



User manual

OUR MODELS

Ally	Proven
Ally FM	Roma
Asolo	S1
Carrier	S3
Chukudu	Scoobo
Classic	Scoobo+
Combo	ScooterTrike
Comfort	ScooterTrike FM
Comfort FM	Siena
Grazia	Special
Jumbo	Tibo+
Kuli	Trizon
Mobile	
Napoli	
Passo	

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SUPPLEMENTARY USER MANUAL
FOR PEDELECS
FROM PAGE 85

1. INTRODUCTION

Dear Customer,

You made an excellent choice by purchasing this branded bicycle/tricycle. At the end of this user manual you will find your bicycle logbook and an addendum to the handover certificate.

Please complete both sides together with your dealer at the time of delivery.

We hope that you have a lot of fun with your bicycle/tricycle and a good trip at all times.

2. WARRANTY GUIDELINES (LIABILITY FOR MATERIAL DEFECTS)

2.1 APPLICABLE PROVISIONS

pfautec is legally required to ensure that the bicycle/tricycle does not exhibit any faults that restrict or reduce its suitability for use. This applies for a period of 2 years after the purchase of the bicycle/tricycle. For used bicycles/tricycles with a mileage of more than 10 km at the time of sale, the entitlement is reduced to 1 year.

The warranty claim must always be made to the dealer from whom the bicycle/tricycle was purchased. Initially you are entitled to a repair or a replacement delivery.

The warranty claim is valid for the first 12 months for initial faults. Thereafter, the burden of proof is reversed. In addition to the statutory warranty, pfautec GmbH grants a warranty of 3 years from the date of purchase on frames and frame parts. The prerequisite for this is that in the event of damage, all the necessary documents (copy of the purchase receipt and completed bicycle logbook) are made available through the dealer.

Warranty and guarantee claims apply only to first-time purchasers. Any further claims, such as compensation or loss of use, are excluded.

Please observe the inspection and maintenance intervals listed in this user manual. To make warranty claims, please present the original invoice and provide proof of regular maintenance.

The warranty and guarantee period are expressly not extended through warranty or guarantee services provided. Excluded from the warranty and guarantee is damage caused by, for example, wear, unsatisfactory care and maintenance, a crash, overloading, improper use and, for example, unauthorised attachments and modifications to the bicycle/tricycle, use of non-original parts and spare parts, and tuning for bicycles/tricycles with a motor.

The warranty and guarantee claim will also become invalid if the bicycle has been used by a person who has not been instructed in how to use it.

The right to make a claim will also not apply in the case of competitive and commercial use. Components that are subject to wear are the responsibility of the purchaser.

The level of wear depends on the care and maintenance, type and intensity of use and weather conditions (e.g. salty air, humidity).

Refer to section "26.3 Wear parts" for the wear parts.

2.2 DISCLAIMER

If you have a pedelec, refer to section "17. Insurance cover" on page 102 of the supplementary user manual.

The dealer who sold the bicycle/tricycle is the sole contact for complaints and services.

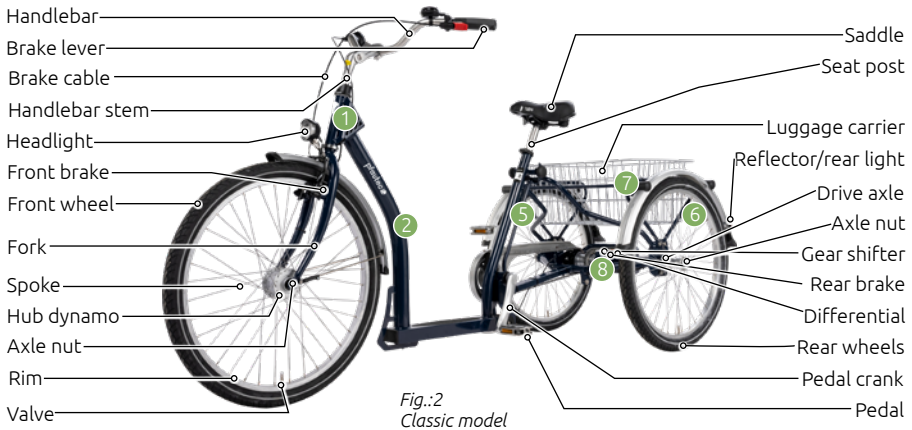
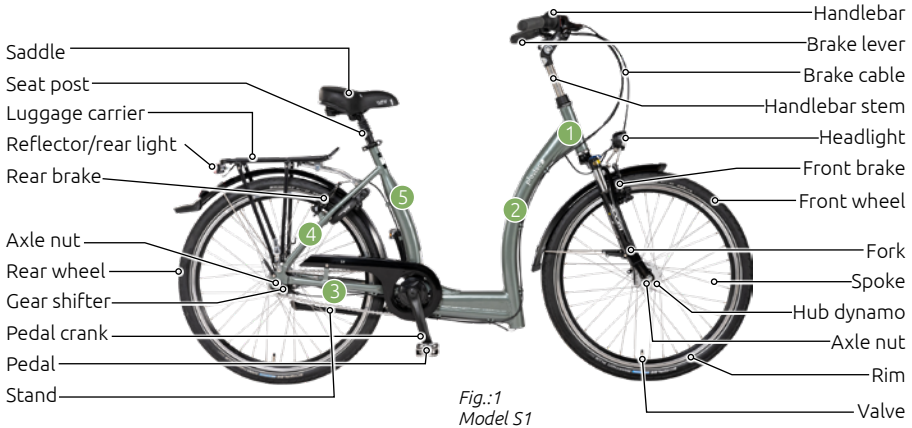
3. BICYCLE/TRICYCLE DESIGNATIONS

Note:

The figure may vary depending on your model or equipment. Read the specific information about your equipment in the relevant sections.

Frame:

- 1 Head tube
- 2 Down tube
- 3 Rear down tube
- 4 Rear top stay
- 5 Seat tube
- 6 Chain stay
- 7 Basket carrier
- 8 Axle beam



4. BASIC INFORMATION

4.1 READ THE USER MANUAL



Read all warnings and information in this manual carefully before using the bicycle/tricycle.

Information leaflets and additional sheets are part of the user manual.

Keep the user manual close at hand so that it is available at all times. If you pass on your bicycle/tricycle to a third party, hand over the user manual as well. Motor-assisted bicycles (pedelecs) also have a supplementary user manual from *Page 85*. If you have decided to purchase a pedelec, you must read the supplementary user manual to the original user manual before first using it.

If you have any questions or do not understand anything, please ensure your safety first and foremost and contact our hotline or ask a specialist.

Subject to changes due to technical progress. All brand names are the property of their respective manufacturers.

This user manual contains functional descriptions that apply to different models and equipment variants.

Not all of the components or functions described have been fitted or are present on your bicycle/tricycle. This does not imply any legal claim to these components or functions.

Note:

This manual does not constitute comprehensive instructions on the usage, repair or maintenance of the bicycle/tricycle. Please contact a specialist for all repair and/or maintenance work.

4.2 IDENTIFICATION OF THE WARNINGS

Pay particular attention to the following warnings. They are used in this manual to warn of personal injuries and property damage. The warnings require your full attention and understanding of the statements. Failure to observe a warning may result in personal injuries or injuries to others. Failure to do so will not result in any warranty or liability.

The warnings in this user manual have the following meanings:

▲ DANGER

Indicates a medium-risk hazard that may result in death or serious injuries if not avoided.

! ATTENTION

Indicates a low-risk hazard that may result in minor or moderate injuries if not avoided.



📌 NOTE

Warns of possible property damage.

4.3 SYMBOLS AND CHARACTERS

The following symbols and notations are found in the manual (see "Tab.:1"):

Tab.:1

Symbol	Meaning
•	List
1. 2.	Perform these actions in the order described.
See Fig. "caption"	Reference to a figure for more information.
See Tab. "table heading"	Reference to a table for more information.
See "section heading" section	Reference to a section for more information.
	Products marked with this symbol comply with all applicable Community regulations on European economic area.
	This symbol indicates that you must read the user manual.
Note:	Supplementary information on handling instructions or use.

4.4 UNITS

Tab.:2

Unit	Meaning	Unit for
Rpm	Per minute	Revolutions
Bar	Bar	Pressure
g	Gram	Weight (= kg / 1000)
kg	Kilogram	Weight (= g x 1000)
kPa	Kilopascal	Pressure
Nm	Newton metre	Torque
psi	pound per square inch	Pressure (USA)
"	Inch	Length (USA); 1 inch = 2.54 cm

5. STATUTORY PROVISIONS

A bicycle/tricycle is a mode of transport and in principle is subject to the directives and regulations of the road traffic act in the country in which it is used (in Germany: StVZO - German Regulation on the Approval of Road Vehicles).

5.1 EXTRACT FROM THE StVZO

The StVZO (German Regulation on the Approval of Vehicles) stipulates that a bicycle may only be moved on public roads if it is equipped with two independently functioning brakes, a clear sounding bell, dynamo, headlight, rear light reflector, reflector pedals, spoke reflectors for the wheels or light strips, a white reflector at the front and an additional large red reflector at the rear.

Please note that with a pedelec, the battery supplies the lights with power and must therefore be inserted and also charged every time you use it (see the "Supplementary user manual for pedelecs" from Page 85).

According to the StVZO every road user must behave in such a way that no one else is endangered, harmed, harassed or hindered.

Note:

Road traffic also includes forest paths and dirt tracks as well as private areas, if these are accessible to the public.

6. INTENDED USE

6.1 GENERAL INFORMATION

Our bicycles/tricycles with road equipment are designed and equipped to be used on public roads and paved tracks due to their design and equipment. The safety equipment required for this purpose has been supplied by the manufacturer and must be checked regularly by the user or a specialist and, if necessary, repaired.

The manufacturer or dealer will accept no liability for damage caused by improper use. This applies in particular to non-compliance with the safety instructions and the resulting damage, for example through:

- Off-road use,
- Overloading,
- Improper elimination of defects,
- Modifications or changes to the delivered condition,
- All year round storage and retention outdoors in all weather conditions (especially rain and snow).

The bicycle/tricycle is intended for use on roads and tracks with a smooth surface that are tarmacked, concreted or paved. Any use on unpaved roads can cause the bicycle/tricycle to fail.

According to the StVZO, the bicycle/tricycle is not approved for use on public roads unless it has two independent brakes, lights, reflectors and a bell. Its use is then only permitted away from public roads and tracks.

You must know, understand and observe the country-specific and regional regulations for the correct use of the bicycle/tricycle in road traffic.

The bicycle/tricycle is not intended for use with above-average loads, e.g. jumps and use in racing and competition events are considered to be improper use.

Use the bicycle/tricycle only as described in this user manual. Any other use is considered to be improper use and may result in accidents, serious injuries or damage to the bicycle/tricycle. The warranty will become invalid if the bicycle/tricycle is not used for its intended purpose.

The bicycle/tricycle is intended for use by a person for whom the seating position has been adjusted to their height.

The bicycle/tricycle is not designed for mounting a child seat or trailer of any kind.

The permissible total weight (bicycle/tricycle weight + permissible user weight + permissible luggage load of any kind (e.g. basket and side pockets including the contents)) must not be exceeded. Observe the information in *section "30.1 Performance data (technical data)" on page 77*. Under certain circumstances, this permissible total weight can be further restricted by the usage recommendation of the component manufacturers.

Intended use also includes compliance with the usage, maintenance and care instructions.

Observe the operating instructions of the individual component manufacturers that can be found on the Internet. If you have any questions after reading the documentation, please contact your dealer.

6.1.1 BICYCLES, TRICYCLES, FOUR-WHEELERS, CARGO BICYCLES (StVZO)

The bicycles may not be used for commercial use.

You may use these bicycles/tricycles on public roads and on paved tracks. Manufacturers and dealers do not assume liability for any use that extends over and above the intended use. This applies in particular to non-compliance with the safety instructions and the resulting damage, for example, through:

- Off-road use,
- Overloading,
- Improper elimination of defects,
- Modifications or changes to the delivered condition,
- All year round storage and retention outdoors in all weather conditions (especially rain and snow).

6.1.2 SCOOTERS (NOT StVZO APPROVED)

Scooters are not approved by the StVZO and may therefore not be used on public roads (*see section "5. Statutory provisions" on page 10*).

Your bicycle/tricycle can be retrofitted for use on public roads by fitting the appropriate equipment in accordance with the StVZO. Manufacturers and dealers do not assume liability for any use that extends over and above

the intended use. This applies in particular to non-compliance with the safety instructions and the resulting damage, for example through:

- Off-road use,
- Overloading,
- Improper elimination of defects,
- Modifications or changes to the delivered condition,
- All year round storage and retention outdoors in all weather conditions (especially rain and snow).

7. GENERAL SAFETY INSTRUCTIONS

7.1 FOR YOUR SAFETY

▲ DANGER

Tricycles differ in their handling characteristics from standard bicycles (two-wheeled)! Before using your tricycle and despite instruction and cycling practice, familiarise yourself with all the functions and characteristics of your tricycle with your dealer. Tricycles offer improved balance and comfort thanks to the low access and the three or four wheels. However, care must be taken when cornering not to approach the bends too quickly and not to ride around the bends too tightly! If you do not follow these instructions and the instructions of your dealer during the product instruction, this may lead to falls and accidents! **Risk of accident and injury!**

▲ DANGER

Dangers for children and for people with insufficient knowledge or skills!

Risk of accident and injury!

- Only use the bicycle/tricycle if you are familiar with its use and all the functions.
- Do not allow people with reduced physical, sensory or mental capabilities or lack of experience and knowledge to use the bicycle/tricycle.
- Do not let children perform the cleaning, care and maintenance.
- Keep children away from packaging material. There is a **risk of suffocation** among other things!

▲ DANGER

Poor visibility for other road users. **Risk of accident and injury!**

- Wear bright clothing with reflective elements while cycling.

▲ DANGER

Inattentiveness in road traffic.

Risk of accident and injury!

- Do not distract yourself through other activities while cycling, e.g. switching on the light.
- Do not use mobile devices such as smartphones or MP3 players while cycling.
- Do not use a drinks bottle while cycling.
- Do not use the bicycle/tricycle if you have taken alcohol, drugs or medication that may impair your cycling.

▲ DANGER

Catch points caused by moving parts on the bicycle/tricycle. **Risk of injury!**

- Wear tight legwear. Use bicycle clips if necessary.

- Avoid loose straps hanging down, such as lace or ribbon on jackets, scarves.

▲ DANGER

Slipping due to incorrect footwear.

Risk of injury!

- Wear non-slip shoes that have a stiff sole and provide sufficient support for the foot.

▲ DANGER

If your bicycle/tricycle stands in the sun, the sunlight can cause your saddle, handlebar and other parts of your bicycle/tricycle to heat up tremendously within a short period of time. **There is a risk of burns!**

▲ DANGER

Wear a suitable bicycle helmet every time you go out cycling. This is recommended in accordance with DIN EN 1078 in order to ensure your personal safety. **Risk of injury!**

! ATTENTION

Carry out regular cycling practice in order to stay familiar with the cycling characteristics of your bicycle/tricycle!

7.2 ROAD SAFETY

▲ DANGER

Take extra care in bad weather conditions such as the wet, snow or ice, or postpone your trip until a later time. The braking distance may be extended or the bicycle/tricycle may slip skid in bends. Starting off, riding around bends, braking

and cycling downhill in particular place increased demands on the rider.

Risk of accident and injury!

- Adapt your cycling style to the weather conditions and road conditions.

▲ DANGER

Incorrect or improper use.

Risk of accident and injury!

- Only use the bicycle/tricycle on public roads if the equipment complies with the country-specific road traffic regulations.
- Observe and follow the country-specific and regional road traffic regulations.

▲ DANGER

Switch on the bicycle/tricycle lights in low visibility conditions such as fog, rain, twilight or darkness.

Risk of accident!

▲ DANGER

Cross railway tracks and manhole covers carefully to avoid falling. If possible, cross the railway tracks at a right angle.

Risk of accident!

▲ DANGER

Remember that you may be in the blind spot of other bicycles/tricycles. This creates dangerous situations, especially when a motor bicycle/tricycle is turning.

Risk of accident!

▲ DANGER

Never cycle no-handed with your bicycle/tricycle. This presents great dangers as you may lose control of your bicycle/tricycle.

7.3 BICYCLE SAFETY

▲ DANGER

The permissible total weight of your bicycle/tricycle must not exceed the value specified in section "30.1 Performance data (technical data)" on page 77; "Tab.:5".

The total weight includes the bicycle/tricycle weight + the permissible user weight + the permissible luggage load of any kind (e.g. basket and side pockets including the contents).

Risk of accident and injury!

- Do not hang bags or weights on the handlebar and store luggage only on the luggage carriers!

▲ DANGER

Breakage of components if they are not used for their intended purpose.

Risk of accident and injury!

- Use the bicycle/tricycle only as described for its intended use.

▲ DANGER

If you make technical changes to your bicycle/tricycle, take into account the national traffic regulations and the applicable standards. Please note that this may render the warranty invalid.

Risk of breakage, damage and injuries!

▲ DANGER

Arrange for your dealer to get your bicycle/tricycle roadworthy. Expertise and special tools are required for all adjustment, care and maintenance work on the bicycle/tricycle. Arrange for your dealer to carry out

all the work (see section "31. Maintenance log").

Risk of accident!

▲ DANGER

Arrange for damaged or bent components to be replaced before you use the bicycle/tricycle again. Failure to do so may cause critical parts to fail.

Risk of breakage, damage and injuries!

