and vibration damping.

Carbon fibre composites are very resistant to corrosion, much more so than most metals. Carbon fibre materials are distinguished by their high strength-to-weight ratio.

What are the limits of composites?

Bicycles and components made of well-designed composite or carbon fibre normally have a longer fatigue life than their equivalents made of metal materials.

Although fatigue life is an inherent advantage of using carbon fibre, you will still need to inspect your composite frame, fork or components on a regular basis. Carbon fibre composites are not ductile. Once a carbon structure is overloaded, it will not bend: it will break. Irregular, sharp edges and almost certainly also carbon fibre delaminations or layers of carbon fibre fabrics will form at and around the breaking point.

There will be no bending, buckling, elongation or deformation.

If you hit an obstacle or have an accident, what should you expect from your carbon fibre bike?

Suppose you hit a sidewalk, a pothole, a rock, a car, another cyclist or another obstacle. Inertia will cause your body to move forward and you will then be thrown over the front of the bike.

What happens to the frame, fork and other components is irrelevant and of secondary importance to what happens to your body.

What should you expect from your carbon frame? This being the case, we can tell you that if the impact is strong enough, the fork or frame could break completely. Note the significant difference in behaviour between a carbon frame and a metal frame: even if a carbon fibre frame has twice the strength characteristics of a metal frame, once the carbon frame is subjected to an overload, it will not bend, it will break completely.

Inspecting a composite frame, fork and components**Cracks:**

Inspect for areas with cracks, fractures or chipping. Any cracks are important. Do not use any bicycle or component that has any size crack.

Delamination:

Delamination is major damage. Composites consist of layers of fabrics. Delamination means that the fabric layers are no longer glued together. Do not use any bicycle or component that shows any delamination. These may be clues indicating the presence of delamination:

1. An opalescent or whitish coloured area. This type of area differs from normal undamaged areas. The intact areas will be glassy, glossy, giving a sense of depth as if you were looking into a transparent liquid. Delaminated areas will be opaque and blurred.
2. Swollen or deformed shape. The shape of the surface may change if delamination occurs. The surface may have a bubble, swelling, a yielding point to touch, or may not be regular and smooth enough.
3. A difference in the sound emitted when the surface is tapped. If you slightly tap the surface of an intact area of the composite, you will hear a constant, typically full, high-pitched sound. If you tap a delaminated area, you will hear a different, usually muted and less high-pitched sound.

Unusual noises:

Both cracks and delaminations can cause creaking while pedalling; consider these noises as a serious warning sign. A bicycle that is subject to regular maintenance will be very quiet and free of creaking and squeaking. Investigate and identify the cause of any noise you may notice. The noise may be due to causes other than cracks or delaminations, but whatever is found to be the cause should be eliminated before using the bicycle.



ATTENTION Do not use a bicycle or components that have any delamination or cracking. Using a delaminated or cracked frame, fork or other component in these conditions can lead to complete breakage, with the risk of serious personal injury or death.

C. Understanding components

It is often necessary to remove and disassemble components in order to inspect them carefully and properly. This is a job that must be done by a professional mechanic with special tools, as well as the necessary skill and experience to properly inspect and service the bicycle and its components.

Super-light second assembly components

Carefully evaluate your cycling profile according to the criteria listed above. The more your profile corresponds to that listed in the **Factors that shorten product life** section, the more you should critically question your use of any super-light components. The closer your profile is to the one listed in the **Factors that extend product life** section, the more likely it is that the use of such a super-light component will suit you. Discuss your needs and your individual profile completely honestly with a professional.

Take these decisions seriously and be aware that you are solely responsible for these changes or choices.

First assembly components

Bicycle and component manufacturers subject the various bicycle components as original equipment to durability tests. This means that they have demonstrated that they meet the test criteria and have a reasonable service life. This in no way means that the components originally mounted on your bike will last forever.

What to look for on your bike at all times

ONCE A CRACK HAS FORMED, IT CAN GROW RAPIDLY.

Think of a crack as a breakage trigger.

This means that any crack is potentially dangerous and can only become even more dangerous in the future.

CORROSION ACCELERATES DAMAGE.

Cracks grow faster if they are in a corrosive environment.

Think of a corrosive solution as the cause of further weakening that can help the crack expand.

STAINS AND DISCOLOURATION CAN OCCUR NEAR A CRACK.

These stains can be a warning sign of a crack.

SIGNIFICANT SCRATCHES, INCISIONS AND DENTS ARE A STARTING POINT FOR CRACKS.

Think of a surface incision as a stress concentration area.

It is called a stress raiser, i.e. an area where stress is increased.

SOME CRACKS, ESPECIALLY LARGER ONES, CAN PRODUCE CREAKING WHILE PEDALLING.

Think of these noises as a serious warning signal.

Remember that a well-maintained bicycle will ensure use without any creaking or squeaking.

What to do

If you detect a crack, replace the part.

Clean your bike, lubricate it and protect it from saline environments; remove salt residue as soon as possible.

Inspect and investigate every stain to see if it is associated with a crack.

Do not scratch, mark or incise any surface. If this happens, always pay close attention to that area or replace the component.

Investigate and find the cause of any noise. It may not even be due to a crack but, whatever the cause, it should be eliminated immediately.

ASSEMBLY FROM A REUSABLE BIKE TRAVEL BOX

Keep the Scapin Bike Travel Box:

You can reuse it in the future to transport your bike in case of airplane flights or to send it safely, without risk of it being damaged.

You do not need to be a professional mechanic to assemble the Bike Travel Box; in any case, you must proceed with caution and care.

Careless assembly may compromise the safety of your bike.

First of all, please familiarise yourself with the Scapin components.

Take out the summary page: a Scapin bicycle with all the most important components is shown. Keep this page handy while reading so that you can immediately find the components mentioned in the text. The picture shows a Scapin mountain bike, but not all bikes are necessarily the same.



To open the Bike Travel Box, cut the four seals **1, 2, 3, 4** on the top cover with scissors or cutters, turn the grip and, finally, lift the lid.



To begin, lift the top lid, remove sections **A** and **D**, then pull out the front wheel **C** with its protection.

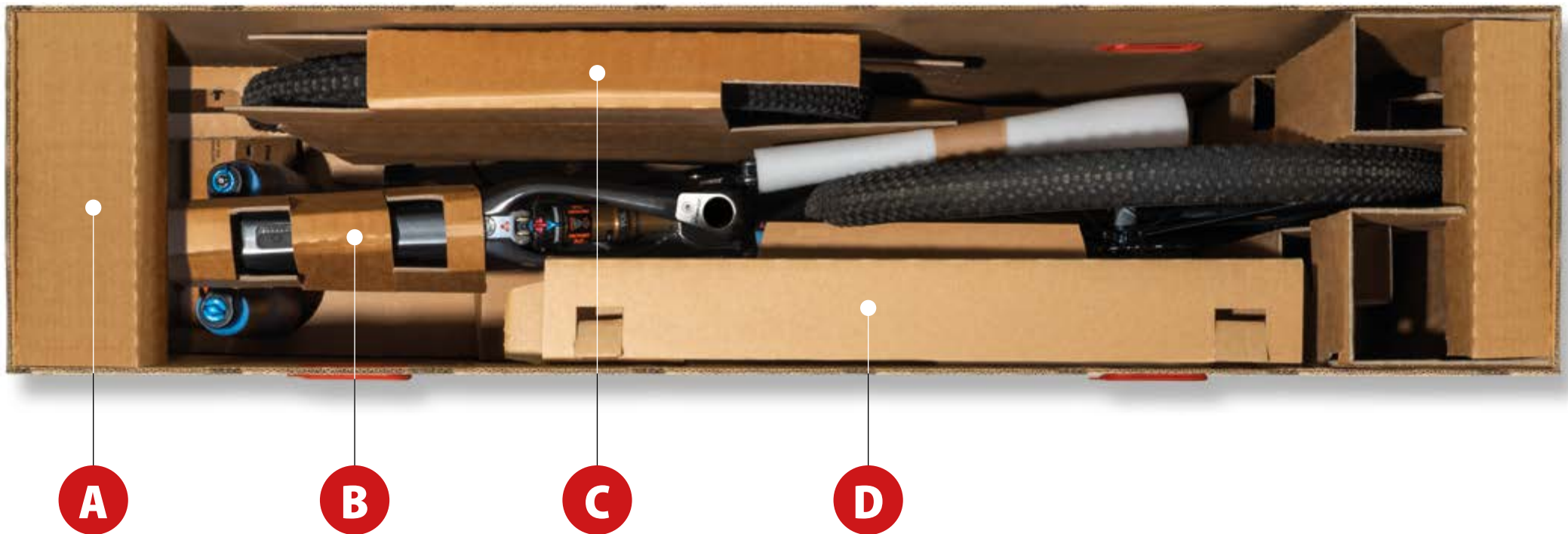
At this point, carefully lift and remove frame **B** from the Bike Travel Box, complete with rear wheel and fork to which the handlebars are connected by means of the brake system lines.

⚠ ATTENTION Be very careful when handling the handlebars so as not to damage the brake system lines.

Damage to these components could affect proper brake functioning, which could result in serious personal injury or death.

Your bike doesn't come from an assembly line. Each Scapin is lovingly hand-built by craftsmen, one at a time.

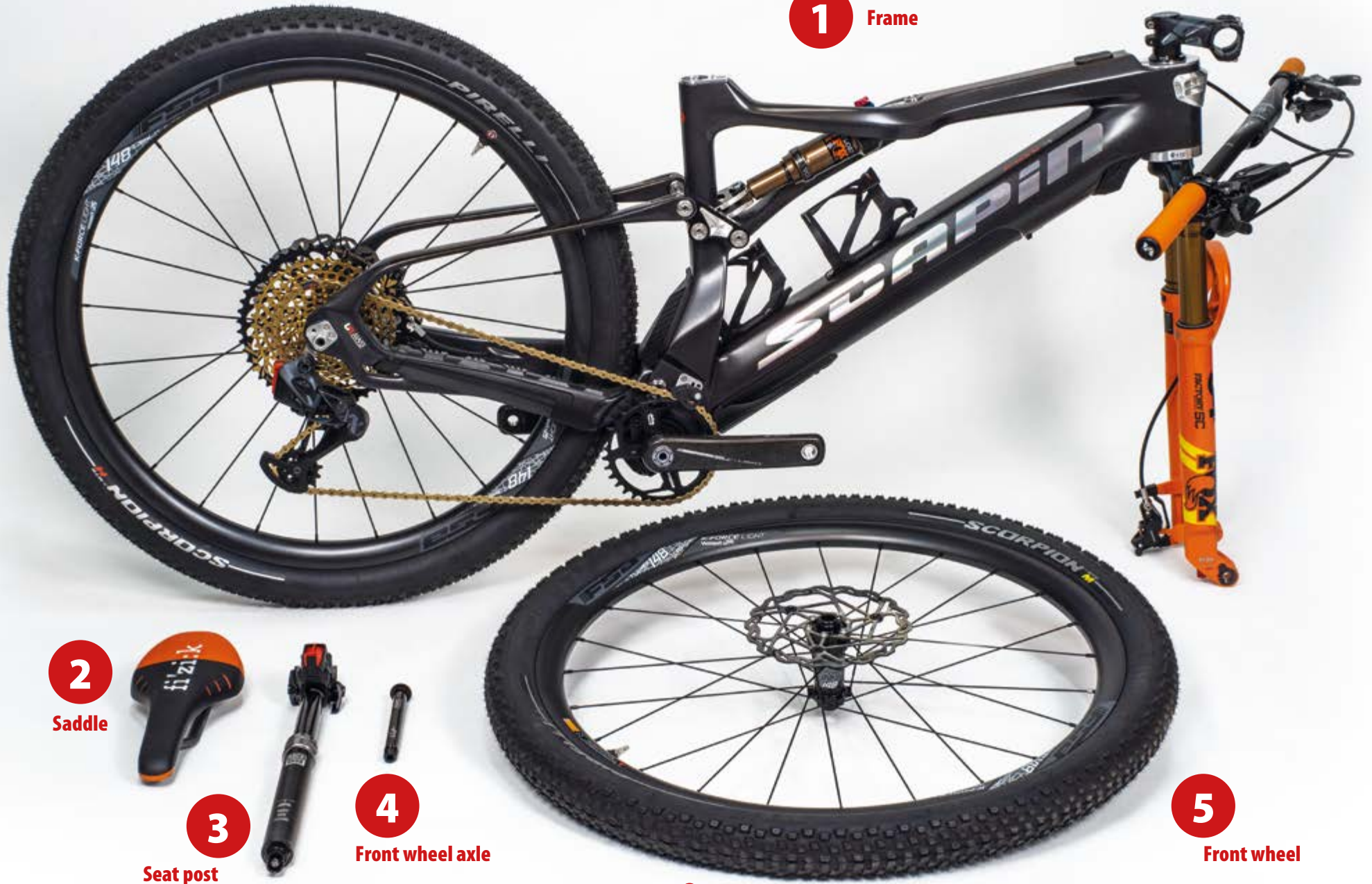
While the main characteristics remain the same we reserve the right to update component details during production.



