POLYGON

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BICYCLE OWNER'S MANUAL

POLYGON

Bicycle Owner's Manual

CONGRATULATIONS on purchasing a Polygon bicycle.
A bicycle is a great tool for transportation and recreation. We hope that you will ride it often and enjoy your purchase.
This manual contains important safety, performance, and maintenance information.

IMPORTANT:
Read this manual before taking your first ride on your new bicycle and keep it for future reference.

Additional safety, performance, and service information related to specific components such as suspension and pedals on your bicycle, and other accessories such as helmets or lights you've purchased, is also available. Make sure your dealer has provided all manufacturer literature included with your bicycle and accessories.

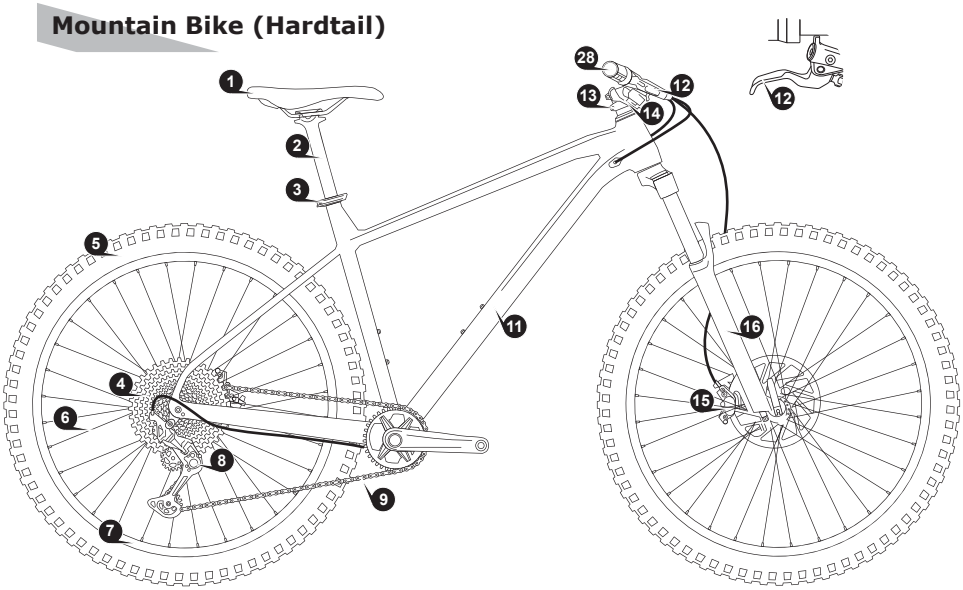
In case of conflict between the instructions and information provided in this manual, always follow the component manufacturer's instructions.

If you have any questions or do not understand something, for your safety we recommend that you consult your dealer or the component manufacturer.

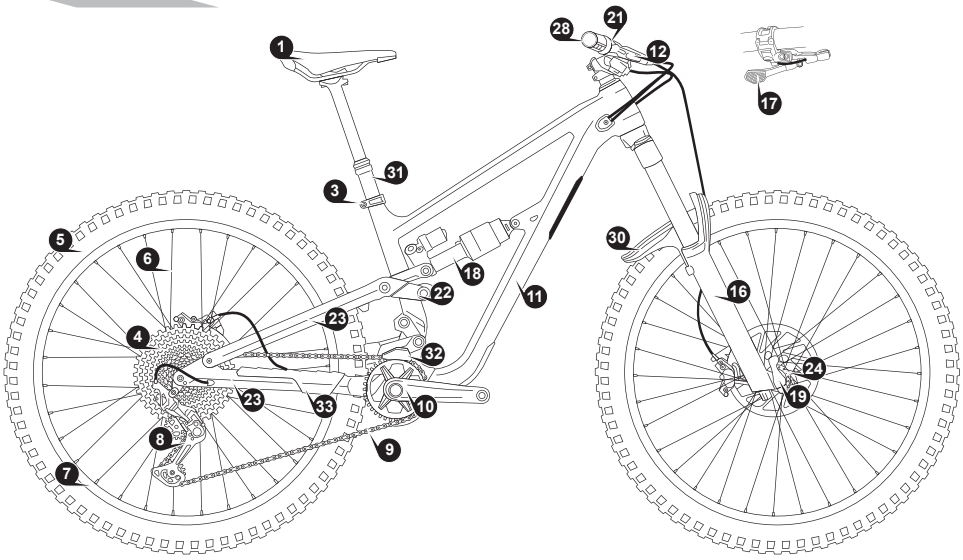
NOTE:
This manual is not intended to be a comprehensive use, service, repair, or service manual. Please see your dealer for all service, repairs, and maintenance-related actions. Your dealer can also refer you to classes, clinics, or books for service or maintenance.

BIKE ELEMENT

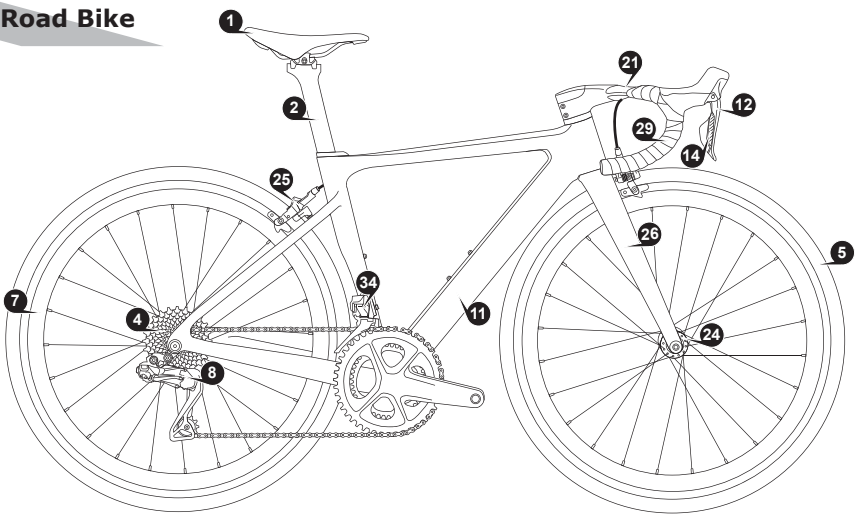
Mountain Bike (Hardtail)



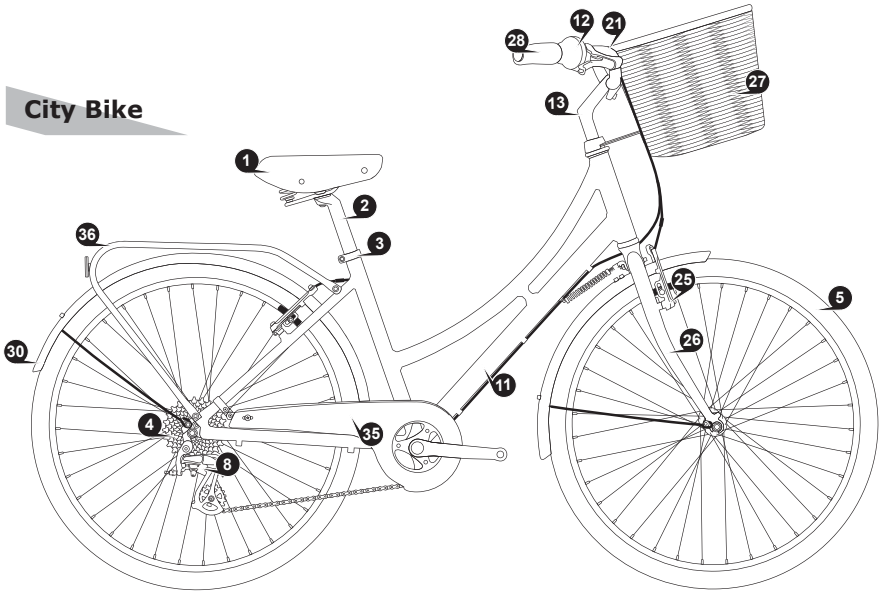
Mountain Bike (Full Suspension)



Road Bike



City Bike



1. SADDLE
2. SEATPOST
3. SEAT CLAMP
4. CASSETTE SPROCKET
5. TIRE
6. SPOKE
7. RIM
8. REAR DERAILLEUR
9. CHAIN
10. CRANKSET
11. FRAME
12. BRAKE LEVER
13. STEM
14. GEAR SHIFTER
15. DISC BRAKE
16. SUSPENSION FORK
17. DROPPER LEVER
18. REAR SHOCK
19. THRU AXLE
20. QUICK RELEASE
21. HANDLE BAR
22. FRAME LINKAGE
23. REAR TRIANGLE
24. HUB
25. RIM BRAKE
26. RIGID FORK
27. BASKET
28. HANDLE GRIP
29. BAR TAPE
30. FENDER/MUDGUARD
31. DROPPER POST
32. CHAIN GUIDE
33. CHAIN PROTECTOR
34. FRONT DERAILLEUR
35. CHAIN COVER
36. CARRIER

CONTENT

GENERAL WARNING:

Like any other sport, bicycling involves risks of injury and damage. Please remember to practice safety rules, ride responsibly, and perform proper maintenance. Proper bike use and maintenance will reduce your risk of injury and damage.

This manual contains "Warnings" and "Danger" notices concerning the consequences of failing to maintain or inspect your bicycle, and of failing to follow safe cycling practices.

The combination of the safety alert symbol ⚠ and the word **Danger** indicates a potentially hazardous situation which, if not avoided, could result in serious injury or death.

The combination of the safety alert symbol ⚠ and the word **Warning** indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury, or is an alert against unsafe practices.

Many of the warnings and danger notices say "you may lose control and fall." Because any fall can result in serious injury or even death, we do not always repeat the warning of possible injury or death.

Because it is impossible to anticipate every situation or condition which can occur while riding, this manual makes no representation about the safe use of the bicycle under all conditions.

There are risks associated with the use of any bicycle which cannot be predicted or avoided, and which are the sole responsibility of the rider.

Special note to parents

⚠ WARNING:
This manual covers adult and juvenile bicycles, including BMX and other youth-sized bicycles. Your child may also ride an adult-sized bicycle.
As a parent or guardian, you are responsible for the activities and safety of your minor child. This includes ensuring:

- The bicycle is properly fitted to the child
- The bicycle is in good repair and safe operating condition
- You and your child understand safe operation
- You and your child follow all applicable traffic laws and safe riding practices
- The bike is ridden for its intended purpose and on suitable terrain

As a parent, you should read this manual and review its warnings, functions, and operating procedures with your child before allowing them to ride.

⚠ WARNING:
You and your child must always wears a certified bicycle helmet when riding. Follow all the helmet manufacturers fitting instructions and ensure the helmet fits properly and is positioned correctly on your child's head. Failure to follow this warning could result in serious injury or death.

A proper helmet should:
- **Be comfortable**
- **Be lightweight**
- **Provide ventilation**
- **Fit snugly**
- **Cover the forehead**

⚠ Attention Full-suspension bicycles are not suited for use with trailers and with trailers for children! Bearings and fastenings are not designed for the forces that then may occur. Use of trailers can lead to higher wear and tear and there is danger of frame linkages, pivots or bearings breaking. Serious falls and injuries could be the result.