! ATTENTION

Please use only the spare parts and original accessories available from PFIFF Vertriebs GmbH! The use of unapproved or third-party accessories will result in loss of the manufacturer's liability and warranty. For more information on the optional accessories for your tricycle, refer to our order forms.

! ATTENTION

Only replace electrical components on your bicycle/tricycle with type-approved parts. Refer to the "Supplementary user manual for pedelecs" from Page 85 in this regard.

8. RESIDUAL RISKS

The use of the bicycle/tricycle is associated with, for example, the following unforeseeable residual risks despite observing all the safety instructions and warnings:

- Components may not function or could break due to unforeseeable material fatigue.
- Unpredictable road conditions can lead to accidents and injuries, for example, in the event of slippery conditions caused by black ice.

- Components may not function or could break due to the unforeseeable faulty manufacture of bicycle components.
- The misconduct of other road users can lead to dangerous situations.

9. BEFORE SETTING OUT ON A TRIP

9.1 BEFORE EVERY TRIP

During transport or storage, the cables may stretch depending on the material, screws and nuts may become set or other damage may occur.

Therefore check the following before every trip:

Lights

- Check that the headlight and rear light work and are securely fitted.

Brakes

- Check the tightness of the cables and connections if a hydraulic brake is used.
- Push the bicycle/tricycle and operate one brake at a time; the braked front or rear wheels must lock.

Suspension elements

- Check that the suspension elements work and are securely fitted.

Rims and spokes

- Visually inspect the rims.
- Check that the rim runs true.
- Check the spokes have a uniform tension.

Gear shifter

- Check the gear shifter works.

Bell

- Check that the bell works and is securely fitted. When you ring the bell, you must hear a clear sound.

Handlebar and handlebar stem

- Check the tightness of the handlebar and handlebar stem.
- Visually inspect the handlebar and handlebar stem for cracks, deformations or colour changes.

Pedal drive

- Check that the pedal drive works and is securely fitted.

Frame, fork and seat post

- The frame, fork or seat post must not exhibit any cracks, deformations or colour changes.

Tyres

- Check the tyres for cracks and foreign objects and check the inflation pressure.
- Check the tyres have adequate tread depth.

Seat post and saddle

- Check the seat post and saddle are in the correct position and are attached correctly and securely (*see section "10. Adjustments to suit the rider"; section "11. Saddle/seat"*).

Screws, nuts and connectors

- Check that the screws, nuts and connectors are securely fitted.

Clamping devices

- Check the pre-tension of all clamping devices (*see sections "12. Quick release mechanisms"*).
- Check that all clamping devices are securely fitted (*see sections "12. Quick release mechanisms"*).

If you are not sure if your bicycle/tricycle is in good technical condition, do not use it. Arrange for it to be checked in a specialist workshop.

In addition, you must adhere to the regular inspection and repair intervals specified in the maintenance plan and follow the care and maintenance instructions *see section "31. Maintenance log"*.

9.2 BEFORE YOUR FIRST TRIP

Make sure that your bicycle/tricycle is fully assembled and adjusted for you by your dealer.

- Arrange for the dealer to adjust the handlebar and stem to a safe and comfortable position for you (*see section "10. Adjustments to suit the rider"; "14. Handlebar"*).
- Adjust the saddle to a safe and comfortable position for you (*see section "10. Adjustments to suit the rider"; section "11. Saddle/seat"*).
- Arrange for the dealer to adjust the suspension elements to suit you.
- Arrange for the dealer to adjust the brake levers so that you can easily reach them at all times.
- Familiarise yourself with the operation of the bicycle brakes before your first trip. Make sure that you know which brake lever operates the front wheel and rear wheel (*see section "18. Brakes"*).
- At low speed, get used to the braking characteristics of your brake type (*see section "18. Brakes"*).
- For hydraulic brakes, apply both brake levers several times to centre the brake pads in the brake calliper. (*See section "18. Brakes"*).
- Make sure that the wheels are securely attached to the frame and fork. Check that the quick release mechanisms and all the important fastening screws and nuts are securely attached (*see sections "12. Quick release mechanisms" and "29. Screw connections"*).
- Check the air pressure in the tyres. (*See section "21.2 Tyres and inner tubes"; tyre inflation pressure*).

- Check the tyres and rims for damage and the ingress of foreign objects, such as glass splinters or sharp stones and deformations. If you can see cuts, cracks or holes, do not set out on your trip but arrange for your bicycle to be checked in a specialist workshop.
- The functionality of the gear shifter type must be understood; it should be possible to operate the gears safely (*see section "19. Bicycle gears"*).
- Familiarise yourself with how your lights work (*see section "17. Light/lights"*).
- Check that your bicycle/tricycle complies with all the statutory requirements of the country where you are riding the bicycle/tricycle (*see section "5. Statutory provisions"*).

Observe the above checkpoints before every subsequent trip. For more information, please refer to the following pages or the operating instructions of the individual component manufacturers, which are enclosed with your bicycle/tricycle or available on the Internet. Also refer to the *"Supplementary user manual"* on page 85 for our motorised models.

10. ADJUSTMENTS TO SUIT THE RIDER

10.1 ADJUSTING THE SEATING POSITION

▲ DANGER

Restricted accessibility to the controls on the handlebar due to an incorrect seating position.

Risk of accident and injury!

- Arrange for your dealer to correctly adjust the seating position.

▲ DANGER

Expertise and special tools are required for all adjustment, care and maintenance work on the bicycle. Arrange for your dealer to carry out all the work.

▲ DANGER

Muscle tension and joint pain due to an incorrectly adjusted seating position. **Risk of injury!**

- Arrange for your dealer to correctly adjust the seating position.

The optimal seating position depends on the size of the bicycle/tricycle frame, the height of the rider and the settings of the handlebar and saddle.

10.2 BICYCLE/TRICYCLE SEATING POSITION

The following information is intended to be used as a starting point:

- When one pedal is up, the knee angle of your upper leg and the arm angle are 90°. Your lower leg is slightly bent (*see "Fig.:3"; left*).
- When one pedal is at the front, your knee is above the axle of the front pedal (*see "Fig.:3"; right*).
- Your arms are relaxed and slightly bent outwards.
- Your back is straight.

Note

If the optimal seating position cannot be achieved by adjusting the saddle and handlebar, it is possible to replace the components in question on many bicycle/tricycle models.

Arrange for your dealer to fit components with different dimensions.

If the bicycle/tricycle is sold or passed on to another person, this is an option for further use of the bicycle/tricycle.

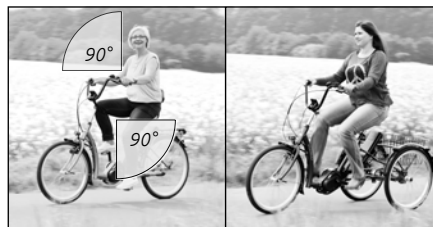


Fig.:3

10.3 RECUMBENT TRICYCLE SEATING POSITION

The following information is intended to be used as a starting point:

- Sit down and relax on your recumbent tricycle so that your lumbar vertebrae rest against the backrest of the seat. When your heel (!) rests on the pedal and your leg is stretched, your pelvis should not twist forward on one side.
- Adjust the handlebar position so that you can easily put your hands on the handlebar and operate all components.
- Your foot should be stretched in the furthest pedal position, but relaxed.

11. SADDLE/SEAT

▲ DANGER

Before every trip, and especially after adjusting the saddle and seating position, check that the fastening screws and quick

release mechanisms are securely attached.

Risk of accident!

▲ DANGER

Expertise and special tools are required for all adjustment, care and maintenance work on the bicycle. Arrange for your dealer to carry out all the work.

Our bicycles/tricycles are fitted with different seat posts as well as saddles and seats depending on the model. Check which seat post and type of saddle and seat is fitted to your bicycle/tricycle. Adjust your saddle or seat so that you can adopt a pleasant and comfortable seating position. Refer to section "10. Adjustments to suit the rider" in this regard.

11.1 BICYCLE/TRICYCLE SADDLE POSITION

11.1.1 SADDLE HEIGHT

▲ DANGER

Pull the seat post out to the minimum insertion depth marking. The marking must not be visible. **Risk of breakage and accidents!**

No warranty in the case of non-compliance!

▲ DANGER

Do not force the seat post into the seat tube. **Risk of breakage!**

▲ DANGER

Incorrect adjustment of the seat post.

Risk of accident and injury!

- Observe the minimum insertion depth of the seat post.
- All the screws loosened to adjust the saddle must be carefully retightened according to the torque specifications.

To adjust the saddle height, proceed as follows:

1. Release the seat post clamp to change the seat height. To do this, you will need either a spanner or an Allen key. Some models are fitted with a quick release mechanism that can be released by hand. If the clamp on your model is fixed with a quick release mechanism, read and observe the handling described *in section "12. Quick release mechanisms"*.
2. Once the clamp is released, you can move the seat post to the desired position. It is important that you pull the seat post out no further than the marking!
3. Tighten the clamp again according to the torque specifications (*see section "29.1 Torques" on page 76*). If the clamp on your model is fixed with a quick release mechanism, close the quick release mechanism. Check whether your quick release mechanism has sufficient clamping force, read and observe the handling and check described *in section "12. Quick release mechanisms"*.

11.1.2 TILT AND POSITION

▲ DANGER

All the screws loosened to adjust the saddle must be carefully retightened according

to the torque specifications. Otherwise, falls and serious injuries may occur. **Risk of injury!**

- If there are several screws, tighten the screws alternately.
- If there are several screws, it is important to check the torques again after tightening them.

NOTE

The bicycle saddle should be as horizontal as possible.

NOTE

The seat post should be mounted so that the saddle clamp is facing the rear.

Different seat posts are fitted depending on the model. Check which seat post is fitted to your bicycle/tricycle and proceed as follows:

11.1.2.1 SEAT POST WITH CLAMP



Fig.:4

1 Nut on the saddle clamp

1. Loosen the nut (*see figure "Fig.:4 (1)"*), which is located on the side of your saddle clamp, with a suitable spanner. The counter screw may need to be locked with a suitable Allen key depending on the model.
2. Adjust the tilt of the saddle. Refer to

section "10.2 Bicycle/tricycle seating position" in this regard.

3. Tighten the nut again according to the torque specifications (see section "29.1 Torques").

11.1.2.2 PATENT SEAT POST



Fig.:5
1 Allen screw

1. Loosen the lower Allen screw (see figure "Fig.:5 (1)") with a suitable Allen key.
2. Adjust the tilt of the saddle. Refer to section "10.2 Bicycle/tricycle seating position" in this regard.
3. Tighten the Allen screw again according to the torque specifications (see section "29.1 Torques").

11.1.2.3 SUSPENSION SEAT POST



Fig.:6
1 Suspension

The seat post suspension protects your spine when cycling on uneven roads and in the case of jolts. Adjust the suspension according to your needs and body weight, contact your dealer or observe the component operating instructions.

11.2 SEAT ADJUSTMENT ON RECUMBENT BICYCLES

11.2.1 DISTANCE BETWEEN THE PEDALS AND THE SEAT

Stride length

To maintain a comfortable seat distance from the pedals, proceed as follows:

1. Loosen the two quick release mechanisms (see "Fig.:7 (1)") under the seat. Read and observe the handling described in section "12. Quick release mechanisms" .
2. Move the seat so that you can adopt a comfortable seating position and safely operate all the components on the handlebar while cycling.
3. Close the quick release mechanisms. Check whether your quick release mechanism has sufficient clamping force. Read and observe the handling and check described in section "12. Quick release mechanisms" .
4. Check if you can move the saddle.
 - If you can move the saddle, leave the bicycle/tricycle standing and arrange for your dealer to check and adjust the seat.



Fig.:7
1 Quick release mechanism

Seat tilt:

To get your pelvis into a comfortable position, proceed as follows:

1. Open and remove the quick release mechanism with the individual fastening components (washer, 2x sliding block, knurled nut). Select the appropriate pair of holes ("Fig.:8").
2. Now insert the quick release mechanism again, making sure that the individual fastening components are correctly positioned (see "Fig.:9") and that the edge of the sliding block ("Fig.:9 (5)") is correctly positioned on the rail.
3. Screw the knurled nuts onto the quick release mechanism so that the quick release mechanism has sufficient tension, read and observe the handling and check described in section "12. Quick release mechanisms".
4. Close the quick release toggle lever to lock the seat. Check the clamping force of your quick release mechanism again and make sure that the lever is correctly positioned (see section "12. Quick release mechanisms").
5. If necessary, repeat the process with the second quick release mechanism.

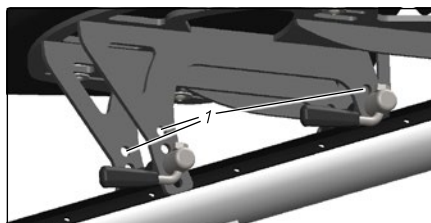


Fig.:8
1 Pair of holes

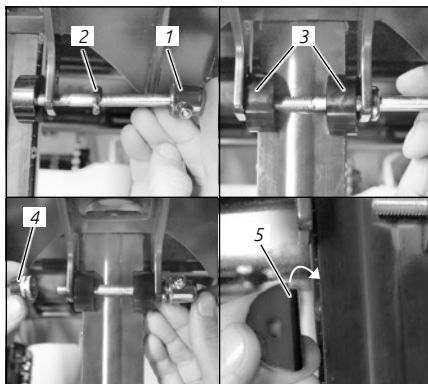


Fig.:9
1 Quick release mechanism
2 Washer
3 Sliding block
4 Knurled nut
5 Sliding block edge

Fine adjustment of the seat cushion position:

An additional fine adjustment of the seat cushion can be made depending on the model. You can move the seat cushion forwards and backwards separately from the seat frame. Check whether your seat is equipped with this function and proceed as follows:

1. Loosen the bottom screws.
2. Move the seat cushion forwards or backwards within the slotted holes ("Fig.:10 (1)").
3. Tighten the screws again, taking into account the torque specifications.

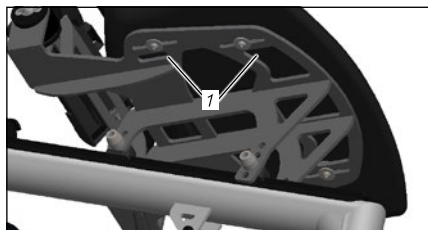


Fig.:10
1 Slotted holes

11.2.2 ADJUSTING THE BACKREST TILT

For a comfortable back posture, you can adjust the tilt of your backrest to suit your needs (see "Fig.:11 (Example)"). Different seat types are fitted depending on the model. Check the adjustment mechanism fitted to your backrest.



Fig.:11 (Example)

11.2.2.1 RECUMBENT SEAT WITH A CLAMP ADJUSTMENT MECHANISM



Fig.:12
1 Mesh backrest

2 Clamp

If your bicycle/tricycle is equipped with a clamp adjustment mechanism (see "Fig.:14"), proceed as follows:

1. To move the backrest to an optimal or comfortable seating position, you must release the clamps (left and right) (see "Fig.:14 (1)") with an Allen key.
2. Now move the backrest to a comfortable seating position by holding the top of the backrest and moving it forwards or backwards in the desired direction.
3. Once you have found the correct position, use the Allen key to fix the clamps appropriately.



Fig.:14
1 Adjusting screw for clamp

11.2.2.2 RECUMBENT SEAT WITH A LOCKING DISC ADJUSTMENT MECHANISM

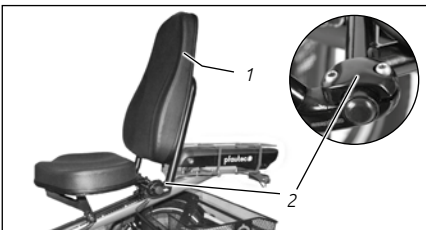


Fig.:13
1 Synthetic leather backrest

2 Clamp

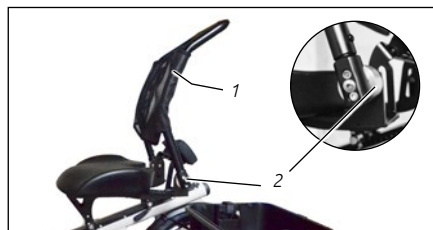


Fig.:15
1 Mesh backrest
2 Locking plate adjustment mechanism

If your bicycle/tricycle is equipped with a locking disc adjustment mechanism (see "Fig.:16"), proceed as follows:

1. To move the backrest to an optimal or comfortable seating position, you must loosen the adjustment screw (left and right) (see "Fig.:16 (1)") with a suitable tool.
2. Now move the backrest to a comfortable seating position for you by holding the top of the backrest and moving it forwards or backwards in the desired direction.
3. Once you have found the correct position, use the suitable tool to fix the clamps again, taking into account the torque specifications.