Checking the contents of the Bike Travel Box | 1

The Bike Travel Box contains the frame **1** assembled with the rear wheel mounted and the handlebars connected via the brake lines, the front wheel **5**, the thru axle on the front wheel **4**, the saddle **2** and the seat post **3** unassembled.

1 Frame



2
Saddle

3
Seat post

4
Front wheel axle

5
Front wheel

Checking the contents of the Bike Travel Box | 2

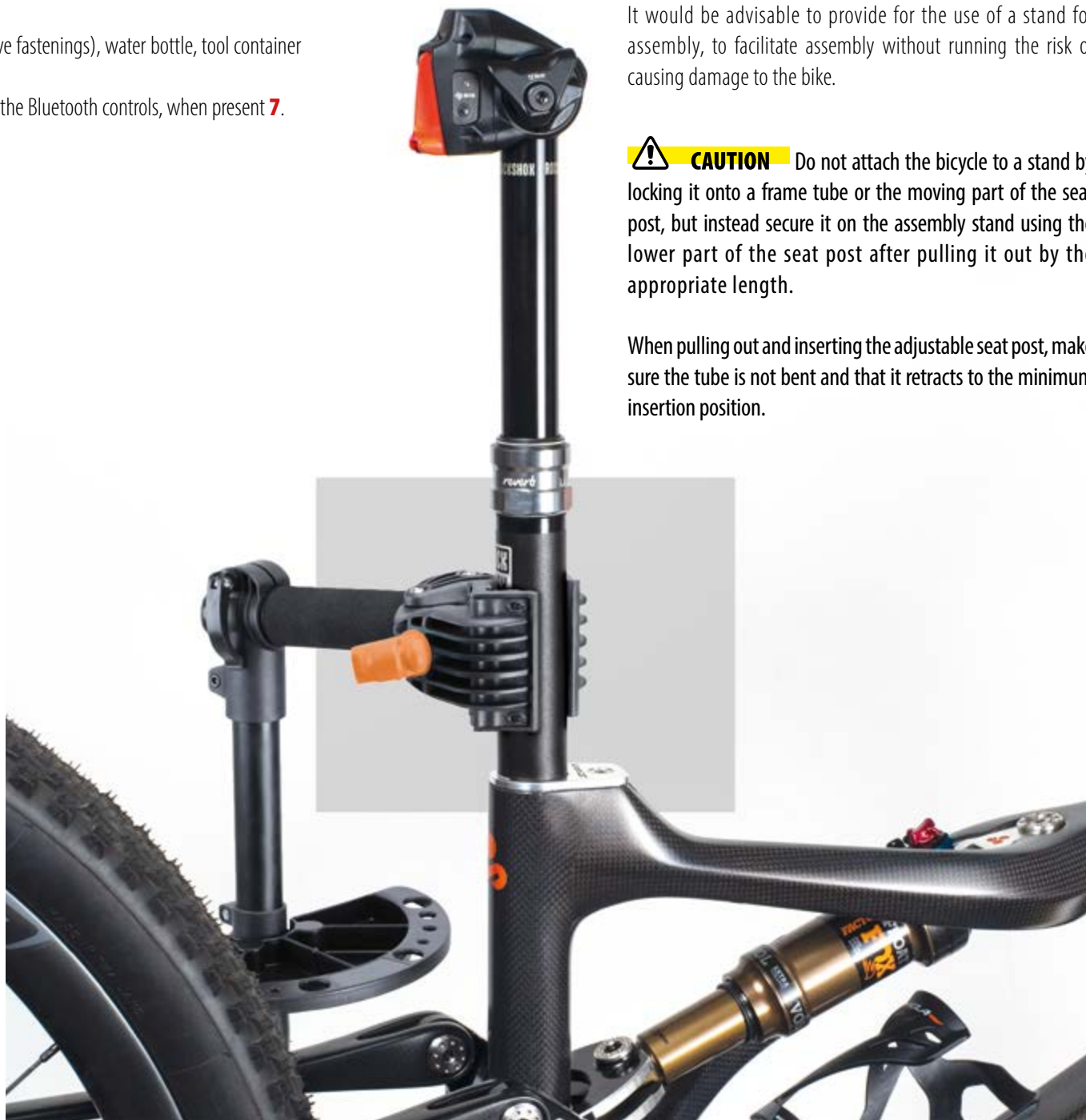
In addition, the Bike Travel Box contains the small parts (reflectors and relative fastenings), water bottle, tool container and the suspension fork pump 6.

You will find a box containing the battery chargers for the motor battery and the Bluetooth controls, when present 7.

6 Small parts



Battery chargers 7



It would be advisable to provide for the use of a stand for assembly, to facilitate assembly without running the risk of causing damage to the bike.

CAUTION Do not attach the bicycle to a stand by locking it onto a frame tube or the moving part of the seat post, but instead secure it on the assembly stand using the lower part of the seat post after pulling it out by the appropriate length.

When pulling out and inserting the adjustable seat post, make sure the tube is not bent and that it retracts to the minimum insertion position.

You are now ready to start assembly

⚠ CAUTION We recommend that you follow the instructions below and observe the tightening torques indicated on page 73 ► Always refer to the manufacturer's manual for all component details and specifications.

To fix two components as securely as possible, we believe it is essential to use a torque wrench. Tightening the clamping screws, for example, on the handlebar stem, seat post or seat post clamp with a tightening torque higher than the maximum torque produces too high a clamping force.

How to use a torque wrench.



1. Set the correct tightening torque by turning the grip until the indicator reaches the correct value in Nm on the scale of values indicated for the specific screw.

This can cause component failure and result in a high risk of accident. Furthermore, in this case, the product warranty shall become invalid. Screws that are too loose or too tight can cause failure and thus cause problems.

When assembling the components, carefully follow the indicated tightening torques, using the threadlocker.

Especially carbon components are subject to damage caused by excessive tightening forces. The threadlocker creates additional frictional force between two surfaces for better coupling.

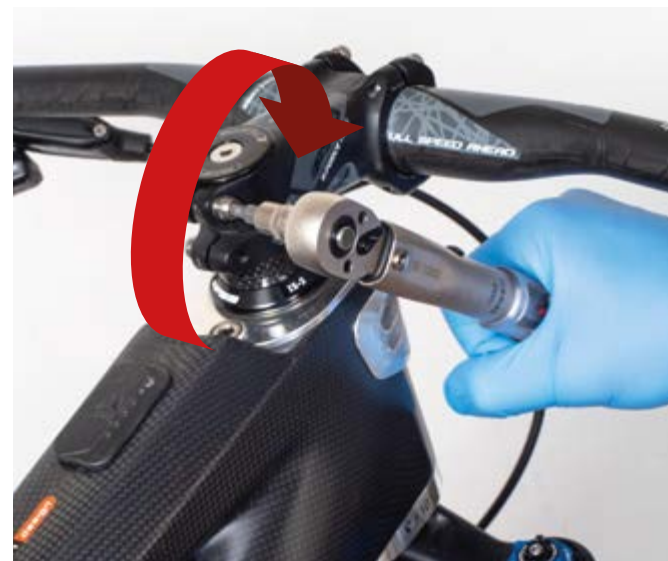


2. Tighten the screw with a normal wrench until it is tightened, without over-tightening it.

This is especially useful in the clamping areas of the handlebars and handlebar stem, and tubes on the fork and handlebar stem, seat post and steering column, three clamping zones where excessive clamping forces can damage the components and lead to failure or loss of the warranty.

The threadlocker prevents damage to carbon fibres, limits the possibility of the usual creaking at the clamping points and ensures maximum corrosion protection, effectively protecting even in wet situations. The threadlocker can be used for all joints between carbon and aluminium.

Clean the surfaces well before applying the threadlocker.



3. Tighten the screw slowly with the torque wrench until you feel the torque click to indicate when the correct torque has been reached.

Handlebar assembly

The handlebars in the packaging are disassembled and connected to the frame through the brake lines, while the handlebar stem is correctly assembled.

Do not make any modifications to the handlebar stem.

Remove all handlebar packing protections, taking care not to damage the brake lines. Continuously hold the handlebars in place so that they do not fall off and suffer damage.

Align the handlebar stem and fork in the direction of travel.

Make sure that the brake lines do not twist but remain in their natural position and, paying particular attention, let the handlebars hang or ask a helper to hold them.



1. **Completely loosen** the handlebar stem cover clamping screws and remove the cover.



2. **Apply and spread a thin layer of threadlocker** on both the handlebar stem cover and the clamping areas of the body.



3. **Position the handlebars according to the markings** inside the clamping area.

Make sure that the brake lines are not crooked or bent and that they slide evenly around the handlebars and brake levers.

⚠ CAUTION The handlebars will be correctly assembled once these operations have been completed. However, you will need to adjust the rotation of the handlebars and brake levers according to your riding position.



4. Install the handlebar stem cover. Approximately rotate the handlebars so that the brake levers are slightly downwards and slightly tighten the four screws on the cover.



5. Tighten the two upper screws until the slots on the top of the cover are completely closed. The front cover must lock and the upper screws must be tightened to a torque of 1 Nm. If necessary, loosen the two lower screws slightly.



6. Tighten both lower screws to a torque as indicated on the component. Finally, tighten both upper screws to a torque as indicated.

Seat post assembly

We recommend installing the seat post before assembling the front wheel: this lets you lower the bike at the front and facilitates the all-open positioning of the seat post stop insert.

⚠ ATTENTION Make sure that the seat post fits into the frame the minimum insertion part indicated on the seat post body. Ignoring this warning may lead to breakage of the frame, resulting in serious personal injury or death.



1. Completely loosen the torx screw while simultaneously pushing the integrated seat post system stop insert into the fully open position towards the front of the bike.



2. Insert the seat post taking care to apply a light layer of carbon assembly paste to the surface. Do not use grease on carbon fibre parts. The minimum insertion indicator should not be visible, it must be completely inside the frame.
The seat post will scratch slightly during assembly. This is normal and does not constitute grounds for complaint.

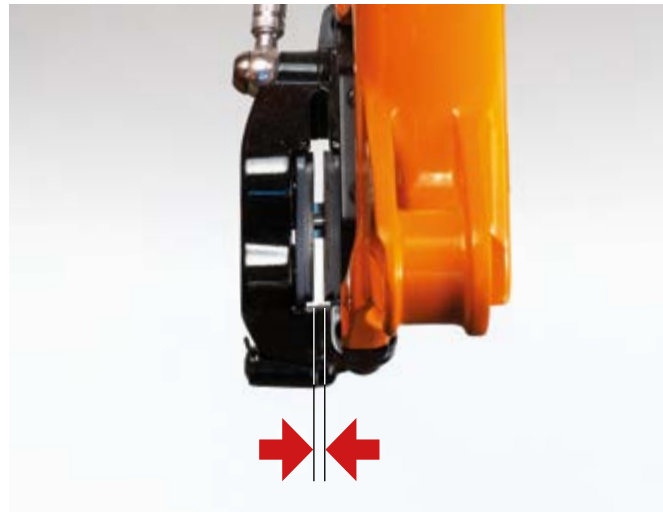


3. Tighten the torx screw with the torque wrench to a torque of 8 Nm. Once you have finished mounting the bike, adjust the saddle height by loosening the torx screw slightly so that the seat post slides into the desired position and then tighten it again to the correct torque.



Front wheel assembly

1. Remove the transport safety spacer from the brake. From now on, until the wheel is mounted, do not touch the front brake lever to prevent the pads from closing together.



2. Before mounting the wheel, check if the pads are exactly in the brake calliper seats. The gap between the pads must be parallel.



3. Mount the front wheel, be sure to insert the brake disc between the pads and send the hub into the relevant seat on the inside of the fork slider.



4. Insert the wheel axle into the left fork slider until it meets the thread of the right slider, then screw it in completely by hand. We recommend spreading a layer of white grease on the axle.