KIDS BIKE

As a parent or legal guardian, you are responsible for your child's safety when riding in public areas.

- Practice riding in a safe, traffic-free area (e.g., an empty parking lot or open space) until the child can confidently control the bicycle.
- Ensure the child wears bright, visible clothing and always uses a properly fitted helmet. Explain why this is important.
- Adjust the seat and handlebar so the child can place their feet on the ground when needed. A stable and comfortable riding position is essential for safe control.
- Teach and practice proper use of both front and rear brakes, including controlled use of the front brake and any backpedal brake.

⚠ DANGER:
Read the manufacturer's instructions before installing stabilizers. They must be fitted securely. If you are unsure how to install them, contact a specialist dealer.

⚠ WARNING:
Stabilizers or Training Wheels can help a child become familiar with riding by providing additional stability and reducing the risk of falls. However, they limit the child's ability to develop balance. After removing stabilizers, supervise your child closely, as they must adjust to the bicycle's handling and learn to balance independently.

Carrying Children / Child Trailers

- Use only tested and approved child seats of appropriate quality.
- Ensure the child's feet are securely supported to prevent contact with moving parts such as spokes.
- Always secure the child with a safety harness.
- Ensure the child wears a properly fitted bicycle helmet at all times.
- Installing a child seat affects the bicycle's handling. The added weight may reduce stability and increase stopping distance. Practice riding in a safe, traffic-free area before riding on public roads.
- Follow all manufacturer instructions for installation and use.

Do not exceed the bicycle's maximum total weight, including rider, child, seat, and any additional accessories.

⚠ **DANGER:** Child seats may only be installed on bicycles approved for this purpose.

- Never attach a child seat to frames or components made of carbon fiber.
- Never attach a child seat to the seatpost.
- Do not use suspension (spring-loaded) saddles or seatposts when carrying a child in a rear-mounted seat, as this creates a significant risk of injury.
- Ensure all moving parts and exposed springs are covered or protected to prevent a child from trapping their fingers.

⚠ **WARNING:**
In some countries (e.g., Germany), carrying children in a child seat is only permitted for children up to seven years of age, and the rider must be at least 16 years old. Always check and follow the legal requirements that apply in your country.

If your bicycle is supplied with unassembled accessories, carefully read and follow the component manufacturer's instructions.

Child Trailers

- Use only tested and approved trailers of good quality. Always follow applicable national regulations.
- Not all bicycles are suitable for towing child trailers. Confirm that your bicycle is approved for this use and only use manufacturer-approved attachment systems.
- Trailers can be less visible in traffic. Improve visibility by using a safety flag (pennant) and approved lighting. Consult your dealer for suitable safety accessories.
- Towing a trailer affects handling. The added weight increases stopping distance and changes steering. Practice riding with a trailer in a safe, traffic-free area before riding on public roads.
- Additional Restrictions
- Trailers are not permitted for Polygon city, trekking, and urban bicycles.

ADDITIONAL RESTRICTIONS
POLYGON does not accept liability or provide warranty coverage for trailer use due to variations in attachment systems and potential associated risks.

- Maximum luggage weight should not exceed 25 kg, or the carrier manufacturer's specified limit.
- If a child seat is installed, ensure any exposed coil springs under the saddle are properly covered to prevent finger entrapment.

USE AS INTENDED

Bicycles are intended for single-person use. Carrying an additional passenger is only permitted where allowed by applicable laws (e.g., tandems). When transporting loads, appropriate equipment must be installed and weight limits of the bicycle and any carrier must not be exceeded. Children may only be carried using approved child seats or purpose-built trailers.

⚠ WARNING: Using the bicycle under extreme conditions or beyond its intended use may damage components or cause failure, leading to loss of control or a crash. Do not exceed the bicycle's limits. If you are unsure, consult your dealer.

Condition	Terrain	Weight limit	**Bicycle type or definition**
	Suitable for child riding. A child should ride under parent/s supervision. Rider should not ride near slopes, curbs, stairs, drop-offs, pools.	40kg (88lb)	Usually a bicycle with 12", 16", or 20" wheels; a child's tricycle; and includes a push bike No quick-release wheel attachment systems
		136kg (300lb)	City Bikes – without suspension
	Riding on a paved surface where the tires are always on the ground.	125kg (275lb)	Road bicycle with drop-type handlebar
			Triathlon, time trial, or speed bicycle
			Cruiser with large, 26" tires and swept-back handlebar or City bikes
			Road electric-assist bicycle with drop-type handlebar
		136kg (300lb)	Standard pedelec electric-assist bicycle (e-bikes)
		250kg (550lb)	Tandem
	Riding in smooth gravel roads and groomed trails with low-angle grades. Not intended for jumps or drops	80kg (175lb)	Mountain or hybrid bike with 24" wheels
		125kg (275lb)	Gravel, Cyclocross, Touring bicycle: drop-type handlebar, knobby 700c tires, and cantilever or disc brakes
		136kg (300lb)	Hybrid or DuoSport bicycle with 700c wheels, tires wider than 28c, and flat handlebar
			Standard pedelec electric-assist bicycle

	Riding in Conditions class 2 and 3, plus rough trails, small obstacles, and smooth technical areas. Jumps should be no more than 24" (61cm).	80kg (175lb)	Mountain bike with 24" wheels
		136kg (300lb)	Any mountain bicycle that does not have rear suspension is designed for condition on class 3. Any mountain bicycle with short-travel rear suspension is also designed for condition on class 3. • "Standard," "race," "cross-country," or "singletrack trail" mountain bicycle with wide, knobby 26", 27.5", or 29" tires • Short-travel rear suspension (3"/75mm or less)
			Mountain electric-assist bicycle
	Riding in Conditions class 2, 3, and 4; plus rough technical areas and obstacles of moderate height. Jumps should be no more than 48"/120cm.	136kg (300lb)	"Heavy-duty," "technical trail," or "all-mountain" mountain bicycle with wide, knobby 26", 27.5", or 29" tires, and medium-travel rear suspension (4"/100mm or more)
	Riding where you jump, ride at high speeds, ride aggressively on rougher surfaces, or complete jumps on flat surfaces.	136kg (300lb)	"Freeride," "jumping," or "gravity" bicycle with heavy-duty frames, forks, and components with long-travel rear suspension (7"/178mm or more)This type of use is very dangerous and puts large forces on a bicycle. Large forces can apply dangerous stress to a frame, fork, or the parts. If you ride in Condition Class 6 terrain, you should practice safety precautions such as more frequent bicycle inspections and more frequent replacement of equipment. You should also wear comprehensive safety equipment such as a full-face helmet, pads, and body armor.

NOTE:
We strongly urge you to read this manual in its entirety before your first ride. Not all bicycles have all features described in this manual. At minimum, ensure you understand each point in this manual. Ask your dealer to point out the features of your bicycle.

PRE RIDE PREPARATION

Bike fit

Proper bike fit is critically important for comfort, injury prevention, and performance. A proper fit improves efficiency, allowing for higher power output and a more enjoyable ride experience.

For a bicycle with a standard straight top tube, there should be at least 25mm (1 in) of clearance between you and the top tube when you stand over your bike (Figure 1.1)

For a step through and mountain bike frame, verify size using a corresponding standard top tube frame. Adjust your saddle to a comfortable height. Test that you have the right height by sitting on the saddle with your heel on the lower pedal (Figure 1.2) and your leg slightly bent (Figure 1.3). If your leg is bent more than slightly, your seat should be adjusted up. If you can't reach the pedal, your seat should be adjusted down.

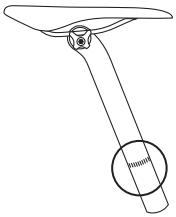


Figure 1.4

WARNING: To avoid damage to the seatpost or bike frame, do not position the saddle beyond the minimum insertion line on the seatpost or seatmast (Figure 1.4). If you can't properly position your saddle, see your bike shop.Rear suspension bikes - When adjusting your saddle, consider the upward travel of your rear wheel in relation to your saddle position.

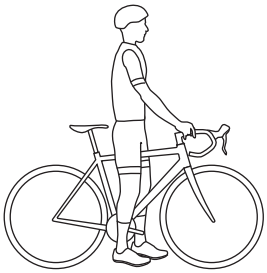


Figure 1.1:Correct ride height.

Figure 1.2:Adjusting seat height.

Figure 1.3:Check seat height.

A simple guide to calculate your seat height:

- Stand barefoot against a wall with feet about 6-8 inches apart.
- Place a book (spine up) firmly between your legs, snug against your crotch, square to the wall and level with the floor.
- Mark the wall at the top of the book's spine.
- Measure the distance from the floor to the mark in centimeters then multiply by 1.09.

This number is the distance from the flat part of your pedal to the top of the saddles or your "saddle height". This calculation will account for differfent crank lengths and pedal thickness.

Line up your cranks with the seatpost of the bike and measure from the top of the pedals to the top of the seat (measuring tape in line with the seatpost). Set your saddle at the height calcualted from above and with the cranks in line with the seatpost, and the ball of your foot over the axle of the pedal, you should have a slight bend in your leg.

This can help confirm proper seat height - with the cranks in line with the seatpost still, slide the heel of your shoeto line up with the very back of the pedal. This should make your leg straighten out. You should not have to force your knee backwards to get the leg straight orstretch your leg down to touch the pedal. *Note: this should be done with your cycling shoes not runners.

Addtional check for seat height as well as seat fore and aft positioning. With the cranks level to the ground the bump located just below your kneecap should be as close as possilbe to lining up with the center of the pedal axle and the ball of your foot. This can be dialed in by minor fore and aft adjustments of the seat rails in the seatpost.

When the saddle height is adjusted properly it is normal for just the tips of your toes to be able to touch the ground.

PRE-RIDE CHECKLIST Before every ride it is recomended that you inspect your bike to ensure it is functioning properly and safely.

Component	Check
Cassette / Gears	Gears shift smoothly from small to large cog
Chain	Chain is properly lubricated
Chainrings (front)	Check that chainrings are straight and not excessivly worn
Cables - derailleur	Check that cable ends are not frayed and have caps on
Cables - brakes	Check that cable & ends are not frayed and have caps on
Housing - derailleur	Ensure the housing is not kinked or cracked
Housing - brakes	Ensure the housing is not kinked or cracked
Headset Bearings	Ensure bars & front wheel turn smoothly and are not loose
Bottom Bracket bearings	Check for play in bearings
Fork	Check for signs of external oil / grit. Ensure pressure
Rear shock	Check for signs of external oil / grit. Ensure pressure
Suspension frame bearings	Check for play in bearings
Stem fasteners	Ensure stem is straight and bolts are torqued properly
Handlebar fasteners	Ensure mounting bolts are torqued properly
Seat fastener	Ensure mounting bolt(s) are torqued properly
Seat post	Ensure seat collar QR is tight or pinch bolt is torqued properly
Wheels / Rims	Check the wheel spins freely with no side-to-side movement
Spokes	Inspect for broken or loose spokes
Tires	Ensure tires inflated to recomended pressure & check tread wear
Brakes - cable actuated	Check function to ensure brakes work & lever does not contact bar
Brakes - hydraulic	Check function to ensure brakes work & lever does not contact bar
Rotors - front and rear	Check rotors are straight with no side-to-side movement & no rub
Brake pads - front and rear	Ensure pads have a safe amount of material left

BIKE SET UP

MOUNTING THE PEDALS

It is important to remember that pedal threads are different from the left side and right side. The right side pedal has a right-hand thread (removes counterclockwise, installs clockwise). The left side pedal has a left-hand thread (removes clockwise, installs counterclockwise). Many pedals are stamped "L" and "R" for left and right.