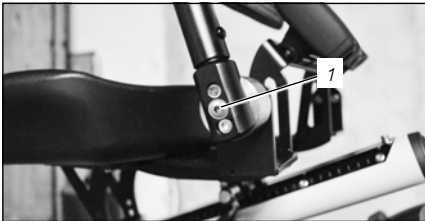


Fig.:16
1 Adjusting screw for locking plate adjustment mechanism

11.2.2.3 RECUMBENT SEAT WITH A SLOTTED HOLE ADJUSTMENT MECHANISM

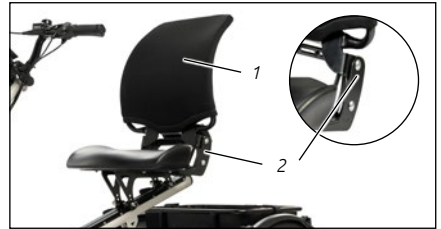


Fig.:17
1 Mesh backrest 2 Slotted hole adjustment mechanism

If your bicycle/tricycle is equipped with a slotted hole adjustment mechanism (see "Fig.:18"), proceed as follows:

1. To move the backrest to an optimal or comfortable seating position, you must loosen the top carriage bolt (left and right) (see "Fig.:18 (1)").
2. Now move the backrest to a comfortable seating position for you by holding the top of the backrest and moving it forwards or backwards in the desired direction.
3. Once you have found the correct position, fix the carriage bolt again appropriately.
4. In addition, you have the option of adjusting the lumbar support (see "Fig.:19 (1)") in height; proceed as follows:
 1. Release the lower Velcro fastener on the cover and pull the cover off the backrest.
 2. You can attach the lumbar support in three different positions (see "Fig.:19 (2)"). Attach the lumbar support at a comfortable height for you.
 3. Pull the cover back over your

backrest and close the Velcro fastener.



Fig.:18
1 Adjusting screw

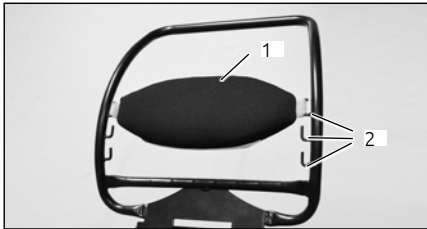


Fig.:19
1 Lumbar support 2 Adjustment hooks

12. QUICK RELEASE MECHANISMS

▲ DANGER

Check that all quick release mechanisms on your bicycle/tricycle are securely and correctly attached, even if left unattended for a short period of time. Loose or incorrectly attached quick release mechanisms can lead to falls and serious injuries. When closed, the quick release mechanism must be close to the frame, fork or seat post. You may only set off if all quick release mechanisms are securely closed.

▲ DANGER

The quick release mechanism closes with the correct clamping force if counter pressure is felt from the middle of the entire lever stroke. Force should be required from the palm of the hand when the clamping lever is moved, otherwise there is a risk that the quick release mechanism will come loose. Please note that the forced locking should not be effected by a screw movement, but by a tilting movement! **Risk of accident!**

▲ DANGER

When closing the quick release mechanism, make sure that the end of the hand lever is very close to the fork, frame or seat post. This can prevent accidental opening.

🔊 NOTE

Arrange for work on quick release mechanisms and quick release axles to be carried out solely by a dealer. These are safety-related components; faulty work and incorrect tools can lead to serious falls.

Quick release mechanisms are clamping devices that on some models are fasteners for wheels, the seat post, saddle, seat, stem and handlebar. They can usually be loosened by hand without tools. A quick release mechanism consists of a hand lever that provides the clamping force and an adjusting nut on the opposite side that regulates the clamping force. The hand lever must be closed with relatively high force to prevent it from unintentionally loosening while cycling.

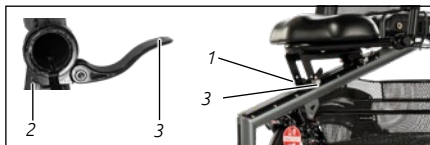


Fig.:20

1 Axle nut

2 Adjusting screw

3 Quick release lever

Checking the quick release mechanism:

1. Loosen the clamping lever until it is completely free of tension.
2. Close the clamping lever again. Over the first half of the closing movement, the lever must be relatively easy to push, but over the second half of the movement it must be much harder to push. If this is not the case, the quick release mechanism must be adjusted as it does not generate enough clamping force.

Adjusting the quick release mechanism:

If the quick release mechanism can be closed without counter pressure, the adjusting nut must be tightened slightly. Turning the adjusting nut clockwise increases the clamping force; turning the adjusting nut counterclockwise decreases the clamping force.

13. RECUMBENT TRICYCLE SUSPENSION

▲ DANGER

Make sure that the suspension element does not come into contact with the frame, mudguard or basket. Never load the bicycle/tricycle with weight while your hands or tools are on the suspension element. The compression could result in injuries.

To adjust the tension of the suspension (see "Fig.:21") on your recumbent tricycle, proceed as follows:

1. Turn the profiled adjusting ring (see "Fig.:21 (1)") on the threaded part of the suspension element by hand.
2. Turning the ring clockwise reduces the suspension preload.
3. Turning the ring counterclockwise increases the tension of the suspension. Do not hold the suspension while turning the ring as it will make the adjustment process easier if the suspension rotates.



Fig.:21

1 Adjusting ring

14. HANDLEBAR

▲ DANGER

When replacing components, use only labelled and suitable original spare parts. Your dealer will be happy to advise you.

▲ DANGER

Stems are among the safety-relevant parts on your bicycle/tricycle. Changes can endanger your safety. If you are not absolutely sure or have questions, contact your dealer!

▲ DANGER

Breakage of the handlebar stem due to an incorrect adjustment. **Risk of accident and injury!**

- Observe the minimum insertion depth of the handlebar stem.

▲ DANGER

Before every trip and after making an adjustment, make sure that the handlebar, the screws of the handlebar mounting, the locking mechanism and the handlebar quick release mechanism are tight and correctly screwed in place! **Risk of accident!**

▲ DANGER

Loss of steering control and risk of falling if screw connections are not correctly tightened. **Risk of accident and injury!**

- It is imperative that the screws are fastened alternately until the specified torque is reached (*see section "29.1 Torques"*)!

▲ DANGER

For all stems, it is essential to read the manufacturer's operating instructions. Arrange for work on the handlebar and stem to be carried out solely by a dealer!

▲ DANGER

The selected handlebar/stem combination must be approved by the respective manufacturer. An incorrect selection can become a source of danger.

▲ DANGER

Never ride with a bicycle/tricycle on which the stem has dropped below the minimum insertion depth. This poses a major safety risk.

▲ DANGER

The handlebar must not be crooked when riding in a straight line. **Risk of accident!**

▲ DANGER

Do not hang bags on the handlebar to transport objects as this may affect the handling of the bicycle/tricycle. **Risk of accident!** Use only standard bicycle baskets or handlebar bags instead.

▲ DANGER

Test the brakes away from road traffic.

▲ DANGER

Never try to open the head nut of the headset bearing if you want to adjust the stem, instead change the bearing clearance!

▲ DANGER

Note that the brake lever and gear lever change position when adjusting the stem. Refer to *sections "18. Brakes" and "19. Bicycle gears" for making adjustments.*

A comfortable and pleasant seating position is dependent on the right handlebar height. Different handlebar stem types are fitted depending on the model. Before making an adjustment, check the type of handlebar stem fitted to your bicycle/tricycle.

14.1 HANDLEBAR STEM WITH AN INTERNAL CLAMP

With a handlebar that has an internal clamp, you can push the handlebar stem unit up and down to a limited extent. It is essential to observe the minimum insertion depth marking and adjust the handlebar so that it is not crooked when riding in a straight line.

Handlebar height

1. Remove the cap on the top of the handlebar stem with the internal clamp facing upwards (see "Fig.:22 (1)").
2. Turn the internal screw 1 to 2 turns counterclockwise.
3. Hold the handlebar and slide the handlebar stem with an internal clamp up or down to the desired position.
 - Push the handlebar stem with an internal clamp upwards until the marking on the handlebar stem with an internal clamp is not visible (see "Fig.:23 (1)").
4. Tighten the internal screw clockwise, taking into account the specified torques.
5. Place the cap on the handlebar stem with an internal clamp from above.

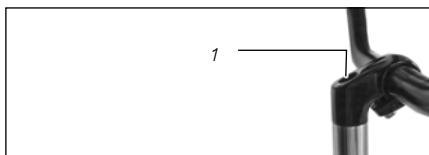


Fig.:22
1 Cap

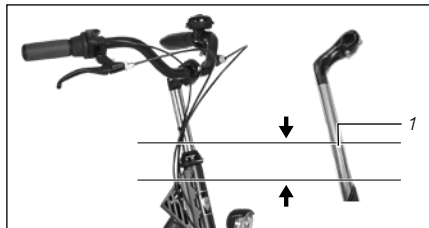


Fig.:23
1 Marking

Aligning the handlebar

1. Remove the cap on the top of the handlebar stem with the internal clamp facing upwards (see "Fig.:22 (1)").
2. Turn the internal screw 1 to 2 turns counterclockwise.
3. Adjust the handlebar direction so that the handlebar is at a 90° angle to the front wheel (see "Fig.:24").
4. Tighten the internal screw clockwise, taking into account the torques.
5. Place the cap on the handlebar stem with an internal clamp from above.

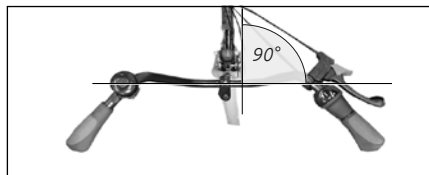


Fig.:24

14.2 A-HEAD STEM



Fig.:25

The A-head stem (see "Fig.:25") is attached directly to the outside of the steerer tube. Different A-head stems are available. Contact your dealer for any adjustment work.

14.3 SPEEDLIFTER

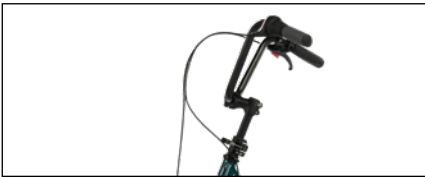


Fig.:26

▲ DANGER

Observe the manufacturer's operating instructions.

The Speedlifter (see "Fig.:26") is a variable handlebar stem that allows you to adjust the handlebar height without the need for tools.

1. Loosen the quick release mechanism. Refer to section "12. Quick release mechanisms" in this regard.
2. Push the handlebar to the desired height.
3. Close the quick release mechanism again. The clamping lever must be fully closed and have sufficient clamping force. Read

and observe the handling and check described in in section "12. Quick release mechanisms".

14.4 ADJUSTABLE STEM



Fig.:27

Rigid and adjustable stems are available. The adjustable stem (see "Fig.:27") allows different stem variable angles. Different adjustment variants are available. The clamping screws for adjusting the stem tilt are either on the side of the joint or on the top or bottom of the stem. Some stems have locking catches or adjusting screws in addition to the clamping screws. Contact your dealer for the adjustment work.

14.5 DOUBLE CLAMP ADAPTER



Fig.:28

In contrast to the standard tricycles, our recumbent bicycles are fitted with a steering column and a double clamp adapter (see "Fig.:28").

Handlebar tilt

To position the height and distance of the handlebar in relation to your body, proceed as follows:

1. Loosen the screws on the double clamp adapter with a suitable Allen key.
2. Move the handlebar to the desired position.
3. Tighten the screws alternately, taking into account the specified torques.

Aligning the handlebar

▲ DANGER

Please only loosen the clamping sleeve to align the handlebar. It is not possible to adjust the height of the steering column; this can lead to serious damage and accidents! The lower clamping sleeve must cover the entire steerer tube area. **Risk of damage and accidents!**

1. Using a suitable Allen key, loosen the Allen screws on the clamping sleeve at the bottom end of the steering column (see "Fig.:29 (1)").
2. Align your handlebar at a 90° angle to the front wheel. The lower clamping sleeve of the steering column is used only for aligning and attaching the steering column to the steerer tube. **A height adjustment is not possible here!** Tighten the screws again according to the torque specifications (see "Tab.:7" on page 79).

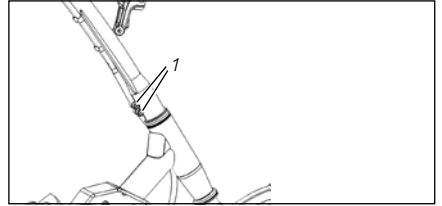


Fig.:29
1 Allen screws

15. FORK

15.1 CHECKING THE HEADSET

▲ DANGER

Arrange for work on the handlebar and stem to be carried out solely by a dealer! If you adjust the headset incorrectly or overtighten it, it may break.

Risk of damage and accidents!

▲ DANGER

If you ride with a loose headset, this may result in damage to the bearing cups or the fork. **Risk of damage!**

▲ DANGER

Never try to open the head nut of the headset bearing if you want to adjust the stem, instead change the bearing clearance!

The headset is the bearing that rotates the steerer tube of the bicycle fork in the head tube of the bicycle frame.

- Check that there is no play in the head tube bearing (see "Fig.:30").
- If there is play in your headset, arrange for it to be checked and adjusted by your dealer if necessary.



Fig.:30
1 Head tube bearing



Fig.:31
1 Suspension fork

15.2 SUSPENSION FORK

NOTE

Do not use a steam cleaner or harsh cleaning agents when cleaning! Ask your dealer for a suitable care product.

A suspension fork is fitted to your bicycle/tricycle depending on the model (see "Fig.:31"). The suspension fork can be individually adjusted and adapted to the rider's weight and load. To ensure that the suspension fork works perfectly, it is essential to have the suspension adjusted to your needs when the bicycle/tricycle is handed over by your dealer. Suspension forks are complex components. Arrange for your suspension fork to be serviced at least once a year by your dealer. However, the following care tips should definitely be taken into consideration.

- Remove any dirt from the sliding surfaces and adjacent seals immediately with a clean cloth, lightly oiled if necessary.
- After cleaning, lubricate the sliding surface with a lubricant spray approved by the manufacturer.
- After cleaning, move the fork several times and wipe the lubricant residue with a clean cloth before your next trip.

Adjusting the suspension fork

▲ DANGER

Be careful not to turn the adjusting screw beyond the stop. Otherwise, the fork will be damaged. **Risk of damage!**

1. To adjust the suspension preload (see "Fig.:32 (1)") of the fork, turn the screw (see "Fig.:33") of the fork bridge.
 - Turning the adjusting screw clockwise increases the suspension preload.
 - Turning the adjusting screw counterclockwise reduces the tension of the suspension.

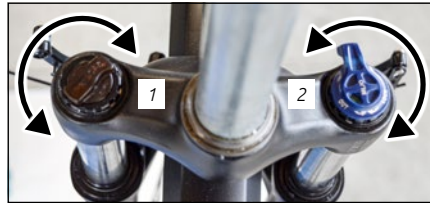


Fig.:32 (Example)
1 Suspension preload adjustment mechanism
2 Lockout adjustment mechanism



Fig.:33

Lockout

The lockout function (see "Fig.:32 (2)") completely blocks the suspension travel of the fork. This can be helpful if you are riding uphill or on well-paved roads using great exertion. If you want to block the suspension travel, turn the lever (see "Fig.:34") in the LOCK direction. If you want to adjust the suspension function again, turn the lever in the OPEN direction.

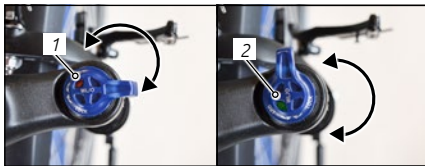


Fig.:34

1 LOCK (red dot)

2 OPEN (green dot)

16. RIDING THE TRICYCLE

▲ DANGER

Unexpected bicycle/tricycle behaviour due to misuse.

Risk of accident and injury!

- Practise braking and shifting the gears away from road traffic.
- Do not ride the bicycle/tricycle in road traffic until you are familiar with the behaviour of the bicycle/tricycle and the way it works.

▲ DANGER

Please bear in mind that you should first be supervised while you practise riding around bends before you start riding the tricycle independently as this is where the greatest **risk of accident** occurs.

! ATTENTION

The tricycle gives a completely different ride experience than with a normal bicycle!

The differences in ride behaviour between a bicycle and a tricycle become clear when riding around bends. On a bicycle, we tilt the body to the left or right to initiate the cornering. The bicycle follows this tilt angle and we ride around the bend without major handlebar movements. A tricycle cannot follow the tilt of the body due to the two wheels at the front or rear, i.e. the direction of a tricycle is changed only by a handlebar movement. This can initially be perceived as uncomfortable or unsafe. This ride behaviour requires some practice and rethinking when riding a tricycle. If you are more familiar with the ride characteristics of a bicycle, the feeling of insecurity disappears. You should always ride around bends as slowly as possible! Please also bear in mind that the widest part of your tricycle is behind or in front of you. Therefore, practice on the appropriate obstacles in order to be able to better assess the width of your tricycle. When cornering sharply at very tight bends and at very low speeds, the handlebar and your knees can get very close to each other, depending on your body size. Familiarise yourself with this so that you are prepared for it in the appropriate situation and not surprised by it!

17. LIGHT/LIGHTS

▲ DANGER

If you ride without lights in poor visibility conditions, you may not be seen by other road users. **Risk of accident and injury!**

- Switch on the lights in low visibility conditions, such as twilight, darkness, rain or fog.

▲ DANGER

Check that the light beam is adjusted correctly for every trip (see section "17.5 Adjusting the headlight" on page 34) in this regard. It must not be too high as you could dazzle other road users. **Risk of accident!**

▲ DANGER

Inattentiveness in road traffic caused by switching on the lights.

Risk of accident and injury!

- Only operate the lights when you are stationary.

! ATTENTION

Replace the damaged components of the light system only with components of the same time and with official certification marks.

! ATTENTION

When using battery-powered lights, pay attention to the battery charge level.

📌 NOTE

Only light equipment prescribed by national law (StVZO in German) and declared admissible may be attached to bicycles. If in doubt, ask your dealer.

📌 NOTE

Always observe the safety instructions and information in the component instructions of the respective light manufacturer.

📌 NOTE

Expertise and special tools are required for all

THE ADJUSTMENT, CARE AND

maintenance work on the lights. Arrange for your dealer to carry out all the work and checks according to the specifications of "26. Maintenance and care instructions" on page 71.

