TUNTURI

Bicycle user and maintenance manual

10 important rules for cyclists!

1. Before riding, check that your bicycle's safety devices are appropriate and in good condition.

2. Always wear a helmet, and as a rider ensure that other road users can see you and that you indicate your intentions to other road users in a timely manner, so that they have time to react.

3. Always use a light when riding in the dark and equip your bicycle with reflectors that are required in traffic. Also ensure that any accessories and loads that you are carrying with you, do not prevent the operation of reflectors and braking devices.

4. When riding in wet weather, remember that the operation of braking devices will be poorer and that the braking distance may be even double the distance.

5. When riding in nature, remember to observe the rules and conditions of nature. Your actions are limited by the same every man's rights that also apply to people on foot. In nature, you can ride in both private garden areas and in fields, meadows and plantations as long as it does not cause damage to them.

6. Keep your bicycle clean from mud and other debris. This is one of the most important factors for ensuring the operation of the bicycle. In this way, you will also prevent any premature corrosion problems that are caused by air pollutants.

7. Service your bicycle regularly. Keep the chains clean and carefully lubricated. Your bicycle will need an annual service whether you use it a little or a lot. The best time for an annual service is during the autumn when the riding season for most people ends.

8. Check the wheel pressure on a weekly basis because correct air pressure in the wheels affects the ease of riding and, above all, the durability of the wheel. If you also ride during slippery weather conditions, acquire suitable winter wheels for your bicycle to ensure your own safety.

9. In case of problems concerning yourbicycle contact the retailer, particularly if you find your knowledge or skills are insufficient for solving a technical problem or you feel uncertain.

10. Familiarise yourself with the instructions provided in this manual before using your bicycle. This will increase your own traffic safety and you will become familiar with your new bicycle.

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Congratulations for a good purchase

This manual includes the operating instructions for your bicycle.

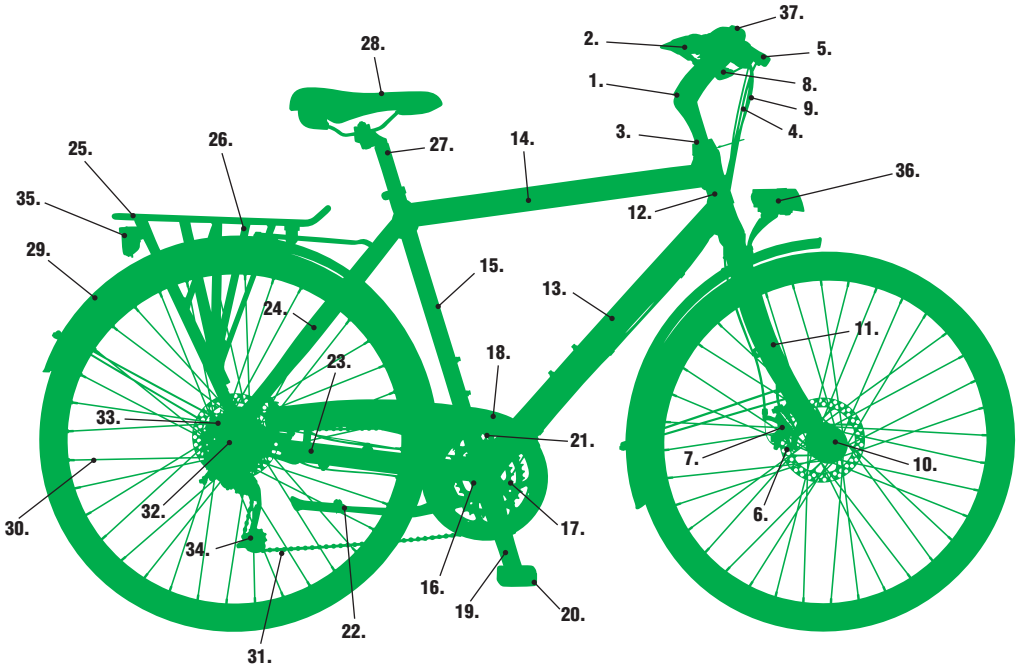
Your bicycle has been manufactured to withstand normal, everyday use. Take good care of your bicycle to ensure that it is always in good operating condition. Store it safely to avoid theft and vandalism. If you need any spare parts, bicycle accessories or professional assistance with theannual maintenance work, please contact your local bicycle retailer. The retailer will be able to provide the best assistance with issues concerning your bicycle.

Although your bicycle has undergone a final inspection at the factory during the manufacturing process, it is the bicycle retailer's duty to carry out a handover inspection on the bicycle after storage and transport, which the retailer will log in the maintenance card found at the end of this manual.

Your new bicycle also requires an initial service as is the case with other vehicles. The service should be completed after approximately 50-150 kilometres. During this service, the spokes of the rims, the correct tension of the headset as well as the adjustments of the cables and brakes shall be inspected. The service can be completed by the retailer or a workshop authorised by the manufacturer, who shall log the work on the bicycle's maintenance card.

Your new bicycle is a safe mode of transport which meets the requirements set out for road traffic, subject to it being equipped with the front, rear and side reflectors referred to in the relevant standard, and when riding the bicycle in the dark, it is equipped with a forward-facing white light lamp and bell referred to in the relevant regulation.

In order for you to become familiar with your bicycle, it is good to learn the basic terminology, which will also be useful when you deal with matters at the bicycle shop.



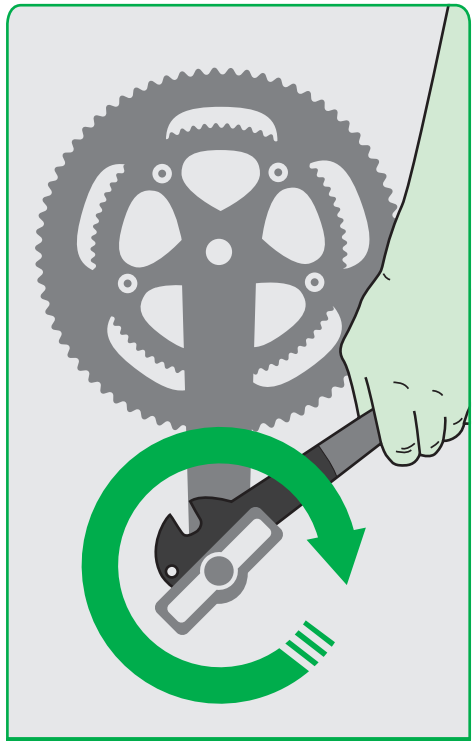
1. Handlebar stem
2. Handlebar
3. Headset
4. Brake cable
5. Brake lever
6. Front brake
7. Brake pad
8. Shift lever
9. Shift cable
10. Front wheel hub
11. Front fork
12. Head tube
13. Down tube
14. Top tube
15. Seat tube
16. Bottom bracket bearing
17. Bottom bracket cog
18. Chain guard
19. Crank arm
20. Pedal
21. Front derailleur
22. Kickstand
23. Chain stay
24. Seat stay
25. Luggage carrier
26. Cargo strap
27. Seat post
28. Saddle
29. Mudguard
30. Spoke
31. Chain
32. Rear wheel hub
33. Rear cassette
34. Rear derailleur
35. Rear lamp/reflector
36. Front lamp/reflector
37. Bell

Accessories:
hub dynamo, lamp, bottle holder, lock.

Pedal installation instructions

The pedals have been packed separately with the product in the following pedal bag for packaging, storage and transport related reasons. In normal circumstances the pedals are attached at the bicycle shop by the retailer as part of the handover inspection.

The most recommended tool for attaching the pedals is the so-called pedal wrench is almost twice the length of a normal wrench. The correct torque is 35 Nm, i.e. as tight as it is possible to be normally tightened with the pedal wrench. However, the pedal is rarely installed tight enough when using a normal wrench. Thus, a lot of tightening torque is needed when using a normal 15 mm wrench. The installation can be completed with a normal tool too, as long as you remember to use enough force.



Pedal installation instructions

The pair of pedals have been marked with the letters L and R, indicating their sides, and they can be found on the pedal axle at the threaded end. It should always be kept in mind that the pedal with the letter L is for the left and the pedal with the letter R is for the crank arm on the chainset side. The left-hand pedal axle and crank arm always has a left-hand thread. The left-hand thread (pedal marked with the Letter L) is attached by twisting in anti-clockwise and the normal thread (pedal marked with the letter R) clockwise. The pair of pedals should always be checked before attaching.

The threads of the pedals should be lightly lubricated with oil or vaseline prior to installation because a lubricated thread is easier to move and tighten.

A common mistake occurs when the L and R markings on the pedal axles are not observed and the pedals are attempted to be attached to the wrong crank arms. In these situations, the pedals are slightly twisted on the aluminium crank arms until the thread gives in and is most commonly damaged on the crank arm. Crank arm damage caused by this type of attachment is never covered by the warranty.

The pedal installer is always responsible for pedals that have loosened during use, so any thread damage to the crank arm that is caused by such loosening of the pedal is not covered by the manufacturer's warranty, but instead it is a work-related fault caused by an incompetent installation.

When the pedal is twisted in to place in accordance with the instructions, it is hardly ever able to loosen by itself during use. Although, exceptions to this are rare cases of he pedal spindle bearing getting stuck.

Adjustments to the riding position

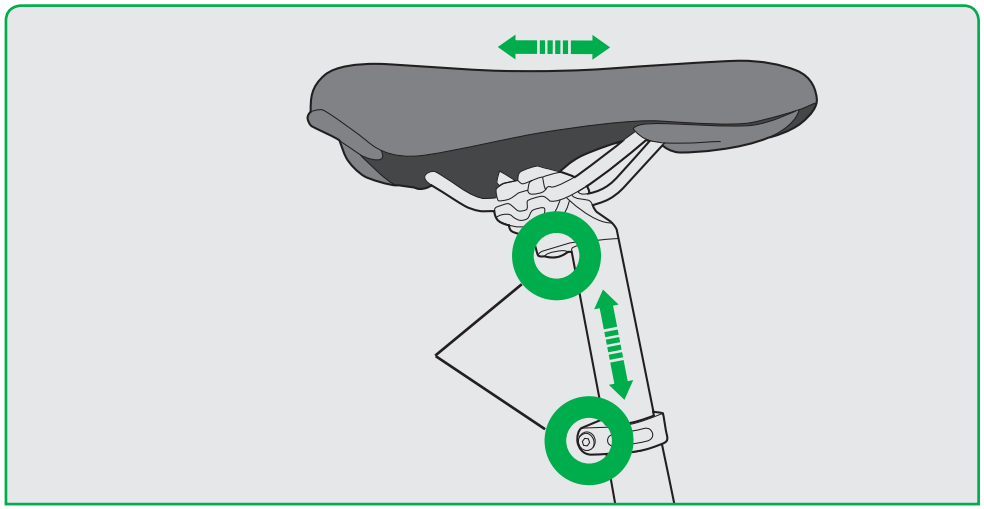
After riding your new bike for the first time, you may still need to carry out some fine adjustments.

Adjusting the saddle

The correct distance of the seat from the pedals is one of the most important factors affecting the riding comfortability. Since the length of legs and the muscle structure of the lower limbs are unique for each individual, the best way to find a suitable seat height for yourself is by testing.

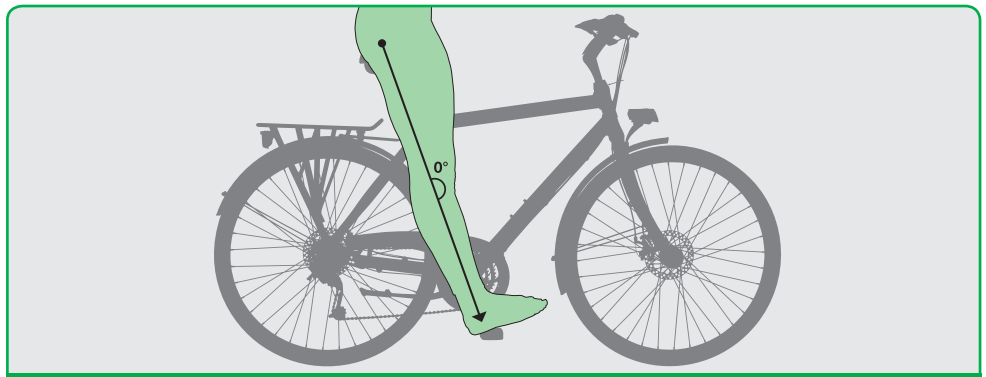
Carry out the seat's height adjustment as follows: sit comfortably on the seat with your foot on the pedal and the pedal crank arm in its lower position. The height is suitable when you can feel your weight slightly lighten against the seat as you push down with your heel. If adjusted in this way, your leg should normally never straighten completely while you pedal and the pedal is at its lowest position, instead your knee should remain in a slightly bent position. When riding in challenging terrain, the seat is adjusted to a lower position than for normal road riding in order to improve control.