To attach your pedals, first apply a light grease to the threads then screw them into place and tighten with appropriate wrench. Use the correct torque tension to tighten the pedals into the cranks.

NOTE: Your bicycle may not come with pedals.

⚠ **Danger** If you use system or clipless pedals, ensure you carefully read the pedal manufacturer's instructions for use. Before going for a ride, practise stepping into the pedal and releasing the shoe from the pedal on a quiet stretch without traffic. Never practise in road traffic, Poorly releasing clipless pedals are a safety risk.

⚠ **Warning** With system or clipless pedals it is possible to set how much power they will need for the shoe to be released from the pedal. For your first rides, set the pedals with very low release tension! Use a suitable spray oil for maintenance and clean the system pedals at regular intervals. Excessively worn cleats have the potential to release too easily or not release at all.

HANDLEBAR ADJUSTMENT

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

⚠ **Warning**

Adjusting the stem changes the position of the handlebars, brake levers, and shifters, which may affect steering and braking performance.

The use of aerodynamic handlebar extensions (aerobars) can further reduce control. Aerobars include armrests that support the forearms; however, when riding in this position, your ability to steer and brake is reduced.When greater control is required, move your hands back to the standard handlebar position near the brake levers. Do not use the armrests as handles; they are designed only to support your forearms at the center of the pads. Do not lean on the edges of the armrests, as this may cause damage or failure.

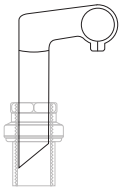


Figure (2.a)

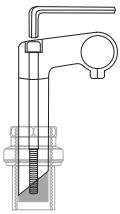


Figure (2.b)

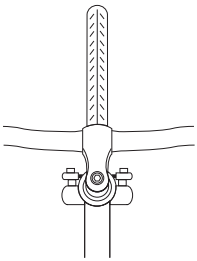


Figure (2.c)

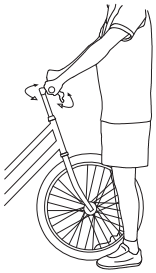


Figure (2.d)

(2.a). Handlebars with conventional stems allow limited vertical adjustment. This is done by moving the stem up or down inside the fork steerer tube.

(2.b). Release the expander bolt by two to three complete turns. The stem should now turn freely inside the fork. If it does not release the bolt by tapping it gently with a rubber hammer. With Allen bolts, you need to stick the Allen key into its head first, as it is normally countersunk and therefore impossible to be hit directly. Now you can move the handlebar/stem-unit up and down as a whole. Be sure not to pull out the stem too far. The mark on the stem (end, min, max, stop, limit or the like) should always remain within the tube. Setting the stem to a lower position can only add to your safety!

(2.c). Realign the handlebars with the front wheel Make sure the front wheel is in alignment with the handlebars and the stem. Retighten the expander bolt with a torque Wrench. Tighten carefully by approaching the prescribed maximum torque value in small steps (0.5 Nm increments) and check in between the proper fit of the component. Never exceed the maximum torque value indicated by the manufacturer! You will find the prescribed values directly on the components and/or in the POLYGON manual book.

(2.d). Make sure the stem is firmly fixed by taking the front wheel between your legs and trying to turn the handlebars and stem relative to the wheel. If there is movement, you have to increase the torque value. Do not exceed the maximum torque value. If the handlebars are still too high or too low, you can replace the stem. This can be quite a big job, as it may mean taking off and remounting all the fittings on the handlebars. Ask your dealer for advice about the different types of stems.

STEM ADJUSTMENT

To adjust the tilt of the front part of adjustable stems (3.a). Some design use bolts on the sides of the joint (3.b), others have bolts coming from above or below, and others again are equipped with additional locking mechanisms or adjusting bolts. Ask your dealer to explain to you both function and adjustment of your stem or, still better, let the shop do that work.

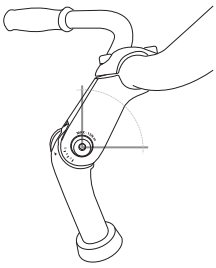


Figure (3.a)

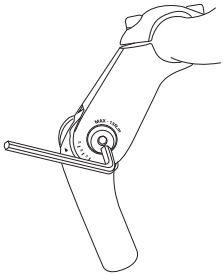


Figure (3.b)

Note that the bolted connections of adjustable stems and handlebars have to be tightened to the specified torques. Otherwise the handlebars or stem may come loose or break. Use a torque Wrench and observe the minimum and maximum torque values! You will find the prescribed values directly on the components and/or in the POLYGON manual book.

Stems for threadless systems - Aheadset®

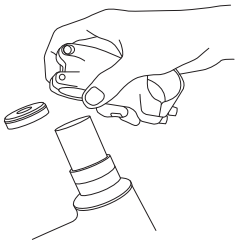


Figure (3.c)

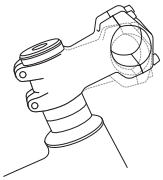


Figure (3.d)

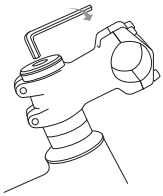


Figure (3.e)

In the case of POLYGON bikes with Aheadset® style headsets the stem also serves to adjust the bearing preload. If you change the position of the stem, you have to readjust the bearing play.

The vertical setting range is determined by the intermediate rings, also referred to as spacers (3.c). In the case of flip-flop stem models (3.d) the stem can be mounted the other way round to achieve a different handlebar height. For modifications unscrew the bolt at the top of the fork steerer tube which serves to adjust the initial bearing pressure, remove the Ahead cap (3.e) and release the bolts on either side of the stem by up to three turns. Remove stem and spacers from the fork steerer tube. In doing so keep hold of both frame and fork to prevent the fork from slipping off the head tube.

You can determine the handlebar height by the arrangement of stem and spacers, slip the remaining spacers onto the fork steerer tube above the stem - they are still required for proper headset adjustment.

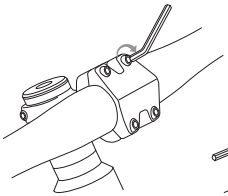


Figure (3.f)

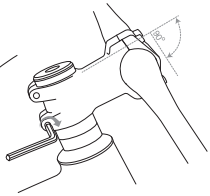


Figure (3.g)

To flip the stem, first loosen the faceplate bolts securing the handlebars (3.f). If the stem has a removable faceplate, remove it to take out the handlebars. If not, remove the grips, shifter, and brakes from one side and slide the handlebar out.

After reassembly, ensure the handlebars are secure by attempting to rotate them downward (3.g) and checking for movement relative to the fork. Hold the front wheel between your knees and twist the handlebars—if there's movement, tighten the bolts slightly with a torque wrench (without exceeding the maximum torque) and recheck.

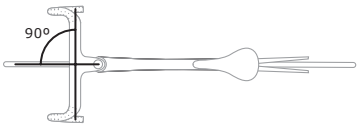


Figure 1.6Proper alignment of handlebar and saddle.

Check the handlebar

• Make sure the bar is at 90 degrees to the wheel (Figure 1.6).

⚠ **WARNING**: An incorrect headset and stem assembly, and incorrect torque can cause damage to the fork's steerer tube, possibly causing the tube to break. If the steerer tube breaks, you could fall.

Tighten stem bolts carefully by approaching the prescribed maximum torque value in small steps (0.5 Nm increments) and check in between the proper fit of the component. Never exceed the maximum torque value indicated by POLYGON! Ask your POLYGON dealer to explain to you both the function and adjustment of your stem. If you are unsure about anything let the shop do the work.

⚠ **Warning** Ensure you read the component manufacturer's manual carefully. Work on the handlebar and the stem should only be carried out by a specialist dealer!

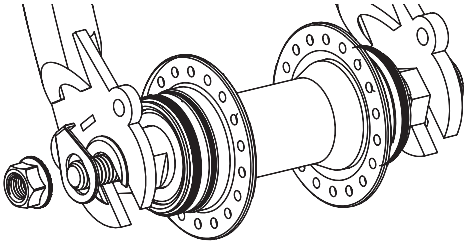
⚠ **Danger** Changes to the position of the stem always lead to a change in the position of the handlebar. You must always be able to reach all handles, levers and devices safely. Functionability must always be assured. The lengths of all housing, cables and cords must be sufficient to be able to make all steering movements safely and securely.

FRONT WHEEL

Your bicycle comes either with a nutted, quick release or through axle front wheel. Understand and apply the correct technique for securing your wheel in place.

⚠ It is crucial the front wheel is securely attached to the forks to avoid the risk of a crash. After installing the front wheel, make sure to correctly set up the front brake.

Nutted Wheel
Step 1: Place the front axle in the fork dropout slots and ensure the wheel fits correctly. Look for the tyre rotation direction found on the tyre sidewall - the arrow should point forwards the front of the bikes.



Step 2: If your bicycle has tabbed lock washers, ensure that the locking tabs are correctly inserted into the holes in the fork dropouts. Any washer should be placed on the outside of the forks.

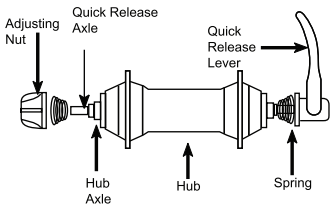
Step 3: Firmly tighten bolt nuts and ensure the wheel sits straight in the forks by visualy checking the tire near the top of the fork. Double check the wheel is secure in the forks.

⚠ It's crucial the front wheel is securely attached to the forks to avoid the risk of a crash. All nuts must be firmly tightened before you ride. Check both wheels are secure before every ride by rocking the wheel side to side, if there's movement it's likely the nuts need to be tightened.

⚠ **DANGER. For road racing bicycles, be cautious of possible toe-clearance to the front tire/wheel when turning.**

Quick Release

The quick release (QR) device uses tension to secure the wheel to the frame or fork. Tension is controlled by the adjusting nut (opposite the lever), it is important to make sure that the adjusting nut is set correctly. If there is too much tension, the quick-release lever will not close. If there is too little tension, the wheel will not be held in place. The following instructions explain how to install your quick-release device correctly.



Step 1: Remove the adjusting nut and one cone spring from the QR mechanism and slide the skewer through the axle so that the QR lever is on the left hand side of bicycle.