- Clean the reflectors and headlight regularly. Warm water and detergent are suitable. Maintain the contact points with a suitable spray oil.

📌 NOTE

Lights that do not work or are incomplete are not only illegal (valid guidelines may vary from country to country) but also extremely dangerous. Failure or malfunction of the light system can result in serious accidents when riding in poor visibility conditions and in the dark.

Arrange for the fault to be repaired in a specialist workshop before cycling again.

NOTE

Battery-powered lights do not have a memory effect. Recharge the light batteries regularly, preferably after every longer trip. Refer to the “Supplementary user manual” on page 85 for our motorised bicycles/tricycles.

A functioning light system is mandatory for use in road traffic (see section “5. Statutory provisions” on page 10). The light components must meet the country-specific requirements. The headlight and rear light are fitted with long-life and energy-saving LEDs on all road-approved models. The light system must also work during the day.

NOTE

In LED headlights, you cannot replace the bulbs.

- If the lights are defective, arrange for your dealer to replace them.

Mounting locations for the light equipment:

Depending on the model, the headlight is mounted either on the head tube, above the mudguard or on the fork and the rear light is mounted either under the luggage carrier or on the mudguard. The rear light is switched on together with the headlight on all bicycle/tricycle models. Find out which dynamo is fitted to your bicycle/tricycle (see “Fig.:35”)

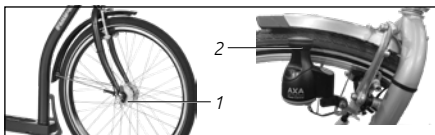


Fig.:35

1 Hub dynamo

2 Sidewall dynamo



Fig.:36

1 On/off switch on the headlight

2 On/off switch on the sidewall dynamo

17.1 SIDEWALL DYNAMO

The sidewall dynamo is attached to the left side of the fork or to the rear top stay and is switched on if necessary.

The extended axle of the dynamo must be aligned with the axle nut. This is the only way to operate the dynamo with the least possible effort.

Switching the dynamo on / off

▲ DANGER

Check the dynamo mounting regularly to prevent it from getting into the spokes.

Risk of accident!

▲ DANGER

In snowy or wet conditions or temperatures below 0 °C, the function may be impaired. Stop when the activated dynamo is not driven by the wheel. Remove snow and ice from the tyre and the sidewall dynamo.

To switch on the lights, press the button on the sidewall dynamo from above (see “Fig.:36 (2)”) or press the gear lever. The dynamo should then click onto the wheel. The friction roller must come into contact with the tyre along its entire width at the designated area.

To switch off the lights, swivel the sidewall dynamo outwards away from the wheel.

17.2 HUB DYNAMO

The hub dynamo is located in the front wheel hub and supplies power to the lights as soon as the front wheel turns.

The hub dynamo is low-wear and is extremely efficient.

Switching the hub dynamo on / off

NOTE

To remove the front wheel, first remove the lamp cable connector on the hub dynamo. Make sure that the polarity of the connectors is correct.

- To switch on the light, set the on/off switch on the back of the headlight to the "ON", "1" or "☞" position (see "Fig.:36 (1)").
 - If your light has a sensor, the light switches on automatically at twilight.
- To switch off the light, set the on/off switch to the "OFF" or "0" position; with a sensor, the light switches off automatically.

17.3 RECHARGEABLE AND NORMAL BATTERY-POWERED LIGHTS

NOTE

Observe the additional component instructions of the manufacturer.

Observe the country-specific regulations for cycling in your country as the use of headlights and rear lights powered by normal batteries or rechargeable batteries is regulated differently in each country. Ask your dealer for suitable rechargeable battery or normal battery-powered lights.

17.4 PEDELECS

NOTE

Observe the additional component instructions of the manufacturer.

For information on our motorised bicycles/tricycles, refer to the "Supplementary user manual" on page 85.

17.5 ADJUSTING THE HEADLIGHT

! ATTENTION

Dazzling of oncoming traffic due to the incorrect position of the headlight beam.

Risk of accident!

- Regularly check the position of the headlight beam.

The headlight must be positioned so that the centre of the light beam is half the height of the headlight at a distance of 5 metres (see "Fig.:37").

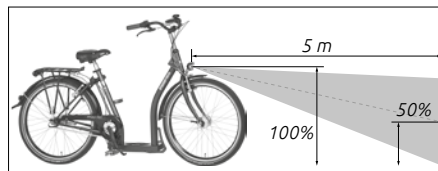


Fig.:37

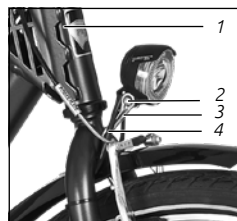


Fig.:38

- 1 Head tube
- 2 Screw 2
- 3 Holder
- 4 Screw 1

Front vertical adjustment

1. Look at the holder of your lamp from the front and check whether the holder is aligned with the head tube.
2. To adjust the holder, turn "screw 1" (see "Fig.:38 (4)") counterclockwise until the holder can be rotated. Turn the holder to the correct position and tighten the screw clockwise with controlled force.

Front horizontal adjustment

1. Position your bicycle/tricycle 5 metres in front of a wall. Do not place your bicycle/tricycle on the stand, but keep your handlebar straight.
2. Measure the height of your headlight on the bicycle/tricycle. Mark this height on the wall.
3. Depending on the type of light, switch on your light.
4. When the headlight lights up, pay attention to your wall markings.
 - If the top edge of the light beam is below the marking, the position is OK.
 - If the light beam is above the marking, adjust your headlight correctly.
 1. Turn "screw 2" (see "Fig.:38 (2)") counterclockwise until the headlight tilts forwards or backwards with slight resistance.
 2. Tighten "screw 2" clockwise with controlled force.
 3. Check the horizontal adjustment again. Repeat the process until the adjustment corresponds to the requirement.

18. BRAKES

▲ DANGER

Check the brake efficiency before every trip. If you notice any malfunction before or during your trip, do not set out on the trip or put your trip on hold. Arrange for a specialist to repair the brake system. Please refer to the corresponding operating instructions from the component manufacturer concerning the operation, function and care of the brakes - depending on the equipment.

▲ DANGER

Brakes are safety-relevant components on a bicycle. Expertise and special tools are required for all adjustment, care and maintenance work on the bicycle/tricycle. Arrange for your dealer to carry out all the work and checks according to the specifications of *section "26. Maintenance and care instructions"*.

▲ DANGER

Maintenance work and repairs to the brakes should only be carried out by a specialist. Incorrectly adjusted or repaired brakes can result in reduced braking performance or even total brake failure. **Risk of accident!**

▲ DANGER

The brake lever assignment for the braking elements (e.g. left-hand lever operates the front brake) may vary. Check that you can operate the front brake with the same brake lever (right or left) as you are used to. If this is not the case, arrange for your dealer to

modify the brake levers before your first trip. **Risk of accident!**

▲ DANGER

If you apply the brake for a long period of time, it may overheat. This can cause the braking force to decrease or to fail completely, while rim brakes can damage the inner tube and tyre. **Risk of accident!**

- Brake with a controlled and pulsating movement and avoid continuous braking with just one brake on very long and steep descents.
- An exception to this is smooth or loose surfaces where you should mainly use the rear brake in a controlled manner. Otherwise, there is a risk that the front wheel will lock up and cause you to fall.

▲ DANGER

During long periods of braking, the brake disc and brake calliper or rim may become very hot. **Risk of burns!**

▲ DANGER

Make sure that the brake surfaces and brake pads are completely free of wax, grease and oil.

Risk of accident!

! ATTENTION

When replacing components, use only labelled and suitable original spare parts. Your dealer will be happy to advise you. Any modification to the brake system is not permitted.

▲ DANGER

Tighten all screws to the specified tightening torque. Otherwise, the screws may break and attached parts may come loose.

▲ DANGER

The braking performance depends on many factors. It can be considerably reduced, for example, due to the ground conditions (gravel tracks, loose chippings, etc.), the additional load, downhill slopes or wet conditions. The braking distance is extended through reduced braking force.

Risk of accident!

- Adjust your riding style and speed accordingly.
- Ride slowly and carefully.

▲ DANGER

If the wheels lock up through excessive braking, this may cause you to fall.

Risk of accident and injury!

- Use the brakes carefully when cornering to prevent the wheels from locking up.

▲ DANGER

Risk of falling through applying the front brake.

Risk of accident and injury!

- Use the front wheel brake lever carefully at high speeds to avoid falling.
- Adjust the braking force to the road conditions to prevent the wheels from locking up.
- Always apply both brakes at the same time to achieve optimal braking performance.

▲ DANGER

Incorrect brake pads can cause reduced or excessive braking performance or brake failure.

Risk of accident and injury!

- Only replace brake components with original spare parts as this is the only way to ensure that they will work properly.
- Arrange for your dealer to replace the brake pads.

▲ DANGER

Possible loss of eyesight in case of eye contact with brake fluid.

Risk of chemical burns and injuries!

- Protect yourself from getting brake fluid in your eyes.
- If you get brake fluid in your eyes, rinse your eyes immediately with plenty of clean water and seek medical attention immediately.

▲ DANGER

Possible injury in case of skin contact with brake fluid.

Risk of chemical burns and poisoning!

- Avoid any contact with the brake fluid.
- If you come into contact with brake fluid, rinse the affected areas immediately with plenty of clean water and seek medical attention immediately.

▲ DANGER

Hydraulic brake failure due to kinked or leaking lines and open connections. Avoid opening the brake line.

Risk of accident and injury!

- Do not use the bicycle/tricycle if you notice damage or leaks in the hydraulic lines or connections.
- Arrange for your dealer to replace the brake.

▲ DANGER

Adjust the brake levers so that they do not touch the handlebar grip even if they are applied sharply, *refer to section "18.1.1 Brake lever position"*.

! ATTENTION

Disc brakes need to be applied 30 - 100 times in order to be able to demonstrate their maximum braking force. Be aware of an increase in braking force.

● NOTE

Cautiously get used to your brakes. Practice emergency braking in a traffic-free area until you have your bicycle/tricycle safely under control. This can prevent accidents.

● NOTE

Your bicycle/tricycle is equipped with mechanical or hydraulic brakes depending on the model. With mechanical brakes, the braking force is transmitted from the brake lever to the brake through a brake cable. These brake cables are wear parts. Check the state of wear regularly and have the brake cables replaced if necessary.

The brakes can be used to control and adjust the bicycle/tricycle speed. If necessary, the brakes must be able to bring your bicycle/tricycle to a standstill as quickly as possible. Your bicycle/tricycle is equipped with at least two independent brakes on the front and rear wheel(s).

The following brakes are fitted depending on the model:

- Rim brake
- Disc brake
- Roller brake
- Coaster brake

The brakes can be applied mechanically or hydraulically.

- Refer to the illustrations (“Fig.:39”, “Fig.:40”) to determine which brakes are fitted to your bicycle/tricycle and check your bicycle logbook (see “32. Bicycle logbook” on page 81).
- For a short braking distance, brake evenly with both brakes.

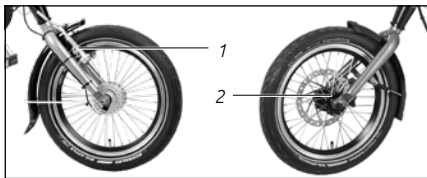


Fig.:39
1 Rim brake 2 Disc brake

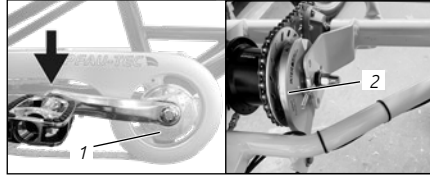


Fig.:40
1 Coaster brake 2 Roller brake

18.1 BRAKE LEVERS

▲ DANGER

- The brake lever must not be pulled all the way to the handlebar before the brake pads touch the brake surfaces. Otherwise, full braking power cannot be achieved. Check the distance regularly and arrange for it to be adjusted and repaired by your dealer if necessary.
- Bear in mind that the brake lever has approximately one third of its free travel before the brake pressure point is reached.

The brake levers are used to apply the brakes. The force is transmitted mechanically or hydraulically.

To apply the brake levers, pull the brake lever with your fingers towards the handlebar grip. The distance between the brake lever and the handlebar can be adjusted to suit your needs (see section “18.1.1 Brake lever position”).

18.1.1 BRAKE LEVER POSITION

▲ DANGER

Adjust the brake lever so that you can operate it safely during your trip without having to take your hand off the handlebar.

▲ DANGER

Observe the prescribed torques of the component manufacturer.

▲ DANGER

Read the operating instructions of the component manufacturer if adjustment work or repairs to the brake are necessary. Brakes are safety-relevant components and work on them requires expert knowledge and special tools. If you do not have the necessary knowledge or tools, arrange for a specialist to carry out this work!

🔍 NOTE

Your wrist should not bend when the brake lever is applied as this will cause the brake force to be lost.

The brake levers should be adjusted so that you can grip and pull them safely at any time. Do not allow the brake levers to touch the handlebar grip, even when braking sharply. Below you will find an indication of the optimal brake lever position.

Brake lever angle:

To adjust the correct angle of the brake lever, loosen the handlebar clamp (see "Fig.:41") and adjust the angle of the brake lever until your

fingers, wrist and forearm form a line.

To do this, place one or two fingers on the brake lever and turn the brake lever upwards or downwards. Your extended fingers should be in the correct position above the brake lever. After fitting, check that the switch and brake lines are long enough to steer properly.

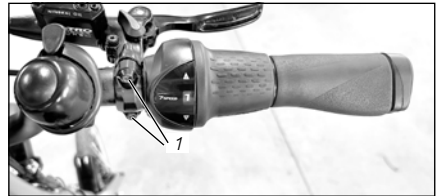


Fig.:41
1 Screw for handlebar clamp

Brake lever reach:

🔍 NOTE

Observe the information provided by the component manufacturer.

Your bicycle/tricycle is fitted with different types of brakes depending on the model. To adjust the brake lever reach of your bicycle/tricycle, please refer to the operating instructions of the component manufacturer or ask a specialist. The distance between the brake lever and the handlebar grip should be such that the brake lever can be covered with the first finger joint of the index finger. Then check the correct position and function of the brake system.

18.1.2 BRAKE LEVER ASSIGNMENT

▲ DANGER

Avoid braking with just one brake on very long and steep descents. This may result in overheating and the associated loss of braking force. If possible, always apply both brakes at the same time to achieve optimal braking performance. An exception to this is smooth or loose surfaces. In these cases, you should mainly apply the rear brake carefully in a controlled manner. Otherwise, there is a risk that the front wheel will lock up and cause you to fall. **Risk of accident and injury!**

▲ DANGER

Risk of falling through applying the front brake. **Risk of accident and injury!**

- Use the front wheel brake lever carefully at high speeds to avoid falling.

Adjust the braking force to the road conditions to prevent the wheels from locking up. Make sure the brake levers are in position before you start your trip.

18.1.3 BRAKE LEVER LOCKING FUNCTION

The brake lever has a locking function depending on the model. These are available in different versions. Please read the operating instructions of the component manufacturer and arrange for your dealer to explain how it is operated. Our parking brake has an additional supplementary user manual.

18.2 MECHANICAL RIM BRAKE

With a mechanical rim brake (see "Fig.:42") the brake cable pulls the brake arms together when the brake lever is applied and the brake pads are pressed against the rim.



Fig.:42

- | | |
|------------------|----------------------------------|
| 1 Brake cable | 5 Fastening screw for brake pads |
| 2 Clamping screw | 6 Suspension tensioning screw |
| 3 Brake arm | |
| 4 Brake pads | |

Mechanical rim brake with a quick release mechanism:

▲ DANGER

Before every trip, check that the quick release mechanism is closed. If the quick release mechanism is open, the brake has no braking effect.

Risk of accident and injury!

The rim brake is equipped with a quick release lever for quick removal and fitting of the wheels (see "Fig.:43"). Before every trip, make sure that the quick release mechanism is closed.



Fig.:43

- 1 Quick release lever

18.2.1 HANDLING

The rear wheel locks earlier than the front wheel with the same braking force.

To brake, pull the brake lever with your fingers towards the handlebar (*see section "18.1 Brake levers"*).

- Adjust the braking effect by the force that you use to pull the brake lever.

Release the brake lever to release the brake. For a short braking distance, brake evenly with both rim brakes or with the hand and coaster brakes.

18.2.2 FUNCTION CHECK AND WEAR

▲ DANGER

Check the degree of wear of the brake pads before every trip. When cycling with heavily worn brake pads, entire brake loss may occur! **Risk of accident and injury!**

- The brake pads must be replaced before the wear limit on the brake pad is reached.
 - Arrange for the brake pads to be replaced by a specialist workshop if they are worn or damaged.
- Do not use your bicycle/tricycle if the brake pads are worn.
 - Arrange for them to be replaced in a specialist workshop and then adjust the brake system again.

▲ DANGER

Incorrect or improperly fitted brake pads can cause malfunctions, e.g. brake failure.

Risk of accident and injury!

- Use only original brake pads.
- Get expert advice when purchasing the

brake pads.

- If you cannot replace the brake pads properly, arrange for the brake pads to be replaced by your dealer.
- Also observe the brake pad manufacturer's operating instructions when replacing the brake pads.
- Always replace the brake pads in pairs, otherwise the brake will not work correctly or the braking force will be reduced.
- When replacing brake pads, be sure to pay attention to the friction pairing. Aluminium and steel rims require different brake pads.

▲ DANGER

Pay attention to the condition of the rims.

Risk of accident and injury!