Keep in mind that the seat must be sufficiently deep in the seat tube for user safety purposes. **In case of an aluminium-framed bicycle at least 15 cm, and in case of a steel-structured bicycle at least 10 cm. If the previously mentioned instructions concerning the height adjustment of the seat post is not met, the size of the bicycle frame is too small for the user. A seat post that has been adjusted too high may cause frame damage, which is not covered by the warranty.**

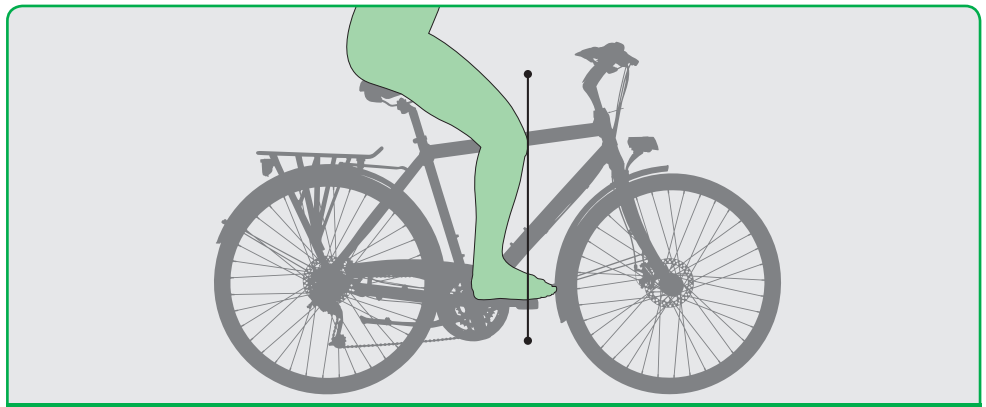


Since the bicycle's seat post has been installed directly inside the seat tube of the frame, you should regularly check that the protective grease applied to the seat post in the seat tube at the factory has not dried. If the protective grease dries out, the seat post may oxidise to the seat tube. In extremely wet conditions, this inspection should be carried out a few times during the bicycle season. Normally an annual inspection in connection with the annual service is sufficient. The warranty does not cover faults or damage that are due to the violation of this inspection and service.

If you need to store your bicycle in the rain, always protect the seat from water. During storage and in the lack of anything else, the seat can be protected from the rain with a plastic bag, but you can also find actual seat protectors in the accessories range of bicycle shops.



Seat height

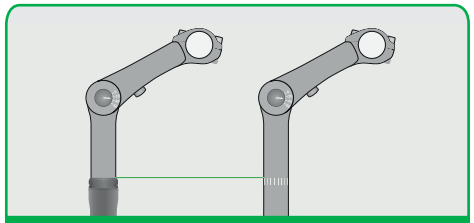


Seat position laterally

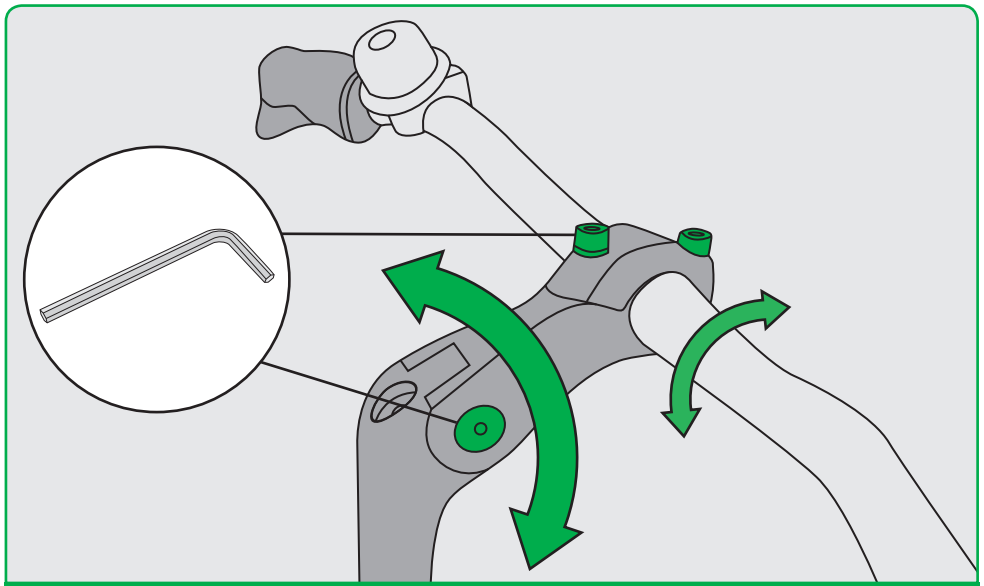
Adjustment of the stem

The tube of the stem has been marked with a minimum
insertion depth marked on their tubing, and must be inserted up to at least this point. Observe the minimum insertion depth of the stem. The marking of the stem or quill-type stem with an internal clamping mechanism must not be visible.

Note that height adjustments to Ahead handlebar stems, which cover the fork stem and are clamped with bolts from outside, require expertise. With this type of handlebar stem, the handlebar height is adjusted using spacing washers and limited by the length of the fork stem.



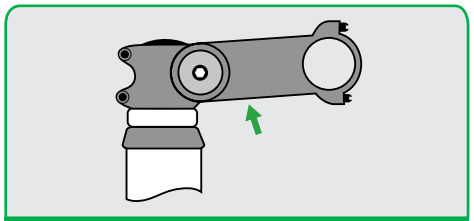
Marking of the minimum insertion depth on a quill-type stem with an internal clamping mechanism



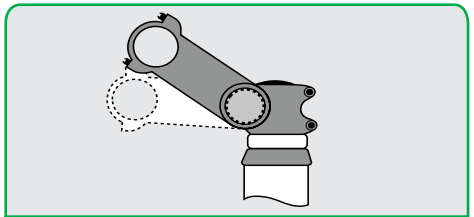
Adjusting the handlebar

Adjusting the handlebar stem tilt

Depending on the bicycle model, it may be equipped with a handlebar stem that includes a tilt angle adjustment mechanism. The handlebar tilt must be adjusted so that your wrists and forearms are in line when riding.
Carefully loosen the side screw, until the splines release. Press the screw head with your thumb to loosen the handlebar stem. Note that some handlebar stems have a bolt in the location indicated by the arrow, which must also be loosened when adjusting the tilt angle.



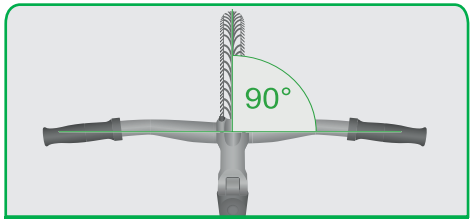
Adjust the tilt of the movable handlebar stem to your liking. Press the loosened adjustment mechanism back into the handlebar stem until the pawl is correctly engaged with the splines. Tighten the screw by turning it clock- wise, using the recommended torque.



Tilt adjustment

Aligning the handlebar

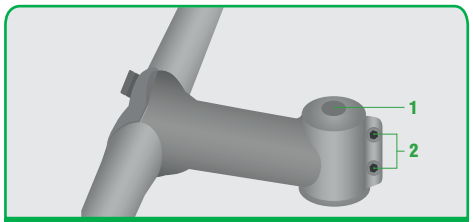
The handlebar must be at a 90 degree angle to the front wheel.



Correct handlebar alignment

Ahead stem

1. Unfasten the clamp bolts on both sides of the handlebar stem.
2. Remove the cap from the head of the inner adjustment screw, if necessary.
3. Tighten the inner adjustment screw further by turning it a fraction clockwise if there is a lot of play in the headset.
4. Align the handlebar stem so that the handlebars are perpendicular to the front wheel.
5. Re-tighten the clamp bolts with the permitted torque.
6. Check the headset play by pulling the front brake and pushing the cycle forwards and backwards. The fork stem must not move in the head tube as you do this. If there is still play in the headset, repeat steps 1 to 5.
7. Check how freely the handlebar moves. If the steering is heavier than before, then the headset adjustment screw is too tight. Start again from step 1 and turn the inner adjustment screw a fraction anticlockwise.
8. Check whether the handlebar stem is secure by fixing the front wheel in place between your legs and attempting to turn the handlebar in the opposite direction.



Ahead stem

1 Inner adjustment screw
2 Clamp bolts

About brakes in general

Bicycles with hub shifting systems are frequently equipped with a coaster brake which is integrated in the bicycle's rear wheel hub and operated using the pedals. In this case, braking takes place by simply by back-pedalling the crank arm. There are also hub shifting bicycles that are equipped with a hand-operated hub brake on the market. Hub shifting bicycles are also equipped with a hand-operated front brake in accordance with regulations.

If you have not previously ridden a bicycle which has a front wheel hand brake, practice using it before you ride your bicycle in traffic.

About gears in general

The use of gears always requires some getting used to at the beginning. Practice and try the shifts As well as different gear combinations before riding in difficult terrain or other traffic.

After getting used to using your new gear-shifting bicycle's gear combinations, you will find riding it to be a pleasant and easy pleasure.

In modern bicycles that are equipped with a hub shifting system, the system is integrated in the rear wheel hub. The gear selector lever is on the handlebar on the right-hand side. Gear shifting is facilitated by the clear numbers and the lever's lines at each gear. We recommend that you shift gears when the rear wheel is spinning. Always avoid harsh pedalling in connection with gear shifts. If the gear you have chosen doesn't change correctly, stop pedalling for a moment or pedal slightly backwards, because in this way the gear can be changed easier due to the wheel hub mechanism. **During the handover inspection the retailer has adjusted the gears to be ready for use, but you may have to adjust the shift cable yourself during the first days of use, because the new cable will always stretch. This procedure has been reviewed in the chapter concerning the adjustment of gears.**

If your bicycle has a derailleur drivetrain, the gear-changing mechanism will have one, two or three front sprockets, and a separate front derailleur. The front derailleur lever operates in steps and is usually equipped with a number display. **The shifter lever is always on the left side.** The rear derailleur operates in the same way as the front derailleur and the **shifter lever is operated with the right hand.** This lever is also equipped with steps, so its use is simple.

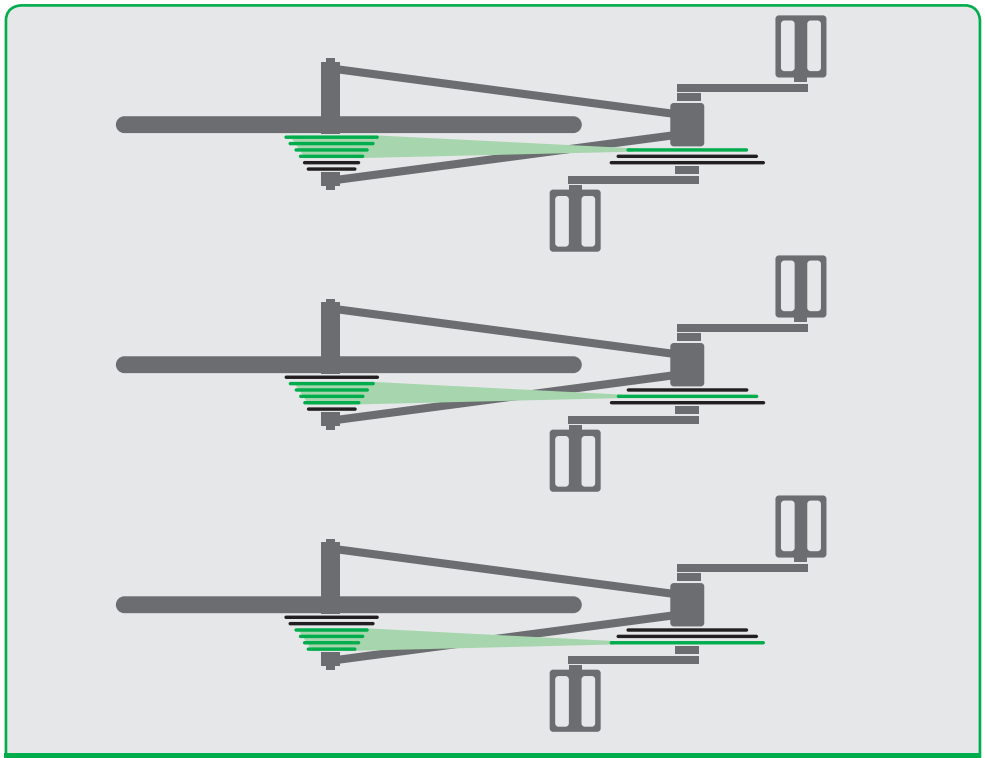
Remember to never move the shifter while pedalling backward, nor pedal backwards immediately after having moved the shifter! This may cause damage to the shifting system and the chains may slip off the sprockets.

Mechanical impurities, lack of maintenance and external damage may cause operating problems with derailleur shifting systems. Regular maintenance - cleaning and lubrication - will ensure problem-free operations.

Fastening of screws and bolts

Unless otherwise stated, observe the following references for tightening torques.

Thread M8 – 10–15 Nm
Thread M6 – 6-8 Nm
Thread M5 – 4-6 Nm



Recommended sprocket combinations

Suspension forks in general

The model-specific adjustment and maintenance instructions for your bicycle's suspension fork can be found in the separate manufacturer's manual for the suspension fork which is supplied with the bicycle. However, we recommend that all repair and maintenance work is carried out by a professional.

Some suspension forks allow you to lock the suspension in place by adjusting the lever on the end of the slide tube. In some models, the lock is engaged by using a separate level on the handlebar. Depending on the locking mechanism, the locking may not be completely solid but it may slightly flex.

> PRECAUTIONS AND MAINTENANCE
Before riding the bicycle, always ensure that the front wheel is securely attached to the fork.