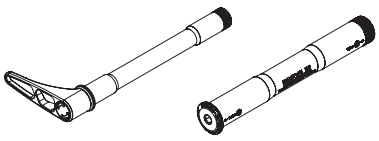
Step 2: Reinstall the spring (small end first) and the adjusting nut onto the skewer and place the axle into the fork dropouts, ensuring the wheel is centered and facing the correct direction.

Step 3: Always adjust the QR clamp with the lever in the halfway position, and by turning the adjusting nut, and not the lever. Stop when you start feeling resistance.

Step 4: Using your palm, close the lever so that the wheel is secure. When closing the lever you should feel resistance half way through the lever travel. From there, press hard until fully closed.

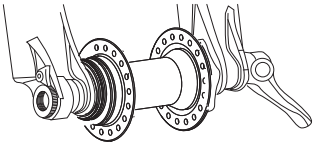
Step 5: When the lever is fully closed, the wheel should be free from any wobble. If this is not the case, release the lever, tighten the nut and repeat the process. Ensure the wheel sits straight and secure in the forks.

Step 6: Make sure that the QR lever always points backward when closed, to prevent them becoming hooked behind objects during the ride and working open, risking accidents and injuries.

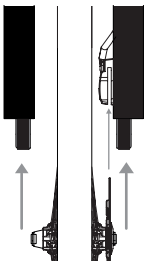


Through Axle Wheel
Many of our bikes will come equipped with a front through axle. Some will have a tension adjustment lever, some a fixed lever and some require a tool to be installed, usually a 6mm Allen key. Understand and apply the correct technique for securing your wheel in place.

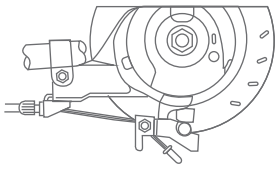
Some higher end suspension forks will also have a 6mm pinch bolt on the drive side dropout, which is there to ensure the axle is properly secured in place when subject to extreme riding conditions. Make sure to check if your fork has that pinch bolt - loosen it prior to the wheel installation, and make sure to tighten it to 5 Nm when the wheel is in place. If in doubt, please refer to the manufacturer's component manual.



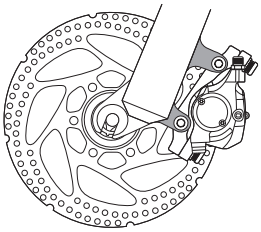
Step1: Place the front axle in the fork dropout slots and ensure the wheel fits correctly. Pay attention to the rotor as it slide into the brake caliper



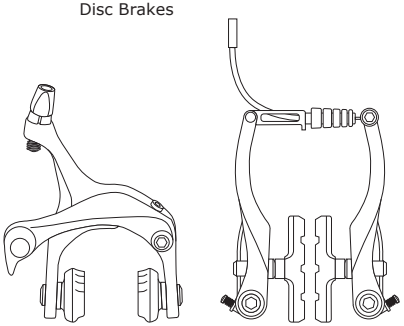
BRAKES Modern bicycles can be equipped with a wide variety of possible brakes. There are various brake systems:



Roller Brakes



Disc Brakes



Rim Brakes

Modern brakes can have a much stronger braking effect than you are used to. Before mingling with road traffic, practise in a quiet area without traffic. Become familiar with the allocation of the front and rear brake to the right and left brake lever.

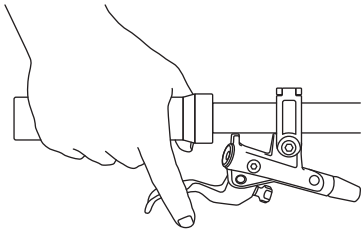
⚠ **Note** Your bicycle was supplied with the appropriate operating manual for the brake model that has been installed on the bicycle. You will find information about your bicycle's brakes in the manufacturers' manuals and on their websites. Read the instructions about operating and maintaining the brakes extra carefully!

⚠ **Danger** Brakes and brake systems are components that are highly relevant to safety! This means that regular servicing is essential, and requires a specialist knowledge and special tools. Ensure all work on the brake system is carried out by a specialist dealer! Work that has not been carried out correctly and professionally will impair the operational safety of your bicycle!

Remark In normal use, brake pads and disc brake linings are subject to wear and tear. Check the condition of the brake installation and brake pads/linings at regular intervals. Replace worn brake pads frequently to avoid loss of brakes or damage to the brake system and wheels. Keep rims and brake discs clean and free of grease.

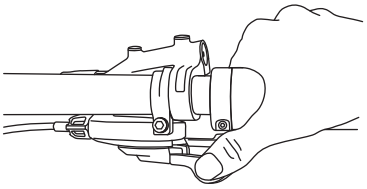
Brake Lever Adjustment
The brakelevers must be adjusted in such a way that you can grip them securely at any time without effort. Ensure that you can operate it naturally without having any difficulties, this means you know which lever operates the brake for the front and rear wheel. Some brakes have brake force limiters, so-called "modulators", built in. They function like an anti-lock braking system (ABS) in a car.

Danger The brake force can increase abruptly if the lever is pulled strongly or at the end of the travel distance of the lever. The braking effect might be different from what you used to have. Familiarize yourself with it. Read the component manufacturer's manual and have it explained to you by a specialized dealer.

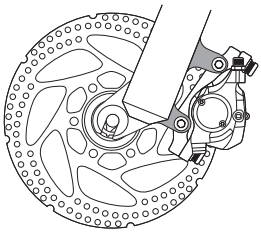


Attention If the brake levers have been correctly adjusted, your hands will function as straight extensions of your arms and you can then operate the levers safely and without getting tired.

The levers can be brought closer to the handlebar by means of a regulating screw, so that riders with small hands can reach the brake grips safely. Racing bicycles are fitted with special devices for positioning the brake lever closer to the grip. Carefully read the operating manuals supplied by the component manufacturers. The pulling tension must be adjusted in such a way that the brake handle cannot touch the handlebar grip, even when it is pulled forcefully!



⚠ **WARNING** : Do not touch the the disc brake after prolonged use . The surface of the might be hot and could cause burns.



Danger If your bicycle has disc brakes, be absolutely sure that the brake discs are correctly seated between the brake brake caliper. Carefully read the brake manufacturers' manuals for the correct and secure mounting of brake components. If unsure of any aspect of the brake system contact your local bike dealer.

Danger Tighten all screws with the prescribed torque. If this is not done, screws may break off and components may become detached.
- Hang the bowden cables of the brake in place, secure them or close the quick release skewer.
- Check whether the brake pads touch the brake surfaces correctly and are aligned properly.
- Ensure all mounting bolts are torqued to the appropriate settings.
- Carry out a brake test after any maintenance or service work is done on the brake system prior to riding the bike again.

Backpedal Brake
A backpedal brake is operated by pedalling backwards instead of forwards. Be aware that you cannot freewheel backwards if your bicycle is fitted with a backpedal brake!

Attention For a backpedal brake, you should only apply the brake when both pedals are aligned horizontally with each other. If the crank arms of the pedals are in a vertical position, so that one of your feet is held high on a pedal and the other foot is all the way down on a pedal, it is not possible to brake strongly because this position does not allow you to apply strong force.

Remark When the brake is applied continuously, for example, on long downhill stretches, the backpedal brake can overheat. This severely limits the brake effect or potentialy cause a loss of effective brakeing. During longer downhill stretches, also use the front brake for braking. Do not touch the backpedal brake if you have been braking for a long time. It will be hot and there is danger of getting burned!

Gear changing
Modern bicycles can be equipped with a wide variety of possible gear systems. There are various gear systems:
- Chain gears
- Hub gears
- Combined chain and hub gears
- Automatic gears

Note Take notice of the gear system that has been installed on the bicycle. You will find information about the gear system of your bicycle in the manufacturers' manuals included with your bike.

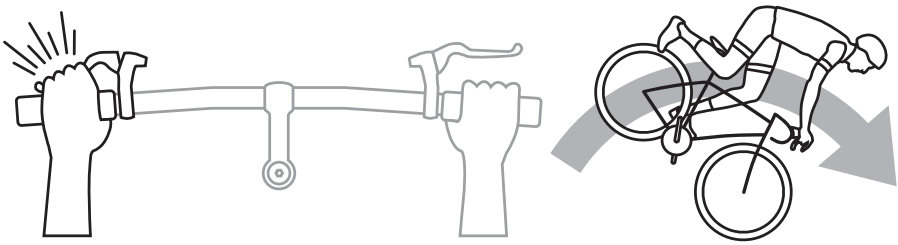


Figure 1.8:Apply both brakes together. Using the front brake only could cause the bike to pitch forward.

⚠ **WARNING**: The rear wheel could lift up off the ground when the front wheel brake force applied too full or too sudden. This could lead you to lose control and fall. For more safety reason, apply braking for both brake at the same time. (Figure 1.8)

• For rim or disc brakes, repeat the process with the rear wheel brake.

• For coaster brakes, start with the back pedal crank slightly higher than horizontal. Apply pressure downwards on the back pedal. When you move the pedal downward, the brake should engage.

⚠ **WARNING** In wet condition or on slippery surface, the braking action can be dangerous and different to what you used to. Adapt your riding behavior appropriately and prepare for potential longer braking distance! If you are riding single speed or fixie type bicycle, familiarize your braking behavior before set out. Always aware that fixie's crank arms and pedals will always rotates while being used.

Check the cables

• Make sure all cables and housings are properly secured to the frame or fork so that they cannot interfere with or get caught on moving parts.

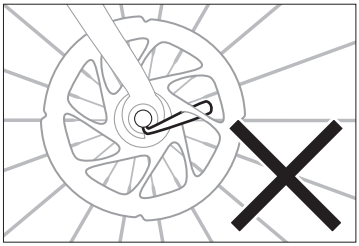


Figure 1.7: An incorrectly positioned quick release lever can interfere with the brake system.

• If your wheel is equipped with a quick-release, make sure the lever is properly closed and positioned: does not touch the fork or an accessory part (rack, fender, bags, etc.), and does not interfere with the spokes or disc brake system as the wheel rotates (Figure 1.7).

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

Electrical / Electronic Gears
If your bicycle is fitted with gears where the gear change signals are transmitted electronically, it is important to read the component manufacturer's manuals supplied, with regard to operating and maintenance.

Front Derailleur Adjustment
The range between the front derailleur on the chainring (without touching the chain) is very small. If the chain has the tendency to jump off the chainring, you will need to reduce the movement range the same way with the rear derailleur, i.e by turning the limit screws marked "H" and "L" (7.a). The limit screws are adjusted by your POLYGON dealer. They do not alter their position during normal use. The same with rear derailleur, the cable of the front derailleur (7.b) is subject to lengthening which leads to reduced precision in gear changing. If necessary, shift to the small chainring and increase the tension of the Bowden cable by turning the adjusting bolt which passes the entry to the gear shifter (7.c).