- If the rims are completely worn, the tyre pressure can cause the rim to break. The hose could then burst or lock up the wheel.
- Arrange for your dealer to regularly check and measure the rims.

▲ DANGER

Make sure that the brake pads and brake discs do not come into contact with oily substances during the care and maintenance of the bicycle.

Oily brakes lose a lot of braking power and endanger your safety. Oily brake pads and brake discs must be replaced immediately by your dealer.

! ATTENTION

The continuous use of the brake leads to signs of wear, which is why you should check continuously. If you are unsure about this, it is recommended that you consult a specialist.

! ATTENTION

Before you start any maintenance or adjustment work, read the brake manufacturer's instructions carefully. Improper operation of the brakes can lead to brake failure.

! ATTENTION

The brake cables must always be in good condition. Individual wires must not protrude and should be replaced if necessary.

Check the rim brake regularly for wear and to make sure that it works.

Using the rim brake will cause wear to the brake pads and rim.

The brake cable also experiences wear in the case of a rim brake with a cable.

In the case of a hydraulic rim brake *section "18.3 Hydraulic rim brake"*, the brake fluid also experiences wear.

For maintenance and care instructions, please refer to the operating instructions of the component manufacturer or ask a specialist.

NOTE

Only use Shimano mineral oil for Shimano hydraulic brake pads; for all other types, only use DOT4 or an equivalent brake

fluid. Otherwise, it may lead to damage, malfunctions or brake failure.

Risk of accident and damage!

Observe the following instructions for the front and rear brakes:

- Check that the wheels of the bicycle/tricycle are not locked when the rim brake is applied.
 - If you determine reduced braking effect, arrange for your dealer to adjust the brake system.
- Listen for unusual noises when operating the rim brake.
 - If you hear unusual noises, arrange for your dealer to check the brake system.
- When the brake is open, the rim should rotate smoothly without any contact with the brake pads.
- Check the tightness of all the screws on the brake system.
 - If you find loose screw connections, arrange for your dealer to tighten the screws, taking into account the torques.
- Check that the brake lever is firmly attached to the handlebar.
- Check that there is at least 1 cm between the brake lever and the handlebar grip when the brake lever is fully applied.
 - If the distance is less than 1 cm, arrange for your dealer to adjust the rim brake.
- Pull the brake lever several times and, depending on the brake system, check whether the brake cable is sticking or whether there is a scratching noise or whether brake fluid is leaking from the lines, connections or the brake pads.
 - Do not use the bicycle/tricycle if you notice

faulty brake cables or if brake fluid is leaking out.

- Check if the brake cable sleeve is damaged or if wires are torn (visual inspection).
- Both brake arms should travel the same distance when pulling the brake lever.
- Ensure that the brake pads run along the rim.
- The brake pads must come into contact with the rim evenly and simultaneously.
 - If the brake pads move unevenly, arrange for your dealer to check the brake system.
- Grasp the brake pads and check if they can be twisted.
 - If you can twist the brake pads, arrange for your dealer to adjust the brake pads.
- If the brake pads experience uneven or angled wear, arrange for your dealer to check the brake system.
- Remove any dirt from the brake and brake disc components immediately with a slightly dampened cloth and clean the brake disc regularly with brake cleaner or warm water.
- The brake discs must be replaced if they are oily, deformed or otherwise damaged.

Wear indicators:

Brake pads and rims have wear indicators in the form of grooves (brake pads), markings or engravings and dots (rim flank). In addition, observe the operating instructions of the component manufacturers.

- Check whether the wear limit of the brake pads (see "Fig.:44 (1)") and rim has been reached.
 - If in doubt, arrange for your dealer to check the wear limit of the brake pads and rim and to replace them if necessary and adjust the brake system again.

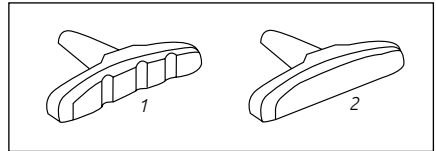


Fig.:44
1 New brake pad
2 Worn brake pad

Note:

Not all brake pads have grooves as the wear limit. Not all rims have wear indicators. Look for cracks, unevenness or warping on the brake surface of the rim. Contact your dealer for an explanation of the wear limit of the brake pads and rims.

18.2.3 SYNCHRONISATION AND ADJUSTMENTS

▲ DANGER

Reduced braking performance or failure of the brakes due to incorrectly adjusted brakes. **Risk of accident and injury!**

- Arrange for adjustments to the brakes to be made solely by your dealer.

▲ DANGER

Observe the prescribed torques of the brake manufacturer.

▲ DANGER

Read the operating instructions of the brake manufacturer if adjustment work or repairs to the brake are necessary. Brakes are safety-relevant components and work on them requires expert knowledge and special tools. Arrange for this work to be carried out by a specialist if you do not have the necessary knowledge or tools!

▲ DANGER

After making adjustments, it is essential to test the brakes while stationary and make sure that the pads do not touch the tyre and that the entire surface of the pads does not touch the rim flank.

📌 NOTE

If the distance between the brake pads on the left and right and the rim is more than 1 mm, it is essential that the brake system is adjusted by your dealer before adjusting the brake cable.

The wear of the brake pads increases the gap between the brake pad and the rim over time, extending the brake lever travel. Check your brake system at regular intervals (see "18.2.2 Function check and wear") and adjust your brake if there is excessive lever travel and the brake stops braking correctly. Observe the degree of wear of the brake pads. If the wear limit is reached, arrange for your dealer to replace the brake pads.

Retightening the brake cable

1. Loosen the clamping screw (see "Fig.:42" on page 40).
2. Pull the brake cable to the desired position and tighten the clamping screw again.
3. Use the spring-loaded locking screws to adjust the brake arms.
 - Turn the respective screw clockwise to increase the spring-back force or counterclockwise to decrease it. Adjust both brake arms so that the brake pads

are at the same distance from the rim, the distance should be approximately 1 mm on both sides.

4. If necessary, you can make a fine adjustment to the distance between the brake pad and the rim using the knurled nut of the brake lever (see sub-point "Adjusting the brake pad distance to the rim").
5. Tighten the handbrake lever at least 8 times to check the function.
6. Check the adjustment and make sure that the contact with the brake pad and the rim is smooth (see section "18.2.2 Function check and wear"). Repeat the above steps until the tension of the arms on both sides is the same.
7. Check that you can pull the brake lever only so far towards the handlebar grip that the distance between the brake lever and the handlebar grip is at least 1 cm.

Note:

If you cannot adjust the brake cable and pads in this way, arrange for the brake system to be checked and adjusted by your dealer.

Adjusting the brake pad distance to the rim

1. Loosen the locknut (see "Fig.:45 (1)") counterclockwise one to two turns.
 - Turn the knurled nut (see "Fig.:45 (2)") in or out until the distance between the brake pads on both sides is approximately 1 mm.
 - Grasp the brake cable in front of the knurled nut and pull it gently to make it easier to turn the knurled nut.

2. Unscrew the knurled nut a maximum of 5 turns.
3. Tighten the locknut again by hand.



Fig.:45
1 Locknut 2 Knurled nut

18.3 HYDRAULIC RIM BRAKE

With a hydraulic rim brake (see “Fig.:46”), the brake pistons in the brake unit are pushed outwards by oil pressure when the brake lever is applied.

The brake pads are pressed onto the rim.

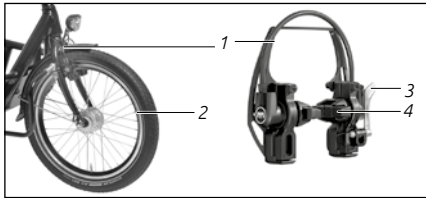


Fig.:46
1 Hydraulic line 3 Locking lever
2 Rim 4 Brake pad

18.3.1 HANDLING

The rear wheel locks earlier than the front wheel with the same braking force.

- To brake, pull the brake lever with your fingers towards the handlebar (see section “18.1 Brake levers”).
- Adjust the braking effect by the force that you use to pull the brake lever.

Release the brake lever to release the brake. For a short braking distance, brake evenly with both rim brakes or with the hand and coaster brakes.

18.3.2 FUNCTION CHECK AND WEAR

! ATTENTION

The continuous use of the brake leads to signs of wear, which is why you should check continuously. If you are unsure about this, it is recommended that you consult a specialist.

Using the rim brake will cause wear to the brake pads and rim.

In the case of a hydraulic rim brake, the brake fluid also experiences wear. Observe the instructions in section “18.2.2 Function check and wear” on page 41 for the front and rear brakes.

18.3.3 SYNCHRONISATION AND ADJUSTMENTS

▲ DANGER

Loss of braking power due to improperly adjusted brake systems.

Risk of accident and injury!

- Arrange for adjustments to the brake systems to be made solely by your dealer.

▲ DANGER

Observe the prescribed torques of the brake manufacturer.

The wear of the brake pads increases the hand lever movement and the rim brake must be adjusted. Contact your dealer.

Check your brake system at regular intervals (see section “18.2.2 Function check and wear”)

and contact your dealer if the brake stop braking correctly. Observe the degree of wear of the brake pads and arrange for them to be replaced by your dealer if the wear limit has been reached.

18.4 HYDRAULIC DISC BRAKE

! ATTENTION

The brake disc becomes very hot when braking and can cause burns. In addition, the edges of the disc may be sharp and cause cuts. Therefore, do not touch it when the disc is hot or rotating. **Risk of accident!**

NOTE

You may only fit a disc brake to your bicycle/tricycle if the corresponding fastening mechanisms are available on the frame and the bicycle fork. In case of doubt, please contact your dealer.

NOTE

Glazing of the brake pads due to long-term stress.

Risk of damage!

- If there is no danger, brake intermittently on long descents with greater force.

NOTE

Full braking with new brake pads will cause the brake pads to become glazed.

Risk of damage!

- Break in new brake discs away from road traffic.

! ATTENTION

Transport your bicycle/tricycle only with the wheels attached. If you transport your bicycle/tricycle with the wheels removed, make sure to fit the transport locks.

When the brake lever is operated, the brake pistons located in the brake calliper are pushed outwards hydraulically. The brake pads are pressed against the brake disc by the brake pistons.

NOTE

Disc brakes require a breaking-in period. The braking force increases during this time. Be aware of this throughout the breaking-in period.

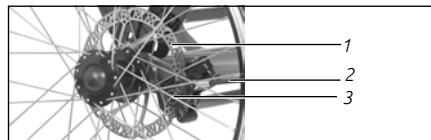


Fig.:47

1 Brake disc

2 Hydraulic line

3 Brake calliper

18.4.1 HANDLING

The rear wheel locks earlier than the front wheel with the same braking force.

- To brake, pull the brake lever with your fingers towards the handlebar (see section "18.1 Brake levers").
- Adjust the braking effect by the force that you use to pull the brake lever.

Release the brake lever to release the brake.

For a short braking distance, brake evenly with both brakes.

18.4.2 FUNCTION CHECK AND WEAR

▲ DANGER

Check the degree of wear of the brake pads before every trip. When cycling with heavily worn brake pads, entire brake loss may occur! **Risk of accident and injury!**

- The brake pads must be replaced before the wear limit on the brake pad is reached.
 - Arrange for the brake pads to be replaced by a specialist workshop if they are worn or damaged.
- Do not use your bicycle/tricycle if the brake pads are worn.
 - Arrange for them to be replaced in a specialist workshop and then adjust the brake system again.

▲ DANGER

Incorrect or improperly fitted brake pads can cause malfunctions, e.g. brake failure.

Risk of accident and injury!

- Use only original brake pads.
- Get expert advice when purchasing the brake pads.
- If you cannot replace the brake pads properly, arrange for the brake pads to be replaced by your dealer.
- Also observe the brake pad manufacturer's operating instructions when replacing the brake pads.
- Always replace the brake pads in pairs, otherwise the brake will not work correctly or the braking force will be reduced.

▲ DANGER

With hydraulic brakes, a leak in the brake line can render the brake ineffective.

Risk of accident and injury!

▲ DANGER

The brake disc heats up as a result of the braking. There is a **risk of burns!**

! ATTENTION

The continuous use of the brake leads to signs of wear, which is why you should check continuously. If you are unsure about this, it is recommended that you consult a specialist.

! ATTENTION

Before you start any maintenance or adjustment work, read the brake manufacturer's instructions carefully. Improper operation of the brakes can lead to brake failure.

! ATTENTION

Make sure that the brake pads and brake discs do not come into contact with oily substances during the care and maintenance of the bicycle. Oily brakes lose a lot of braking power and endanger your safety. Oily brake pads and brake discs must be replaced immediately by your dealer.

Check the disc brake regularly for wear and to make sure that it works.

Using the disc brake will cause wear to the brake pads and brake disc.

In the case of a hydraulic disc brake, the brake

fluid also experiences wear.

For maintenance and care instructions, please refer to the operating instructions of the component manufacturer or ask a specialist.

NOTE

Use only the brake fluid recommended by the brake manufacturer for the hydraulic brakes. Otherwise, it may lead to damage, malfunctions or brake failure. **Risk of accident and damage!**

Observe the following instructions for the front and rear brakes:

- Check that the wheels of the bicycle/tricycle are not locked when the disc brake is applied.
 - If you determine reduced braking effect, arrange for your dealer to adjust the brake system.
- Listen for unusual noises when operating the disc brake.
 - If you hear unusual noises, arrange for your dealer to check the brake system.
- When the brake is open, the wheel should rotate smoothly without any contact with the brake.
- Check the tightness of all the screws on the brake system.
 - If you find loose screw connections, arrange for your dealer to tighten the screws, taking into account the torques.
- Check that the brake lever is firmly attached to the handlebar.
- Check that there is at least 1 cm between the brake lever and the handlebar grip when the brake lever is fully applied.

- If the distance is less than 1 cm, arrange for your dealer to adjust the disc brake.
- Remove any dirt from the brake and brake disc components immediately with a slightly dampened cloth and clean the brake discs regularly with brake cleaner or warm water.
- Check that the brake pads move smoothly and symmetrically to and from the brake disc as the brake lever is pulled and released.
- Check the lines and connections regularly for leaks with the brake lever pulled.
 - If brake fluid leaks out, do not use the bicycle/tricycle and arrange for a specialist to repair the brake system.
- The brake discs must be replaced if they are oily, deformed or otherwise damaged.

Wear indicators:

Brake pads and brake discs have wear indicators in the form of grooves (brake pads), markings or engravings and dots (brake discs). In addition, observe the operating instructions of the component manufacturers.

- Check that the wear limit of the brake pads and brake disc has been reached.
 - If in doubt, arrange for your dealer to check the wear limit of the brake pads and brake disc and to replace them if necessary and adjust the brake system again.

▲ DANGER

After replacing the brake pads or brake discs, the new components must be broken in. The braking force increases continuously during this breaking-in period. Be aware of such increases in braking force when you use the brakes during the breaking-in period (see section "18.4.4 Breaking in disc brakes").

Note:

Not all brake pads have grooves as the wear limit. Not all brake discs have wear indicators. Look for cracks, unevenness or warping on the brake disc. Contact your dealer for an explanation of the wear limit of your brake pads and rims.

18.4.3 SYNCHRONISATION AND ADJUSTMENTS

▲ DANGER

Reduced braking performance or failure of the brakes due to incorrectly adjusted brakes.

Risk of accident and injury!

- Arrange for adjustments to the brakes to be made solely by your dealer.

Adjustment work on the hydraulic disc brake system is usually not necessary. The brake pads are centred by applying the brake levers. If you are unsure about any aspect of your brakes or their functions, you should contact a qualified specialist before using your bicycle/tricycle. Note that new brake pads or brake discs or a new disc brake must be broken in (*see section "18.4.4 Breaking in disc brakes"*).

18.4.4 BREAKING IN DISC BRAKES

If the disc brakes are new or if the brake pads or brake disc have been replaced, the disc brakes must be broken in.

- The disc brakes need to be broken in away from road traffic.
- To do this, observe the manufacturer's specifications or ask your dealer.
- For safety reasons, always remain on the

saddle while braking.

1. Accelerate the bicycle/tricycle to a good 15 km/h.
2. Brake heavily and evenly down to walking pace. The wheels must not lock.
3. Repeat this process 20 times for the rear brake and 20 times for the front brake. You will notice an increasing braking effect.
4. Accelerate the bicycle/tricycle to a slightly higher speed (approx. 20 to 25 km/h).
5. Brake heavily and evenly down to walking pace. The wheels must not lock.
6. Repeat this process 10 times for the rear brake and 10 times for the front brake.
7. Allow the brake discs and pads to cool before your first trip.

- If the disc brakes are not working properly after breaking them in, or if you hear unusual noises when braking, arrange for your dealer to check the disc brakes.

After breaking in the disc brake, check the brake lever reach and adjust it if necessary (*see section "18.1.1 Brake lever position"*).

18.5 ROLLER BRAKE

▲ DANGER

Regularly check that the torque support is securely attached to the frame or fork. Use a torque wrench and do not exceed the maximum screw torques!

The roller brake is mounted in the front or rear hub (*see section "18. Brakes"; "Fig.:40" on page 38*). When the brake is applied, several rollers are pressed against the hub cover in the hub of the front or rear wheel.

18.5.1 HANDLING

▲ DANGER

Avoid continuous braking. If the roller brakes are subjected to prolonged continuous loads, they become very hot and the braking effect decreases or can even completely stop.

Adjust your riding style accordingly.

Risk of accident!

- It is essential to use the second brake alternately on long descents in order to avoid overheating of the roller brake. Otherwise, sudden or reduced braking power may occur.