1. Ensure that all the components attached to the fork, the braking arms, mudguards, etc. are intact and the connectors are in good condition.
2. Check that the fork is externally in excellent condition.

3. The handlebar stem is securely attached to the fork's upper tube.
4. The adjustment of the headset has been carried out correctly and there are no gaps to the bearings. The following must be checked every week or after approximately every 10 hours of use: Check the condition of the fork's slide tube as well as the slide and protection lubrication.

About mountain bicycles in general

Wear a helmet, goggles and protective gloves whenever riding in varied terrain.

Although the name of the mountain bicycle suggests that in terms of the dimensions of the frame and its components, it is a bicycle type equipped and designed for riding in varied terrains, unsuspected things can occur to the rider if the rider is not familiar with the bicycle. A skilled rider can predict situations in the terrain and chooses the best routes in terms of the bicycle's features since the risk of damaging equipment as a result of conditions are always high. For an unskilled rider, the components that are most susceptible to damage are the front fork, wheels, rims and shifting system components - particularly the rear derailleur. The most common sudden situations when riding in varied terrains are various falls and collisions as well as disturbance caused by twigs in which case damage to the equipment can easily occur. For this reason, the warranty does not cover damage caused by collisions and falls or other damage caused by inexperienced handling.

Weight limits

- The maximum rider weight limit for standard men's and women's bicycles is 120 kg. (incl. Bicycle, equipment, rider)
- The maximum recommended load for luggage carriers is 25 kg, unless a smaller weight limit had been indicated on the frame of the carrier.
- The maximum rider weight for under 20" children's bicycles is 30 kg.
- There is a sticker on the frame of electric bicycles which indicates the maximum total weight. (incl. Bicycle, equipment, rider)

Safeguard your bicycle

> LOCKING YOUR BICYCLE

Nowadays, bicycle thefts are unfortunately common. For this reason, always keep your bicycle locked when it is stored.

If your new bicycle does not include a lock as standard equipment, it is worth immediately purchasing the most suitable lock for its purpose.

Check with your insurance company about the requirements set out in your home insurance policy for the locking devices and possible storage premises of bicycles, so that there are no surprises in case of a compensation claim.

The factory-installed locks approved by insurance companies and installed to the bicycles are mainly screw-fixed ones and many bicycle models that do not have a lock as standard equipment have a location for fixing a screw-fixed lock.

The lock is always supplied with two keys. Modern pre-installation locks are mainly the type in which the key can be removed when the lock is open, but there are also post-installation locks in which the key cannot be removed when the lock is open.

It is usually the insurance company's requirement that the bicycle owner always holds two keys to the lock. For this reason, you must ensure that in case of a lost key, you acquire a replacement without delay. A new key can be acquired either with the template key or on the basis of a key code. The key code is marked on the base of the original key and the code should be written down in the documents provided with the bicycle so that the details are easily obtainable in case of acquiring an additional key. When acquiring a key, you should always contact your retailer first who will give you more advice on acquiring it.

Nowadays the arch-typed pre-installation locks that are standard are easy to use.

The lock arch has secure locking and a return spring so that the arch cannot turn by itself in between the spokes. For this reason, when locking the bicycle, the key must be turned clockwise and at the same time the lock arch is released from its locked position for turning.

The lock is opened by simply turning the key clockwise in which case the lock arch automatically returns to its basic position. When opening the lock, hold on to the lock arch's lever to ensure that the arch has locked properly in its basic position.

If the arch does not lock in its basic position, contact the maintenance department of the bicycle shop to repair the problem before using the bicycle.

Never leave the key in place when the lock is open, if the lock is the type from which the key can be removed when the lock is open.

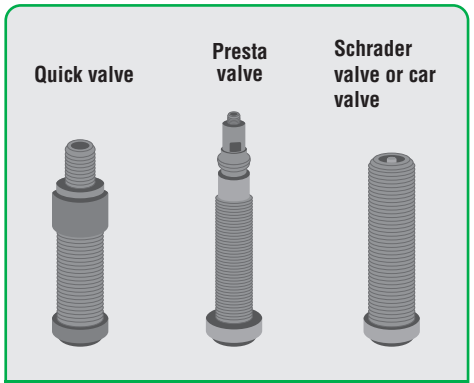
Security locks do not require actual maintenance but e.g. during winter use, the lock mechanism should be treated with an antifreeze lubricant. The same antifreeze protection can also be carried out on the other moving components of the lock.

Basic maintenance of your new bicycle

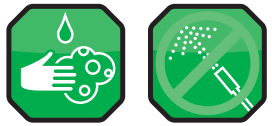
> TYRE AIR PRESSURE

The most important aspect for ensuring the lifespan of the tyres, rims and spokes is the correct tyre pressure. The rule of thumb when riding on highways is that the tyre has the correct pressure when a slight sag is just about visible at the tyres when you sit on the bicycle. When feeling the tread of the tyre with your finger, it must feel hard. The maximum tyre pressure has been indicated by the manufacturer on the side wall of the tyre. In case of mountain bicycles, the tyre pressure can be reduced below the normal pressure in order to improve the grip of the tyre when used in varied terrains. However, the tyre must never hit against the rims due to the pressure being too low.

The product warranty does not cover damage that has occurred as a result of using incorrect tyre pressures.



Valve types



> CLEANING

Keep your bicycle free from dirt. Dirt and dust weaken the operations of e.g. gears and they wear the chain and sprockets. During the winter, grit attaches to the surfaces of the bicycle and penetrates into the bicycle components causing corrosion in aluminium components and damage to painted or chrome surfaces.

For these reasons, rinse your bicycle every now and then with clean water. It is worth keeping in mind that salty water ruins and corrodes bicycle parts extremely quickly. If you ever end up in a situation in which the wheel hubs of your bicycle are in contact with salty water or flood water, clean and dry the parts as soon as possible, and lubricate the shifting system and wheel hub components. In case of hub shifting systems, the cleaning, inspection and lubrication must be carried out by a competent bicycle service company.

You can usually use a mild dishwashing detergent mixed with water to wash the bicycle. If the shifting system components, sprockets and chain of the bicycle are covered by a layer of grease mixed with dust and dirt, use a solvent before washing with water. Rinse the components with hot water after using a solvent.

We do not recommend using high-pressure equipment for cleaning the bicycle because the powerful water jet caused by the high pressure can be harmful to the permanently lubricated bearings and the hub shifting technology. The bicycle components must be dried well after washing and the moving components of the shifting systems and brakes must be lubricated.

If you use aerosol lubricants, make sure no oil comes in contact with the rims or the brake pads. Chrome surfaces can be protected with car wax or any protective oil treatment, which protects e.g. certain screw heads from oxidising or corroding. Sheen surfaces can also be protected with wax but matte surfaces should be left untreated.

> LUBRICATION

An unmaintained chain may wear out already after a few hundred kilometres. If the chain has stretched and worn in such a way that it jumps over the sprocket teeth, the sprockets as well as the chain will usually require replacing. Keep the chain well lubricated and at the correct tension. A dirty and dry chain makes riding heavy and it also quickly wears out the sprockets. In bicycles that have a chain drive, a clean and lubricated chain is also a requirement for the good operation of the shifting system.

A dirty chain is cleaned with a solvent detergent, which you can find from e.g. a bicycle shop. After washing the chain with a solvent, it is rinsed with hot water and then dried properly. After this, lubrication is carried out with lots of oil to ensure that the lubricant penetrates all the joints of the chain. Wipe away any excess oil from the surface of the chain after lubrication.

Regular maintenance is essential for ensuring your own safety and long-term use of your bicycle. Particularly in varied terrains, the components of a bicycle are placed under a lot more stress than in normal highway or urban use. For this reason, regularly inspecting and maintaining the bicycle after each terrain ride are procedures that should not be overlooked. The bicycle's warranty is also subject to appropriate care and maintenance.

50 -150 kilometre service

The spokes on the bicycle rims do not set in place properly until when riding. The same also applies to the bearings. During the first weeks/days of use, any displacements of the rims that may have been observed must be corrected by tightening the spokes where necessary, and any looseness of the bearings are also corrected by means of adjustments. These essential adjustments should be carried out by an expert. During servicing, the adjustments of brakes and gears as well as the tensioning of bolts are also checked. A log will be added to the maintenance card found in connection with this booklet on the completion of the service. The breaking-in service is usually subject to a fee.

Annual service

The components of a bicycle wear and get dirty during use, and therefore they require regular maintenance - the cables stretch and wear, as do the chains and sprockets. The side of the rim as well as the brake pad wear in connection with each braking event. For example, a constantly muddy and dirty rim and brake pad will quickly wear the edge of the rim and make it unusable.

Cold and wet weather will wear sites that require lubrication and maintenance. Weather conditions of 0 - -5 degrees are particularly problematic as the cold air and the relative humidity in the air may cause damage to the metal and plastic surfaces as well as operating problems with the shifting system and brakes. During winter use, the bicycle's storage conditions - outside / indoors / dry / wet - have a major significance on the functionality of the bicycle's components and mechanisms. During winter use, we recommend that the bicycle is stored under a shelter or preferably in dry premises protected from the cold. During winter use, storing the bicycle outdoors without any shelter will increase the risk of operating problems significantly.

Using the bicycle in varied terrains is extremely harsh on the bicycle components, and in this case the importance of maintenance further increases.

In addition to self-initiated cleaning and maintenance procedures, a more comprehensive service should be annually carried out on the bicycle in the autumn or at the end of the annual cycling season.

If the bicycle is used all year round, the bicycle requires an inspection service at the end of the winter season in the spring in addition to the annual service. The annual service and the springtime inspection service are both procedures that require expertise, so these should be carried out by a competent service company.

An annual service carried out by a professional will pay attention to the condition of essential components and entities which cannot be observed at home. These include, e.g. shifting systems and braking devices together with their cables, as well as the accumulation of moisture (=water) inside the frame. The frame can be damaged, if the water that has accumulated inside the frame freezes and then melts. During the manufacturing process, so-called "breathing holes" are always added to the frame of the bicycle which allow any additional moisture to normally or in normal user conditions to evaporate from inside the tubes, unless the breathing holes are blocked by dirt and thus prevent any such moisture from exiting.

Periodic maintenance of shifting hubs

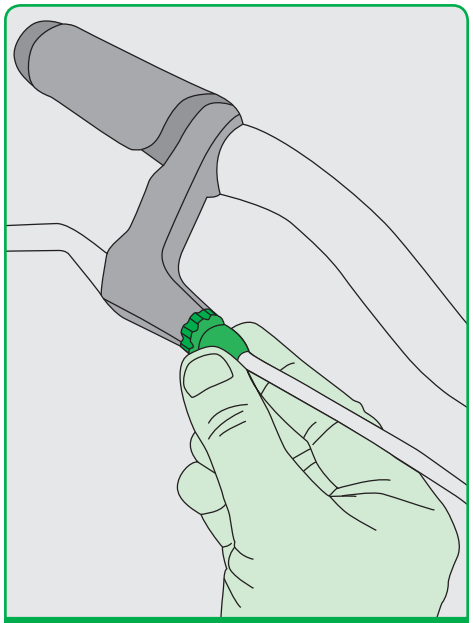
The shifting mechanism in the rear wheel hub as well as the foot brakes require periodic maintenance.

The lubrication interval of the shifting hub is max. 2,500 km or at least once a year.

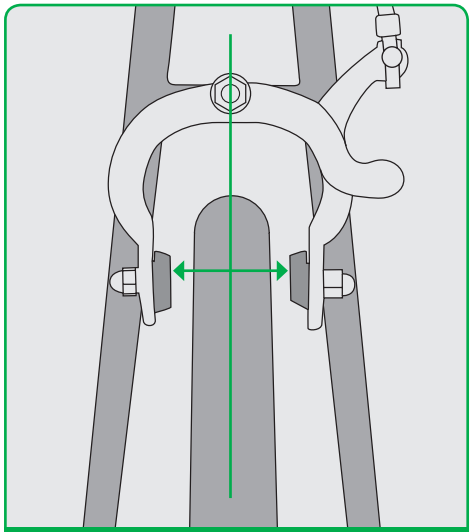
In Nordic countries, the inspection and maintenance of a hub shifting system's lubrication must be carried out in the autumn and in the spring, if the bicycle is used all year round. If the bicycle is only used during the summer, the said lubrication and inspection service should be carried out in the autumn in connection with the annual service before winter storage.

During use, moisture accumulates inside the hub and the cable shell, which must be removed before storage or during winter use before frosty weather conditions. If the service is not completed, the sensitive shifting system components are subject to corrosion during storage. The moisture remaining in the components can also freeze during winter use and cause operating problems in the foot brake and when shifting gears. The impact of problematic winter weather conditions on the functionality of mechanisms cannot always be eliminated despite expert service procedures. Lock melt that contains a lubricant is a good first aid in a winter rider's equipment because it can also be used for lubricating The gear mechanism on the outside of the cables and hub as well as to prevent freezing caused by condensation.

If recurring problems occur in the operation of the shifting system or brakes, or any abnormal noises are heard from the rear wheel hub contact the retailer of the bicycle without delay and they will check the operation of the shifting system and they can also help with arranging maintenance.