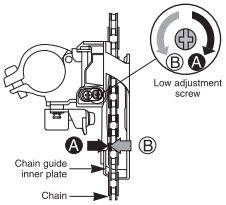


Figure (7.a)

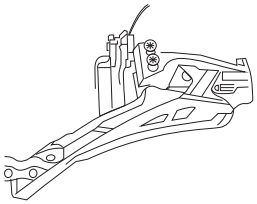


Figure (7.b)

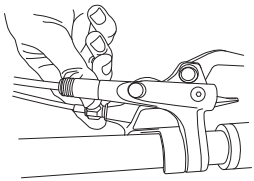


Figure (7.c)

⚠ **DANGER** Always check after an accident whether the gulde plates of the front derailleur are stil paralel to the chainrings. Make sure they do not touch the large chainring which would block the drive. Risk of accident!

Stop Limit Adjustment
The rear derailleur is equipped with limit screws (6.a) which limit the movement range of the derailleur, thus preventing the derailleur and chain from colliding with the spokes or the chain from dropping off the smallest sprocket, The Imit screws are adjusted by your POLYGON dealer. They do not alter their position during normal use.

If necessary, correct the position by means of the limit screws. The limit screws on rear derallleurs are often marked "H' for high gear and "L' for low gear, High gear means that the chain is running on the smallest sprocket. Turn the screw clockwise to move the rear derailleur towards the wheel and anticlockwise to move it away from the wheel (6.b). Shift to the largest (inmost) sprocket and check whether the teeth of the sprocket and the teeth of the gulde pulley are all In a perfectly vertical line (6.c).

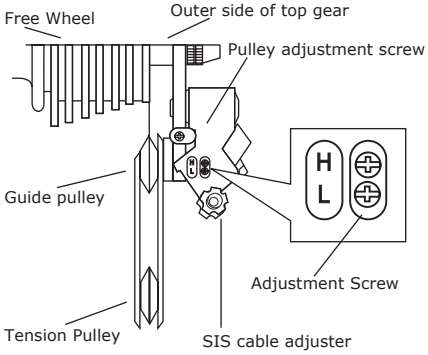


Figure (6.b)

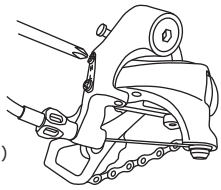
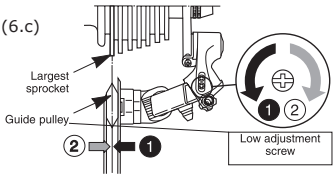


Figure (6.c)



Turn the limit screw marked "L'clockwise until the rear derailleur stops moving towards the spokes and can neither be moved by actuating the shift lever nor by pushing it with your hand, Turn the cranks carefully. This adjustment prevents the chain from getting stuck between sprocket and spokes or the rear derailleur or the derailleur cage from touching the spokes, which could result in damage to the spokes, the rear derailleur and the frame. In the worst case, this could result in a fall or accident.

⚠ **Danger** If your POLYGON bike has tipped over or the rear derailleur received a blow (the rear derailleur, its mounting, rear derailleur hanger) might be bent and causing to material failure or even accident. It is advisable to check its range of movement and readjust the limit screws after an incident occur or after mounting a new rear wheel on your bike (if needed).

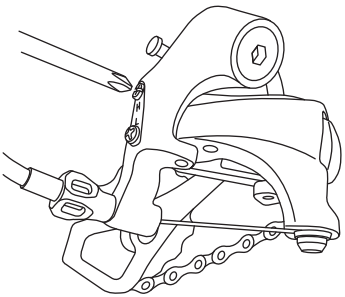


Figure (4.a)

Checking and readjusting

The derailleur gears of your blke were carefully adjusted by your POLYGON dealer before delivery. However, Bowden cables may stretch a little on the first kilometres, making gear shifting imprecise and the chain rattle. Adjusting the front and rear derailleur (4.a) accurately is a job for an experienced mechanic. If you want to try to do the adjustment on your own, observe In addition the manual of the gear manufacturer on this POLYGON manual book. If you have any problems with the gears, contact your POLYGON dealer.

Rear Derailleur Adjustment

Increase the tension of the Bowden cable by turning the adjustable cable stop at the shifter lever (5.a) or the adjusting bolt connected to the rear derailleur (5.b). Shift to its smallest sprocket and turn the bolts anti-clockwise in half turn until the cable slightly tensioned. After tensioning the Bowden cable, check whether the chain immediately climbs up to the next lager sprocket.

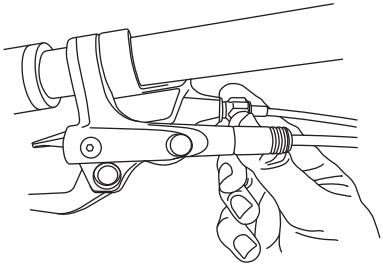


Figure (5.a)

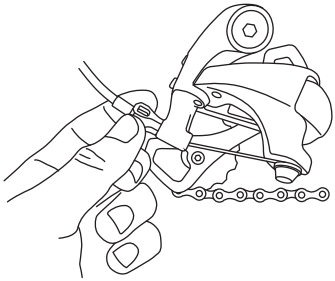


Figure (5.b)

To find out the result, you can check it either by turn the crank by hand (5.c) or ride your POLYGON bike while shift through the gears. The chain should climb onto the next larger sprocket easily and vice versa. If it does not, try to release the respective adjusting bolt a little bit. You may need several tries.

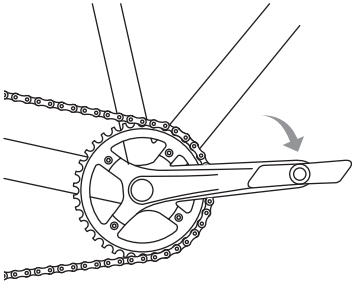


Figure (6.a)

Bicycle chain
Clean and lubricate the bicycle chain regularly in order to maintain its functionality. Dirt can be removed during normal washing of the bicycle. Otherwise, you can also clean the chain by pulling it through an oily rag. Use a suitable lubricant to apply oil to the cleaned joints of the chain. Leave for a while, then remove the excess lubricant.

⚠ **Remark** The chain must be under a certain tension to enable secure functioning of the chain and the gears. In the case of chain gears, tension will be automatically applied. In the case of hub gears, the chain must be tensioned if it shows too much sag. Otherwise the chain may come off and cause a fall.

Chain Tension

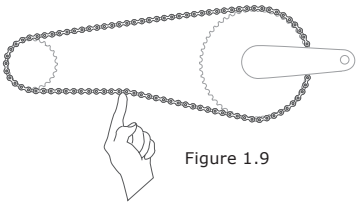


Figure 1.9

⚠ **Attention** In case of bicycle with adjustable dropouts, the fastening screws of the axle nuts need to loosened, chain tensiones and bolts retightened. If an eccentric brushing is installed in the bottom bracket-shell then the chain must be tensioned in accordance with the specifications of relevant manufacturer.

⚠ **Warning** Dirt and continuous load on the chain cause the chain to wear out. The chain must be replaced as soon as it can be lifted clearly (approx. 5 mm) off the front chain ring. Modern chains for chain gears do not have chainjoints, so special tools are needed for replacing the chain. Have the chain replaced by a specialist dealer. Other chains are supplied / mounted with chain joints. The joints can be opened without tools. Therefore, in the event of a defect whilst on the road, you can repair the chain on the spot. Make sure that you select the correct width of the chain joints, so that they will fit on the relevant sprockets.

Belt Drive
Belts are extremely durable and offer long life when properly handled. However, caution must be used before and during installation to avoid damaging the cords that make up the backbone of the belt's strength. Excessive bending and twisting creates crimps which can lead to belt breakage under high load.
Do not twist, backbend, crimp, invert, bundle or zip tie the belt. Do not use the belt as a strap wrench or chainwhip. Do not lubricate, pry on, or roll on the belt.

CARE FOR YOUR BELT DRIVE
• Wash with water to remove debris
• Lubrication not required
• If your bike is equipped with a snubber, the snubber must not be in contact with the belt (ini agak aneh terjemahannya.... klo sulit ya hapus)
• This is a drive system, so it is imperative to keep bodily parts and clothing away from the drive while in motion

PROPER TENSION AND DRIVE ALIGNMENT ARE KEY TO OPTIMAL PERFORMANCE

• Lack of belt tension can lead to “skipping”. Too much tension can damage other components and increase the wear of your belt drive system

• Signs of a misaligned drive include, but are not limited to, noise, premature belt or sprocket wear, belt walk-off.Tensioning procedures vary depending on the bike. Common types of tensioning systems include sliding or pivoting dropouts and eccentric bottom brackets.

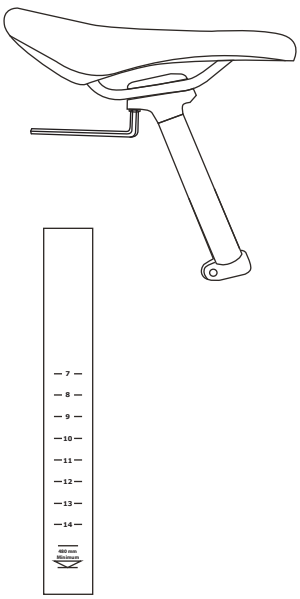
Note – correct alignment of the belt has to be maintained as you adjust tension.

If you do not have the proper tools to check the belt tension and alignment, we highly recommend to bring your bike to the nearest local bike shop.

Seat and Saddle Adjustment

After the height of the seat has been adjusted, the tilt of the seat must be checked and fixed. The seating surface must be horizontal. The seat must be adjusted with the bolt(s) of the seat clamp loosened.

If your bicycle has an integrated seatpost or a seatpost with integrated movement stop, then carefully read the manual supplied by the manufacturer to learn how to operate and adjustit.



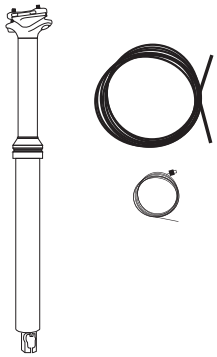
⚠ **Danger** Before riding make sure that the seat and seatpost are fitted firmly and securely. Hold the seat by its nose and rear and try to twist it. The seat should not move.

⚠ **Warning** Carefully read the component manufacturer's manual to learn about operating and adjusting spring-mounted and telescopic seatposts.

⚠ **Danger** Never pull the seatpost out of the seat tube in the frame beyond the engraved maximum marking. If there is no engraving for maximum, then you must make sure that the seatpost sits at least 7.5 cm deep in the frame's seat tube.

⚠ **Remark** If your full-suspension frame only has a short seat tube that is open from below, the seatpost may only be inserted to the point where the rear shock/spring cannot be touched, even if the full spring travel is used.

Warning Most springloaded seatposts can be adjusted to the weight of the rider. In most cases, the seatpost must be dismantled first. Contact your specialist dealer.