The rear wheel locks earlier than the front wheel with the same braking force.

- To brake, pull the brake lever with your fingers towards the handlebar.
- Adjust the braking effect by the force that you use to pull the brake lever.

Release the brake lever to release the brake.

For a short braking distance, brake evenly with both brakes.

Note:

Roller and drum brakes require a specially adapted brake lever.

18.5.2 FUNCTION CHECK AND WEAR

▲ DANGER

Loss of braking power due to improperly adjusted brakes.

Risk of accident and injury!

- Arrange for adjustments to the roller brake to be made solely by your dealer.

▲ DANGER

Avoid touching the roller brake during or immediately after braking. There is a **risk of burns!**

▲ DANGER

The brake cables must always be in good condition. Individual wires must not protrude and should be replaced if necessary. **Risk of falling!**

! ATTENTION

Before you start any maintenance or adjustment work, read the brake manufacturer's instructions carefully. Improper operation of the brakes can lead to brake failure.

! ATTENTION

The continuous use of the brake leads to signs of wear, which is why you should check continuously. If you are unsure about this, it is recommended that you consult a specialist.

Check the roller brake regularly for wear and to make sure that it works. The type of brake has a closed design, consult your dealer.

Using the roller brake will cause wear to the brake pads and brake cable.

Observe the following instructions for the front and rear brakes.

For maintenance and care instructions, please refer to the operating instructions of the component manufacturer or ask a specialist.

- Check that the wheels of the bicycle/tricycle are not locked when the roller brake is applied.

- If you determine reduced braking effect, arrange for your dealer to adjust the brake system.
- Listen for unusual noises when operating the brake.
 - If you hear unusual noises, arrange for your dealer to check the brake system.
- Check the tightness of all the screws on the brake system.
 - If you find loose screw connections, arrange for your dealer to tighten the screws, taking into account the torques.
- Check that the brake lever is firmly attached to the handlebar.
- Check that there is at least 1 cm between the brake lever and the handlebar grip when the brake lever is fully applied.
 - If the distance is less than 1 cm, arrange for your dealer to adjust the roller brake.
- Lubricate the cable regularly.

18.5.3 SYNCHRONISATION AND ADJUSTMENTS

▲ DANGER

Reduced braking performance or failure of the brakes due to incorrectly adjusted brakes.

Risk of accident and injury!

- Arrange for adjustments to the brakes to be made solely by your dealer.

Adjustment work on the roller brake is usually not necessary.

If you are unsure about any aspect of your brakes or their functions, you should contact a qualified specialist before using your bicycle/tricycle.

18.6 COASTER BRAKE

▲ DANGER

No coaster brake effect on a chain that has jumped off the sprocket. **Risk of accident and injury!**

- If the coaster brake is ineffective, carefully brake with the front brake lever and, if fitted, with the rear brake lever.

Our bicycles/tricycles are fitted with a coaster brake depending on the model. It is integrated into the rear hub of the bicycle/tricycle and is operated by the pedals. You apply the coaster brake by moving the pedal in the opposite direction of travel. When the coaster brake is applied, a cone presses the brake anchor against the brake casing in the gear hub. This will decelerate the rear wheel.

Note:

If you can freely reverse the pedal drive, your bicycle/tricycle is not fitted with a coaster brake.



Fig.:48
1 Rear down tube
3 Counterholder

2 Screw

18.6.1 HANDLING

▲ DANGER

Heavy braking may cause the rear wheel to lock up and you may lose control when cycling. **Risk of accident!**

- It is essential to use the second brake (front brake) alternately on long descents in order to avoid overheating of the coaster brake. Otherwise, sudden failure or reduced braking power of the coaster brake may occur.

▲ DANGER

Avoid touching the brake drum during or immediately after braking. There is a **risk of burns!**

- To brake, press the pedal drive in the opposite direction of travel (see "Fig.:49").



Fig.:49

- Regulate the braking force with the force that you use to press the pedals against the resistance.
- Press the pedals forwards to release the coaster brake.

For a short braking distance, brake evenly with the hand and coaster brakes.

Note:

The effectiveness of the coaster brake depends on the angular position of the pedal arms.

When the pedal arm is in a horizontal position, you achieve maximum braking effect.

18.6.2 FUNCTION CHECK AND WEAR

Check the coaster brake regularly for wear and to make sure that it works.

With coaster brakes, the tension of the drive chain must be checked regularly and retightened if necessary. Read *section "20.1 Function check"* in this regard

- Check that the wheels of the bicycle/tricycle are not locked when the coaster brake is applied.
 - If you determine reduced braking effect, arrange for your dealer to adjust the brake system.
- Listen for unusual noises when operating the brake.
 - If you hear unusual noises, arrange for your dealer to check the brake system.
- Grasp the counterholder (see "Fig.:48 (3)") and check that it is firmly attached to the rear down tube.
 - If the screw on the counterholder is loose, carefully tighten it clockwise with controlled force.
- Check the chain tension, it must not be possible to depress the chain or push it up by more than 15 mm.

18.6.3 ADJUSTMENTS

▲ DANGER

Loss of braking power due to improperly adjusted brakes. **Risk of accident and injury!**

- Arrange for adjustments to the coaster brake to be made solely by your dealer.

The coaster brake is not adjustable. For maintenance and care instructions, please refer to the operating instructions of the component manufacturer or ask a specialist.

18.7 OTHER BRAKE SYSTEMS

If your pfauteC bicycle/tricycle is fitted with a different brake system, read the enclosed operating instructions of the component manufacturer.

19. BICYCLE GEARS

A distinction is made between derailleur gears and hub gears. We only fit hub gears to our bicycles/tricycles.

19.1 HUB GEAR

📌 NOTE

Gears are safety-relevant components! This user manual describes the handling of the typical standard gear components with a gear hub as an example. Observe the operating instructions and safety instructions of the respective component manufacturer and leave work on the gears to the dealer! Work that is not carried

out properly and correctly endangers the operational safety of the bicycle/tricycle.

📌 NOTE

Practise and test the gears in a safe place.

📌 NOTE

With some hub gears, the effect of the coaster brake depends on the gear selected. Be sure to read the operating instructions of the component manufacturer carefully and familiarise yourself with the braking function before cycling in road traffic.

Our bicycles/tricycles have hub gears with 3, 5, 7, 8 or 14 gears depending on the model. In addition to freewheel hubs, hubs with a coaster brake function or automatic gears are also used.

Check the gear hub fitted to your bicycle/tricycle. To do this, check your bicycle logbook (*see section "32. Bicycle logbook" on page 81*).

- If you have a pedelec, also read the *"Supplementary user manual" on page 85*.

With a hub gear, a gear system integrated in the rear hub is operated with a gear lever or a twist shifter. The gear ratio of the drive is adjusted to the speed and the road conditions through the gear change.

19.1.1 HANDLING

▲ DANGER

Inattentiveness in road traffic.

Risk of accident and injury!

- Familiarise yourself with how your hub gear works.
- Only operate the hub gear if this does not restrict your attention to road traffic.
- Stop if you cannot operate the hub gear safely, e.g. in the event of malfunctions.

▲ DANGER

Damage to the hub gear due to improper use.

Risk of damage and accidents!

- Do not press the pedals with force when using the gears.
- Do not pedal backwards when using the gears.
- Be sure to shift only one gear up or down at a time.
- Change into a low gear in good time before cycling uphill.

📌 NOTE

Always make sure that the gear change is as quiet and smooth as possible.

If you feel unsure when operating the hub gear, contact your dealer for an explanation of how it works. The gears on our models are operated with a twist shifter *see "Fig.:50"*. The twist shifter is mounted on the right-hand side of the handlebar. To change the gear, turn the twist shifter in the desired direction. The gear

indicator informs you of the gear selected. The "1" represents the first lowest gear, the pedal force will decrease. The highest number represents the highest gear, the pedal force will increase. During the gear change, pedal with less force or none at all as the pull on the chain prevents the correct function of the gear mechanism and can damage it.

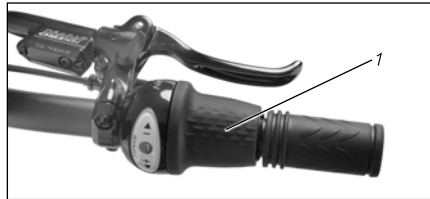


Fig.:50 (Example)
1 Twist shifter

Note:

The 5-speed automatic hub gear is automatically controlled by the controls on the handlebar and is not operated by the twist shifter. It automatically selects the optimum gear change for your requirements depending on the speed. Contact your dealer for an explanation of how it works or read the operating instructions of the component manufacturer.

19.1.2 FUNCTION CHECK AND WEAR

NOTE

For gear hubs that are filled with gear oil, an oil change must be carried out at regular intervals.

For the recommended oil change period, refer to the corresponding operating instructions of the gear manufacturer or contact your dealer.

The gear cables may stretch during transport, storage or after your initial trips due to the type of material.

Reduce maintenance and inspection intervals in the case of intensive use, heavy dirt and use in salty environments as the gear components are subjected to more stress.

- Check that all gear shifter components are free of damage.
 - If you notice any damage to the components, contact your dealer.
- Check if the gear cable sleeve is damaged or if wires are torn (visual inspection).
- Use appropriate care products to reduce ageing due to weather conditions.
 - Ask your dealer about suitable care products for your hub gear.
- Ensure that the brake anchor lever is securely fitted (see "Fig.:51"). To do this, check the screw connection of the brake anchor lever on the down tube clamp or on the rear of the wheel.



Fig.:51
1 Brake anchor lever

Checking the hub gear function:

1. Raise the rear wheels or hang the bicycle/ tricycle by the frame so that the rear wheel or wheels can move freely.
2. Turn the pedal crank.
3. Shift through all the gears.
4. Check that you can shift through all the gears correctly and that there is no unusual noise.
 - If the gear cables become stuck during the gear change or if unusual noises occur, arrange for your dealer to check the hub gear.

19.1.3 ADJUSTMENTS

▲ DANGER

Changes to your gear setting should only be made in small steps and with caution. In the event of incorrect adjustments, the bicycle chain can fall off the pinion and cause you to fall. Leave work on the gears to the dealer! Work that is not carried out properly and correctly endangers the operational safety of the bicycle/tricycle. **Risk of accident!**

📌 NOTE

For information on adjusting the hub gear, refer to the operating instructions of the component manufacturer.

If the hub gear function deteriorates, adjust the gear cable tension. The gear cable tension is adjusted depending on your hub gear. The following are examples of how to adjust the various hub gears.

19.1.4 3-SPEED HUB GEAR

1. Set the 2nd gear.
2. Look in the viewing window (see "Fig.:53") of the gear box and check the current gear setting.
The gear is set correctly when the yellow marking is centred between the two boundary lines. If this is not the case, the gear must be adjusted.
3. There are two ways to adjust the gear:
 - To do this, turn the adjusting screw on the handlebar grip (see "Fig.:52") to the right or left until the yellow marking is exactly between the boundary lines.

- Or loosen the locknut (see "Fig.:53"(2)) on the viewing window to turn the knurled screw (see "Fig.:53" (1)) until the yellow marking is exactly between the boundary lines.
4. After making a successful adjustment, carefully tighten the locknut again with controlled force.
 5. Check your adjustment by using the twist shifter to shift through all the gears and then shift back to the second gear. The yellow marking should still be centred between the boundary lines.
 6. Do a test ride to check that all the gears shift cleanly.

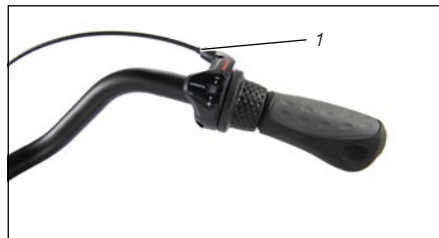


Fig.:52
1 Adjusting screw

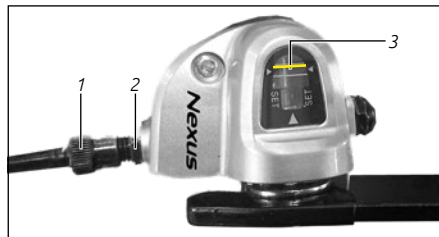


Fig.:53
1 Knurled nut
2 Locknut
3 Marking

19.1.5 7 AND 8-SPEED HUB GEARS

1. Set the gear lever to the 4th gear.
2. Locate the viewing window on the rear hub and check that the two marking lines are exactly opposite each other and form a line. If this is not the case, you must adjust the gear.
3. To do this, turn the adjusting screw on the handlebar grip (see "Fig.:52") to the right or left until the markings on the rear wheel hub in the viewing window ("Fig.:54") are exactly opposite each other and form a line.
4. Check your adjustment by moving the twist shifter from four to one and back to the fourth gear. Check that the marking lines are still aligned with each other.

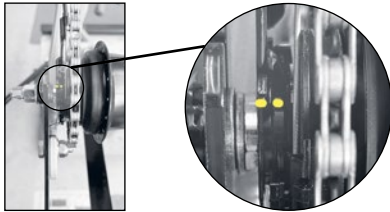


Fig.:54

19.2 OTHER GEAR SYSTEMS

If your pfauteC bicycle/tricycle is fitted with a different gear system, read the enclosed operating instructions of the gear manufacturer.

20. DRIVE

NOTE

The drive must be set very precisely. An incorrect adjustment can cause the chain to jump off, causing an abrupt interruption of the drive.

NOTE

Wear cycle-friendly clothing that does not get caught in rotating parts of the drive when pedalling.

The drive on the bicycle or tricycle includes all components involved in the forward cycling movement through the action of the legs. The durability and quiet running of the chain are dependent on the maintenance. Clean and lubricate the chain regularly. Check the chain tension at regular intervals and retighten it if necessary. Unlike bicycles, our tricycles have a second chain between the gear hub and differential in addition to the chain drive.

20.1 FUNCTION CHECK

The pedal bearing, crank arm and pedals may loosen over time.

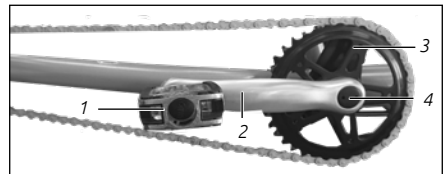


Fig.:55

1 Pedal
2 Crank arm

3 Sprocket
4 Pedal bearing

- Regularly check that the inner bearing in the pedal bearing housing is securely fitted and that the crank arms are securely connected to the axle.
- Grasp the pedals and try to move them up, down and side to side. Observe whether the pedal, crank arm or pedal bearing moves.
- If there is play in the pedal, crank arm or pedal bearing or if cracking or crunching noises occur, arrange for the bicycle/tricycle to be checked and repaired in a specialist workshop.

Tightening the pedal crank:

▲ DANGER

Check regularly whether the screw connection of the pedal crank is securely attached. Otherwise, the pedal arms may come loose and the pedal crank and inner bearing may be damaged. **Risk of damage and accidents!**

1. Remove the cover caps on the crank arms if applicable.
2. Tighten the screw underneath with a torque wrench. Observe the specified torques.
3. Replace the cover cap.

Checking the chain tension:

For the chain and the gears to function safely, the chain must have a certain tension. As every chain expands slightly over its service life, the tension must be checked from time to time. Contact a specialist workshop to adjust

the chain tension and replace the chain. The workshop will have the necessary measuring equipment to carry out checks and the special tools to replace the chain.

Cleaning the chain:

1. Remove deposited dirt and oil from the chain from time to time with a slightly oily cloth.
2. Then apply the chain oil and chain grease to the inner rollers.
3. Then rotate the chain several turns. Leave your bicycle/tricycle stand for a few minutes to allow the lubricant to penetrate into the chain.
4. Then rub off the excess lubricant with a cloth.

Chaining wear:

For example, if you find sharp or jagged teeth on the chainring or sprocket (see "Fig.:56"), arrange for the chainring or sprocket to be replaced.

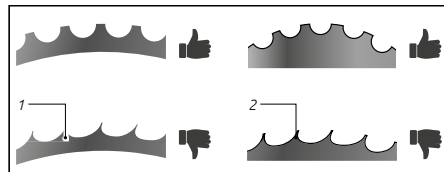


Fig.:56

1 Sprocket wear

2 Chaining wear

21. WHEELS

Wheels make contact with the road. The wheel consists of the following components, see “Fig.:57 (Example)”:

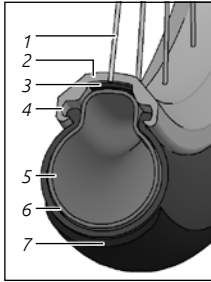


Fig.:57 (Example)

- 1 Spoke
- 2 Rim
- 3 Rim tape
- 4 Rim flank
- 5 Inner tube
- 6 Tyre
- 7 Tread

21.1 FUNCTION CHECK

▲ DANGER

Incorrectly fitted wheels and quick release axles pose a major safety risk. All screw connections must always be tightened to the correct torque (see “29.1 Torques”). Use a suitable torque wrench.

📌 NOTE

Expertise and special tools are required for all adjustment, care and maintenance work on the wheels. Arrange for your dealer to carry out all the work and checks according to the specifications of section “26. Maintenance and care instructions”.

📌 NOTE

Observe the operating instructions and safety instructions of the respective component manufacturers.

The wheels are subject to heavy loads due to uneven surfaces, the weight of the rider and the luggage.

21.1.1 FIXING THE WHEEL

Depending on the model, our wheels with solid axles are screwed to the dropout or fitted onto the rear or front axles and screwed on with a nut. Your bicycle/tricycle may have one of the fixation systems or in some cases two different ones.