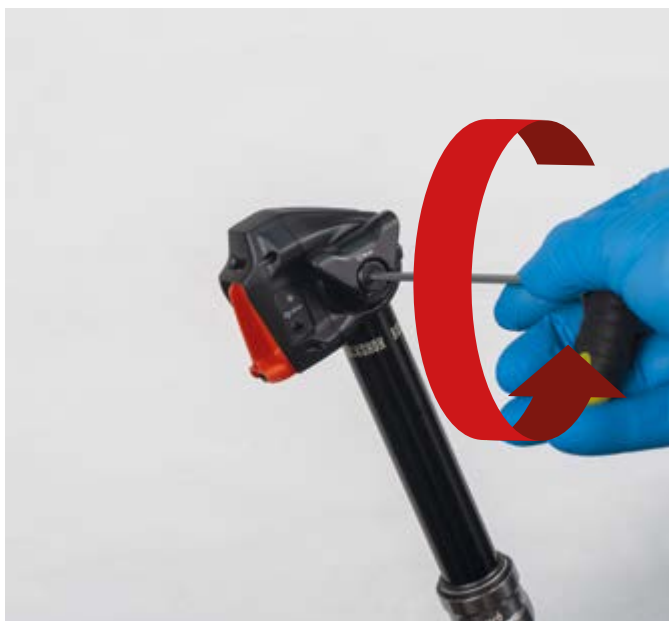


5. Tighten the axle with the torque wrench. The correct tightening torque is indicated on the axle.

CAUTION After mounting the wheel and tightening the axle, pull the brake lever several times, then turn the wheel. The brake disc must not scrape against the pads. Keep in mind that new disc brake pads must be subject to bedding-in to achieve optimum deceleration values.

ATTENTION Verify the correct seat of the wheel fixing system after a few kilometres or after the first few hours of use, but at the latest after 4 hours. Incorrect fixing of the wheel can result in a possible fall with unforeseeable consequences for the life and well-being of people.

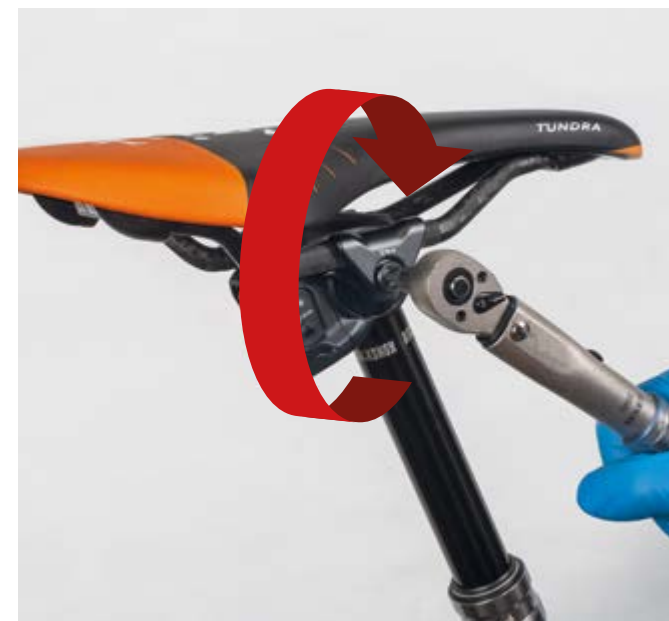
Saddle assembly



1. Loosen the central screw of the seat post head until the saddle clamping jaws are completely free. The screw must not be removed, but the two jaws must be free to rotate downwards.



2. Insert the saddle into the guides in a central position until you feel the click which indicates correct insertion of the saddle frame into the guides.



3. Rotate the saddle clamping jaws upward to the position shown in the image, then tighten the screw slightly with a normal wrench. When you are satisfied with the longitudinal position, tighten the screw with a torque wrench to a torque as indicated on the component.

ADJUSTMENTS/SETTINGS

1 Always refer to the manufacturer's manual for all details and specifications of individual components.


2 In the event of discrepancies between the data in these descriptions and those provided by the manufacturer, the latter will prevail.



Installing pedals

Before installing the pedals, we suggest applying a layer of bearing grease on the threaded axle of both pedals.

Your bicycle can be fitted with the pedals commonly available from leading manufacturers. For explanatory purposes only, the images on the right show the most frequently used types of pedals.

 **ATTENTION** Check again that the pedals are properly secured after 10 hours of use. The pedals could come off, break the thread and possibly cause a fall.

Read the wording on the axles or on the body of the pedals. The **L** indicates the left pedal while the **R** indicates the right pedal. Please note that the left pedal has a left-handed thread, which means that it must be screwed in counter-clockwise and therefore in the opposite direction to the usual fastening.

Quick release pedal



Flat pedal



Magnetic release pedal



Left pedal - screw counter-clockwise.



Right pedal - screw clockwise.



1. Turn the right pedal by hand and screw it in for a few turns, turning it clockwise. Only when you are sure that the axle of the pedal is correctly coupled with the thread of the crank, continue to tighten with a wrench all the way in.

2. Turn the left pedal by hand and screw it in for a few turns, turning it counter-clockwise. Only when you are sure that the axle of the pedal is correctly coupled with the thread of the crank, continue to tighten with a wrench all the way in.

3. Tighten both pedals firmly.
Tighten firmly with a fixed wrench, holding the rear brake to lock the cranks.

Adjusting the saddle

⚠ ATTENTION Make sure that the minimum insertion indicator does not come out of the frame. Ignoring this warning may lead to breakage of the frame, resulting in serious damage.

Adjusting saddle height

1. Loosen the torx screw **A**.
2. Adjust the saddle position by sliding the seat post stay up or down.
3. Make sure the saddle is aligned with the frame.
4. Re-tighten screw **A** to a torque of 8 Nm.



Adjusting the handlebars

Adjusting handlebar rotation.

You can adjust the position of the handlebars by turning them a few degrees forward or backward to obtain the most ergonomic position for your riding.

CAUTION Once these operations have been completed, make sure that the handlebar is perfectly centred, referring to the indications on the handlebar itself at the stem.



1. Loosen the two lower handlebar stem cover screws until the handlebars can rotate quite freely.



2. Turn the handlebars a few degrees to the correct position for you. As an example, in position on the saddle, you should have your arms slightly bent with your elbows flexed outward.



3. Tighten the two lower screws on the handlebar stem cover with a torque wrench to a torque as indicated on the component.

Adjusting the handlebars

Adjusting handlebar height.

You can adjust the handlebar height by changing the position of the spacers between the stem and frame, or by rotating the stem to the position opposite to the origin.

1. Completely unscrew the handlebar stem cap screw.



2. Remove the stem cap and stem screw.



3. Loosen the two handlebar stem screws until it is free from the fork tube. The screws are loosened one on the right side and the other on the left side of the bike.



4. Pull the handlebar stem out of the fork tube.

Pay attention that the assembly consisting of the fork and front wheel will tend to fall down. Therefore, set the bike in such a position that the weight is on the front end and hold the fork and wheel in place, securing them to the frame with a strap.

Adjusting the handlebars

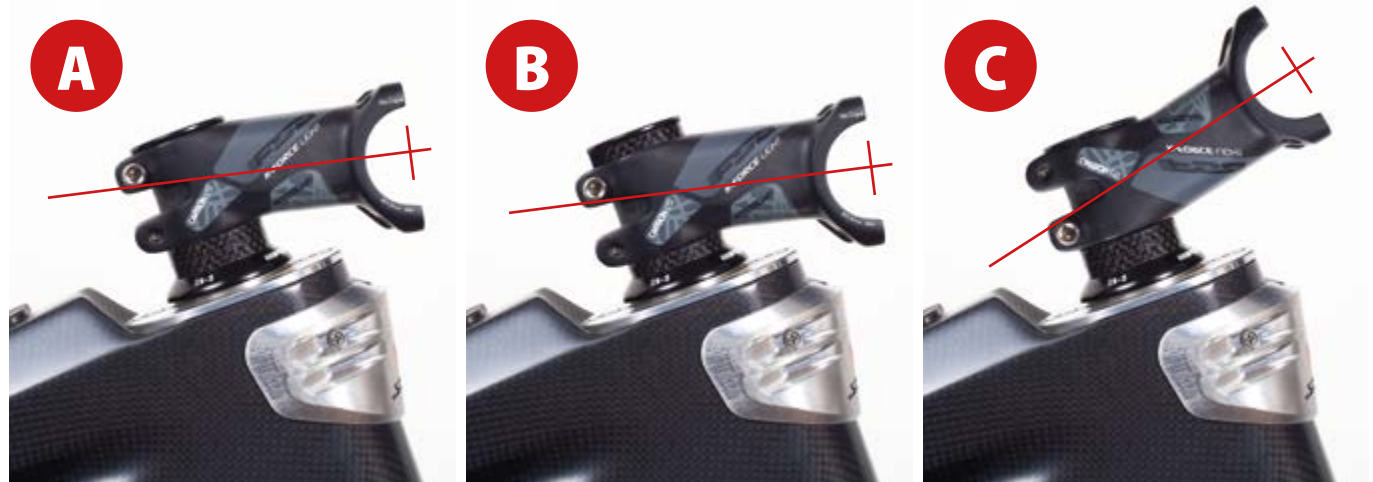
Handlebar stem positions.

A - Initial position, as per factory setting.

B - Low position: obtained by moving one of the spacers over the handlebar stem.

C - Raised position: obtained by rotating the stem 360°, making the position opposite the origin.

Do not move both spacers over the stem; one of the spacers must always remain between the frame and the stem.



Tighten the handlebar stem cap screw.

It must be tightened until there is no clearance on the headset and the headset rotates freely.



Make sure the wheel is perfectly aligned.

Before tightening the handlebar stem screws, check that the stem is aligned with the front wheel: rest the wheel firmly against something and lever the handlebar until aligned.



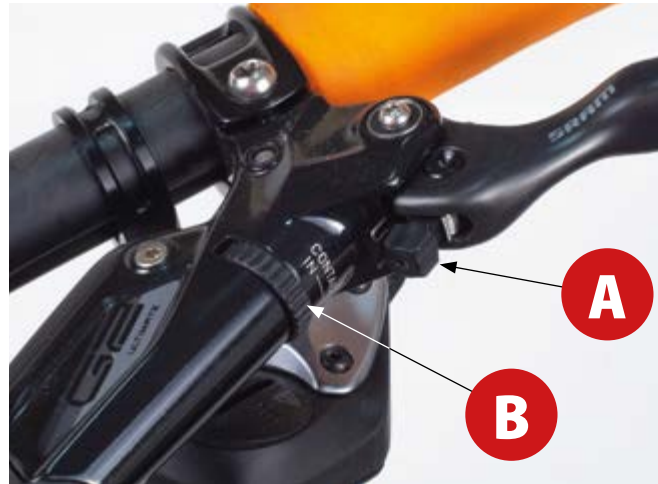
Finally, tighten the two handlebar stem screws to a torque as indicated on the component.

CAUTION To reassemble the handlebar, refer to the section "Handlebar assembly"; make sure it is perfectly centred, referring to the indications on the handlebar itself at the stem. Tighten the four screws on the stem cover to a torque as indicated on the component.

Adjusting the handlebars

Position of brake controls.

The following instructions apply to both right and left levers, regardless of which brake they control. Refer to the manufacturer's manual for component servicing.



A Adjusting the distance of the lever from the handlebar: lets you keep the lever more or less away from the grip. **When the brake is engaged, the lever must never touch the handlebar grip.**

B Adjusting the distance of the pads from the brake disc, when present.



Loosen the lever collar screw so it is free to rotate on the handlebars with slight pressure.



Adjust the lever inclination.

The correct position of the lever should allow the rider sitting in the saddle to have his/her forearm, wrist and index finger resting on the lever in a straight line.



Tighten the lever collar screw so that the lever is not locked on the handlebars but can rotate in the event of a fall, thus preventing the lever from breaking.

The force with which you tighten the lever must be such that the lever cannot rotate when the brake is applied.

Adjusting the handlebars

Position of the gearshift and seatpost controls.

The following instructions apply to both right and left controls. Refer to the manufacturer's manual for component servicing.

L seat post shifter, located on the left side of the handlebar.

R gear shifter, located on the right side of the handlebar.



Loosen the shifter screw so that it is free to rotate on the handlebar with slight pressure.



Adjust the shifter inclination.

The correct lever position should allow the rider sitting in the saddle and with a correct arm and hand position to operate the shifter naturally.



Tighten the collar screw of the shifter with the same force as you tightened that of the brake lever, and in any case do not rotate when operating the shifter.

Adjusting seat post height



⚠ ATTENTION Make sure that the seat post fits into the frame the minimum insertion part indicated on the seat post body. Ignoring this warning may lead to breakage of the frame, resulting in serious personal injury or death.



1. Completely loosen the torx screw on the integrated seat post locking system.



2. Adjust the height of the seat post, taking care to apply a light layer of carbon assembly paste to the surface. Do not use grease on carbon fibre parts. The minimum insertion indicator should not be visible, it must be completely inside the frame.