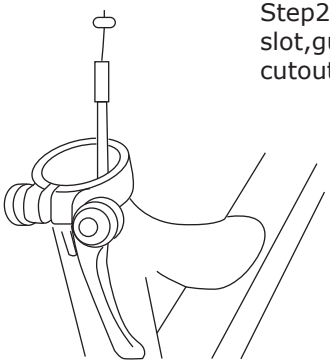


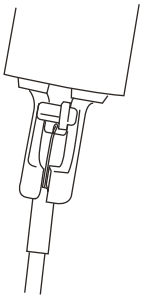
Telescope Seatpost / Dropper post

Dropper posts are a game changer for mountain biking, allowing you to have your optimal pedalling position for climbing, and with a simple press of the lever you can push the saddle down to tackle the descents with ease. This is why a lot of our bikes now come with dropper post

Step 1: Pull the dropper cable out of the seat tube. You may need to turn the handlebars and simultaneously push the cable from the other end of the frame.

Step2:Insert the housing ferrule into the slot,guiding the cable through the slot cutout.





Step 3: Insert the activation barrel into the hook on the bottom of the post and slide the cable through the hook cutout.

Step 4: Visually check if everything is correctly seated - pressing the activation lever now should activate the post.

Step 5 : Insert the dropper post into the seat tube. Note the minimum insertion mark on the post. Feed the cable back towards the front of the bike as you insert the post to prevent damage to the cable and actuator.

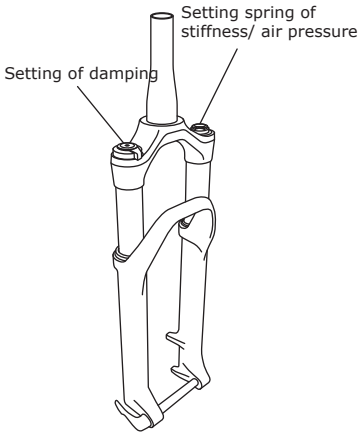
Step 6: Adjust the cable routing where it exits the frame so there are no kinks or sharp turns on the cable line. To move the cable through the frame, feed it from one end while pulling from the other end.

Step 7: Place the dropper post in the desired position and tighten the seat-post clamp. This may be a small QR lever or an Allen head bolt. Tighten to 5Nm.

Step 8: Test the dropper activation by pushing the saddle down while pressing the lever, and pressing the lever while the seat is down and allowing the post

Suspension

The spring elements that your bicycle may be equipped with must be adjusted to the weight of the rider and its intended use. This requires professional knowledge and experience. So only make the relevant adjustments in consultation with a specialist dealer. Be sure to read the manual supplied with the spring elements on your bicycle carefully. A typical spring fork for trekking bikes and mountain bikes looks like this:



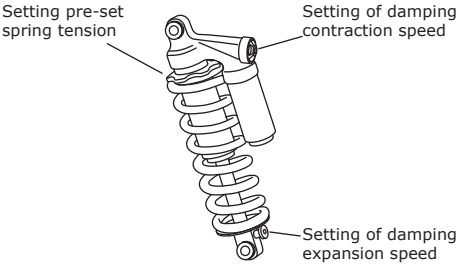
Check your suspension (if applicable)

• Adjust your suspension for your use, and make sure that no suspension component can "bottom out" or be fully compressed.

Adjusting a spring fork must be carried out in accordance with the specifications given in the fork manufacturer's manual. As a rule of thumb, when riding over uneven surfaces, the fork should be functioning noticeably but should not "push through", i.e., to the limit stop.
With proper basic settings, the spring element should be compressed by about 10-15% (Cross Country), 15-20% (Touring) or 25-33% (Enduro, Freeride, Downhill) of the spring play, if the rider is sitting comfortably on the bicycle.

Warning It is important that you clean the spring fork regularly, so it will functionally smoothly. Only use special cleaning agents or warm water with washing-up liquid. At regular intervals, lubricate the spring fork with a spray oil that is suited to the purpose (available in specialized dealers). Do the same thing with the spring-loaded seatpost.

Spring-loaded Frames and their Spring Elements
In the case of spring-loaded frames, the rear construction has movable bearings and is suspended and damped by a shock absorber. In the various models of shock absorbers, the damping is achieved either via a spring or via an air chamber. In high quality shock absorbers, the damping, i.e., the speed of expansion and contraction, can be adjusted.



A typical spring element looks like this: Read the manufacturer's manuals supplied for detailed information.

⚠ **Warning** Do not clean your bicycle with a pressure washer. Because of the high pressure, the cleaning liquid will penetrate the sealed bearings and damage them. During regular bicycle maintenance, carefully wipe the piston and the shock absorber seal clean with a soft cloth. Spray the running surface of the damper and the seal with oil, in order to sustain the functionality. Use special spray oils.

Regularly check the joints of the rear construction for play. Hold the frame and try to move the rear wheel sideways. You can check the fastenings of the rear construction by quickly lifts and puts down the rear wheel. Have your bicycle check by specialized dealer if you notice play anywhere r if you hear any rattling sound. Do not ride on your bicycle until the damage has repaired.

⚠ **Danger** The functioning and the firm seating of the spring components are essential for your safety! So regular checks and maintainance of your full-suspension bicycle are necessary. Suitable for cleaning are warm water and washing-up liquid or a soft cleaning agent that is approved.

⚠ **Danger** Tighten all screws only with the prescribed torques. Screws or extensions that are not fastened with the correct torque can tear, break or work loose. This can lead to serious falls and injuries!

Tires & Rims
Understanding bike tires is essential for improving speed, comfort, and handling, as they are the only point of contact between the bike and the ground. Bicycle owners should prioritize knowing their tire size, the type of riding they do, and when to replace them to avoid flats and enhance safety.

1. Know Your Tire Size (And How to Find It)
Sidewall Numbers: The most reliable method is to check the sidewall of your current tire for numbers like "700 x 25c" (road) or "29 x 2.2" (mountain).
ISO/ETRTO: For exact fitment, look for the ISO (or ETRTO) number, which is a standardized measurement in millimeters (e.g., 25-622).
Diameter vs. Width: Match the diameter (e.g., 29-inch, 700c) exactly, but you may have slight flexibility with width depending on frame clearance.

2. Key Tire Types and Features
- Clincher (Traditional): Uses an inner tube. Most common, easy to repair, and cost-effective.
- Tubeless: Uses liquid sealant instead of a tube. Allows for lower pressure, better comfort, and fewer flats.
- Tubular: Sewn around the tube and glued to the rim, generally for racers.
- Tread Patterns:
- Slicks: Smooth tires for speed on pavement.
- Semi-Slicks: Smooth center for speed, knobs on sides for cornering (great for commuting/gravel).
- Knobbies: Deep tread for maximum traction in dirt or mud.

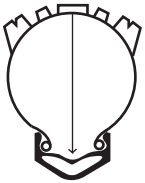
3. Tire Characteristics
TPI (Threads Per Inch): Higher TPI (120+) means a more supple, comfortable, and lightweight tire. Lower TPI (60) is more durable and cheaper.

Bead Type: Folding beads (Kevlar) are lighter and easier to carry. Wire beads (steel) are heavier, cheaper, and less pliable.

Puncture Protection: Commuters should look for reinforced tires with layers like Kevlar for durability.

4. Performance and Maintenance
Wider is Often Better: Modern research shows that wider tires (e.g., 28mm+ for road) run at lower pressures can be more comfortable and just as fast as narrow, high-pressure tires.
When to Replace: Replace when tread is gone, rubber is cracked/dry-rotted, or you see the inner casing threads.
Check Pressure Often: Check before every ride. Incorrect pressure can cause poor handling and damage to the rim.
Direction: Most tires are directional; check for an arrow on the sidewall when installing.

5. Price and Quality
Higher-priced tires often provide better rubber compounds (better grip) and higher TPI (better ride quality).



Tubeless Tires
If you use tubeless tyres on your bicycle, then read the manuals supplied by the tyres and rim manufacturers attentively.

⚠ **Danger** Tubeless tyres may only be used on rims that are designed for this purpose. They are marked accordingly, e.g., with the abbreviation "UST".

⚠ **Note** When using tubeless tires, be sure to adhere to the prescribed instruction. The tubeless tires should be fitted without using tools to prevent any damage and leakages. If the sealant is not relevant for remedying a defect, then you can fit a normal tube after you have removed the valve.

Tubular Tires
If tubular tyres are fitted on your bicycle, then ensure you read the manuals supplied by the tyres and rim manufacturer attentively.

⚠ **Danger** With tubular tyres, only use the type of rim that is designed for this purpose. They have no flanges and have a smooth, inward-curved surface, onto which the tubular tyre is glued.

⚠ **Remark** When using tubular tyres, ensure you adhere to the prescribed instructions for use and and to the correct air pressure.

⚠ **Danger** Special skills and a lot of experience are required for gluing tubular tyres in place, Have tubular tyres replaced by a professional. Obtain information about the correct handling and replacement of tubular tyres.

⚠ **Remark** Tyres are one of the components that are subject to wear and tear. Regularly check the profile depth, air pressure and the condition of the side of the tyre. The various types of tyres are meant for different uses. Consult your specialist dealer when selecting tyres in order to find the tyre that is best suited to your bicycle.

⚠ **Note** On some modern rims (from size 24") there are engraved or coloured points and lines on the brake surfaces and rims, where you can see how much material is left. If the markings cannot be seen at a point, replace the rim.

Other markings that fulfil the same function only become visible after a particular period of use, at which time the rim must be replaced. Have the rim checked by a specialist dealer, at the least when you have used up the second pair of brake pads.

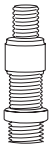
⚠ **Danger** Rims are components under heavy load and are relevant to safety. They wear out during normal use and especially when applying rim brakes. Do not continue to ride a bicycle with a rim that has signs of damage or on which the wear markings indicate that they are worn out. Take your bicycle to the specialist dealer so that he can check the rim and replace it if necessary.

A worn rim loses stability and can lead to falls and serious accidents. Regularly check the tyres on your bicycle as well. The values for minimum permissible tyre pressure and maximum permissible air pressure 35-80 PSI (2.5-5.5 BAR) are displayed on the side of the tyre. Adhere to those values. Otherwise, the tyre can jump off the rim or burst!

⚠ **Danger** When using non-original spare parts, the correct operation of your bicycle is no longer guaranteed. Falls with serious consequences are possible when using tyres with bad adhesion or poor operational reliability, brake pads with insufficient friction and light-weight components that are used incorrectly or that have been poorly constructed. The same applies to incorrect assembly of all components.

Dealing with punctures
The following equipment is needed for dealing with punctures:
- Plastic tyre levers
- Open-ended spanner or wrench (for wheels without quick release skewers)
- Air pump
- Spare tube

Valve Types of Bicycle Tubes Sclaverand, Dunlop (English or Woods), Car (Schrader or American)

 Scalaverand Valve	Synonyms SV-Scalaverand Valve French valve Racing bike valve Tubular tire valve Presta valve Rim bore 6.5mm Maximum pressure 15 bar
 Schrader Valve	Synonyms Car valve Passenger car valve Rim bore 6.5mm Maximum pressure 6 bar
 Dunlop Valve	Synonyms DV-Dunlop Valve NV-Normal Valve Bicycle valve English valve Wood valve German Valve Rim bore 8.5mm Maximum pressure 6 bar

Do the following:

1. Opening the Brake

Opening cantilever brake or V-brake

• Press the brake arms together against therim

• Hang the bowden cable of the brake or the outer sheath of the bowden cable over one of the brake arms

Hydraulic rim brake

• If quick release skewers are available, then dismantle one brake unit in accordance with the instructions in the manual

• If quick release skewers are not available, then let the air out of the tyre,

Side-pull calliper brake

• If available, open the quick release skewer at the brake arm or at the brake lever

• If quick release skewers are not available, then let the air out of the tyre. You can now pull the wheel from between the brake linings.