Front/rear wheel with a solid axle:

The wheel hub is mounted in the dropouts.

Checking the fixing:

- The fastening nuts (see “Fig.:58”; “Fig.:59”) must be checked regularly to ensure that they are securely attached with a 15 mm open-ended spanner or ring spanner or a 15 mm socket. Observe the tightening torques of 25-30 Nm.



Fig.:58

1 Front wheel fastening nut



Fig.:59
1 Rear wheel fastening nut

Other fixation systems:

Arrange for your dealer to check the fixings.

21.1.2 HUBS

Check the hub bearings at regular intervals.

Checking the hub bearings:

- Lift the wheel off the ground and rotate it. The wheel should continue to run slowly and evenly for a few revolutions. If the bearing is damaged, the wheel will stop suddenly. This does not apply to front wheels with a hub dynamo. These have a slightly higher rolling resistance.
 - If you find that it is difficult to turn the wheel, arrange for a dealer to adjust the hub bearing.

21.1.3 RIMS AND SPOKES

Regularly check that the wheel runs true. Even spoke tension is a prerequisite for the wheel running true.

Checking the spoke tension:

- Gently squeeze the spokes together with your fingers and check that all spokes have the same tension.
 - If the spokes are loose or damaged, arrange

for a specialist to retighten and centre them or replace them with new spokes.

- Despite the careful manufacture and centring of the wheels, the spokes and nipples adjust themselves during the initial kilometres travelled. Therefore, carry out regular checks and maintenance.
 - Arrange for a dealer to check the wheels after approximately the initial 100 kilometres and centre them if necessary.
- In the case of a rim brake, brake pads operate on the brake surface on the side of the rim, causing increased wear on the rim. If the wheel does not run true, the braking effect can be adversely affected.

Checking the true running of the wheel:

- Lift the wheel off the ground and rotate it. Observe the gap between the rim and the brake pads. If it changes by more than one millimetre or more, the spokes must be retightened by a specialist.

▲ DANGER

Risk of falling due to rim brakes locking up or wobbling wheels on rims with lateral runout.

Risk of accident and injury!

- Arrange for your dealer to immediately centre wheels that do not run true.
- Modern rims have a wear indicator on the side of the rim. There are different variants here. Either a flat groove is visible over the entire rim circumference (see "Fig.:60 (Example)") or a dot on the rim, usually near the valve.

- If the groove or point is no longer visible, the rim must be replaced.



Fig.:60 (Example)
1 Wear indicator

▲ DANGER

When using a rim brake, the rim flanks must always be free of dirt, oil and grease, otherwise the braking performance may decrease or the brake may even become completely ineffective.

Risk of accident!

▲ DANGER

Replace worn rims immediately, otherwise the rim may break as this may cause the rim to break under stress. **Risk of damage and accidents!**

21.2 TYRES AND INNER TUBES

📌 NOTE

When fitting a new tyre, make sure that the new tyres are the same type and have the same dimensions and profile. Otherwise, the riding characteristics may be adversely affected. **Risk of accident!**

📌 NOTE

Switch off the drive system and remove the vehicle battery before each check. **Accident risk!**

Tyres are available in different designs and specifications depending on the use of the bicycle/tricycle.

Tyres are wear parts. Replace tyres with a worn tread or cracks on the sides. Regularly check the tyre pressure and check the condition of the tyre wall.

Tyre information:

The dimensions of the tyre are indicated on the tyre wall. The information is expressed in millimetres (ETRTO standard) or inches.

Example 1: "52-559" means a 52 mm tyre width and a 559 mm inner tyre diameter.

Example 2: 26"x2.35" means a 26" tyre diameter and a 2.35" tyre width.

Most tyre models also have a marking indicating the correct direction of travel when fitting them.

You can also find the minimum or maximum pressure of the recommended tyre inflation pressure on the side of the tyre. Observe the minimum or maximum pressure indicated on the tyre.

Tyre inflation pressure

The optimum tyre inflation pressure is between the upper and lower limits indicated on the tyre. Factors such as your body weight, luggage load and riding habits are critical to choosing the optimal tyre inflation pressure.

The rolling resistance is reduced at a higher air pressure. The lower limit of the tyre inflation pressure is suitable for riding on uneven surfaces. The upper limit is suitable for riding on smooth tarmac. The lower the air pressure,

the higher the comfort and grip of the tyre. Depending on body weight, light riders should be guided by a lower value and heavy riders should be guided by a higher value within the upper and lower limits.

Based on a cyclist's weight of around 75 kilograms, you can find our recommendations for the tyre inflation pressure of the various pfaotec models in our table "Tab.:4" on page 63.

▲ DANGER

Never inflate the tyre above the maximum permissible pressure, otherwise the tyre may jump off the rim and/or burst while riding. Inflate the tyre at least to the specified minimum air pressure, otherwise the tyre may come off the rim.

Air pressure is often expressed in the English unit PSI (pounds per square inch). The most common values are converted to bar and kPa in "Tab.:3".

Tab.:3

Conversion of the tyre inflation pressure					
psi	bar	kPa	psi	bar	kPa
12	0.8	80	80	5.5	550
15	1.5	150	90	6.2	620
30	2.1	210	100	6.9	690
40	2.8	280	110	7.6	760
50	3.5	350	120	8.3	830
60	4.1	410	130	9.0	900
70	4.8	480	140	9.7	970

Checking the tyre pressure:

📌 NOTE

You must observe the information provided by the tyre manufacturer. These may vary.

Failure to do so may result in damage to tyres and inner tubes.

📌 NOTE

We recommend the use of a hand or foot pump instead of a compressor as the compressor is more likely to inflate the tyre to too high a pressure, which can cause the tyre to burst.

- Measure the exact tyre pressure using an air pump with a pressure gauge or an external air pressure tester. Be sure to use the correct attachment for your valve type. To do this, remove the protective cap from the valve and open the valve if necessary.
- If the air pressure is below the recommended range, inflate the tyre with air. If the air pressure is above the recommended range, release some air and recheck the air pressure.
- The optimum tyre inflation pressure is between the upper and lower limits indicated on the tyre. Read the sub-point "Tyre inflation pressure" in this section in this regard.
- Rotate or press the protective cap back onto the valve after making the adjustment with controlled force.
- Finally check that the lower knurled nut is attached securely. If necessary, tighten the knurled nut with controlled force.

Tab.:4

Tricycle type	Model	Front tyre pressure in bar	Rear tyre pressure in bar
With pinion and motor	Scoobo	3.5	3.5
	Scoobo+	3.5	3.5
	ScooterTrike FM	3.5	3.5
	Tibo+	3.5	3.5
With pinion and no motor	ScooterTrike	2.5	3.0
	Trizon	2.5	3.0
Standard models with motor	Roma	3.5	3.5
	Passo	3.5	3.5
	Comfort FM	3.5	3.5
	Combo	3.5	3.5
	Grazia	3.5	3.5
	Napoli	3.5	3.5
Standard models with no motor	Ally FM	3.5	3.5
	Proven	3.0	3.0
	Classic	3.0	3.0
	Special	3.0	3.0
	Robusto	3.0	3.0
	Ally	3.0	3.0
	Comfort	3.0	3.0
Mobile	3.0	3.0	
Front tricycles with motor	Asolo	3.5	3.5
Front tricycles with no motor	Siena	3.0	3.0

Bicycle type	Model	Front tyre pressure in bar	Rear tyre pressure in bar
Standard model with motor	S3	3.5	3.5
Standard model with no motor	S1	3.5	3.5

Cargo bicycle type	Model	Front tyre pressure in bar	Rear tyre pressure in bar
Front tricycle with no motor	Jumbo	2.5	2.5
Scooter	Chukudu	1.8	2.0
With motor	Carrier	2.0	2.0
With no motor	Kuli	2.5	2.5

The values in "Tab.:4" are based on a cyclist's weight of around 75 kilograms.

21.3 VALVE TYPES

The bicycles are fitted with one of the following types of valves (see "Fig.:61 (Example)"): The valves are protected from dirt by a plastic cover.

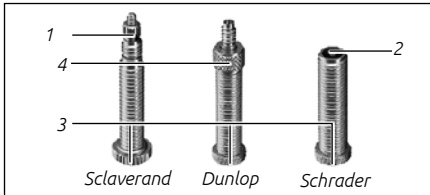


Fig.:61 (Example)

1 Knurled screw
2 Valve tappet

3 Lower knurled nut
4 Upper knurled nut

Sclaverand or Presta valve:

(See "Fig.:61; Sclaverand")

1. Before pumping, you must remove the plastic cover and unscrew knurled nut on top a little.
2. Press the knurled screw briefly into the valve with your finger until air escapes.
 - Be careful not to bend the thin pin that holds the knurled nut when using the air pump.
3. Pump up the inner tube with a suitable air pump.
4. After inflating the tyre, close the locking nut again so that they are hand tight and screw the valve cap back onto the valve.

Dunlop or flash valve:

(See "Fig.:61; Dunlop")

1. Remove the plastic cover.
2. Place the air pump on the valve and pump up the inner tube with a suitable air pump.
3. Finally, screw the plastic cover back onto the valve.

If you want to release air, loosen the knurled nut, all the air escapes very quickly from the bicycle inner tube.

Schrader or auto valve:

(See "Fig.:61; Schrader")

1. Remove the plastic cover.
2. Place the air pump on the valve and pump up the inner tube with a suitable air pump.
3. Finally, screw the plastic cover back onto the valve. If you want to release the air, press the valve pin with a thin object, such as the tip of a ballpoint pen in the middle of the valve.

Note:

You will need a suitable air pump or adapter depending on your valve type.

21.4 PUNCTURE

▲ DANGER

Note that expert knowledge is required for an e-bike or a model with a hub brake and hub gear. Improper removal and fitting of tyres may cause the brake or gears to fail. You need a special tool for the rear and front wheels on our tricycle models and T-bicycle models. Arrange for this to be done by a dealer or read the manufacturer's instructions for the individual components.

Risk of accident and injury!

🔊 NOTE

Switch off the drive system and remove the vehicle battery before each check.

Accident risk!

21.4.1 REMOVING THE FRONT WHEEL

The steps described here are examples.

Observe the instructions of the respective manufacturer or contact your dealer.

1. First of all, you should check that the valve does not leak.
 - Determine if your valve is defective and replace it with a new one.
2. Release the brake. Read the following descriptions of the individual brake types in this regard:

2. Hydraulic rim brake

- If the bicycle/tricycle has quick release brake mechanisms, release the mechanism by flipping it downwards. The brake arm can then be removed.
- If there are no quick release brake mechanisms, remove the brake unit according to the manufacturer's instructions or arrange for the work to be carried out by a specialist.

2. Mechanical rim brake - removing the wheel (V-brake)

- Press the brake arms together and disengage the Bowden cable.

2. Hydraulic and mechanical disc brakes

- The wheel can be removed without any preparations. It is important that you attach a suitable transport lock to the brake immediately after removing the wheel. The transport lock prevents the pistons on the brake calliper from moving too far inwards, thus preventing problems when refitting the wheel.

3. If your bicycle/tricycle is fitted with a hub dynamo, the light connector must first be disconnected.
4. Using a suitable open-ended spanner or socket, unscrew the wheel fixing nut counterclockwise and remove the wheel.

Fixing the wheels:

Refer to *section "21.1.1 Fixing the wheel"* on page 59.

Removing the tyre and inner tube:

! ATTENTION

It is important that the inner tube is not accidentally pinched or damaged.

NOTE

Do not use sharp or angular tools such as a screwdriver to remove the tyre from the rim.

NOTE

Before removing the tyres, read the manufacturer's instructions for the correct and safe installation of the gears and brakes.

1. Release the air from the inner tube. To do this, read the description in section "21.3 Valve types".
2. Use a tyre lever to help and place it opposite the valve between the rim and tyre, lift the tyre wall over the rim flange.
3. Repeat the whole process with a second tyre lever and place it approx. 10 cm next to the first one.

4. Now move one of the tyre levers over the entire circumference of the rim and remove the inner tube from the tyre.
5. Check the tyre, rim tape and rim for damage.
6. Pump enough air into the new inner tube until it has become slightly shaped.
7. Carefully insert the hose into the tyre and insert the valve into the rim hole. The valve should be perpendicular. Screw on the lower knurled nut again without tightening it.
8. First push the bicycle tyre over the rim flange by hand and subsequently with two tyre levers.
9. Check the positioning and run-out of the tyre using the control ring on the rim flank. If the tyre is not running true, correct its positioning.
10. Finally, the inner tube must be inflated according to the information on the tyre and rim, refer to sections "2.1.2 Tyres and inner tubes" on page 61 and "Tab.:4" on page 63 in this regard.
11. The wheel can be fitted to the bicycle/tricycle again.
12. Refit the wheels.
Pay attention to the lock washers and observe the tightening torques.
13. Mount the brake cable, attach it or close the quick release brake mechanism.
14. Check that the brake pads hit the brake surfaces. Secure the brake arm. Test the brakes.

22. ATTACHMENTS AND ACCESSORIES

▲ DANGER

Use only suitable and original accessories.

Risk of accident!

▲ DANGER

Before purchasing accessories and attachments, check that you comply with the requirements of the relevant statutory regulations and road traffic regulations. Non-approved accessories can cause accidents or serious falls. **Risk of accident!**

! ATTENTION

Make sure that all screw connections are tightened to the correct tightening torques.

📌 NOTE

Subsequent accessories and attachments may affect the functions of the bicycle/tricycle. Consult your dealer before fitting the accessories and attachments.

Check that all accessories are correctly and securely fitted. Some of our bicycles/tricycles are already sold with accessories. If the accessories are fitted subsequently, please observe the component operating instructions.

22.1 LUGGAGE CARRIER

▲ DANGER

Adjust the suspension elements and the tyre pressure to the additional weight.

▲ DANGER

The bicycle/tricycle loading must be within the limits of the permissible total weight and the permissible axle loads. Refer to the table "Tab.:5" on page 77. The additional load weight is included in the maximum permissible total weight.

! ATTENTION

Luggage changes the riding characteristics of your bicycle/tricycle. Among other things, it extends the braking distance. This can lead to serious accidents. Adapt your riding style to the different riding characteristics. Brake earlier accordingly and expect sluggish steering behaviour. Transport luggage only on the designated luggage carrier and distribute the luggage load evenly over both sides of the luggage carrier with a low centre of gravity. Unfavourable weight distribution can have a negative effect on braking behaviour and riding stability.

📌 NOTE

Your load must be positioned so that reflectors and lights are not covered.

📌 NOTE

Modifications to the luggage carrier are not permitted.

📌 NOTE

The load must be stowed in such a way that the centre of gravity of the entire load is as far as possible above the longitudinal

centreline of the bicycle/tricycle. This centre of gravity should be kept as low as possible.

📌 NOTE

Even with partial loads, it is important to strive for even weight distribution so that each axle is proportionally loaded.

22.1.1 REAR CARRIER

▲ DANGER

Do not attach luggage carriers to the seat post. It is not designed for this purpose. Overloading caused by a luggage rack can lead to component breakage and serious falls. **Risk of accident!**

▲ DANGER

Make sure that the luggage is reliably and securely attached. If you use fasteners, such as tension belts or ropes, make sure that they do not get caught in moving parts.

Risk of accident!

Pay attention to the maximum weight load of your luggage carrier. The weight load for your model is marked on your luggage carrier and must not be exceeded.

Note:

If you wish to retrofit a luggage carrier, make sure that the luggage carrier is suitable for your model and complies with the standards EN 14872 or EN ISO 112. The maximum load capacity must be indicated on the luggage carrier. To fit a luggage carrier and accessories for transporting luggage, consult your dealer.

22.1.2 FRONT LUGGAGE CARRIER

Models: Kuli

! ATTENTION

Luggage in the front luggage carrier changes the steering and riding behaviour of your bicycle/tricycle.

Our cargo bicycles are fitted with a front luggage carrier and have a folding stand or a roller stand. The front luggage carrier can be equipped with a suitable transport box. Ask your dealer about this.

22.2 BICYCLE STAND/ROLLER STAND

! ATTENTION

If the side stand or folding stand is operated incorrectly, there is a risk that your bicycle will tip over and be damaged.

Risk of damage!

! ATTENTION

Use your side or folding stand only on a flat and firm surface. Otherwise, your bicycle could fall over. **Risk of damage!**

If your bicycle is fitted with a side stand or folding stand, observe the following information.

Operating the side or folding stand:

- If you want to use your bicycle, hold it firmly and flip the bicycle stand upwards.
- If you want to park your bicycle, hold it firmly and flip the stand down.

22.3 PEDALS

▲ DANGER

The pedals must be tightened at all times, otherwise they may break out of the thread! Therefore, check that both pedals are securely fitted before every trip.

Risk of damage and accidents!

▲ DANGER

If the thread is swapped or screwed in at an angle, it will be damaged. The pedals could break out of the crank, which can cause falls or injuries.

Risk of accident!

▲ DANGER

Tighten the pedals with a suitable tool (open-ended spanner or Allen key). Observe the specified torques. Otherwise, the pedals may come loose.

NOTE

Note that the right pedal and left pedal have two different thread directions (see "Fig.:62"). An "L" and "R" identifier on the pedals indicates the correct direction. The right pedal has a right-hand thread and must therefore be screwed into the crank arm on the right-hand side in a clockwise direction when viewed in the direction of travel. The left pedal must be screwed into the crank arm on the opposite side and in a counterclockwise direction.