Adjusting the break cable



Adjusting the rim brakes

> FOOT BRAKES

The integrated foot brake in the rear wheel hub does not require any particular maintenance or adjustment during one season. At the end of the season, in connection with the annual service, the service company will dismantle, clean and lubricate the rear wheel hub and its brakes.

If any abnormal changes occur in the operation of the foot brake or the brake locks easily during normal braking, the hub requires an inspection. In this case, contact your retailer for a maintenance service.

> ROLLER BRAKES

In terms of maintenance, roller brakes are simple. The brake plate located in the wheel hub has a picture of a grease tube, and next to it there is a hole sealed with a plastic plug. If necessary, remove the plug and press some hub brake grease into the hole. The need for lubrication is usually apparent in this brake type as a scratchy noise. Additional lubrication is however recommended to be carried out once during the season in addition to the annual services.

> RIM BRAKES

During the season, regularly check the condition of the brake pads: worn and old brake pads have a significant effect on the braking efficiency.

Worn and damaged brake pads will quickly ruin the edge of the rim, cause unnecessary risks in traffic and are life-threatening to the user.

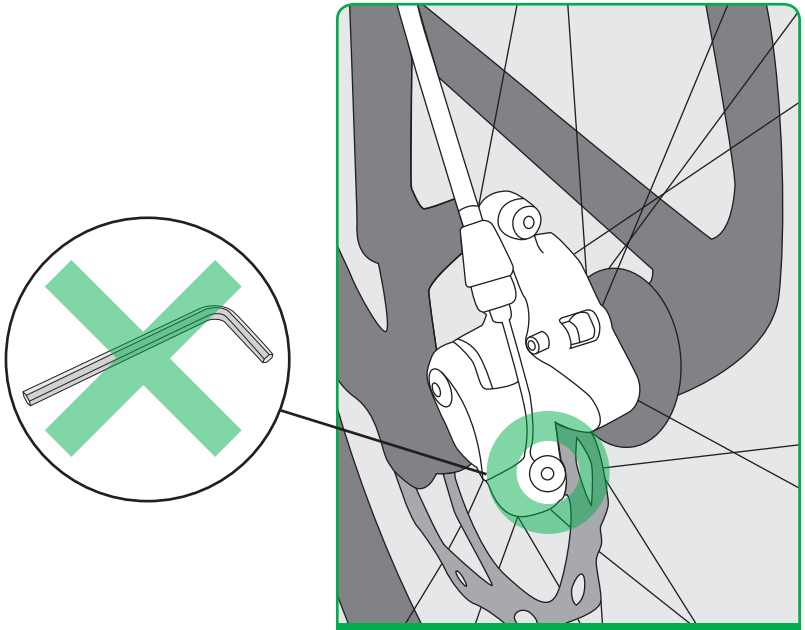
The wear of brake pads can be monitored on the basis of the pattern on the friction surface; when the pattern has almost worn off, the pad must be replaced. In terms of braking efficiency and the problem-free operation of the brakes, it is extremely important that the position of the brake pads is exactly correct in relation to the rim. The brake pads must be at a distance of approx. 2 mm from the rim when the brake is idle. A fine adjustment can be carried out by using the adjustment flange on the brake lever. A rougher basic adjustment is carried out at the cable's locking screw by altering the fastening location. **When carrying out the basic adjustment, remember to tighten the locking screw properly.**

A bicycle mechanic should carry out any basic adjustments and inspections that require further expertise. If the adjustment of the friction pads is incorrect, the brakes will make a noise and work ineffectively. The help of a competent bicycle mechanic is recommended in this case too.

> MECHANICAL DISC BRAKES

A mechanical disc brake requires the adjustment to be checked as a result of worn brake pads and a stretched brake cable.

The adjustment is primarily carried out with the adjustment flange on the brake lever in the same way as with normal rim brakes. The adjustment of the brake pads in the actual brake calliper should be carried out by an expert if you are not entirely confident with your own skills. At the same time, the expert can inspect the condition of the break pads.



Adjusting disc brakes

> HYDRAULIC DISC BRAKES

A liquid-operated disc brake's hydraulic system does not require much maintenance unless the brake hoses are damaged. If the system has a leak, always contact a bicycle repair shop. If any brake fluid leaks from the system on to the brake pads during use or maintenance, they will be damaged and unusable as a result of the fluid. The brake calliper of both mechanical and hydraulic models is often attached to the frame with a separate adapter component, and the fastening holes of the brake calliper has lateral leeway, which allows the position of the entire brake calliper to be changed in relation to the brake disc and thus the brake pads can be better centralised.

The replacement of a disc brake's brake pads should always be carried out by an expert.

> BRAKE CABLES

Normal maintenance concerning the cables mainly involves the inspection of their condition, adjustment and lubrication, where necessary. If the motion of the cable is no longer smooth or the operation of the brake lever becomes stiff, the first cause is usually the weakening of lubrication, or in cold weather conditions, the moisture inside the cable may have frozen. In this case, the cable must be inspected and serviced.

The servicing takes place by removing the cable from its outer shell. Any moisture from inside the outer shell of the cable is removed with compressed air and the actual cable is cleaned with a towel. After cleaning, a drop of thin oil is placed inside the outer shell of the cable, and the cable is covered in oil before installing it inside the shell. Regular lubrication prevents the brake cables from wearing.

Check the safety devices and brake cables of your bicycle regularly. If you use your bicycle on a daily basis, the superficial condition of the cable should be checked every week. If you notice any of the brake cable's threads to have snapped, replace the cable immediately with a new original spare part. If the brake cable suddenly snaps or gets stuck, it always causes a genuine hazard.

The cables are always inspected and serviced in connection with the annual service. If the annual services are carried out in a professional manner by a repair shop, the only necessary procedure during the season is the possible adjustment of the cable and the exterior inspection.

> BEARINGS

The bearing gaps are inspected during the first 50-150 km break-in service. Incorrect adjustments damage the bearing surfaces and make them useless. If the inspection adjustment has not been completed in a timely manner, the warranty will no longer cover these components. The bearings have been lubricated with a ball bearing grease and they do not require lubrication during the first season. In connection with annual services that are carried out in the autumn, these sites are also inspected and lubricated, so the bearings or wheel hubs do not require any other maintenance in normal operating conditions.

If the bicycle is ridden in deep water in which the wheel hubs come in direct contact with water or the bicycle is washed with pressure equipment in such a way that a lot of water jets are targeted on the wheel hubs, a full inspection, clean and lubrication of the hubs must be carried out.

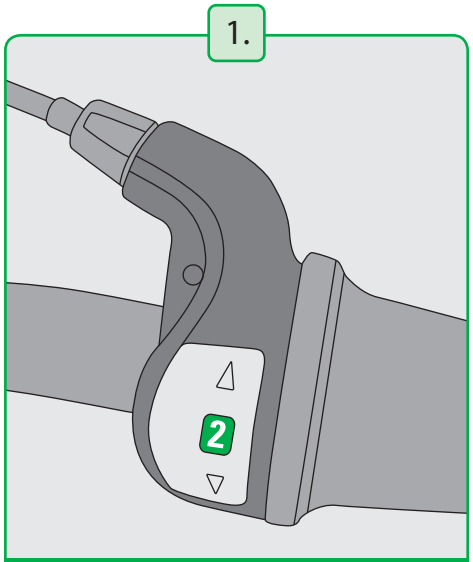
The neglect of cleaning or other generally recommended maintenance procedures causes the sensitive inner components of the wheel hubs to oxidise and be damaged. The oxidation of the wheel hub's inner components is always a sign of neglected cleaning and lubrication procedures. The product warranty does not cover any damage to the bearings or wheel hubs that are a result of the said cause.

> ADJUSTING HUB SHIFTING SYSTEMS

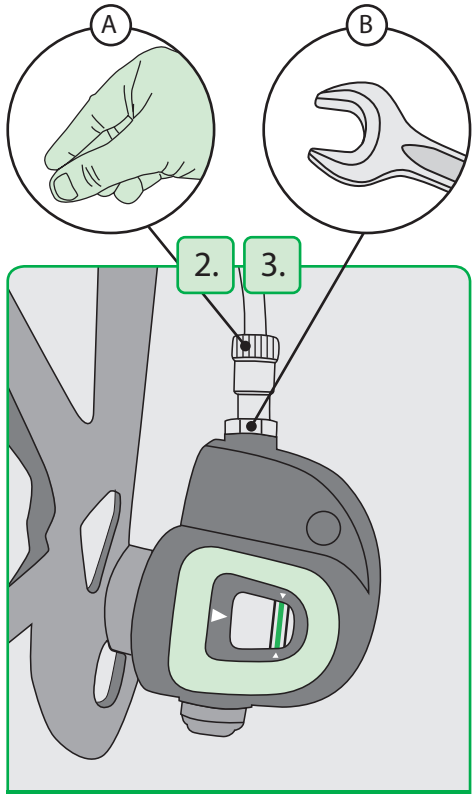
The need for adjustment is particularly observed in new bicycles after the first few days of use as various deviating mechanical noises or operating and shifting problems. This is due to the new shift cable always stretching slightly.

Adjusting a Shimano NEXUS 3 internal gear hub

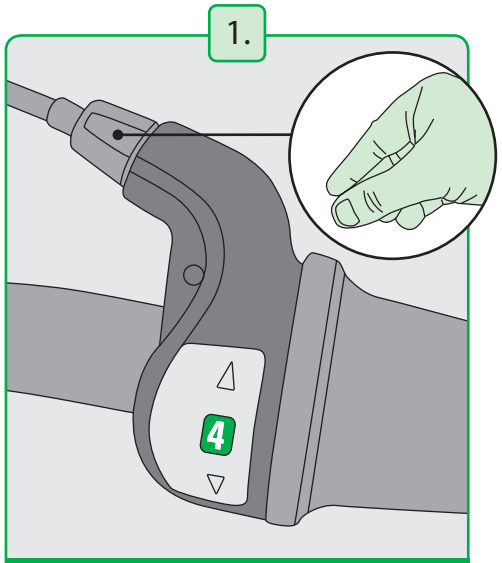
1. Set the lever to the 2nd gear.
2. Check that the frame of the shifting system us correctly in place on the rear wheel hub's axle. The head of the rear wheel hub's axle must be level with the hub-side edge of the shifting system's window.
3. The red line marked on the shifting tube which is visible from the shifting system's window must be level with the rear wheel hub's axle head and the yellow dot of the shift lever visible from the shifting system's window must be between the yellow lines on the window. If this is not the case, the necessary adjustment is carried out by turning the cable adjustment flange on the shifting system. Before carrying out the procedure, the locking bolt of the adjustment flange must be loosened and then retightened after completing the adjustment.



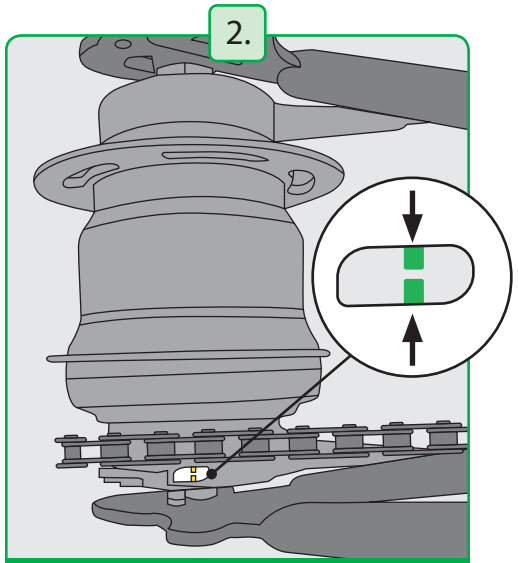
Selecting a gear



Adjusting the cable



Selecting a gear and adjustment flange



Inspection of markings

Adjusting a Shimano Nexus-7 and -8 internal gear hub

1. Adjust the shift lever to the 4th gear
2. Carry out the inspection of the adjustment - the markings on the rear wheel hub must match up. In a 7-speed system, the markings are red and in an 8-speed system, they are yellow. The markings are matched up by adjusting the cable adjustment flange in connection with the shift lever in the required direction. Pull the flange outwards while you turn the adjustment into place.

If you have to remove the rear wheel from the frame, e.g. due to replacing or patching the tyre, adjust the gear setting to the 1st gear. Next, remove the clip of the brake cable from the rear fork and loosen the axle bolts of the rear wheel hub. Then carefully remove the rear wheel from the rear fork. Remove the axle bolt and locking plates from the axle on the side of the shift box. Remove the shift box from the wheel hub by opening the quick release component - turn the quick release component counter-clockwise until the yellow markings match up. Next, lift the locking device and shift box from the wheel hub.

When installing the shift box and quick release component back in place the shift box's yellow arrow markings and the corresponding markings on the wheel hub must match up, and the yellow dot of the quick release on the shift box must be in line with the dot. Lock the shift box in place on the wheel hub by turning the quick release clockwise one third of the way around. Installation can only be completed if the gear setting is adjusted to the 1st gear.

When you install the rear wheel, the wheel hub bolts must be tensioned properly to 40 Nm.

> ADJUSTING GEARS ON DERAILLEUR SHIFTING SYSTEMS

Rear derailleur

If the gear does not work properly despite lubrication and cleaning, the shift cable has probably stretched. This is a normal phenomenon which is encountered in new bicycles after a few days or use or in older bicycles as a result of a replaced cable. In this case, a fine adjustment must be carried out on the shift cable.