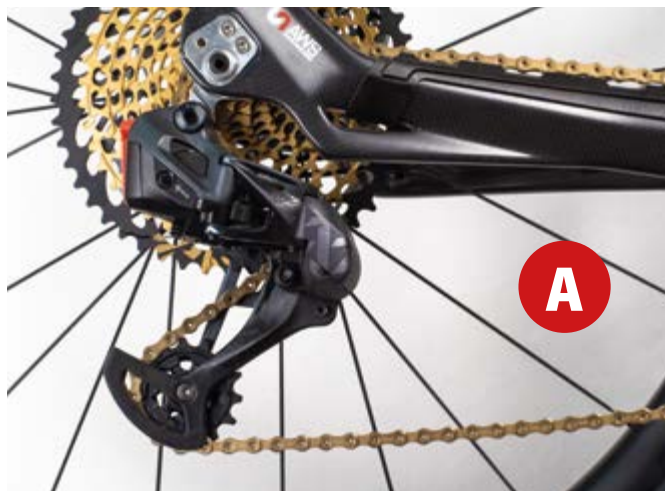
3. Tighten the torx screw with the torque wrench to a torque of 8 Nm.

Cage Lock position on the Sram derailleur

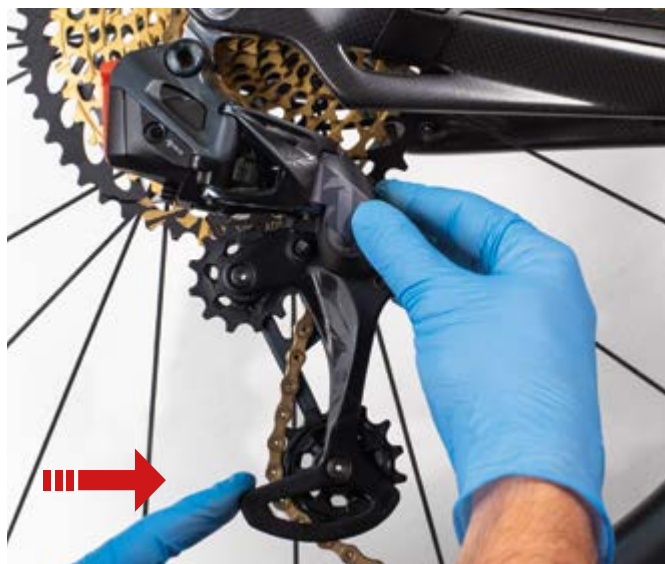
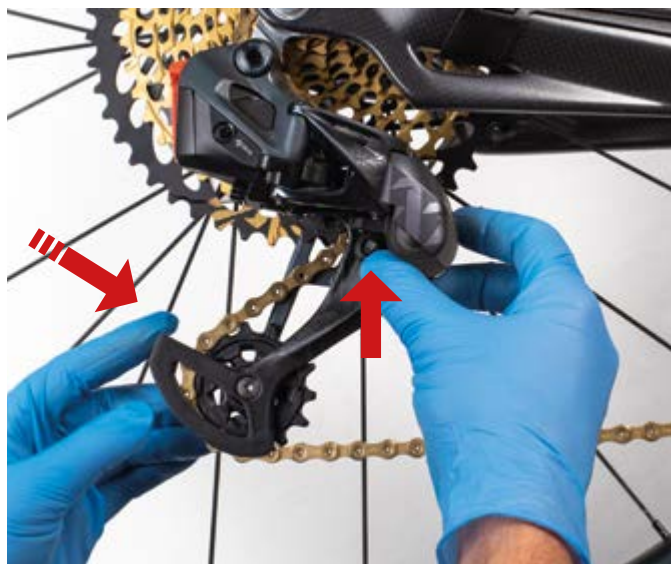
This function is useful when working on the chain, when you need to disassemble it to clean it or replace it, or when you need to remove the rear wheel.

A - Derailleur in operating position.

B - Derailleur in extended Cage Lock position.



1. Move the chain to the smallest sprocket in the cassette.



2. Rotate the derailleur cage forward and press the Cage Lock lock button to lock the derailleur in the extended position.

3. Push the derailleur cage forward until it reaches the extended Cage Lock position. Release the button.



3. Release the Cage Lock by pushing the cage forward then carefully letting it return to the unlocked position.

CAUTION The derailleur is spring loaded and will return to the normal operating position from the Cage Lock position rapidly if released. Keep fingers clear of pinch points.

Adjusting fork pressure

To get the best performance from your fork, adjust the air pressure to get the correct sag.

The sag is how much your fork sinks into its travel with you on the saddle in gear and obviously depends on your weight and your riding style: harsh riding requires less sag.

The sag should be set around 15/20% of total fork travel.

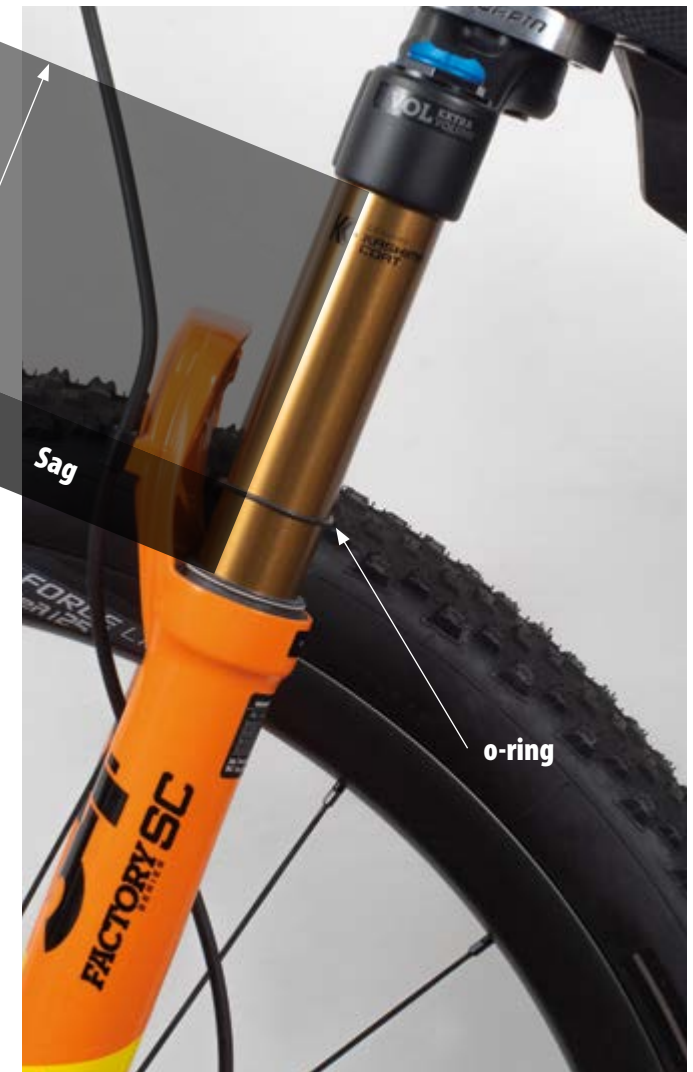


1. Unscrew the top cap of the left stem to access the air filler valve.



2. Insert the high pressure pump and supply air up to the desired pressure. Refer to the table in the manufacturer's manual for the correct pressure value based on your weight. Finally, unscrew the pump fitting and screw the stem cap back on.

⚠ ATTENTION Maximum pressure is 120 PSI. Do not load the chamber beyond this pressure.



3. Adjust the sag according to your weight and riding style.

Adjust using the compression adjustment knob in open position. After loading the chamber, bring the o-ring down on the dust cover, then get on the saddle and check how far the o-ring has risen; the indicative measure is 15/20% of the fork travel. In case of further adjustments, repeat the operation with the pump, increasing the pressure to get less sag or decreasing it to get more sinking.

Adjusting shock absorber pressure

To get the best performance from your shock absorber, adjust the air pressure to get the correct sag.

The sag is how much your shock absorber sinks into its travel with you on the saddle in gear and obviously depends on your weight and your riding style: harsh riding requires less sag.


The sag should be set around 25/30% of total shock absorber travel.



1. Unscrew the air filler valve cap.



2. Insert the high pressure pump and supply air up to the desired pressure. Refer to the table in the manufacturer's manual for the correct pressure value based on your weight. Finally, unscrew the pump fitting and screw the valve cap back on.

 **ATTENTION** Maximum pressure is 350 PSI. Do not load the chamber beyond this pressure.



3. Adjust the sag according to your weight and riding style.

Adjust using the compression adjustment knob in open position. After loading the chamber, bring the o-ring up on the dust cover, then get on the saddle and check how far the o-ring has gone down; the indicative measure is 25/30% of the shock absorber travel. In case of further adjustments, repeat the operation with the pump, increasing or decreasing the pressure to obtain the desired sag.

AWS

Adaptive Wheel System

Rotates the spacers and switches from 27.5" to 29" in the blink of an eye.

Thanks to the AWS (Adaptive Wheel System), E-BONE is the most versatile e-mtb on the market: together with the ISA (Integrated Size Adjustment) headset: offers a wide range of riding configurations.

Changing the position of AWS adapters



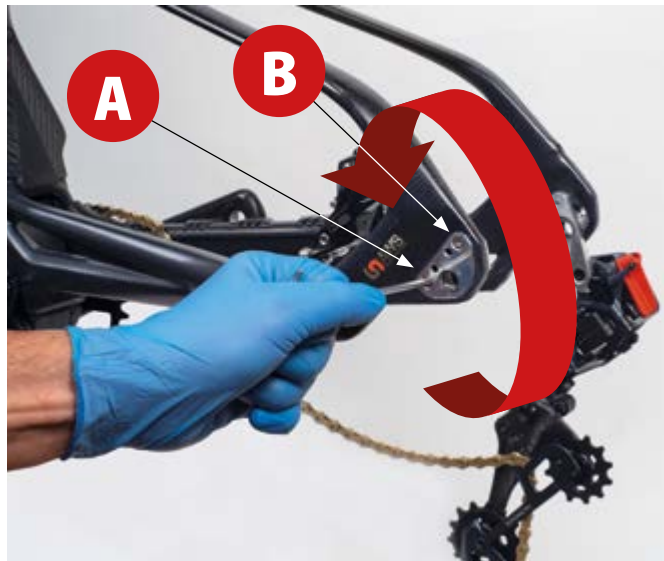
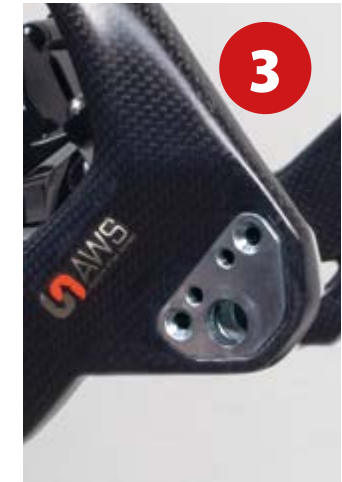
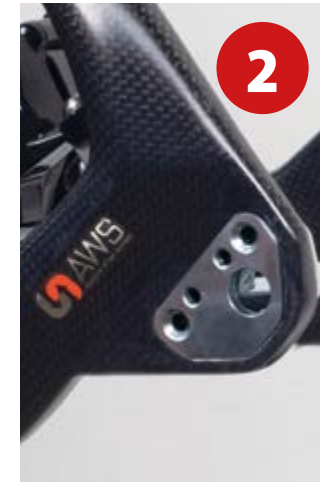
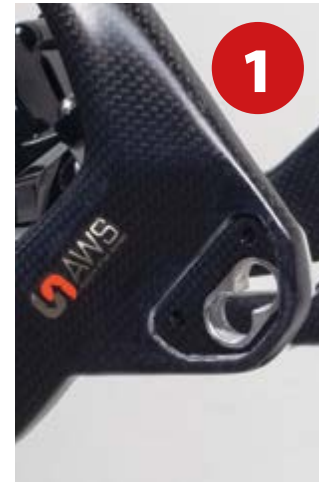
1. Move the chain to the smallest sprocket in the cassette.
2. Set the derailleur in the Cage Lock position.
3. Unscrew the thru axle from the top left of the wheel with an Allen key.



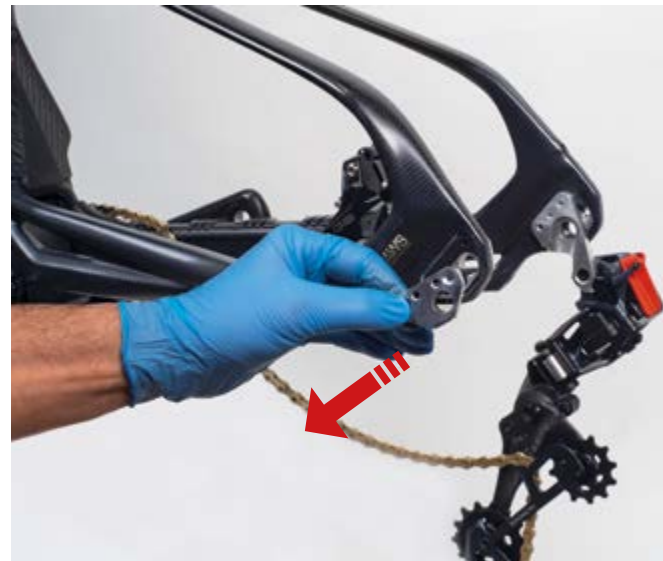
4. Remove the wheel axle from the left side.
5. Remove the wheel by sliding it down, freeing the chain from the cassette sprockets.