Hub gear, roll brakes, drum brakes or backpedal brakes:

• Loosen the cable clamp bolt or the quick release skewer at the brake arm.

• In case of backpedal brakes, remove the screw of the brake arm mounted to the frames chainstay.

2. Removing the Wheel

• If your bicycle is fitted with a quick release skewer, then open it.

• If your bicycle has hexagonal bolts, loosen them in anti-clock-wise direction with appropriate wrench. You can now remove the front wheel from the fork.

When removing the rear wheel

• If your bicycle has derailleur gears, shift to the lowest pinion. In that position, the derailleur does not hinder removal.

• If your bicycle is fitted with a quick release skewer, then open it.

• Pull the derailleur back a little

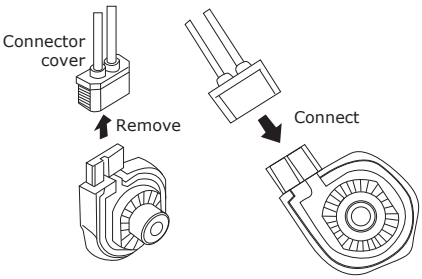
• Lift the bicycle a little

• Shift the wheel a little from above by hitting it lightly with the flat hand

• The wheel will drop from below out of the frame. If your bicycle is fitted with hub gears, then carefully read the supplied operating manual of the manu-facturer for instructions on how to demount.

PARTS & ACCESSORIES

Mounted Accessories
Accessories/Repair/Spare parts
Lighting-technical installation
Always find out about the national legal stipulations that apply to you.



If your bicycle is fitted with a bottle dynamo, turn it on by pressing the button or the ON-ever from above. To turn it off, pull the dynamo away from the tyre and swivel it back into its home position. If your bicycle is fitted with a hub dynamo, the on- and off-switch can be found on the back of the headlamp or on the handlebar. If the lighting installation is controlled by a sensor, then the light automatically switches on in low light or when entering a tunnel.

⚠ **Danger** Only turn the dynamo on or off when standing still. Otherwise you will put yourself and other road users in danger.

Warning Clean the headlamp and reflectors at regular intervals with warm water and appropriate cleaning agents or washing-up liquids. Cleaning with abrasive cleaner can cause damage. For maintenance of the contact points, use a suitable spray oil.

Danger Well-functioning lighting is a matter of life or death! Have faults repaired in a professional.

Baggage Carriers

⚠ **Danger** Baggage Carriers
The carrying of baggage changes the riding properties of your bicycle. One consequence is that braking distance becomes longer and can cause serious accidents. Adjust your riding behaviour to the altered riding properties. Brake sooner and remember that steering action will react more slowly. Only carry baggage on baggage carriers that are designed for this purpose. Never fasten baggage carriers to the seatpost.It is not designed for this purpose. Overloading the seatpost can cause it to break and lead to serious falls!

• Mount child seats only on baggage carriers on the rear construction, if the relevant fixings are available and have been provided by the manufacturer.
• Always attach baggage in a way that prevents anything getting caught between the spokes or in moving parts.

⚠ **Attention** When carrying baggage, always ensure that you do not exceed the permissible total weight for the bicycle. Information about maximum permissible weight is engraved on the baggage carrier.

⚠ **Remark** Front Wheel Baggage Carriers Front wheelbaggage carriers are fastened to the front axle or the front wheel fork. They are designed for lower weights than the rear baggage carriers.. Front wheel baggage carriers have a strong negative impact on riding behaviour! Before setting off on a ride, practise riding with a fully laden front baggage carrier in a safe area without traffic.

Lubrication

⚠ **Warning** Ask your specialist dealer about suitable lubricants! Not all lubricants are suitable for all purposes. If the wrong lubricants are used, damage may occur and functionality may suffer!

Lubrication schedule

- The chain, after removing dirt, after having ridden in the rain, every 250 km with chain oil Brake and gear cables, when not functioning well, once a year with silicon-free grease
- Wheel bearings, pedalbearings, inside bearing, once a year with bearing grease
- Spring elements, after removing dirt, after riding in the rain, as per manufacturer's instructions with special spray oil
- Threads during mounting with mounting grease (only if threadlock is not required)
- Contact surfaces of carbon parts, during mounting with carbon mounting paste
- Sliding surfaces of quick release skewers, once a year with grease, spray oil Metal seatpost in metal frame, during mounting with grease
- Gear joints, when not functioning wellonce a year with spray oil
- Brake joints, when not functioning well once a year with spray oil

Threaded connections

⚠ **Danger** Applying the correct torque (the correct tightening force) is essential for all threaded connections on the bicycle, to ensure that they remain securely seated. A torque that is too high can cause damage to the screw, the nut or the construction element. Therefore, always use a torque wrench. Without this specific tool, it is impossible to tighten screws correctly.

⚠ **Warning** Also, be sure to apply the torque that is stated on a component. If no torque is stated, read the manufacturer's manual.

Handling Carbon Fibre Components
Carbon fibre is a material that requires special handling and care when constructing the wheel, during servicing, when riding and also during transportation and storage.

Properties

⚠ **Danger** After an accident or fall, although carbon fibre parts may not be deformed, pressed in or bent, fibres may have been damaged or come loose, e.g., within the construction element, which cannot always be seen from the outside. So the carbon fibre frame and other carbon fibre components should be regularly and closely inspected, especially after an accident or if the bicycle has fallen over.

- Look for splintering, tears, deep scratches, holes or other changes to the carbon fibre surface.
- Check whether some parts feel weaker or less firm than normal.
- Check whether some layers come off (Jacquer, finish or fibres).
- Listen for unusual noise or the occurrence of cracking sounds.

Always have the concerned carbon fibre parts checked by a professional if you have any doubt at all about their condition.

⚠ **Warning** In order to be fastened securely, carbon fibre components need a lower torque than similar metal components. Torques that are too high can cause damage that may be hidden and possibly not be visible from the outside. Therefore, always adhere to the supplied information of the manufacturers or ask your specialist dealer about it. Always use a torque wrench, to be sure that you are applying the correct tightening force. Never lubricate carbon fibre parts with grease. There are special mounting pastes for carbon fibre components that are used for mounting in order to guarantee secure seating at low torques.

Carbon fiber parts should never be exposed to high temperatures. Even in a car, strong radiation from the sun can increase the temperature to certain point it can have a negative effect on the security of the carbon fiber parts. Carbon fiber frames should never be clamped directly in a mounting stand. Only use the seatpost to secure the carbon fiber frame in position. If the seatpost also made of carbon fiber then temporarily use a metal post along mounting duration.

MAINTENANCE

Service and Repair

Remark Take your bicycle to a specialist dealer for regular check-ups, at least after 1000 km ridden or after a year, whichever is the sooner. They will be able to recognise damaged and worn components quickly and advise you on their replacement. Do not carry out repair work yourself on components that affect safety, such as frame, fork, handlebar, stem, headset, brakes and lighting.

POLYGON pedelec are equipped with parts that work together to make it powerful and natural. Decibel level perceived by the driver is less than 70dB. If any components need to be replaced, make sure to use original spare parts only.

Using knock off parts, e.g brake pads or tire with unidentical dimension may resulting in unstable bike. Risk of accident!
Note that POLYGON pedelec only allowed certain components to be replaced, to ensure the insurance cover. Be sure to use original spare parts only.

Danger Take note that during all works on the bicycle, all joints screw must be tightened with the correct torque. You can find the torque needed on a lot of construction elements display. The torque in Newton meters (Nm) and can only be applied by using torque wrench.
Screws or construction elements that are not tight enough can tear, break or loose. If you do not have torque wrench, then you should contact your specialized dealer to do the work.

Bottom Bracket
Maintaining bottom bracket is recommended about every 5,000 - 10,000 km (on dry and sunny conditions), 1,000 - 3,000 km (on wet and harsh conditions), or at least yearly depends on which ever condition met first.
Bottom bracket maintenance consist of removing the bottom bracket unit, cleaning it along with the bottom bracket shell, applying fresh grease before re-install everything back properly.

But since the process requires the removal of the crankset before the bottom bracket itself, it requires a very specific tool. We highly recommend you bring your bicycle to the nearest local bike shop.

BIKE INSPECTION

INSPECTION checklist timeline	Each ride	20 rides	40 rides	60+ rides
Cassette / Gears	☐	☐	☐	☐
Chain	☐	☐	☐	☐
Chainrings (front)	☐	☐	☐	☐
Cables - derailleur	☐	☐	☐	☐
Cables - brakes	☐	☐	☐	☐
Housing - derailleur	☐	☐	☐	☐
Housing - brakes	☐	☐	☐	☐
Headset Bearings	☐	☐	☐	☐
Bottom Bracket bearings	☐	☐	☐	☐
Fork	☐	☐	☐	☐
Rear shock	☐	☐	☐	☐
Suspension frame bearings	☐	☐	☐	☐
Stem fasteners	☐	☐	☐	☐
Handlebar fasteners	☐	☐	☐	☐
Seat fastener	☐	☐	☐	☐
Seat post	☐	☐	☐	☐
Wheels / Rims	☐	☐	☐	☐
Spokes	☐	☐	☐	☐
Tires	☐	☐	☐	☐
Brakes - cable actuated	☐	☐	☐	☐
Brakes - hydraulic	☐	☐	☐	☐
Rotors - front and rear	☐	☐	☐	☐
Brake pads - front and rear	☐	☐	☐	☐

SERVICE / MAINTENANCE INSPECTION

MAINTENANCE checklist timeline	20 rides	40 rides	60+ rides	100+ rides
Cassette / Gears	☐	☐	☐	☐
Chain	☐	☐	☐	☐
Chainrings (front)	☐	☐	☐	☐
Cables / Housing	☐	☐	☐	☐
Bowden cable gears	☐	☐	☐	☐
Bowden system / Linings	☐	☐	☐	☐
Bowden cable brakes	☐	☐	☐	☐
Headset Bearings	☐	☐	☐	☐
Bottom Bracket bearings	☐	☐	☐	☐
Fork	Service as per manufacturers recomendations			
Rear shock	Service as per manufacturers recomendations			
Suspension frame bearings	☐	☐	☐	☐
Stem fasteners	☐	☐	☐	☐
Handlebar fasteners	☐	☐	☐	☐
Seat fastener	☐	☐	☐	☐
Seat post	☐	☐	☐	☐
Wheels / Rims	☐	☐	☐	☐
Spokes	☐	☐	☐	☐
Tires	☐	☐	☐	☐
Brakes - cable actuated	☐	☐	☐	☐
Brakes - hydraulic	☐	☐	☐	☐
Rotors - front and rear	☐	☐	☐	☐
Brake pads - front and rear	☐	☐	☐	☐

Maintenance

Modern bicycle technology is powerful, but also sensitive. That means that regular servicing is essential. This requires specialist knowledge and special tools. Have all work on your bicycle carried out by a specialist dealer!