The fine adjustment is carried out from the cable's adjustment flange, which can be found in connection with the rear derailleur. By selecting one sprocket at time up and down from the shift lever, the movement of the chain is inspected, and the chainset is placed on the correct sprocket after each press of the shift lever. It is usually enough for the adjustment flange to be turned just 1/4 of a cycle at a time in a counter-clockwise direction.

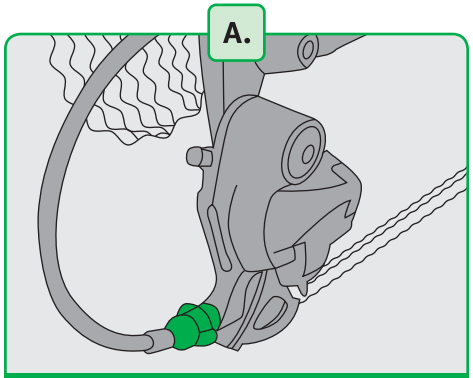
If the fine adjustment is not successful, contact your retailer because in this case a more comprehensive inspection is usually required. Basic adjustments are always checked in connection with annual services, so these adjustments should not normally be changed. The said basic adjustments are only changed when an external impact occurs to the shifting system. The help of a professional is recommended.

Damage to the derailleur or other components of the bicycle which have been caused by incompetent adjustments or external impact are not covered by the product warranty.

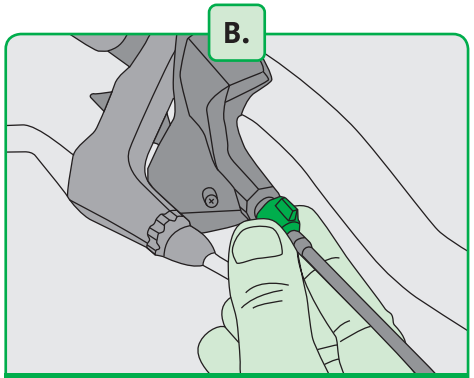
Front derailleur

The adjustment of the front derailleur cable is carried out from the cable adjustment flange located in connection with the shift lever, in such a way that the inner chain control plate of the derailleur is not in contact with the chain, but the gap is as small as possible. Usually a 1/2 rotation of the adjustment flange in a counter-clockwise direction is sufficient for finding the correct adjustment.

If the adjustment cannot be carried out by turning the flange, the fault may be elsewhere and it is best to contact the retailer, because it may be necessary to have the basic adjustments checked. Let an expert carry out the inspection of the basic adjustments.



Rear derailleur



Front derailleur

> BELT DRIVE

In addition to the commonly used chain drive, there are also belt drives available for bicycles. If you lack the necessary expertise and the tools required to adjust or maintain a belt drive, have the drive checked and adjusted by your retailer. Ensure that the belt is not folded or twisted. During fitting, the belt must not be rolled up with the front pulley chainring or levered on e.g. with a screwdriver. For belt drives, the force applied by the rider is transmitted via a belt. A bicycle with a belt drive can be used in all cycling-friendly weather conditions.

> BELT DRIVE STRUCTURE

A belt drive consists of a front and a rear pulley, plus a belt which may be made from various plastics depending on the belt model. To prevent the belt running off the pulleys, each pulley has a side flange. On the front pulley, the side flange is located on the outside. On the rear pulley, the side flange is located on the inside. Belt drives are compatible with hub shifting systems and coaster brakes, but not with derailleur shifting systems.

> CHECKING THE BELT TENSION

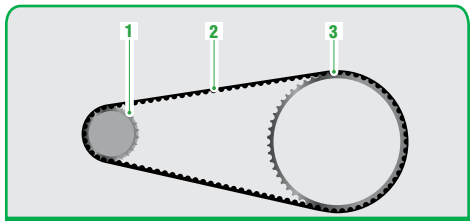
In order for the belt drive to function properly, the belt needs to be correctly tensioned. Have the belt tension regularly checked by your retailer.

> BELT DRIVE WEAR

To minimise wear with a belt drive, it is important for the belt to run parallel between the side flanges in accordance with the belt drive model.

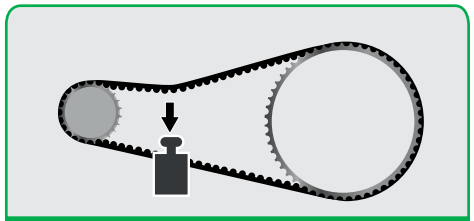
- a maximum deviation of 3 mm measured at the centre of the belt's running surface
- and/or a maximum angular misalignment of 0.5° between the pulleys.

If you find wear on the belt drive but you lack the necessary expertise and the tools required to replace it, have the belt drive or worn parts replaced by your retailer.



Belt drive

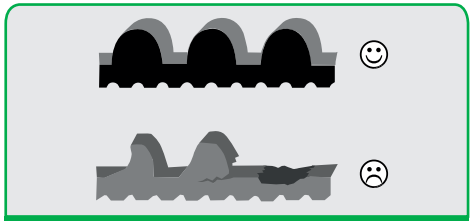
1 Rear side flange
2 Belt
3 Front pulley (side flange hidden)



Belt tension (example)

VISUALLY INSPECTING THE BELT FOR WEAR

The belt is subject to a certain degree of wear, depending on distance travelled and riding conditions. Visually inspect the belt regularly for signs of wear. If you find pointed, torn or missing teeth, then the belt is worn.



Belt wear (example)

> CLEANING THE BELT DRIVE

The belt may get damaged if harsh or abrasive cleaning agents are used. Only clean the belt with water and a soft brush.

> SUSPENSION FORK

Depending on the bicycle model, it may be equipped with a front suspension fork and/or rear suspension. Front Suspension forks dampen any impact on the front wheel and increase both comfortability and safety when riding the bicycle in uneven terrains. A front suspension fork must be adapted to the intended purpose and the rider's weight.

> REAR SUSPENSION

Rear suspension, which is installed centrally between the front and rear frame, absorbs impacts to the rear wheel and increases comfort as well as safety when riding over uneven ground. The rear suspension must be tuned to the intended use and the rider's weight. If your cycle is equipped with adjustable rear suspension, refer to the adjustment information enclosed by the manufacturer.

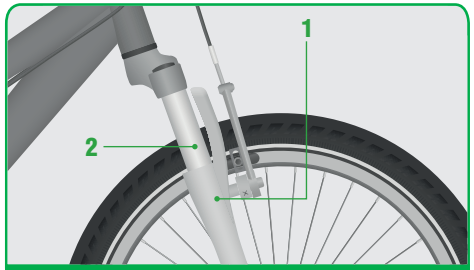
> ADJUSTMENTS

The following adjustment options are generally available depending on the model:

– Compression and rebound
– Sag (compression under body weight)
– Lock-out (suspension locking feature)

> COMPRESSION AND REBOUND

Adjusting the compression and rebound influences the damping or response behaviour of the suspension fork or rear suspension. The ratio between compression and rebound is crucial. Depending on the cycle model, the suspension may only be equipped for rebound adjustment. The ratio between compression and rebound is determined by the condition of the road. A correctly adjusted ratio ensures optimum contact between the wheels and the ground. Have the compression and rebound adjusted by your retailer.



Suspension fork

1 Suspension fork lower legs
2 Suspension fork slide tubes

Rear suspension

> SAG

Sag is the amount of compression caused by the rider's body weight. Depending on the model of the suspension fork or rear suspension, and depending on the intended use, the sag is adjusted to a value between 15 % and 40 % of the total suspension travel. Sag is influenced by the spring preload. When the sag is optimally adjusted, the suspension will compress by 15 % to 40 % of its travel when the

rider sits on the cycle. The sag is determined by the spring preload or by the adjustable air pressure in the suspension fork or damper. The spring preload or the air pressure therefore determine the stiffness of the suspension and whether the chassis is hard or soft.

Have your retailer adjust the suspension fork or rear suspension to your body weight and riding style. This is usually dealt with through air pressure or by replacing suspension elements.

> LOCK-OUT

The lockout feature locks the suspension fork. This can reduce bob or squat in the front fork, e.g. where the suspension sinks when pedalling hard. Depending on the cycle model, the rear suspension may also be equipped with a lock-out feature. Bumps cause the suspension fork to compress slightly even when locked. This is for technical reasons and protects the front fork against damage. Only use the lockout feature on flat routes or when it improves riding behaviour.

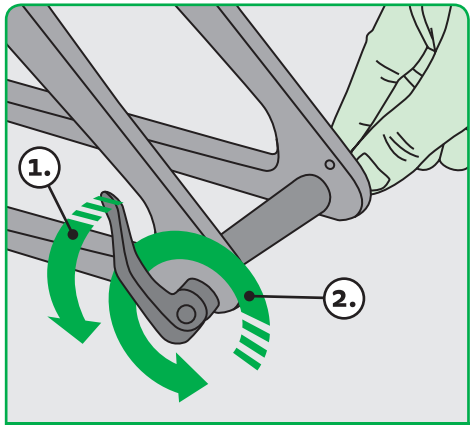
Refer to the supplied manufacturer's details concerning the use of the front suspension fork and rear suspension.

If the spokes of a new bicycle are checked at a bicycle shop in connection with the 50-150 km breaking-in service, the spokes do not usually require any other maintenance measures in addition to annual services in normal use. In terrain use, the spokes are placed under a lot more stress, so the need for inspections and maintenance also increases significantly.

Have the spokes adjusted and repaired by a professional.

> QUICK-RELEASE AXLES

Many bicycle types have quick-release axles as their clamping devices which allow the entire front or rear wheel to be easily removed from the frame. The quick-release lever is turned in the direction of the hub axle in which case the hub loosens from the frame. It is often necessary to further turn the adjustment bolt on the opposite side of the quick-release lever, so that the disc can be removed from its holder. When removing the rear wheel, the rear derailleur must be set with the shift lever so that the chain is on the smallest rear sprocket. Removing and installing a wheel is easiest when then shifting system and chain are in this position. In the same way as with bicycles equipped with rim brakes, the brake cable must be opened from its holder, which can be found in connection with the brake, when removing the disc.



Quick-release axle

When fastening, remember to turn the quick-release adjusting nut into its correct position, in which case the quick-release lever's own mechanism will provide the correct tension for the attachment.

The tightening torque is suitable, when the lever turns to its locking position without causing much resistance. The best feel for the correct tightening torque can be felt when the quick-release lever is turned for the first time. It is worth trying and practising.

Before use, remember to also check that the brake cable that was removed during the removal has been reinstalled in its attachments.

> REPLACING THE TYRES

The lifespan of the tyres are affected by where and how the bicycle is ridden, the storage method and location of the bicycle as well as the air pressure maintained in the tyres. Emergency braking, particularly on paving, will destroy a tyre instantly. Do not store your bicycle in bright sunlight for long periods of time, because the ultraviolet rays of the sun will make the rubber mixture of the outer tube brittle.

> TYRE SIZE MARKINGS

The tyre size is indicated on the side wall of each outer and inner tyre. Always check the correct tyre size from the initially installed tyre before purchasing a new one. Studded tyres intended for winter use safeguard your journeys during slippery weather conditions. Puncture-proof and reflector-equipped outer tubes are a good option for everyday use.

> TYRE WORK

The replacement of a bicycle tyre is usually easily carried out without the need for any special tools and just by using your fingers. You can also use a plastic tyre lever, which does not damage the inner or outer tube. The use of sharp-edged and sharp-tipped screwdrivers is strictly prohibited!

Removal

1. Release the air from the tyre by either pressing the valve needle or removing the tyre's valve. Remove the knurled nut of the valve cap, if the valve cap has one.

2. Press the entire edge of the outer tube into the rim - off the top of the rim's shoulder structure.

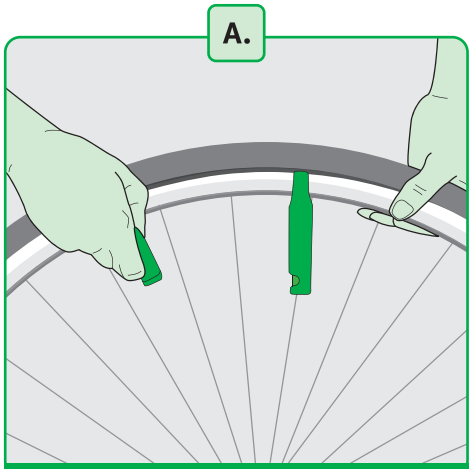
3. Use your fingers to bend the edge of the outer tube over the edge of the rim. Start from the op posite side from the valve. If you are using a tyre lever, press the tyre lever carefully between the rim and the edge of the outer tube and bend the edge of the outer tube over the edge of the rim.

4. When the other half of the outer tube has been removed from the rim, you can remove the inner tube. After this, the outer tube can be removed from the rim by pulling it.