Left side AWS adapter

1. AWS adapter seat.
2. AWS adapter for 29" wheel.
3. AAWS adapter for 27.5" wheel.



1. Unscrew the two fixing screws **A** and **B** on the AWS adapter.



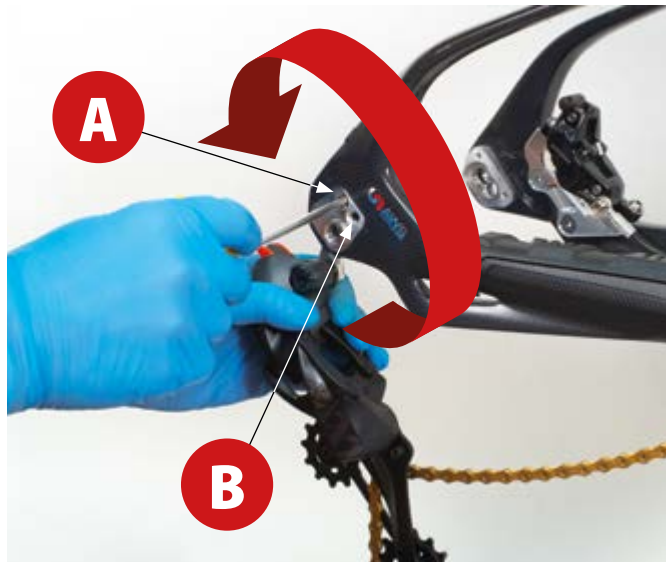
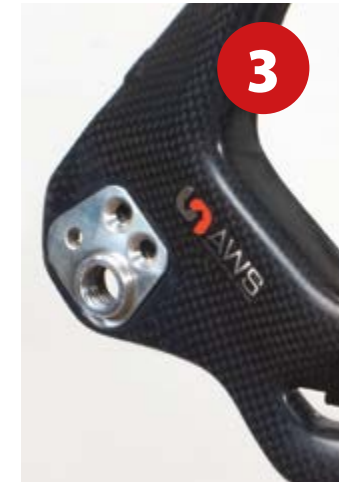
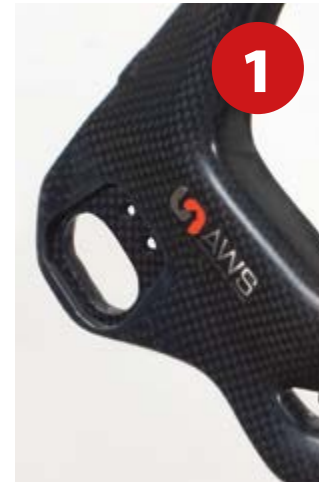
2. Remove the AWS adapter.



3. Turn the AWS adapter and re-insert it in its seat.
Finally, re-tighten the two screws **A** and **B** to tightening torque 1,5-2 Nm.
to secure the adapter.

Right side AWS adapter

1. AWS adapter seat.
2. AWS adapter for 29" wheel.
3. AWS adapter for 27.5" wheel.



1. Unscrew the two fixing screws **A** and **B** on the AWS adapter.

Take care when unscrewing the two screws to hold the rear derailleur unit with one hand as these screws hold the rear derailleur in place and, if not supported, it will fall off.

2. Remove the AWS adapter.

3. Turn the AWS adapter and re-insert it in its seat.

Finally, re-tighten the two screws **A** and **B** to tightening torque 1,5-2 Nm. to secure the adapter, taking care to put the rear derailleur in the correct position, which provides for hole alignment for passage of the wheel pin.

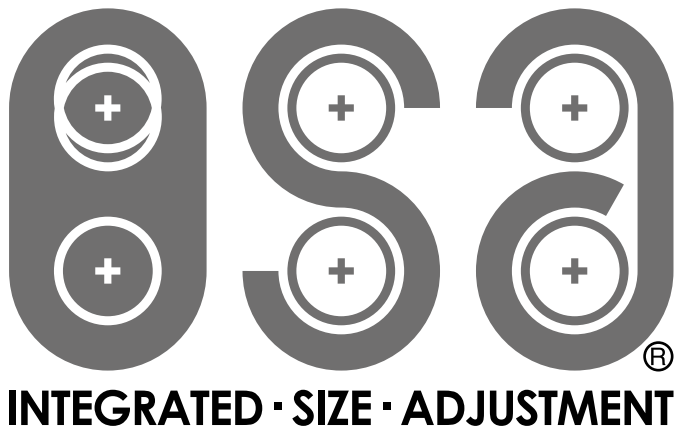
End of operation



1. Put the wheel back in position from bottom to top, taking care to engage the chain on the smallest sprocket of the cassette and to centre the brake disc in the calliper.
2. Insert the wheel axle. Carefully look for the threaded seat on the right arm of the swingarm, helping you with the wheel for centring.
3. Screw the wheel axle in by hand for a few turns, and then tighten it moderately with a Torx wrench.



4. Tighten the wheel axle with a torque wrench to a torque of 18 Nm.
5. Check that the chain is correctly positioned on the sprockets of the cassette.
6. Unlock the rear derailleur from the Cage Lock position and release it carefully, accompanying it with your hand.



Move the fork up to 16 mm forward and backward to vary the wheelbase and, consequently, the driving dynamics according to your needs.

The fork must be removed to customise the ISA system.

See the handlebar removal procedure on page 44 to release the fork from the frame ▶



1. ISA headset in **standard configuration**.



2. ISA headset in **8 mm forward configuration**.



3. ISA headset in **8 mm back configuration**.

1. Dismantle the handlebar and handlebar stem.

See the handlebar removal procedure on page 44 to release the fork from the frame ▶



2. Remove the headset cover and spacers.



3. Slide the fork off downward. Pay attention to the lower bearing of the headset: it may remain on the fork tube or adhere to the frame retained by the lubrication grease; in the latter case detach it with your fingers and place it onto the fork tube in its original position.



4. Remove the upper bearing from the headset. Make a note of the position so that you can reassemble it in the same direction.



5. **Unscrew the Allen screws** holding the two upper and lower ISA headset adapters.



6. **Loosen the upper ISA headset adapter.**
Using an Allen key or a screwdriver, give **light blows** from the bottom to the top to unlock the upper adapter.



7. **Completely remove the upper ISA headset adapter.**



8. **Loosen the lower ISA headset adapter.**
Using an Allen key or a screwdriver, give **light blows** from the top to the bottom to unlock the lower adapter.



9. **Completely remove the lower ISA headset adapter.**
This completes ISA headset disassembly.


Mounting the ISA headset

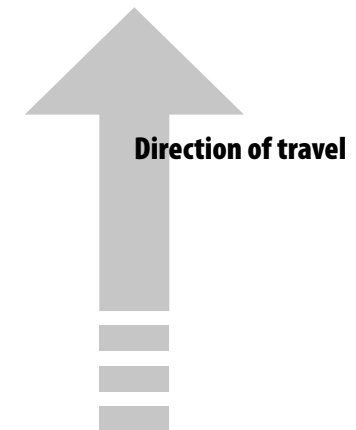
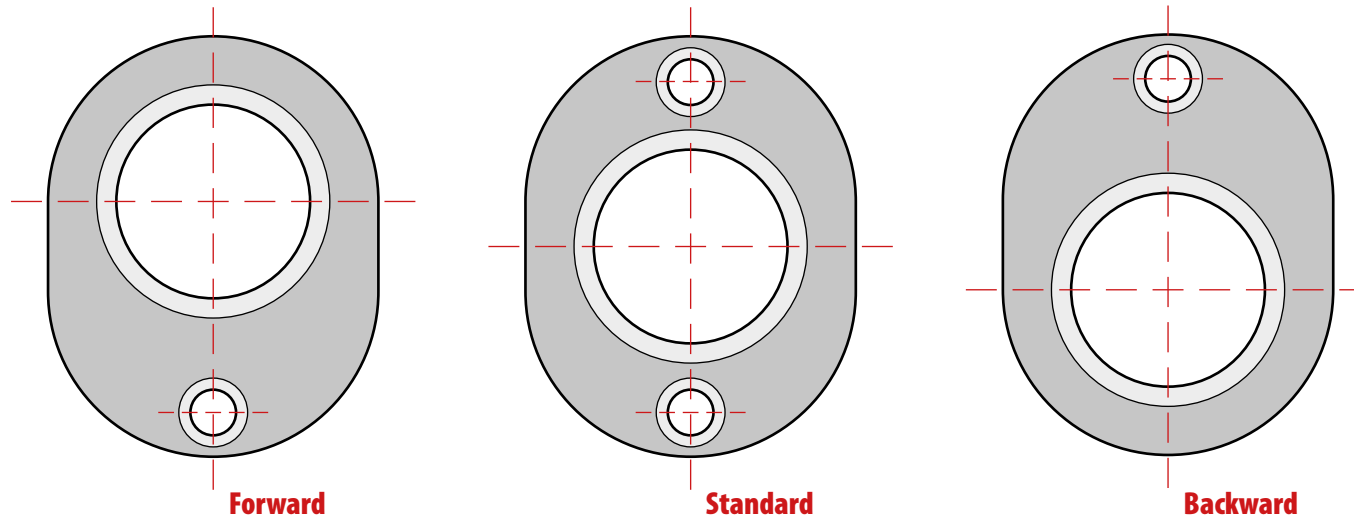
At this point, you are ready to reassemble the ISA headset, arranging the adapters according to the position you prefer.

You can vary the wheelbase up to 16 mm forward or backward.

Refer to the diagram below to choose your configuration.

Position of ISA headset adapters

 **CAUTION** Be careful to reassemble both top and bottom adapters with the fork tube passage holes aligned. In the event of an oversight, you will still not be able to tighten the adapter fixing screw.





1. Insert the lower ISA headset adapter.



2. Insert the upper ISA headset adapter.



3. Press with both hands to move the two adapters all the way in.



4. Insert the AWS adapter fixing screws.

Help yourself to centre the bottom adapter hole and initially tighten the screws by hand.



5. Tighten the screws moderately with an Allen key.



6. Tighten the screws with the torque wrench to a torque of 4 Nm.



7. Insert the fork.

Make sure the lower headset bearing is mounted correctly. We recommend spreading the bearing with bearing grease.



8. Assemble the upper bearing on the headset.

We recommend spreading the bearing with bearing grease.



9. Assemble the headset cover and the handlebar stem spacers.



10. Reassemble the handlebars.

See the handlebar assembly procedure on page 45 ►

Tighten the handlebar stem cap screw.

It must be tightened until there is no clearance on the headset and the headset rotates freely.



Finally, tighten the two handlebar stem screws to a torque as indicated on the component.

Motor/battery unit

- 1 - Rechargeable battery.
- 2 - Motor unit.
- 3 - Bottom bracket.
- 4 - Shifter.

In the event of discrepancies between the data in these descriptions and those provided by Fazua, the latter will prevail.


General safety warnings

The following general safety warnings must always be observed whenever using and handling the motor system.


 **ATTENTION** In general, there are dangers for electric bike riders.

Depending on the bike model on which the motor system is installed, there may be additional dangers that are not mentioned here.


- Read and follow your bicycle manufacturer's instructions.
- Please read and observe any national regulations that apply to bicycles and comply with them.

 **ATTENTION** If you make modifications to the motor system or components yourself, you could cause an explosion, be electrocuted, or cause yourself and others serious injury.


- Never modify individual motor system components yourself.
- Never replace any motor system components yourself.
- Never open individual motor system components yourself. Motor system components are maintenance-free.
- Only have the motor system repaired by an authorised service technician. Have motor system components replaced with permitted original spare parts only by an authorised service technician.

 **ATTENTION** Activating the motor system in inappropriate situations can result in an accident and serious injury.


- Remove the motor unit from the bicycle whenever it is being transported or stored and during all work on it to prevent the motor system from being inadvertently operated.
- Use the "Thrust Assist" function only when pushing the bicycle by hand. While thrust assist is activated, you must hold the bicycle securely with both hands and the wheels must be in contact with the ground, otherwise there is a danger of injury.

 **ATTENTION** The battery may explode if you use unsuitable rechargeable batteries or handle the battery incorrectly.

- Use only the original battery allowed by Fazua.
- Never use a damaged battery and never attempt to charge a damaged battery.
- Never open a battery; attempting to open it creates an increased risk of explosion.
- Keep the battery away from high heat (i.e. strong sunlight), open flames or water, moisture, or other liquids.
- Use the battery only on bicycles that are equipped with an original Fazua evation motor system. Never use the battery for any other purpose or on any other motor system.

 **ATTENTION** Using the battery and/or charger incorrectly or using incompatible rechargeable batteries and chargers together creates a risk of fire.