Component	Repair / Replace
Cassette / Gears	Replace if gears slip under pedal power along with chain & chainrings
Chain	Replace if gears slip under pedal power along with chain & chainrings
Chainrings (front)	Replace if gears slip under pedal power along with chain & chainrings
Cables - derailleur	Replace if ends are frayed, cable is rusty, activation is stiff
Cables - brakes	Replace if ends are frayed, cable is rusty, activation is stiff
Housing - derailleur	Replace if kinked, cracked or activation is stiff
Housing - brakes	Replace if kinked, cracked or activation is stiff
Headset Bearings	Replace if rough, pitted or rusty
Bottom Bracket bearings	Replace if rough, pitted or rusty
Fork	Service as per manufacturers recomendations
Rear shock	Service as per manufacturers recomendations
Suspension frame bearings	Replace if rough, pitted, stiff or have play
Stem fasteners	Torque properly, replace if head or threads are damaged
Handlebar fasteners	Torque properly, replace if head or threads are damaged
Seat fastener	Torque properly, replace if head or threads are damaged
Seat post	Replace grease or carbon paste. Inspect for damage
Wheels / Rims	True wheels for side to side and up and down movement
Hubs / Freehubs	Check bearings for grease, replace bearings if worn or pitted
Spokes	Lubricate spoke at entrance to rim with suitable oil
Tires	Replace is worn or sidewalls have deteriorated. Replace tubeless
Brakes - cable actuated	Check mounting bolts, inspect cables housing. Replace if needed
Brakes - hydraulic	Bleed brakes with new oil
Rotors - front and rear	Replace if worn
Brake pads - front and rear	Replace if worn

Name of clamp bolt	Torque N.m
Crank arm, steel	30Nm
Crank arm, aluminium	40Nm
Pedals	40Nm
Wheel Nut, front	25Nm
Wheel Nut, rear	40Nm
Stem expander bolt	8Nm
A-head clamp screws	9Nm
Clamping screw on handle grip	10Nm
Seatpost clamping screws M8	20Nm
Seatpost clamping screws M6	14Nm
Seatpost bracket	20Nm
Brake blocks	6Nm
Dynamo fastening	10Nm
Seat clamp on carbon frame	5Nm
Bottle cage on carbon frame	2Nm
Bolt of handlebar	6-8Nm
Handlebar Stem & fork clamp bolt	6-8Nm
Seat post	Quick release

Different for carbon components:

Name of clamp bolt	Torque N.m
Screw Connection/ Torque Derailleur, clamp fastening screw	3Nm
Shifter, mounting bolt	3Nm
Brake lever, mounting bolt	3Nm
Handlebar clamping-handlebar stem	5Nm
Clamping handlebar stem-fork shaft	4Nm
Screw joint/thread/ torque, max Seat bracket, loose, M5	4Nm
Seat bracket, loose, M6	5.5Nm
Derailleur hanger, M10 x 1	8Nm
Bottle cage, M5	4Nm

Inside bearing BSA*as per manufacturer's specification
Caliper, disc brake, Shimano (IS and PM), M66-8 Nm*
Caliper, disc brake, AVID (IS and PM), M68-10 Nm*
Caliper, disc brake, Magura (IS and PM), M66 Nm*

At the side end * The use of carbon mounting paste is recommended

Danger Using grease or oil for lubrication is not permitted, when carbon fibre frames and construction elements are used. Special paste must be used for carbon fibre parts.

General torques for screw joints
In principle, the following torques apply to screw joints:
Dimension/ Torque for screw quality markings 8.8, 10.9,12.9
M4: 2.7/3.8/4.6 Nm
M5: 5.5/8.0/9.5 Nm
M6: 9.5/13.0/16.0 Nm
M8: 23.0/32.0/39.0 Nm
M10: 46.0/64.0/77.0 Nm

Handover Log

The bicycle specified has been handed over to the customer in properly working and ready-to-ride condition . The customer has carried out a

Functional checks performed

- ☐ Visual check of frame finish
- ☐ Wheels securely fastened
- ☐ Spoke tensioned
- ☐ Wheels run true
- ☐ Tires have correct pressure
- ☐ All screws torqued
- ☐ Brake system functioning
- ☐ Gear working properly
- ☐ Lighting system works (if mounted)
- ☐ Bicycle sized properly
- ☐ Suspension adjusted to customer
- ☐ Test ride by mechanic
- ☐ Test ride by customer
- ☐ General bike function instructions

Manuals Provided and explained

- ☐ Bicycle
- ☐ Brakes
- ☐ Gears
- ☐ Suspension
- ☐ Ebike elements
- ☐ Dropper post
- ☐ Motor
- ☐ Operating elements
- ☐ Other _____
- ☐ Other _____
- ☐ Other _____

Customer/receiver

Name _____

First name _____

Address _____

Postal code,
town/city: _____

Email _____

Date signature mechanic / Dealer stamp: _____

Identification properties of the bicycle

Bicycle manufacturer / Make: _____

Bicycle model: _____

Frame height / size: _____

Colour: _____

Frame number: _____

Fork manufacturer / Make: _____

Fork model: _____

Colour: _____

Serial number: _____

Type of gears: _____

Separately mounted parts / Special equipment_____

Date of Purchase:

Owner (Surname, first name) _____

Address _____

Date / Signature _____

Handed over by (Dealer's stamp):

In case of change of ownership:
Owner (Surname, first name) _____
Address _____

Date / Signature _____

WARRANTY

Wear and Tear and Guarantee
In pedelec bike, construction elements are subject to easily wear and tear compared to a bicycle without auxiliary propulsion. This is due to greater weight of the vehicle and higher average speed that achieved through the propulsion. The increase of wear and tear amount from a fault does not affect the guarantee. Construction elements that are typically affected by wear and tear, are:

- Tyres
- Pinions
- Chain
- Brake linings
- Spokes

Because the battery is subject to obsolescence, it is subject to wear and tear. Be aware that the distance that can be covered on a fully charged battery becomes shorter with age and duration of use. Take this into consideration when you are planning your rides and, if need be, exchange your battery for a new one in good time. Replacement batteries are available from specialist dealers.

⚠ **Warning** If you wish to dispatch the battery, you must adhere to special conditions. Ask the manufacturer or specialist dealer about the regulations that apply to you. If you transport your Pedelec in a car, you must remove the battery off and transport it separately.

Liability in the event of a Fault
The conditions for guarantee / liability for faults are (partially) harmonised in countries that are subject to EU law. Find out about the relevant national stipulations that apply to you. Within the scope of EU law, the seller is liable for material faults for at least the first two years from the date of purchase. The liability for faults also covers faults that already existed at the time of purchase / handover. Moreover, during the first six months it is assumed that the fault already existed at the time of purchase. If lodging a claim against the seller, it is a prequesite that the purchaser has adhered to all prescribed conditions for use and servicing. The relevant conditions can be found in the chapters of this manual and in the manuals supplied by the component manufacturers.

In Germany / Austria, if a fault occurs, you can demand supplementary performance as a first step. If the second attempt to render supplementary performance fails, it will be assumed that the equipment has definitively failed. You will then have the right to a discount or you may withdraw from the purchase.

In Switzerland, liability is limited to one year from the date of purchase. In the event that a fault occurs, you can choose between restitution, reduction and subsequent delivery or, in all cases, repair.

Liability for material faults does not cover normal wear and tear within the framework of use as intended. Construction elements of the propulsion and deceleration devices, as well as tyres, lighting and contact points between the rider and the bicycle are subject to wear and tear by virtue of their function. For Pedelecs and e-bikes, the battery is also a part that is subject to wear and tear. Read the relevant guarantee conditions for further details about the guarantee cover and on how to exercise claims under it.

⚠ **Note** Contact a specialist dealer if a fault / liability case should occur. Present all purchase receipts and inspection records as proof. Maintenance and Service The more often and the more intensively you use your MTB / racing bike, the more maintenance it will need. Regular servicing increases the useful economic life of your MTB/ racing bike, reliably secures its functionality and avoids major repairs. A comprehensive inspection should be carried out at least once a year at your specialist dealer. If you notice changes in your MTB / racing bike) that you cannot explain (e.g., in riding, steering or braking properties), then consult your specialist dealer immediately, for safety reasons.

For the following, we would like to give further servicing instructions. A cleaning cloth is best for removing dirt. Mud is best removed using a bucket of warm water and some (biologically degradable) washing-up liquid. This exterior maintenance is suitable for all parts of your bicycle, except the chain. seat. tvres and plastics. Cleaning your MTB/racing bike has the additional advantage that possible defects can be identified at an early stage. Take the opportunity to look for damage to the frame, fork and components. After cleaning and subsequent drying, use a protection product: spray wax has proved to be best. But it is better to apply little and often rather than over-waxing once in a while.

⚠ **Warning** In the case of bicycles with brake systems that act on the rims, it is very important to make sure that no lubricants (wax, oil, grease) get onto the sides of the rims or on the brake rubbers. Otherwise, the brake effect could be reduced to nil. In the case of full suspension MTBs, servicing is restricted to the chainstay and careful cleaning of the bearing area and the suspension strut. Do not use a steam-jet air ejector or abrasive cleaning agents! Regularly check whether there is sideways play in the bearings of the rear wheel hops or vertical play in the bearings of the suspension strut.

LEGAL STIPULATION

Always find out about the national legal stipulations that apply to you, before riding in road traffic. They regulate the relevant approval requirements for road vehicles and the rules of the road.

The approval requirements for road vehicles are as follows:
- Lighting with white headlight and red rear light
- Lights must be fed by a fixed alternator/dynamo (6V,3W)
- High sound acoustic signaller (bell)
- Reflectors:
Front: white, large, may be integrated into the headlight
Rear: two red, one of them may be integrated into the rear light Wheels: two yellow reflectors per wheel, alternatively, white reflective rings in the sheath, rims or spokes
Pedals: one yellow reflector per pedal, one facing forwards and one facing
backwards
- Special regulations for racing bikes: racing bikes of less than 11 kg may be fitted with battery-operated headlights and rear lights. They must be carried at all times when riding the bicycle. Bicycles over 11 kg must be fitted with dynamo-operated lighting. The lighting must bear an official inspection mark: A wavy line and a number.

Electrical construction elements may only be replaced with construction type tested parts, for instance, because of advanced technical development.

For riding in public road traffic, Austria applies the 146th Ordinance / Bicycle Ordinance. Printed in the Austrian Federal Journal.

In Switzerland, the prevailing regulations are contained in the Ordinances for Technical Requirements to Road Vehicles. Read Articles 213 and 218, accordingly.

POLYGON

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SCAN ME

FOR OUR BICYCLE OWNERS MANUAL !