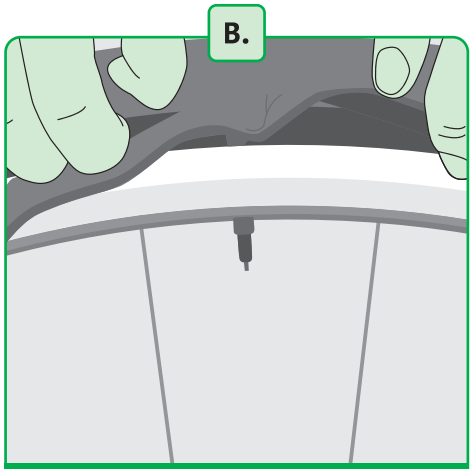
Installation

1. Check the condition of the rim and the rim strip. A damaged rim strip should be replaced, because only an intact rim strip will protect the inner tube against the wear of the rubbing spokes; also consider that there are different rim strip qualities for different rim types. Start the installation of the outer tube by placing one of the tube's edges on the rim. At this stage, consider any rotation direction arrows possibly indicated on the outer tube.

2. Press the inner tube's valve cap through the valve hole in the rim. Pump some air into the inner tube and install it evenly inside the outer tube. Do not tighten the valve cap's knurled nut yet, if the valve cap has one (not all inner tube models use the said component).



Removing the wheel

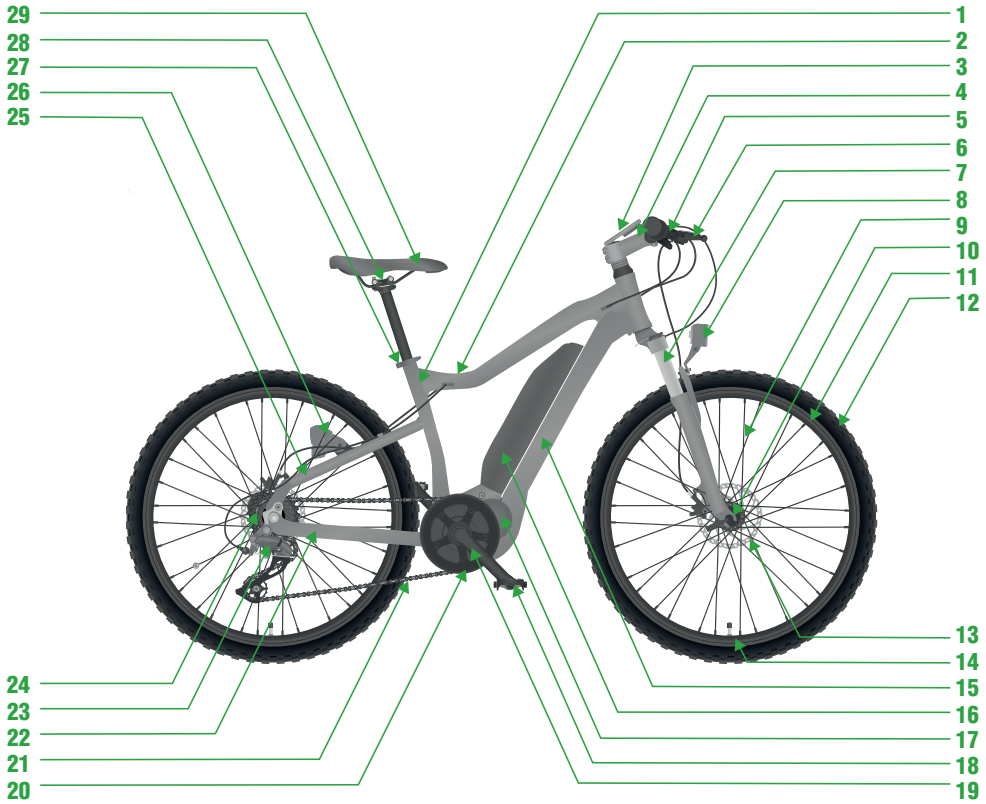


Removing the wheel

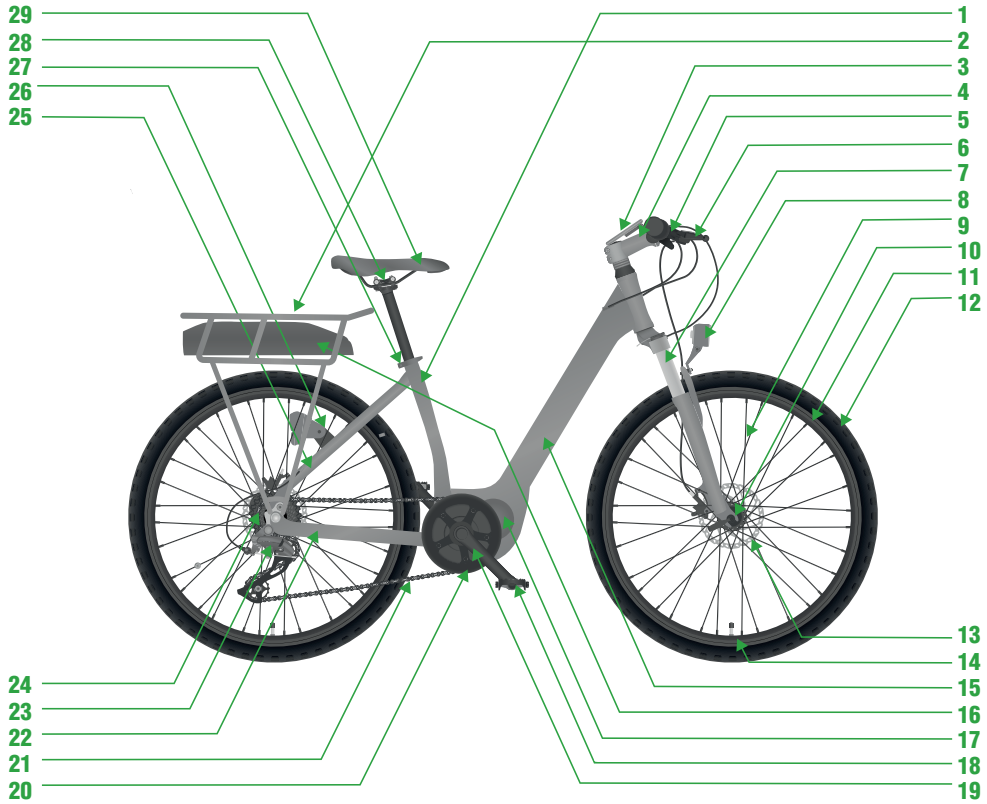
3. The second edge of the outer tube fits in best when you start the installation by pressing the edge of the tyre with both thumbs simultaneously on to the rim, starting from the valve cap location of the rim and then going around the rim and simultaneously pressing the edge of the tyre on to the rim, so that your hands finally meet on the opposite side of the valve cap. When the tyre is on the rim, carefully press on the valve cap. However, make sure not to press the cap inside the rim.

4. If the tyre does not seem to fit on the rim, make sure the inner tube is not overinflated, and that the opposite edge of the outer tube sits properly in the rim track.

5. Finally tighten the valve's knurled nut and fully inflate the tyre. Check that the edge of the tyre sits centrally in relation to the rim, so that the outer tube is not askew. Also consider the maximum inflation pressure marked on the side of the tyre.



1	Seat tube	**16**	Battery (can also be integrated)
2	Top tube	**17**	Engine
3	Drive unit	**18**	Pedal
4	Handlebar stem	**19**	Crank arm
5	Handlebar	**20**	Chain rings
6	Brake lever	**21**	Chains
7	Front fork/front suspension fork	**22**	Chain stay
8	Headlamp	**23**	Rear derailleur
9	Spoke	**24**	Rear cassette
10	Wheel hub	**25**	Seat stay
11	Rim	**26**	Rear light
12	Wheel	**27**	Seat post binder
13	Brake	**28**	Seat post
14	Valve	**29**	Saddle
15	Down tube		



1	Seat tube	**16**	Battery
2	Luggage carrier	**17**	Engine
3	Drive unit	**18**	Pedal
4	Handlebar stem	**19**	Crank arm
5	Handlebar	**20**	Chain rings
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11	Rim	**26**	Rear light
12	Wheel	**27**	Seat post binder
13	Brake	**28**	Seat post
14	Valve	**29**	Saddle
15	Down tube		

1. Symbols on products

The following symbols may be used on the packaging, battery or charger.

Symbol	Description
	Symbol for electrical devices which must not be disposed of as household waste. Dispose any electrical devices that have this symbol at appropriate waste collection points, so that they can be recycled in an environmentally friendly manner.
	Symbol for rechargeable and disposable batteries which must not be disposed of as household waste. Dispose any rechargeable or disposable batteries that have this symbol at appropriate waste collection points, so that they can be recycled in an environmentally friendly manner.
	Symbol for environmentally hazardous substances. Handle products that have this symbol with particular care. Observe waste management regulations!
	Symbol for recyclable materials which are intended to be recycled. Dispose of the packaging according to its type. Dispose of cardboard along with waste paper and film in your recycling collection.
CE	Any products that have this symbol fulfil the community regulations to be observed in the European Economic Area.
	Symbol for products that must only be used indoors.
	The grid connection 230 V~/50 Hz has a protection class II.
	Symbol for direct current (DC).
	Symbol for alternating current (AC)

2. Electric bicycles in general

AN ELECTRIC BICYCLE, WHICH IS EQUIPPED WITH A RECHARGEABLE BATTERY OR A SEPARATE ELECTRIC BICYCLE'S BATTERY MUST NOT BE STORED IN PREMISES WHICH HAVE BEEN BUILT IN VIOLATION OF REGULATIONS.

> PEDELEC/EPAC

Contrary to the official standard **EPAC**s (= **Electrically Power Assisted Cycle**) are referred to in this operating manual as **Pedelecs** (=**Pedal electric cycle**). Pedelecs are cycles with an electric auxiliary motor that provides assistance up to a maximum of 25 km/h when you pedal. There may be a pushing aid which can accelerate the bicycle up to 6 km/h depending on what gear the shifting system is in. Pedelecs are cycles that are legally classed as bikes in most countries. Find out about the national and regional regulations and classifications in your country.

> S-PEDELEC/S-EPAC

Contrary to the official standard **S-EPAC**s (= **Speed Electrically Power Assisted Cycle**) are referred to in this operating manual as **S-pedelecs** (=**Speed Pedal electric cycle**). S-pedelecs are cycles with an electric auxiliary motor that provides assistance up to a maximum of 45 km/h when you pedal. Depending on the model, all-electric operation up to a maximum of 18 km/h may also be possible. In some countries, S-pedelecs are classed as motor vehicles. Find out about the national and regional regulations and classifications in your country. **Note that from the beginning of 2019, the front brake lever on S-pedelecs is on the right and the rear brake lever is on the left.**

Only carry out the stages described in the operating instructions if you have the required skills and the necessary tools. In other cases, let a competent retailer carry out the repairs.

> DIFFERENCES BETWEEN A PEDELEC/ S-PEDELEC AND A BICYCLE

Any ice, rain, sand or loose leaves on the road can lead to accidents, particularly in case of front-wheel drive pedelecs/s-pedelecs. Use the shifting mechanism of the cycle and always set off using the smallest gear.

The components of an electric drive have a significant difference between a standard bicycle and a pedelec/s-pedelec.

- Due to the significantly higher weight and change in weight distribution, a pedelec / s-pedelec handles differently.
- The drive has a significant impact on braking behaviour.
- Pedelecs/S-pedelecs require more braking force. This can increase wear.
- On pedelecs/S-pedelecs with a central motor, there are significantly higher forces acting on the drive train. This increases wear.
- Careful riding is required as other road users may need to adjust to the higher speed of the pedelec/S-pedelec.
- The handling and braking behaviour requires appropriate expertise, as does use of the rechargeable battery and charger.
- Familiarise yourself with the characteristics of the pedelec/s-pedelec even if you already have experience with electrically assisted cycles.

Certificate of Conformity (CoC) for S-pedelecs

This document is enclosed with your s-pedelec and uniquely assigned to this one cycle. The CoC confirms that the cycle corresponds to the approved type.

You need the CoC to insure the cycle or if you wish to register it. Acquaint yourself with national and regional regulations before your first ride. Keep the CoC in a safe place. The CoC will also be required by the buyer in the event that you sell the cycle.

3. Operating range

The drive is an auxiliary motor. To obtain the longest possible range, the following points must be noted:

- The motor works most efficiently at a cadence of 50–80 crank revolutions/minute.
- Shift to a lower or higher gear before inclines and descents to avoid excessively fast or slow cadences.
- Operate the gear shifting system as if you were riding without assistance.
- Use the smaller gears in your gear shifting system on inclines, in headwinds and with heavy loads.
- Starting in the lowest gear increases the range.
- Always ride in a low gear and pedal as hard as possible.
- It is good to shift to the smallest gear already when stopping.
- Riding uphill reduces the range, as does frequent stopping and starting.
- Shift down to a lower gear in good time before inclines.
- Look ahead and anticipate while riding so that you can avoid unnecessary stops.

- Riding on unsurfaced ground reduces the range.
- Where possible, ride on surfaced roads and paths.
- A high gross weight (cycle + rider + luggage) increases energy consumption.
- Do not transport unnecessary loads.
- You can get the most kilometres out of a new and fully charged battery.
- Neglected cleaning and maintenance can reduce the range.
- Take care of the pedelec/S-pedelec on a regular basis and check the tyre pressure regularly.
- Continually test the functionality of the pedelec/S-pedelec and check for wear, as well as referring to all notes on the rechargeable battery in this user manual and in the drive system manual.
- Observe maintenance intervals.
- High average speeds reduce the range.
- The stronger the assistance mode, the shorter the range.
- Ambient temperatures can reduce the range.
- Particularly high and particularly low ambient temperatures can permanently speed up battery wear or even damage the rechargeable battery.
- Store the rechargeable battery at room temperature before a ride to ensure an optimum temperature for use.
- Refer to the notes on storing the rechargeable battery correctly.