- Use only Fazua original and compatible evation chargers to charge the battery.
- Make sure that no metal objects such as coins, paper clips, screws or similar are handled in the immediate vicinity of the battery, and that the battery is stored separately from metal objects. Metal objects can induce an electrical circuit between the battery connection terminals (i.e. "short-circuit" the battery), causing a fire. Do not place the battery on metal shelves or benches.
- Never short-circuit the battery.
- The battery and charger become hot during the charging or operating procedures. Therefore, keep the battery and charger away from flammable materials. Pay particular attention to this during the charging procedure and always place the battery and charger in a dry, fireproof place.
- Never leave the battery and charger unattended during charging.

 **ATTENTION** The battery contains battery acid. The skin area and/or mucous membrane affected may suffer a chemical burn if you come into contact with this liquid. Vision loss may occur in case of contact with eyes.

- Never touch the fluid leaking from the battery.
- If you come into contact with battery acid, rinse the affected part of the body immediately with plenty of running water.
- After rinsing, seek medical attention immediately, especially in case of contact with eyes and/or mucous membranes (i.e. nasal mucosa).

 **ATTENTION** If the battery becomes damaged, gas may leak and irritate the respiratory tract.

- Protect the battery from the effect of mechanical forces and any additional stress.
- If you feel or suspect that gas is leaking from the battery, immediately provide fresh air and seek medical attention as soon as possible.

 **ATTENTION** Magnetic battery and charger connections can affect pacemaker operation.

- Keep the battery and charger away from pacemakers, or rather people with pacemakers, and remind them of the danger.

ATTENTION Improper use of the charger or incorrect connection to the mains power supply exposes yourself and others to a danger of electric shock.

- Only connect the charger to an earthed outlet that is easily accessible and properly installed.
- Make sure that the mains voltage on the electrical connection is the same as that indicated on the charger.
- Only use the charger in dry indoor areas.
- Keep the charger away from any liquid and moisture.
- Never pull the mains cable or charger cord out of an outlet but rather pull the corresponding connector.
- Never touch the mains cable or charging cord connectors with wet or damp hands.
- Be careful not to bend the mains cable or charging cord and not to place them on sharp edges.
- Never open the charger by yourself. The charger may only be opened by an authorised technician and only repaired with original spare parts.
- Before each use of the charger, check for damage to individual parts (power supply unit, mains cable, charging cord, and all connectors). If the mains cable of the charger is damaged, it must be replaced by the manufacturer, its customer service department or a similarly qualified person to avoid any danger.
- There is a high risk of electric shock if the charger is used when damaged.
- Keep the charger clean. There is an increased risk of electric shock if the charger is dirty or contaminated.

ATTENTION

- The charger may not be used by children or persons with physical, sensory or mental disabilities.
- Children must not play with the charger.
- Keep the battery and charger out of the reach of children.



CAUTION

- During operation, the motor unit radiator can become very hot, so that you may burn yourself if you touch it.
- Use caution when handling the motor unit.
 - Allow the motor unit to cool completely before touching it.



WARNING

- Incorrect handling of the motor system may damage the motor system itself or individual components of it.
- Have the individual motor system and bike components replaced only with structurally identical parts or other parts expressly permitted by the bike manufacturer. This protects the remaining components or your bike from damage.
 - Under no circumstances should you use your bike without a motor unit or without a cover when using it as a conventional bicycle.
 - Remove the battery before cleaning the motor unit and then allow all components to dry completely before insertion. The motor can become damaged if the battery touches wet or damp machine unit contacts during insertion.
 - When charging the battery, make sure that the mains cable and charging cord are not a tripping hazard to prevent components from being damaged, for example, from a fall.

Warnings on safe riding in road traffic

Follow the warnings below for safe driving in road traffic to reduce the risk of accidents and injuries as a bicycle or electric bike user. The term “road traffic” also refers to publicly accessible private areas and publicly accessible country lanes or forest paths.

- Only ride your bike in road traffic if the equipment meets country-specific road traffic regulations. Ask your bike’s manufacturer for details.
- Find out from the Ministry of Transport, for example, about the road traffic regulations of the country or region in which the bike is used. Always be informed about changes to current regulations.
- Observe and comply with country-specific and regional road traffic regulations.
- When riding, use a suitable helmet for cyclists which meets the specific country and regional regulations or which is certified according to DIN EN 1078 and bears a CE marking.
- When driving, wear light-coloured clothing with reflective elements in order to attract the attention of other road users.
- Do not ride your bicycle if you are under the influence of alcohol, drugs or medicines that are detrimental to your abilities.
- When driving, do not use any mobile device, such as smartphones, MP3 players or similar.
- When driving, do not get distracted by other actions, such as turning on the lights. Come to a full stop to perform these actions:
- Never ride without using your hands. Always keep both hands on the handlebars.
- Ride with caution and show respect for other road users.
- Ride in such a way as not to harm, endanger, hinder or bother anyone.
- Ride in a single row on the lanes provided for cyclists.

Control operation

The control indicator has 5 LEDs.

■ All five LEDs together act as an indicator of the charge level and the set pedalling assistance level.

■ The highest of the five LEDs also acts as a status indicator, informing the rider of the status of their bike.

Status indicator: displays a change of status or the presence of a fault. If no fault is detected, the status indicator LED functions as one of five LEDs to indicate the charge level or service level set. Depending on the status displayed, the status Indicator LED is lit in different colours:

■ Flashing green: Operational availability

After the motor unit has been successfully mounted on the bike, the status indicator briefly flashes green, indicating that the motor system can be activated via the control.

■ Flashing yellow: Minor fault

The status indicator flashes yellow when a minor fault occurs. The motor system thus indicates the presence of a temporary or non-critical fault, which in most cases leads to reduced power. If a minor fault occurs, you can continue to use your bike, but Fazua strongly advises against doing so to avoid further impairment or damage to the motor system, or rather the bike itself.

■ Flashing red: Serious fault

The status indicator flashes red when a serious fault occurs. If a serious fault occurs on your bicycle, it is no longer usable and must be serviced.

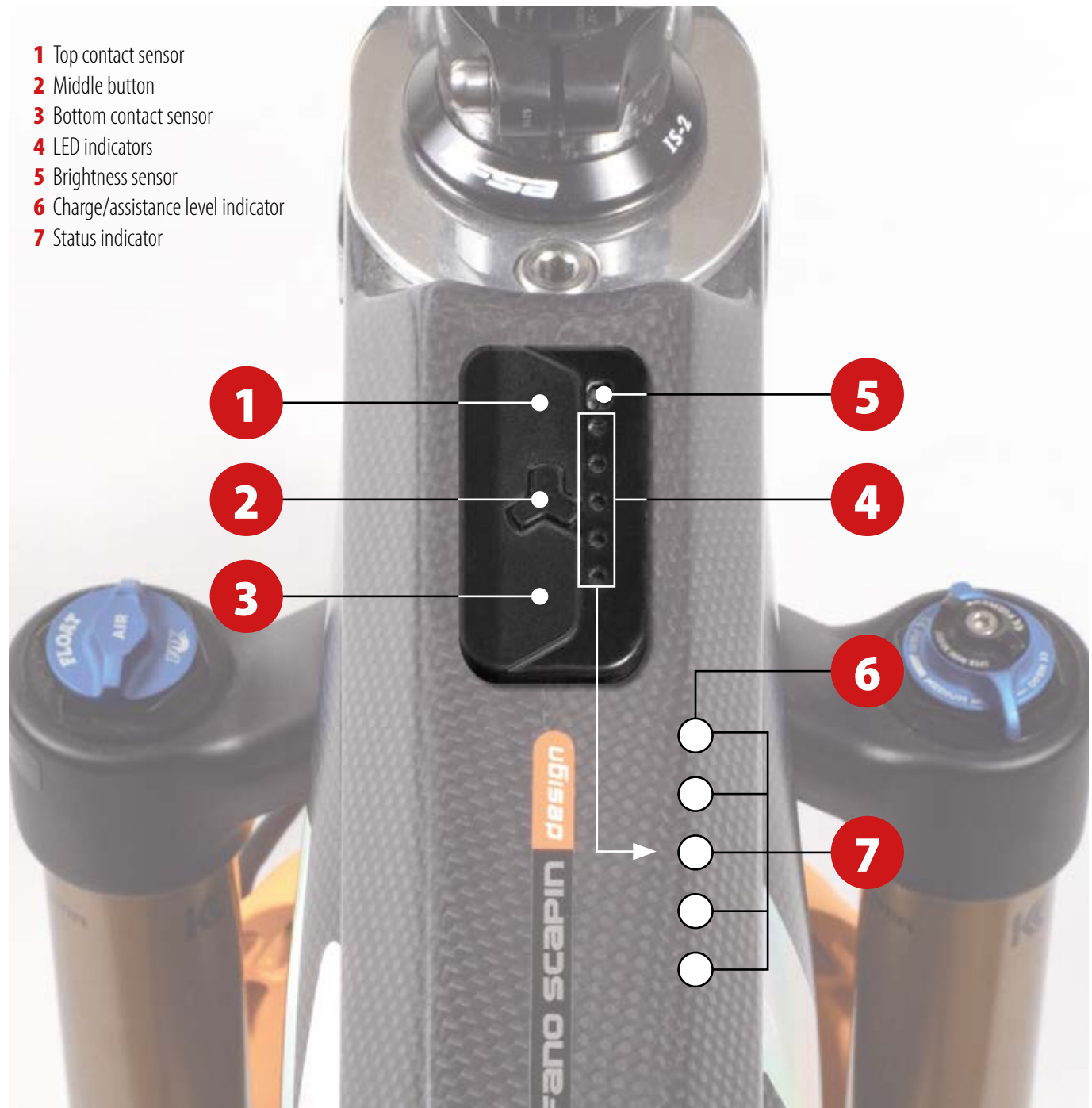
Charge/assistance level indicator: displays two parameters.

■ **Battery charge level:** can be recognised by the number of LEDs are lit. Each of the 5 LEDs here indicates 20% of the total charge capacity.

Therefore, all 5 LEDs are lit when the battery is fully charged. If the battery is low, the top status indicator LED is lit white or no LED is lit.

■ **The selected pedal assistance level:** each assistance level is matched to a colour; that is, you can recognise the assistance level currently set according to the colour that the indicator LEDs are lit.

- 1 Top contact sensor
- 2 Middle button
- 3 Bottom contact sensor
- 4 LED indicators
- 5 Brightness sensor
- 6 Charge/assistance level indicator
- 7 Status indicator



Using the control

You can use the control to set the assistance level at any time, even while riding.

⚠ ATTENTION Accidents and serious injury can result if you become distracted using the control while riding your bicycle.

■ Familiarise yourself with the functions and how to use your control outside of road traffic before you first use your bike.

■ Do not use the control while riding your bike if you are distracted by doing so.

Levels of assistance

No assistance (white)

■ The indicator LEDs on the control are lit white.
Riding without pedal assistance (as with a conventional bicycle).

Breeze assistance level

■ The indicator LEDs on the control are lit green.
Riding with reduced but effective assistance for maximum autonomy.

River assistance level

■ The indicator LEDs on the control are lit blue.
Riding with reliable assistance in most situations.

Rocket assistance level

■ The indicator LEDs on the control are lit pink.
Pedalling with maximum assistance for very demanding routes.

Maximum motor power for Breeze and River modes can be configured in a customised manner.

Restarting the motor system

To completely deactivate your motor system, press and hold the middle button for 8 seconds: all LEDs will switch off. When your motor system is ready to be reactivated, the status indicator will flash green: you can now restart your motor system as usual.

Rain mode

Prevents raindrops from changing the level of assistance. If rain mode has been activated, set the desired level of assistance using middle button **A**:

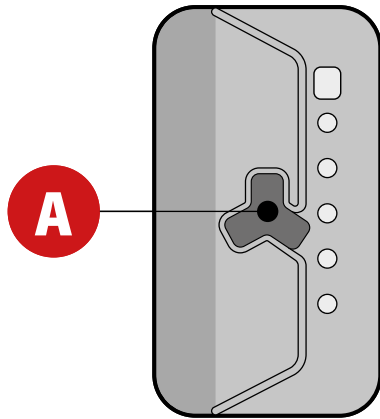
1. Activate rain mode by pressing and holding middle button **A** for 2 seconds – A short blue LED animation will appear.
2. To switch to the next higher level of assistance in rain mode, briefly press middle button **A** 1 time.

Press middle button **A** again briefly once more to switch to the next higher assistance level in the following order:

No assistance / Breeze / River / Rocket / No assistance and so on.

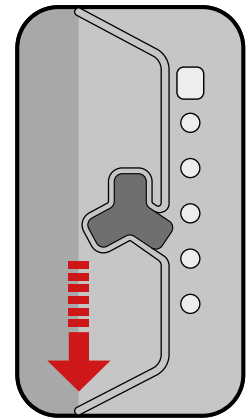
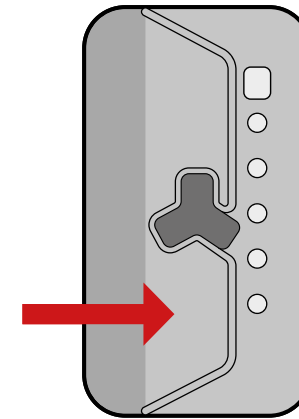
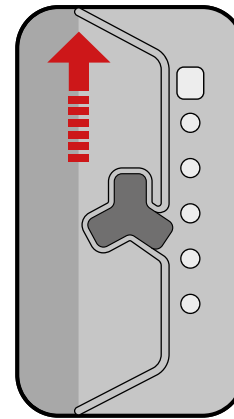
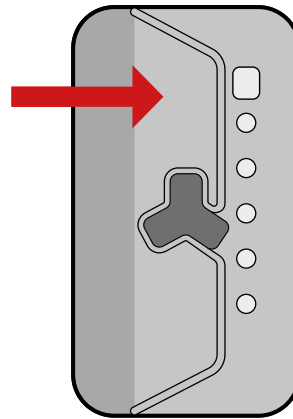
3. To return from rain mode to normal operation, press and hold middle button **A** again for 2 seconds.

Turning the motor system on and off



- Turn the motor system on via the control by pressing middle button **A**.
- Turn the motor system off by pressing and holding middle button **A** for 1 second.

Setting pedal assistance



- To switch to the next higher level of assistance, touch the top contact sensor on the control.
- Or
- To switch to the next higher level of assistance, slide your finger from bottom to top on the control.

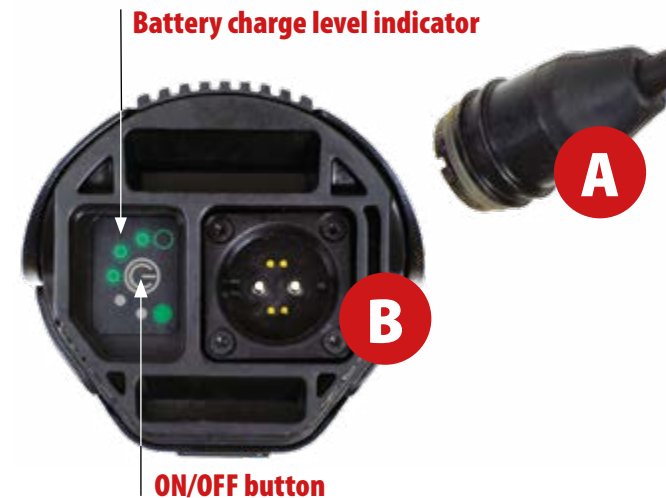
- To switch to the next lower level of assistance, touch the bottom contact sensor on the control.
- Or
- To switch to the next lower level of assistance, slide your finger from top to bottom on the control.

Charging the battery

During charging, you can leave the battery in the motor unit, or alternatively you can take it out of the motor unit and charge it separately.

1. Before charging the battery, prepare the charger by connecting the mains cable to the power supply unit.
2. Remove the motor unit from the bike (images 1. 2. 3.).

3. Plug the charging connector **A** into the charging socket on the battery **B**. The connector is magnetically coded and only plugs in when it is in the correct position.
4. Insert the mains plug into a suitable outlet to establish electrical connection. The charging procedure starts automatically after connecting to the mains supply.
5. When the charging procedure is complete, or to interrupt it, disconnect the charger from the mains by removing the plug from the mains outlet.
6. Pull out the charging connector **A** from the charging socket on the battery **B**.



Removing the motor/battery unit



1. **Disassemble the motor unit/battery assembly.** Lift the locking lever on the frame. Be careful to hold the assembly securely with the other hand.

2. **Remove the motor/battery assembly;** after unlocking the assembly, pull it completely out of the frame. Then place it in a safe place where you will charge it by connecting it to the charger.

3. **Once the motor/battery assembly has been removed,** your frame will look like the picture. You will be able to use your Scapin without any problem like a conventional bicycle, **without battery**, removing it from the battery compartment and, **obligatorily**, reinserting it.

To use your Scapin even without the motor system, thus eliminating excess weight, you need to install the Downtube Cover, **available upon request**, through which you can close the opening of the motor unit compartment when you remove the entire battery/motor system assembly. The remaining space inside can be used to store repair kits or tools, for example.

Battery management

The rechargeable battery will be deactivated after 8 hours of inactivity if no button or contact sensor is operated on the control.

Press the battery **ON/OFF** button once to reactivate the battery.

The battery has the function of displaying its ageing status, the so-called SOH (state of health), which can be seen by double-clicking on the battery's **ON/OFF** button. Similarly to the battery charge level indicator, the SOH is displayed in steps of 20%:

- when all five LEDs are flashing, the battery has a 100% SOH
- if only four LEDs are flashing, the battery has an 80% SOH, and so on.

Reassembling the motor/battery unit



1. Position the motor unit/battery with the bottom bracket interface at the front on the corresponding bottom bracket interface and push the top end of the motor unit into the down tube of the bike.

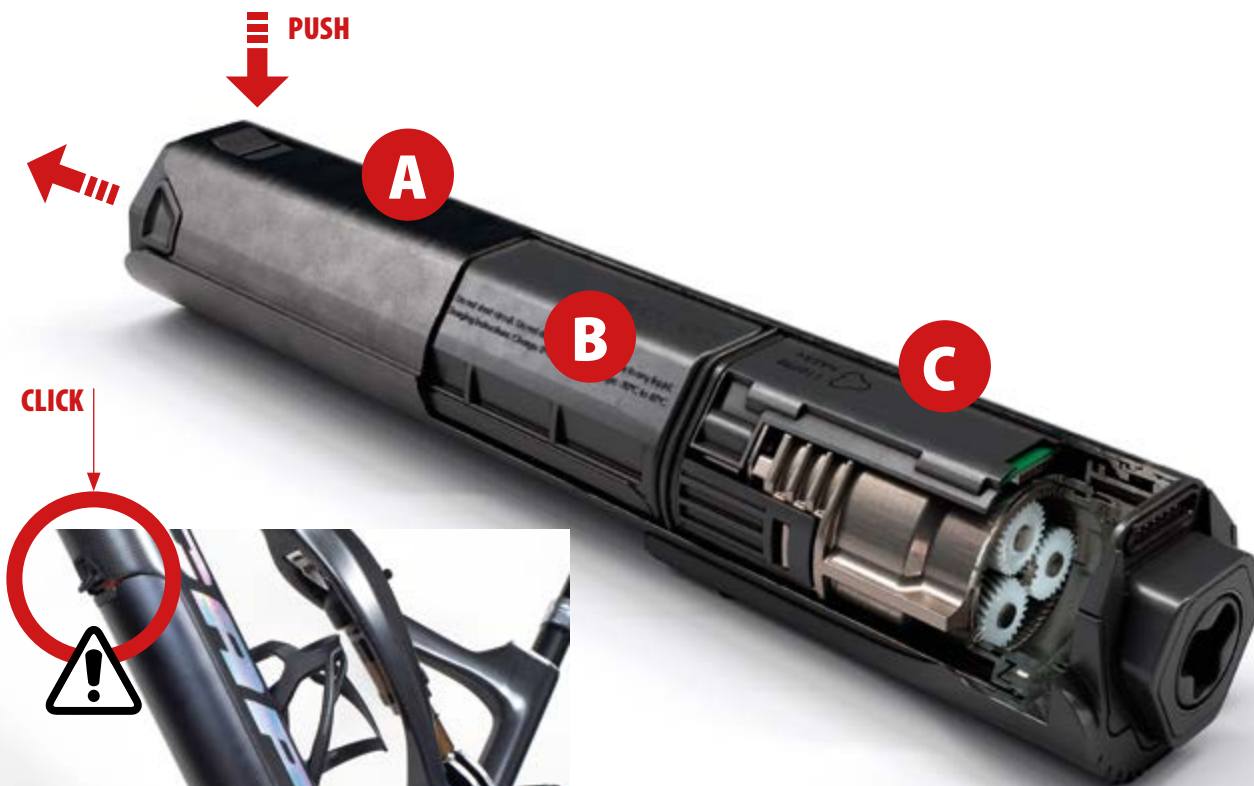
The motor unit is automatically locked in place if the two motor unit/battery interfaces and bottom bracket are correctly matched, and the motor unit is pushed completely into the compartment provided on the down tube.



2. Check the seal on the motor unit/battery.

Repeat the procedure if the motor unit does not lock into place.

! WARNING Do not use the motor system if the motor unit/battery does not lock into place on the bike.



Composition of the motor unit/battery assembly.

The assembly is composed of a battery compartment **A** which, inside, contains the motor **C**, which is immovable, and a battery **B** which can be removed for replacement in case you are equipped with a double battery to increase autonomy.

To remove the battery from the frame:


1. Hold the frame with one hand.
2. With the same hand, press the PUSH button to release the battery from the locked position.
3. Press and hold the button and pull the battery out of the frame with the other hand.

! CAUTION Fingers can be pinched while pulling the battery out of the motor unit. Be careful not to pinch your fingers when pressing the button or pulling the battery out.


Battery deactivation

Deactivate the battery by pressing and holding the **ON/OFF** button.

Charging the battery

 **ATTENTION** Misusing the battery or trying to charge it with an incompatible charger creates a fire risk.

- Use only Fazua original and compatible evation chargers to charge the battery.
- The charger and battery become hot during the charging process, so keep sufficient distance from flammable materials.
- Never leave the battery and charger unattended during charging.

 **ATTENTION** Improper use of the charger or incorrect connection to the mains power supply exposes yourself and others to a danger of electric shock.

- Observe the warnings in the **Charger** section.
- During charging, you can leave the battery in the motor unit, or else you can take it out of the motor unit and charge it separately. In addition, the charging procedure can be interrupted at any time. It is not possible to charge the battery when the charging temperature is not within the permitted limits. This is not possible even if the battery is connected to the charger. Charging is possible again when the permitted charging temperature has been reached.
- Charge the battery fully before first use so that you can use its full capacity.

Connecting the battery to the charger

1. Insert the charging connector into the charging socket on the battery. Since the charger is magnetically coded, you can only insert it in the intended position.
2. Insert the mains connector into a suitable outlet to establish electrical connection. The charging procedure starts automatically after connecting to the mains supply.

Charging procedure

The charging procedure starts as soon as your charger's charging connector has been connected to the charging socket on the battery and the charger to the power supply.

The flashing charge level indicator LEDs on the battery indicate that the battery is being charged.

Finishing the charging procedure

1. Separate the charger from the mains by removing the mains connector from the outlet.
2. Separate the charger from the battery by removing the charging connector from the charging socket on the battery.
3. If you have separated the battery from the motor unit, correctly reconnect the motor unit with the battery.

Charge level indicator on the battery


As soon as the battery is activated, the charge level indicator first automatically shows a start-up animation. Immediately afterwards, the LEDs briefly show the current battery charge level.

A different number of LEDs are illuminated depending on the charge level, with each LED representing 20% of the capacity. If all five LEDs are lit, the battery is fully charged.

As soon as the battery is fully charged, the charge level indicator LEDs switch off.

- To check the charge level before or during a longer trip, for example, press the **ON/OFF** button on the activated battery.

Using the charger


 **ATTENTION** Using a damaged charger exposes yourself and others to a risk of electric shock. Using the charger incorrectly or with an incompatible rechargeable battery can cause a fire.

- Check for damage to individual parts before using the charger.
- Never use a damaged charger under any circumstances.
- Only use the charger in dry indoor areas.
- Keep water, moisture and any liquid away from the charger or its individual parts.
- The charger and battery become hot during the charging process, so keep sufficient distance from flammable materials and do not leave them unattended during charging.
- Place the charger and battery on a well-ventilated surface during charging.
- Use only Fazua original and compatible chargers to charge the battery.
- Do not attempt to charge non-rechargeable batteries in any way.

Preparing the charger

1. Hold the power supply unit and power cord in your hand.
2. Plug the device connector of the mains cable into the mains connection outlet on the power supply unit.

Connecting the charger to the battery

 **ATTENTION** Improper connection to the mains power supply exposes yourself and others to a danger of electric shock.

- First connect the charger to the battery and only then connect the charger to the power supply.
- Connect the charger to an earthed outlet that is easily accessible and properly installed.
- Make sure that the mains voltage on the electrical connection is the same as that indicated on the charger.

1. Insert the charging charge connector into the charging socket on the battery.

2. Insert the mains connector into a suitable outlet to establish electrical connection.

The charging procedure starts automatically after connecting to the mains supply. During the charging procedure, the LED indicator on the power supply unit is lit red to indicate that the battery is being charged.

When the LED indicator turns green, it means the battery is fully charged.

Separating the charger from the battery

⚠ ATTENTION Improper connection to the mains power supply exposes yourself and others to a danger of electric shock.