Because the range is dependent on a variety of factors such as the level of assistance, speed, shifting behaviour, tyres and tyre pressure, age and condition of the rechargeable battery, route profile and conditions, headwind and ambient temperature as well as the weight of the cycle, rider and luggage, it is not possible to accurately predict the range before setting off or during a ride. In general, however:

- If the level of assistance remains the same: The less force you need to apply to reach a particular speed (e.g. through optimum shifting behaviour), the less energy the drive will consume and the longer the range from the battery charge.
- If all other conditions are the same, then the higher the selected level of assistance, the shorter the range.

4. Road use

Depending on the design, pedelec assistance may be effective up to a speed of 25 km/h. With an S-pedelec, the assistance is switched off at a speed of 45 km/h. Find out before your first ride whether your pedelec/s-pedelec is equipped in accordance with requirements for use on the road.

For example:
- Brakes
- Lighting and reflectors
- Bell or other approved warning device
- Child trailers and child seats

Acquaint yourself with the applicable national and regional road regulations.

For example:
- Rider's minimum age
- Compulsory insurance
- Type approval
- Compulsory helmet
- Compulsory high-visibility vest

Consider and observe the Traffic Code.

Bear in mind that tampering with the pedelec/S-pedelec speed, or tuning the pedelec/s-pedelec, can have legal consequences.

Legislation and regulations are subject to change at any given time. Therefore, we recommend that you regularly review the national and regional regulations.

> MINIMUM TREAD DEPTH
Please note that a minimum tread depth of 1 mm is prescribed for cycles such as s-pedelecs.

> MINIMUM PULL-OUT HEIGHT
Depending on the s-pedelec model, the seat post may be labelled with a minimum pull-out depth marking. Pull the seat post out far enough that the lighting components are not obscured by any license plate which may be fitted to the saddle.

> INSURANCE
Check whether damage is adequately covered by the terms of your insurance. If in doubt, contact your insurance company.

> EXCLUSION OF CONSUMABLE PARTS
In addition to consumables, the rechargeable battery is also a consumable part. This does not include manufacturing defects. You can find the precise conditions of the warranty on components of the drive system in the respective system user manual. The respective system user manual is enclosed with your pedelec/s-pedelec.

> DISCLAIMER
The manufacturer is not liable for damage or failures caused due to any direct or indirect use of the pedelec/s-pedelec which falls outside what is deemed proper use.

5. Transportation of children and cargo

> TRANSPORTATION OF CHILDREN AND CARGO

Tunturi Oy Ltd does not permit the use of S-pedelecs to transport children or cargo in a trailer.

Tunturi Oy Ltd does not allow the option of using S-pedelecs to transport a child in a child seat.

Tunturi Oy Ltd accepts no liability for any damage resulting from the use of trailers and/or child seats with S-pedelecs.

6. Transportation and shipping

> TRANSPORT

Remove the battery before transporting the pedelec/s-pedelec. Take particular care when transporting the battery.

The battery must be removed from the pedelec/s-pedelec before transportation. After removing the battery, cover the contacts of the battery to prevent short circuits. If the drive unit can be removed, it must be removed before transportation in order to avoid damage and loss.

> BY CAR

Load the battery in such a way that it cannot move or collide with other objects while driving. Protect the battery with appropriate cargo securing to avoid it from being subjected to pressure and impact. Place the battery in such a way that it does not heat up in the sun or as a result of other heat sources. When lifting the pedelec/s-pedelec, consider the greater weight and abnormal distribution of weight compared to other modes of transport.

> WITH OTHER MODES OF TRANSPORT

Special directives concerning the transport of a pedelec/s-pedelec equipped with a battery which are constantly specified or updated. Depending on the mode of transport used for transport, these directives may differ from each other. Contact the railway, airline or ferry company in a timely manner before travelling and find out about the prevailing regulations concerning the transport of pedelecs/s-pedelecs. Keep the technical specifications of your pedelec/s-pedelec available.

> TRANSPORT OR SHIPMENT OF A BATTERY

Individually transported lithium ion batteries are hazardous products. A private user can transport intact batteries on land without any additional requirements. Acquaint yourself with national and regional regulations about transporting and shipping hazardous goods. The rechargeable battery must not be carried on a plane as hand luggage. Observe specific requirements with regard to packaging and labelling for transportation, e.g. when transporting by air or contracting a carrier. Find out about transporting rechargeable batteries and suitable transport packaging by asking a carrier or dealer directly, for example. Ensure that rechargeable batteries transported in hand luggage or in a rucksack, e.g. as spare batteries, are protected against liquids and short circuits. Do not continue to use rechargeable batteries after a fall. Have rechargeable batteries checked before their next use. Have the batteries checked before they are next used.

7. Safety instructions

This chapter covers notes on the rechargeable battery. Even if all safety precautions are observed, the rechargeable battery can still become dangerous, such as if it catches fire. In an emergency, make sure that your actions do not put you or other people in danger at any time.

The instructions in this chapter must be followed in the event of an emergency. Read these instructions so that you can be focussed and prepared when reacting to an emergency. Refer to and follow the enclosed system manuals.

> USAGE SAFETY INSTRUCTIONS

Only allow the pedelec/s-pedelec, rechargeable battery and charger to be used by people who have been instructed in how to use them safely and properly, and who understand the risks resulting from their use. Do not allow children to play with the pedelec-/s-pedelec. Supervise children using the pedelec. Instruct children in how to handle the pedelec.

Risk of damage!
Observe temperature limits. Avoid transporting the rechargeable battery by car in high outdoor temperatures. Ensure that you park the car in the shade when transporting the rechargeable battery by car. Do not park the pedelec/s-pedelec near heat sources. Avoid direct sunlight on the rechargeable battery when parking the pedelec/s-pedelec.

> CHARGER SAFETY INSTRUCTIONS

Only use the charger indoors and do not leave it unattended during use. Connect the charger solely to a properly installed plug socket that meets the technical specifications of your charger. Make sure that the charger never comes into contact with water or other liquids. Check the charger, mains cable and mains plug for damage before each use before each use. If you find or suspect any damage, do not use the charger. Place the charger so that it cannot become damp or wet. Never clean or spray the charger with liquid. The charger must not be used if any damage is found or suspected.

Do not open, dismantle, pierce or deform the charger. Repairs to the charger must only be carried out by a dealer, and only using original spare parts.

> DAMAGE TO THE CHARGER DUE TO IT BEING USED INCORRECTLY.

Risk of damage!
When charging, always place the charger on a fire-resistant material (e.g. stone, glass, ceramic). Use the charger solely to charge the original rechargeable battery. Always pull the mains plug out of the socket after using the charger. Pull on the plug and not the cable when disconnecting the charger from the mains after charging. Read the additional safety instructions on the charger housing.

> RECHARGEABLE BATTERY SAFETY INSTRUCTIONS

Risk of death! Poisoning or fatal injury from leaking fumes and/or hydrofluoric acid in the event of the rechargeable battery catching fire. Remove yourself and other people from the vicinity of the burning battery.

Risk of fire and explosion! Damage to the rechargeable battery can cause fires and explosions. Do not attempt to put out the rechargeable battery with a fire blanket, instead use a plentiful amount of water. Keep back from the rechargeable battery and let it burn out in a controlled way. Internal damage to the rechargeable battery can cause overheating or result in liquid and gas leaking from the battery. Have the rechargeable battery checked by a retailer after falls or hard impacts. Do not open, dismantle, pierce or deform the rechargeable battery and battery housing.

Risk of injury! Injury to skin or eyes from leaking lithium in the event that the re- chargeable battery is damaged. Only touch damaged rechargeable batteries with protective gloves. Wear safety goggles and an apron when in contact with a damaged rechargeable battery.

Risk of damage!
Damage to the rechargeable battery, drive and nearby objects due to charging incorrectly. Use the rechargeable battery supplied solely for the original drive. Keep the rechargeable battery away from fire and other heat sources, and protect it against strong sunlight. Protect the battery from moisture. Never clean or spray the battery with liquid. Do not use the rechargeable battery if you notice unusual heat or discolouration, or if the battery is obviously damaged.

> RESIDUAL RISKS

Even if all safety notes and warnings are observed, using the pedelec/S-pedelec still en- tails unforeseeable risks such as:

– Drivers and pedestrians failing to realise at first glance that a pedelec/s-pedelec may be travelling at a higher speed.

– Damage to the rechargeable battery caused by either low or high temperatures or by direct sunlight.

– Battery malfunction.

> IN CASE OF EXCESSIVE HEAT

If the rechargeable battery is found to generate excessive heat: Remove the rechargeable battery if you can do so safely. Choose a temporary storage location outdoors and store the rechargeable battery in a fireproof container or place it on fireproof ground. If storing the rechargeable battery outdoors, clearly secure a wide area around the storage location. Have the rechargeable battery checked by a competent retailer.

> IN CASE OF DEFORMATION, ODOUR OR FLUID

If the rechargeable battery is found to be deformed, producing an odour or leaking fluid: Remove the rechargeable battery if you can do so safely. If you can move the rechargeable battery safely, place it in a fireproof and acid-resistant container, such as one made of stone or clay. Choose a fireproof temporary storage location outdoors. If storing the rechargeable battery
outdoors, clearly secure a wide area around the storage location. Have the rechargeable battery disposed of by a dealer immediately.

8. Basic adjustments

This chapter contains information about the basic adjustments and introduction of the pedelec/S-pedelec, as well as how to prepare the pedelec/S-pedelec for use.

> NOTES ON THE KEY

The key number stamped on the key should be recorded on your bicycle passport. If you lose the key, contact a retailer for a replacement.

> CHARGER

Refer to the information enclosed by the manufacturer about the charger. Read the specifications on the charger nameplate. If these specifications do not match the voltage supply, do not use the charger. **The rechargeable battery is fully charged before your first ride.**

> FIRST RIDE

Practice operation and use off the road in an open space on even, solid ground with good grip. Refer to the control unit information enclosed by the manufacturer. Practice using the pushing aid. Practice using the pedelec/S-pedelec and its features without motor assistance at first. Then gradually increase the strength of the assistance. Choose the lowest level of assistance on the control unit. Start slowly. Operate the brakes carefully and get accustomed to the brake action. When you can operate the brakes safely, get accustomed to the assistance from the drive. When you can ride safely, repeat the familiarisation process and brake test for the other gears.

> INSPECTION INSTRUCTIONS

Note the following points before every ride: Regularly check your pedelec/S-pedelec according to the user manual. Check whether the lock for the rechargeable battery is fastened. Check the battery for any damage. Check the drive for damage on a visual basis. Check whether cables and connectors are securely in place and look for damage on a visual basis. If you discover any missing or damaged parts, do not use the pedelec/S-pedelec. Have the pedelec/S-pedelec repaired by a retailer. If you own an S-pedelec, check whether your insurance plate is still valid.

9. Operation

Different drive units may be installed depending on the bicycle model. Acquaint yourself with how to operate the drive before your first ride. Refer to and follow the enclosed system manuals. Have your dealer instruct you on operating the drive.

> SWITCHING THE DRIVE ON/OFF

To switch the drive on and off, press the On/Off button on the control unit. Note that there must be no load on the pedals when switching the drive on.

> DRIVE OVERHEATING PROTECTION

The drive is automatically protected against damage due to overheating. When the drive temperature is too high, the drive switches off automatically. To prevent the drive overheating, use a low level of assistance from the drive in high outdoor temperatures or on steep inclines. If the drive switches off while riding with a charged battery, temporarily use the pedelec/S-pedelec like a conventional bike so that the drive can cool down. If the fault is not corrected by letting the drive cool down, have the pedelec/S-pedelec checked by a retailer.

> DRIVE UNIT

Risk of accident and injury!
Delayed rider reaction due to distraction. Familiarise yourself with the control unit features so that you can focus completely on the road.

> PEDELEC PUSHING AID

Risk of injury! Pinching and crushing of body parts by moving components. Only use the "pushing aid" feature when pushing the pedelec. Only use the pushing aid when the pedelec is standing on both wheels. Depending on the model, the pedelec may be equipped with a pushing aid. The pushing aid makes it easier to push the pedelec. The speed of this feature depends on what gear is engaged and the maximum is 6 km/h. The lower the selected gear, the lower the speed of the pushing aid.

> S-PEDELEC STARTING AID

The S-pedelec is equipped with a starting aid up to a maximum of 18 km/h. This starting aid is all-electric and does not require pedal assistance.

10. Battery and charger

> BATTERY

Risk of damage! Irreparable damage to the pedelec/S-pedelec due to self-dis- charge for technical reasons. Recharge an empty battery straight away. Pedelecs/S-pedelecs are usually equipped with a lithium-ion (li-ion) rechargeable battery. With proper use, li-ion batteries are safe. Lithium-ion batteries have high energy density. For this reason, a great deal of caution must be taken when handling these rechargeable batteries. For rider safety, reliable operation and a long service life, it is essential to note the following: After the first full charge, the battery can be partially charged. Partially charging the battery will not damage it, as lithium-ion rechargeable batteries do not have a memory effect. Partial charges are rated proportionally to their capacity (a charge of 50 % corresponds to half a charge/discharge cycle). Temperature limits must be observed for the rechargeable battery to function properly.