■ First separate the charger from the power supply and only then separate the charger from the battery.

1. After the charging procedure is completed, pull the mains connector out of the outlet to separate the charger from the mains.

2. Then separate the charger from the battery by removing the charging connector from the charging socket.

3. Then separate the mains cable from the power supply unit, and store the two parts of the charger separately.

Storage and transport

⚠ ATTENTION Activating the motor system in inappropriate situations can result in an accident and serious injury.

■ Always remove the motor unit with the battery before transporting your bike or storing it for an extended period of time.

■ When transporting and storing your bike or motor system components, pay attention to the temperature ranges specified for the components.

■ Always transport and store the battery separately from the bike.

Rechargeable batteries are subject to regulations for dangerous goods.

Undamaged rechargeable batteries may be transported by private individuals in road traffic. Transport for commercial use requires compliance with the regulations for packaging, marking and transport of dangerous goods. Open contacts must be covered and rechargeable batteries must be packaged safely. **When shipping, the relevant parcel delivery service must be informed of the presence of dangerous goods in the packaging.**

■ Pay attention to the following information about the battery charge level in the event of long-term non-use, as well as the temperature ranges for the respective storage times.

The battery should have a charge level of at least 60% when it is not to be used for an extended period of time. Check the battery charge level respectively after 6 months of non-use: if the check shows that the charge level is 20% or less, recharge the battery to at least 60% of its charge level. Please note the following temperature ranges depending on the storage time for the battery (60% charge level):

• 1 month of storage: from -15 to 60°C

• 3 months of storage: from -15 to 45°C

• 1 year of storage: from -15 to 25°C

Cleaning and maintenance

⚠ CAUTION Your fingers may be pinched or otherwise injured if the motor system is activated while you are working on it.

■ Remove the motor unit from the bike before cleaning the bike or motor system components.

⚠ WARNING Incorrect cleaning of the motor system may damage the motor system itself or individual components of it.

■ Never submerge motor system components in water or other liquids for cleaning purposes.

■ Do not use any aggressive solvents when cleaning.

■ When cleaning, do not use any sharp, angular, or metallic cleaning tools.

■ Never clean the motor system components with a strong jet of water or a high-pressure cleaner.

■ In general, keep all bicycle and motor system components clean.

■ Gently clean the components with a soft cloth or brush.

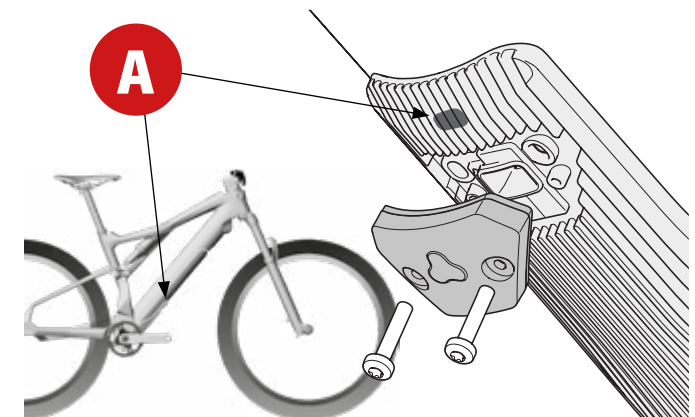
■ After cleaning, dry all surfaces and components with a cloth.

■ Pay particular attention to the contacts and interfaces between the battery and the motor unit, as well as those between the motor unit and bottom bracket: the interfaces must not be dirty or contaminated and must be completely dry before the components are inserted to avoid damage and malfunction.

■ Clean the motor unit radiator at regular intervals. Do not only clean the radiator when it is clearly or heavily soiled.

■ Grease the clamping device for locking the motor unit on the frame every 2-3 months, or at the latest when it can no longer be comfortably used.

■ Keep the drain opening **A** on the radiator clean and free to ensure that sprayed water and condensation can drain away from the motor unit without any problems. The drain opening is located on the radiator immediately above the USB connection, or rather its cover.



APPENDIX C

TROUBLESHOOTING

1. If your bike or motor system does not operate as expected, first check whether the fault can be rectified according to the following summary table.

Problem

The motor seems less powerful than usual.

It is not possible to lock the motor unit in position on the down tube.

It is not possible to snap the motor unit out from the down tube.

The motor unit is making a squeaking noise.

The motor unit is making a metallic-sounding noise.

The top LED on the control is red/flashing red.

The top LED on the control is yellow/flashing yellow.

2. If necessary, contact a Fazua service partner or consult the official Fazua service platform (www.fazua.com/service) if:

- The fault is not listed in the summary table.
- The fault is listed in the summary table, but it cannot be rectified as described or you are uncertain about it.

Possible cause / solution

The motor system is brand new. Wait for the motor system to become broken in. The motor system needs a few kilometres before you can deploy its full power.
It is very hot and the thermal management of the battery and/or motor unit is limiting the power.
It is very cold, so that the lithium-ion battery is not providing the usual power.

The clamping device fails to grip the motor unit; the red locking mechanism is activated. Push the black wedge up so that the red snapping component comes out from the clamping device. In this way, the motor unit can again be locked in place.

Dirt may be blocking the clamping device. You may have used the bike without the motor unit in bad weather conditions.
The clamping device is defective. Please contact a Fazua service partner.

The polygonal bushing is moving. Please contact a Fazua service partner.

The polygonal coupling has been stressed on one side only.
Press the polygonal coupling back into its original position to make it mobile again.

There is a connection failure between the motor unit and the bottom bracket. Dirt may be preventing connection on the interface.
Clean the interface between the motor unit and the bottom bracket.

There may be a poor quality connection between the speed sensor and the bottom bracket. Check the position of the speed sensor magnet.
If no fault is detected, contact a Fazua service partner.

Problem

The white LEDs on the control are flashing.

The control cannot be turned on.

The battery cannot be inserted into the motor unit or it does not snap into place in the corresponding compartment.

While riding, assisted pedalling is suddenly no longer necessary.

Possible cause / solution

Software update. The control automatically updates itself after installation of a software update. In this case, wait and deactivate the control until the LEDs stop flashing.

The battery is low or has been deactivated due to long-term non-use. Try to activate the battery using the On/Off button. Charge the battery if necessary. The interface between the battery and the motor unit may be dirty. Clean the interface between the battery and the motor unit.

The interface between the battery and the motor unit may be dirty. Clean the interface between the battery and the motor unit.

BMS search function. Deactivate the battery by pressing and holding down the On/Off button for about 3 seconds, then reactivate it.

Service

Before contacting a service partner or the Fazua service team, prepare a description of the fault and prepare all information about the relevant component, if possible.

■ If necessary, contact a service partner or the Fazua service team.

■ If necessary, also consult the Fazua service platform:

detailed service information is available, as well as a nearby Fazua service partner search function.

Disposal warnings

In accordance with the EU Directives on waste electrical equipment (Directive 2012/19/EU) and waste accumulators (Directive 2006/66/EC), the corresponding components must be collected separately and disposed of in an environmentally friendly manner.

■ Before disposal, remove the battery and any other rechargeable batteries installed on the bicycle, as well as all components and control panels containing batteries or rechargeable batteries.

Disposing of your bicycle

After you have removed all rechargeable and non-rechargeable batteries, the bicycle is considered waste electrical equipment and must be recycled.

■ Please contact your city or local government (town, province) for information regarding free collection points for waste electrical equipment and/or collection points where the components can be recycled.

■ If necessary, make sure you delete any personal data stored on the device before you return the electrical or electronic device to the collection point. This task is your responsibility.

Disposing of the battery

The battery of the drive system is a lithium-ion battery that must be disposed of as special waste.

■ Dispose of the battery of the motor system as well as any other rechargeable and non-rechargeable batteries installed on the bicycle at a recycling centre or at a collection point in your city or town.

Compliance with the correct tightening torque of threaded fasteners is very important for safety. Always tighten the fasteners to the correct torque value. **If there is any discrepancy between the instructions in this manual and the information provided by the component manufacturer, the latter will prevail.**

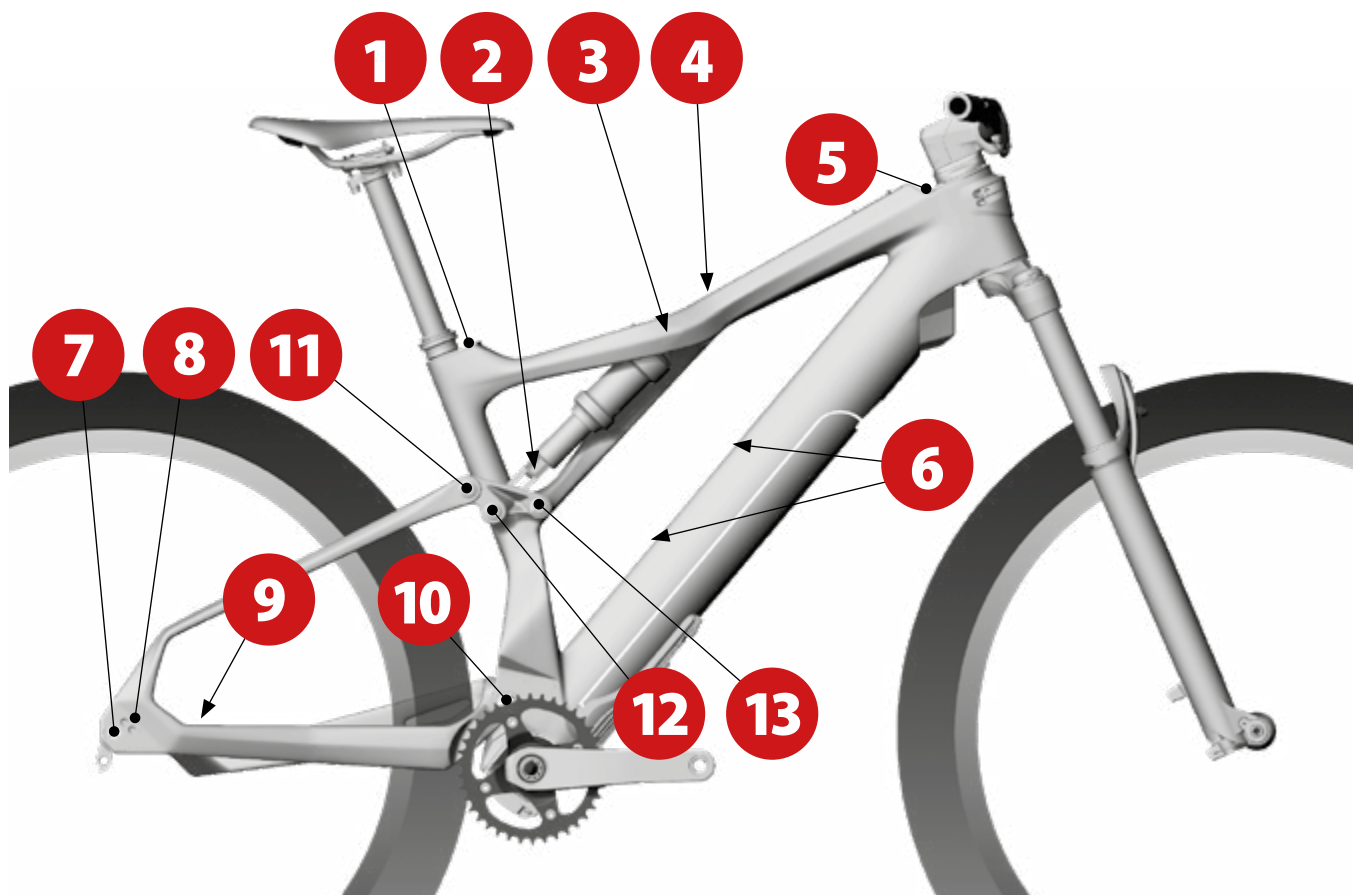
Overtightened bolts can stretch and warp. Bolts that are tightened too tightly may become loose and subject to fatigue.

Both conditions can lead to sudden bolt breakage. Always use a calibrated torque wrench to tighten the critical fasteners on your bike.

APPENDIX D

TIGHTENING TORQUE TABLE

| Coupling | Tightening Nm |
|--|---------------|
| 1 ISC seat post clamp | 8 |
| 2 Shock absorber foot / rear suspension linkage | 30 |
| 3 Shock absorber head / ADB connection | 12 |
| 4 ADB shock absorber connection / frame | 5 |
| 5 ISA headset / frame | 4 |
| 6 Water bottle holder / frame | 3 |
| 7 Rear wheel thru axle / swingarm | 18 |
| 8 AWS adapters / frame | 1,5/2 |
| 9 Swingarm / rear brake calliper | 10 |
| 10 Swingarm pin / frame | 16 |
| 11 Igus Drylin rear suspension linkage | 12 |
| 12 Igus Drylin rear suspension linkage | 16 |
| 13 Igus Drylin rear suspension linkage | 12 |





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