Refer to the information enclosed by the manufacturer about the rechargeable battery as well as the enclosed drive system manuals. Particularly high and particularly low ambient temperatures can permanently speed up battery wear or even damage the rechargeable battery. The rechargeable battery is subject to a certain degree of wear. If you experience excessive power loss, e.g. operating time is significantly shortened, have the rechargeable battery checked by a retailer. Never make any alterations to the rechargeable battery yourself.

> PROTECTION EQUIPMENT

The rechargeable battery and/or the charger are equipped with a temperature control. If the rechargeable battery is outside these temperature limits, the charging process is stopped automatically. Refer to and follow the notes in the system manual if charging stops prematurely.

> RIDING WITH AN EMPTY BATTERY

If the battery charge is completely used up during a ride, the pedelec/S-pedelec can be used like a conventional
bicycle. Note that using a pedelec/S-pedelec without assistance is more difficult than using a conventional bicycle.

> REMOVING/INSERTING THE RECHARGEABLE BATTERY

Risk of damage! Damage to the electronics due to removing the rechargeable battery incorrectly. Switch off the drive before removing the rechargeable battery.

Risk of damage! Damage to the rechargeable battery due to dropping. Before use, check that the rechargeable battery is correctly inserted in the holder and that the lock is engaged. The rechargeable battery may be removed/inserted differently depending on the drive system. Refer to the enclosed system manuals.

> CHARGING THE BATTERY

Risk of injury and fire! Heat, leaking gas and damage to the rechargeable battery due to incorrect charging. Do not use or touch the rechargeable battery and charger if you notice unusual heat, odour or discolouration, or if the battery is obviously damaged. Disconnect the charger plug. Pull on the plug and not the cable when disconnecting the charger from the mains after charging. With some models, the battery can be charged while it is inserted in the pedelec/S- pedelec. With other models, the battery must be removed before charging. Only charge the battery in a dry, well-ventilated room. If you can shelter your pedelec/S-pedelec in a dry and safe place, e.g. in a garage or bike shed, charge the battery while it is inserted. If you cannot shelter your pedelec/S-pedelec, remove the battery to charge it. Remove any dirt from the charging port and contacts with a dry cloth. Do not leave the rechargeable battery unattended while charging. Charging a battery while inserted: Switch off the pedelec/S-pedelec to charge the battery. Charging the removed battery: When charging, always place the charger on a fire-resistant material (e.g. stone, glass, ceramic).

> CONNECTING THE RECHARGEABLE BATTERY TO THE CHARGER

1. Insert the charging plug on the charger into the charging port on the rechargeable battery or the battery holder.

2. Ensure that you line up the charging plug so that the contacts on the charging plug match those on the charging port.

3. Monitor the charging process.

> STOPPING THE CHARGING PROCESS

Charging can be stopped before the battery is fully charged, e.g. for storage.

> CHARGING TIMES

When the rechargeable battery is empty, a full charging process generally takes 3-6 hours. The duration of the battery charging process is dependent on the following factors:

- Battery charge level
- Battery temperature and ambient temperature
- Battery capacity
- Battery model
- Charger

11. Cleaning and maintenance

Risk of electric shock and short circuit!
Injury from electric current during cleaning, maintenance and repair work.
Disconnect the charger plug. Pull on the plug and not the cable when disconnecting the charger from the mains. Remove the rechargeable battery from the pedelec/S-pedelec before cleaning and maintenance. Do not clean the components with running water or other liquids. Do not use high-pressure equipment for cleaning.

Risk of burns!
Touching hot components.
Let the drive and rechargeable battery cool down before touching the components. Check safety-related components before every ride. Check your pedelec/S-pedelec after a fall. Have maintenance work carried out by a retailer.

> CHECKING THE ELECTRIC DRIVE SYSTEM

Refer to the enclosed system manuals. Check all electrical cables for damage. Examine the display for cracks and damage, and check that it is firmly in place. Check the control unit for cracks and damage, and check that it is firmly in place. Check the battery for any damage. Check that all plug contacts are properly in place and reconnect them if necessary. Check the cable harness for damage. Carry out a visual inspection of the auxiliary motor.

Risk of electric shock!
Working on the pedelec/S-pedelec with the rechargeable battery inserted or the charger connected.
Remove the rechargeable battery from the holder. Disconnect the charger from the voltage supply.

Risk of burns!
The drive and rechargeable battery may become hot in the event of a malfunction. Let the drive and rechargeable battery cool down before touching them. The components of the pedelec/S-pedelec are automatically checked on an ongoing basis. If a fault is found, an appropriate error message will appear on the display. Refer to the enclosed system manuals. If the actions listed do not solve the problem, contact a retailer. Depending on the fault type, the drive may be switched off automatically. You can continue to ride without assistance from the drive. Contact a retailer to have the drive checked before your next ride.

Risk of injury! Respiratory tract, eye or skin irritation from leaking fumes or fluid in the event of damage to or improper use of the rechargeable battery. If you experience symptoms, seek medical advice straight away. Make sure there is an ample supply of fresh air if the rechargeable battery is defective. Remove contaminated clothing immediately. Avoid contact with the battery fluid. If battery fluid gets into your eyes, rinse them out with plenty of water. Seek advice from a doctor immediately. Wash your skin thoroughly with soap and water.

12. Storage of the battery and bicycle

> BATTERY STORAGE

If the rechargeable battery will not be used for a prolonged period, the following points must be noted with regard to storage: Charge the battery to around 60 % of its capacity. If necessary, remove the rechargeable battery from the holder to store it. Store the rechargeable battery out of reach of children and animals, and in such a way that it cannot fall down. Store the rechargeable battery ideally at around +10 °C to +15 °C, in a dry and well-ventilated place such as an appropriate basement room. Protect the battery from moisture. Ensure that the temperature remains between the upper and lower limits during storage. If storing for more than three months, recharge the battery every 2-3 months, depending on storage conditions. Charge the battery to around 60 % of its capacity again at these times. Always disconnect the rechargeable battery from the charger and the charger from the voltage supply after charging. When storing the rechargeable battery, ensure that the poles do not short-circuit. Cover the poles with tape if necessary.

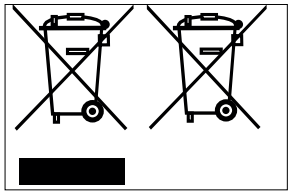
> STORING THE PEDELEC/S-PEDELEC

If the pedelec/S-pedelec will not be used for a prolonged period, the following points must be noted with regard to storage: Clean the pedelec/s-pedelec. Protect the pedelec/S-pedelec against moisture, dust and dirt during storage. Store the pedelec/S-pedelec in a dry, frost-free place where it is protected against major fluctuations in temperature.

> WASTE MANAGEMENT

Do not dispose of your bicycle in household waste. Take it to a municipal collection point or a recycling centre. Alternatively, there are also collections organised by local councils and private organisations. Contact your local council about this or refer to postal information.

> ELECTRICAL ELEMENTS,SINGLE-USE BATTERIES AND RECHARGEABLE BATTERIES



Pedelecs, S-pedelecs and bikes with electric shifting systems or electric damper systems must have all single-use and rechargeable batteries removed first, along with any detachable controls containing batteries. This means the rechargeable batteries from the drive system, displays with built-in rechargeable batteries, rechargeable batteries for shifting or damper systems that are built into or onto the frame, etc. Removable displays with built-in rechargeable batteries or displays that continue to offer an active display after removal from their brackets and do not appear to have a battery compartment on the back side must be disposed of completely. Only externally accessible battery compartments may be opened. The display housing must not be opened to remove a fixed rechargeable battery.

Fixed rechargeable batteries in displays are generally lithium-ion batteries and therefore hazardous waste. They must not be disposed of in household waste, and must be taken to a municipal collection point or a recycling centre instead. This also applies to replaced batteries which can no longer be used due to wear or a defect.
Commercially available single-use batteries can be taken to a municipal collection point or a recycling centre, and can also placed in battery collection boxes which are available in various shops or stores.

After removing any single-use or rechargeable batteries, the remainder of the cycle is classed as waste electrical and electronic equipment and must be sent for recycling separately. Your retailer, the municipal collection point or a recycling centre can assist you here.

> ELECTRONIC COMPONENTS AND ACCESSORIES

Replaced or defective LED headlamps, LED rear lamps or hub dynamos, as well as accessories such as bicycle computers or navigation devices, must also be disposed of separately. Take parts and devices of this kind to a municipal collection point or a recycling centre.

> PACKAGING

The packaging used to protect your bicycle during shipping, called transport packaging, can generally be left with your retailer. All other types of packaging must be sorted and disposed of separately. Dispose of cardboard along with waste paper and film in your recycling collection. You can also ask your retailer about disposal.

> TYRES AND INNER TUBES

Tyres and inner tubes must not be disposed of in household waste. Ask your dealer whether they take care of collection and disposal, or take these items to a recycling centre or municipal collection point.

> LUBRICANTS AND CARE PRODUCTS

Do not dispose of lubricants and care products in household
waste, into the sewer system or into the environment. They must be taken to a hazardous waste collection point. Follow the instructions included on the lubricant and care product packaging.

More information on the disposal of defective batteries can be found at: **www.kierratys.info**

We provide a warranty on the bicycle's steel and aluminium frames for a period of 5 years from the purchase date in accordance with the following terms. On the front forks, paintwork and other bicycle components for a period of 2 years from the purchase date in accordance with the following terms.

In warranty-related issues, we observe the requirements set out in the Consumer Protection Act.

1. The warranty provided by the manufacturer enters into force on the purchase date of the product, not the first day of use.

2. The warranty only covers faults caused by raw material and manufacturing defects. If any faults are present in the bicycle, e.g. At the front fork, mudguards or luggage carrier, due to previously mentioned defects, they shall be replaced with accessory components.

3. Primarily contact the retailer from whom you purchased the bicycle in warranty-related matters.

4. The warranty provided by the bicycle manufacturer does not cover lock keys, lighting devices' bulbs or batteries, or any accessories that have been installed to the product as additional accessories by the retailer.

5. The warranty likewise excludes all damage resulting from insufficient care and maintenance, the use of spare parts other than original ones, incorrect repairs or modifications to the structure of the product without written consent from the manufacturer or normal wear and tear.

6. Shortcomings or faults in cases where recommendations contained in the maintenance instructions are disregarded despite requiring maintenance or adjustment after handover, shall not be covered by the warranty unless the shortcoming or fault is present after professional adjustments and maintenance. The product warranty does not cover any disturbances in the operation of the product that have been caused by exceptional weather conditions.

7. Minor defects to the outer surface that do not affect the sturdiness or usability of the product, or any minor flaws in the paintwork, lacquering, chrome work or defects in the surfaces that are caused by changing weather conditions or normal use are usually not covered by the warranty.

8. The warranty also does not apply if the cycle is used for improper use or faults caused by abnormal private use (e.g. Rentals, competitions or equivalent)

9. Faults or defects caused to the product during transportation or incorrect storage are not covered by the product warranty.

10. The product warranty does not cover any indirect damage caused to other property.

TUNTURI

MAINTENANCE CARD • SERVICEKORT

1. Handover service. Checked in connection with service:
Överlåtelseservice (avgiftsfri). Följande har granskats vid servicen:

- ☐ Brakes • Bromsar
- ☐ Steering devices • Styre
- ☐ Hub bolts • Navmuttrar
- ☐ Headset and bottom bracket bearings • Styr- och vevlager
- ☐ Shifting system • Växlar
- ☐ Adjustment and fixing of seat • Sadel
- ☐ Installation and tightening of pedals • Pedaler
- ☐ Straightness of discs and tyre pressures • Hjul och däck

Retailer's name • Återförsäljarens namn .....

Retailer's signature • Försäljarens underskrift

.....

2. Break-in service (subject to fee). 50-150 km/3 months after handover service.
Överlåtelseservice (avgiftsbelagd). Följande har granskats vid servicen:

Service completed • Servicen har utförts ..... / ..... 20 .....

.....

Name of person to have completed the service and the service company's name • Reparatörens underskrift och namn

.....

3. Maintenance	4. Maintenance
Completed work:	Completed work:
Date, authorised retailer's stamp and signature:	Date, authorised retailer's stamp and signature:

5. Maintenance	6. Maintenance
Completed work:	Completed work:
Date, authorised retailer's stamp and signature:	Date, authorised retailer's stamp and signature:

7. Maintenance
Completed work:
Date, authorised retailer's stamp and signature:

8. Maintenance
Completed work:
Date, authorised retailer's stamp and signature:

9. Maintenance
Completed work:
Date, authorised retailer's stamp and signature:

10. Maintenance
Completed work:
Date, authorised retailer's stamp and signature:

11. Maintenance
Completed work:
Date, authorised retailer's stamp and signature:

12. Maintenance
Completed work:
Date, authorised retailer's stamp and signature:

13. Maintenance
Completed work:
Date, authorised retailer's stamp and signature:

14. Maintenance
Completed work:
Date, authorised retailer's stamp and signature:

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Bicycle user and maintenance manual