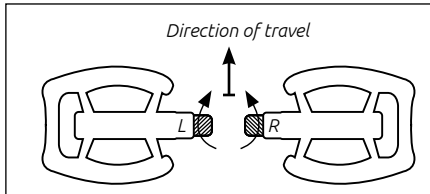


Fig.:62

22.4 FRAME LOCK/FORK LOCK

Our bicycles/tricycles are fitted with a frame lock/fork lock depending on the model.

Closing the frame lock

1. Insert the key and turn it.
2. Press the handle down until the lock engages. The spokes should not block the lock.
3. Pull the key out.

Opening the frame lock

1. Insert the key into the lock and turn it.
2. The lock releases.
3. Move the handle up as far as it will go to open the lock.
4. Remove the key from the lock.

Note:

Depending on the model, the key cannot be removed from an open frame lock on some frame locks.

22.5 BELL

Our bicycles/tricycles are fitted with different bells depending on the model. Familiarise yourself with how your bell works. Consult your dealer or read the component manufacturer's operating instructions.

- The bell should be adjusted so that it is easy to reach at any time.
- If you do not hear a distinct clear bell sound when you operate the bell, arrange for your dealer to replace the bell.

22.6 ADDITIONAL BICYCLE BASKET ON THE HANDLEBAR

▲ DANGER

Before every trip, check that the bicycle basket adapter is securely fitted and that the basket is securely connected to the adapter.

▲ DANGER

Adjust the suspension elements and the tyre pressure to the additional weight.

▲ DANGER

The bicycle/tricycle loading must be within the limits of the permissible total weight and the permissible axle loads. Refer to the table "Tab.:5" on page 77. The additional load weight is included in the maximum permissible total weight.

! ATTENTION

Luggage changes the riding characteristics of your bicycle/tricycle. Among other things, it extends the braking distance. This can lead to serious accidents. Adapt your riding style to the different riding characteristics. Brake earlier accordingly and expect sluggish steering behaviour. Transport luggage only on the designated luggage carrier.

! ATTENTION

When transporting the bicycle/tricycle on a car, roof and rear carrier, remove the bicycle basket.

📌 NOTE

Observe the component operating instructions.

📌 NOTE

Your load must be positioned so that reflectors and lights are not covered.

The attachment of the basket must not damage the handlebar or handlebar stem.

The basket must not cover the headlights and front reflectors. The basket can change the steering characteristics.

Brake and gear cables must not bend.

Note:

Make sure that pedelecs are not approved for the fitting of additional bicycle baskets due to the additional wiring in the handlebar area.

22.7 BAR ENDS

⚠ DANGER

The bar ends must not be adjusted so that they point upwards or backwards. In the event of a fall, this can result in injury.

! ATTENTION

When fixing the screws, observe the specified torques in section "29.1 Torques" on page 76.

Before fitting, check whether approval is available from the handlebar manufacturer; only then may bar ends be fitted.

22.8 CHILD SEATS

Our pfaute bicycles/tricycles are not designed for using with child seats of any kind.

22.9 TRAILERS AND CHILD TRAILERS

Our pfaute bicycles/tricycles are not designed for using with trailers or child trailers.

23. AFTER A FALL

⚠ DANGER

After a fall or accident, hidden damage may occur on the bicycle/tricycle, e.g. hairline cracks. Aluminium components may be damaged, even if they are not visible.

Risk of accident and injury!

- After a fall or accident, arrange for your bicycle/tricycle to be thoroughly inspected by your dealer for possible damage.
- Be sure to have damaged components replaced by a specialist.

- Do not ride the bicycle/tricycle if you can see or suspect damage to it.
- If components are bent after a fall, they must never be straightened. There is an increased risk of breakage. This applies especially to the fork, handlebar, stem, crank and pedals.

Even after a minor fall, check all the bicycle components, e.g. if the bicycle has fallen over (see section "9.2 Before your first trip" on page 16).

24. ANTI-THEFT PROTECTION

NOTE

The frame lock does not provide sufficient protection against theft. The most effective anti-theft device for your bicycle/tricycle is a chain or steel rope lock. With this type of lock, the frame, front and rear wheel can be secured together to a fixed object (fence, lamp post, bicycle stand, etc.).

Protect your bicycle/tricycle against theft.

25. TRANSPORT INSTRUCTIONS

25.1 CAR

NOTE

Incorrect use of bicycle carriers.

Risk of damage!

- Use only approved bicycle/tricycle carriers that allow the bicycle/tricycle to be transported upright and that meet the requirements of the StVZO.

- Consult your dealer, for example, concerning the use of bicycle carriers.
- Secure the bicycle/tricycle against slipping and falling.
- Use a transport lock to transport the bicycle/tricycle.
- Contact your dealer for an explanation on how to use the transport lock.
- Transport the bicycle/tricycle in an upright position.

25.2 TRAIN

NOTE

- Check with the train company in good time to find out what conditions apply for the transport of your bicycle/tricycle.
- Protect your bicycle/tricycle from falling over and damaging other items of luggage.

25.3 PLANE

NOTE

Check with the airline company you plan to fly with in good time to find out what conditions apply for bicycle/tricycle transport.

26. MAINTENANCE AND CARE INSTRUCTIONS

▲ DANGER

The bicycle/tricycle must be checked, serviced and maintained regularly. This is the only way to ensure that it always meets the safety requirements and

works properly. Therefore, carry out the necessary maintenance according to the pfautec maintenance log, depending on the frequency of use.

▲ DANGER

Nuts and screws fitted to the bicycle/tricycle must be checked to ensure that they are securely attached and tightened or retightened with the correct force if necessary. This is the only way to ensure that it always meets the safety requirements and works properly. This does not include adjusting screws on gear and brake components.

📌 NOTE

Inspections and maintenance are part of the intended use. Failure to do so could jeopardise your warranty or guarantee claims.

📌 NOTE

Observe the operating and maintenance instructions of the individual component manufacturers.

In order to keep your bicycle/tricycle in a roadworthy condition at all times and to prolong its service life, it is important to carry out maintenance and servicing at regular intervals.

26.1 CLEANING

▲ DANGER

Do not allow any care products or oil to get onto the brake pads, brake discs and brake surfaces of the rim. Otherwise, the performance of the brake will be reduced or it will fail completely. **Risk of accident!**

! ATTENTION

Never use a steam cleaner or high-pressure cleaner for cleaning. This could result in damage to the electronics and paint, as well as damage caused by rust in the bearings, among other things.

! ATTENTION

Never clean your bicycle/tricycle with aggressive cleaning agents. These substances attack the surface of the bicycle/tricycle and promote wear.

📌 NOTE

Be sure to use biodegradable care and cleaning products. Dispose of lubricants, cleaning agents and care products in an environmentally friendly manner after use. Do not throw these substances into household waste, sewage systems or nature.

📌 NOTE

Look out for deformations, cracks or discolourations on the bicycle/tricycle during the cleaning process. Damaged parts should be replaced immediately by your dealer. Repair damaged paint spots.

NOTE

Lubricate the chain again after cleaning and drying the bicycle/tricycle. Read the sub-point "Cleaning the chain" in section "20.1 Function check" on page 57 in this regard.

NOTE

Observe and follow the instructions in the enclosed manufacturer's information for cleaning individual components.

NOTE

Ask your dealer for suitable care products and lubricants for the different components of your bicycle/tricycle.

NOTE

Matt lacquers must never be treated with a polish.

Clean your bicycle/tricycle regularly with a soft sponge, warm water and a mild bicycle cleaner, even if there is little dirt. Dry it with a cloth. Especially in winter months and in aggressive environments such as by the sea, the bicycle/tricycle should be treated with preservative care products at short intervals, as this can prevent rust forming.

26.2 MAINTENANCE

NOTE

Inspections and repairs are work that a dealer should perform. Failure to carry out inspections or to perform them incorrectly can result in parts of your bicycle/tricycle failing.

Risk of accident!

If you still want to do it yourself, only do the work yourself if you have the necessary expertise and the right tools. Information about the individual components and their maintenance and care can be found in the component manufacturers' instructions and on their websites on the Internet.

NOTE

Do not modify any components on your bicycle/tricycle. Replace components only with components of the same brand and type. Otherwise, the warranty and guarantee will lapse.

26.2.1 MAINTENANCE LOG

After the first 200 kilometres or 4 to 8 weeks of using the bicycle/tricycle, an inspection is required as the spokes, screws, nuts and fasteners settle and the gear and brake cables stretch during the breaking-in period. Make an appointment for the maintenance of your pfautec bicycle/tricycle with your dealer for a bicycle/tricycle that is in constant use. This is especially important for maintenance of warranty claims. In addition, good care extends the service life of your bicycle/tricycle. Even after the breaking-in period, you should have your bicycle/tricycle checked and serviced by your dealer at regular intervals, i.e. in accordance with the pfautec maintenance log in section "31. Maintenance log" on page 80. Please obtain written confirmation of all essential activities carried out by your dealer or workshop.

Only regular and proper maintenance can ensure optimum and safe use of the bicycle/tricycle.

Various factors – such as road surfaces, your riding style and the mileage – affect your maintenance requirements. The longer the maintenance is delayed, the more urgent it becomes.

Before every trip, you should inspect your bicycle as described in section “9.1 Before every trip” on page 15.

26.2.2 MAINTENANCE PLAN

The table “Tab.:6” on page 78 is a guide for riders using their bicycle/tricycle between 1,000 and 2,000 km or 50 and 100 hours per year. If you are increasingly travelling on poor road surfaces or if you regularly ride more, the intervals will be shortened according to your maintenance requirements.

The “Performed by end customer” and “Performed by dealer” columns in “Tab.:6” indicate whether you are allowed to perform the activities yourself or whether the activity must be performed by a reseller. If you are unsure about maintenance or servicing work, contact your dealer.

26.3 WEAR PARTS

▲ DANGER

Like all mechanical components, bicycles/tricycles are exposed to heavy loads and therefore wear. Different components and materials react differently to wear and continuous loading. If a component exceeds

its planned service life, it may suddenly fail, possibly causing damage to the rider. Any type of cracks, scoring, or colour changes in high-stress areas (e.g. frame, fork, handlebar, brakes) will indicate the end of the component's service life and it should be replaced.

▲ DANGER

Observe the important information in the operating instructions of the respective component manufacturer regarding the maintenance of your wear parts.

Many components of your bicycle/tricycle are subject to functional wear. Wear parts are excluded from the warranty if they have been damaged by normal wear and tear.

Various factors – such as care, maintenance and the type of use or environment – affect the level of wear.

Maintain and care for your bicycle/tricycle regularly to increase the service life of your bicycle/tricycle, see section “26. Maintenance and care instructions”. When the wear limit is reached, the following parts must be replaced. They are not covered by the warranty or guarantee.

- Axle bearings
- Battery (see “Supplementary user manual” on page 85)
- Drive chain and toothed belt
- Brake pads and brake discs
- Brake fluid (DOT)
- Brake cables and cable sleeves

- Seals of suspension elements
- Differential
- Rim flanks (for rim brakes)
- Grip covers
- Hydraulic oil and lubricants
- Sprockets
- Bearings in hubs, joints, etc.
- Lights
- Tyres and inner tubes
- Pinion
- Rear derailleur rollers
- Gear cables
- Gear cable sleeves
- Swing arm bearings/sliders
- Rear wheels locknuts

27. STORAGE

Store your bicycle/tricycle in a dry, well-ventilated place. The bicycle/tricycle should be protected from frost and large temperature differences. If you want to leave your bicycle/tricycle standing for a longer period of time, clean your bicycle/tricycle before storage to protect it from corrosion. A suspended storage method is recommended to prevent tyre deformation. If the bicycle/tricycle has to be stored in an upright position, ensure that the tyres are correctly inflated so that there will be no damage caused by too flat tyres. Remove the seat post to allow moisture to dry out. After a longer period of storage, complete the points listed in section "9.2 Before your first trip" in addition to the regular maintenance work. Check whether the chain needs to be regreased. Read the sub-point "Cleaning the chain" in section "20.1 Function check" on page 57 in this regard.

Note:

If you have a pedelec, read the "Supplementary user manual" on page 85 and follow the component operating instructions to ensure the correct storage of the battery.

28. DISPOSAL

Dispose of the packaging sorted by material type.

Put cardboard and paper into the waste paper and packaging films into the recycling bin.

Tyres and inner tubes are not residual or household waste. Dispose of inner tubes and tyres at a recycling centre or municipal collection point.

Dispose of lubricants, cleaning agents and care products in an environmentally friendly manner through a collection point for hazardous waste. These products do not belong in the household waste, sewage systems or nature. Read the instructions on the packaging.

If you want to get rid of your bicycle/tricycle, dispose of it in accordance with the current regulations and your local waste disposal regulations. Information is provided by the local authority.

Note:

If you have a pedelec, read the "Supplementary user manual" on page 85 for the disposal of the battery.

29. SCREW CONNECTIONS

Tighten the screws and quick release axles in a clockwise direction.

Note:

If you deviate from this rule, a change in the direction of rotation is indicated in the respective section. Observe the relevant information.

29.1 TORQUES

▲ DANGER

Material fatigue caused by improper tightening of screw connections.

Risk of accident and injury!

- Do not use the bicycle/tricycle if loose screw connections are found.
- Screw connections must be properly tightened with a torque wrench and the correct torques.
- The screws and nuts fitted to the bicycle/tricycle must be checked regularly (*see section "31. Maintenance log" on page 80*) to ensure that they are securely attached and tightened or retightened with the correct force if necessary. Only in this way can it be guaranteed that the bicycle will permanently meet the safety requirements and work properly.

▲ DANGER

Components may be damaged if you tighten the screws too tight. Therefore, always adhere to the prescribed tightening torque and observe it!

Risk of damage and accidents!

The torques must be observed for the proper tightening of the screw connections. This requires a torque wrench with an appropriate adjustment range. Without this special tool, you will not be able to tighten the screw connections correctly!

- If you are not experienced with torque wrenches, arrange for the screw connections to be checked by your dealer.
- Individual components of the bicycle/tricycle have markings for the insertion depth. Be sure to observe these markings.
- If the instructions in this manual do not match those of the component manufacturer, ask a qualified specialist or call our hotline for clarification. Follow the manufacturer's instructions closely regarding the correct use of the torque wrench to obtain accurate results.
- The torque specification of the part manufacturer takes precedence.

In "Tab.:7" on page 79 does not list all components; the torque specifications are basic values.

30. PERMISSIBLE TOTAL WEIGHT

The permissible total weight of your bicycle/tricycle must not exceed the value specified in section "Tab.:5". The total weight includes the bicycle/tricycle weight + the permissible user weight + the permissible luggage load of any kind (e.g. basket and side pockets including the contents).

30.1 PERFORMANCE DATA (TECHNICAL DATA)

Tab.:5

Model	Article no.	Width (mm)	Length (mm)	Access height (mm)	Stride length (mm)	Bicycle/tricycle weight (kg)	Permissible user weight (kg)	Permissible luggage load (kg)
Ally	21-SHO-01-00004	710	1900	150	700-890	33	100	20
Ally FM	21-SHO-03-00003	750	1900	150	700-890	38	100	20
Asolo	21-TBI-02-00001	800	1820	180	780-920	47	100	20
Carrier	17-IND-05-00001	690	2500	510	790-950	37	100	60
Classic	21-SHO-01-00001	710	2050	150	690-870	33	100	20
Chukudu 12 Zoll	17-IND-01-00006	640	1387	75	-	26	100	40
Combo	21-SHO-04-00004	750	1890	270	740-920	41	100	20
Comfort	21-SHO-01-00005	710	1870	270	740-920	32	100	20
Comfort FM	21-SHO-03-00004	750	1870	270	740-920	37	100	20
Grazia	21-REH-04-00001	750	2070	180	780-920	48	120	25
Jumbo	17-IND-01-00005	910	2120	240	740-850	53	100	60 v / 20 h
Kuli 1-Gang	17-IND-01-00001	750	1860	450	740-900	27	100	40 v / 20 h
Kuli 3-Gang	17-IND-01-00002	750	1860	450	740-900	27	100	40 v / 20 h
Mobile	21-REH-01-00002	610	1770	150	550-720	28	100	10
Napoli	21-SHO-03-00002	750	2050	150	690-870	38	100	20
Passo	21-SHO-08-00001	780	1930	150	800-960	45	100	20
Proven 3-Gang	21-SHO-01-00002	710	1840	420	720-890	27	100	20
Roma	21-SHO-04-00002	750	1980	180	700-890	42	100	20
S1	21-ZW-01-00001	680	1820	280	790-950	17	100	20
S3	21-ZW-03-00001	680	1820	280	790-950	22	100	20
Scoobo	21-SCT-04-00003	800	1960	350	760-1040	47	130	20*
*The permissible luggage load does not refer to the battery carrier. This permits a load capacity of 12 kg, taking into account the permissible total weight of the bicycle/tricycle.								
Scoobo+	22-SCT-0-00006	760	1960	360	760-1040	54	130	20
ScOOTerTrike	20-SCT-01-00006	740	1990	470	760-1040	35	100	20
ScOOTerTrike FM	21-SCT-03-00001	780	1990	470	760-1040	41	100	20
Siena	21-TBI-01-00001	800	1800	180	780-920	36	100	20
Special 7-Gang	21-SHO-01-00003	710	1940	280	790-950	29	100	20
Tibo+	23-Quad-04-00001	870	1790	365	760-1040	67.3	180	20
Trizon	21-SCT-01-00007	760	1960	350	760-1040	37.5	100	20

Note:

You can also find the permissible total weight on the seat tube/down tube of the relevant bicycle/tricycle model.

Tab.:6

Component	Activity	Maintenance interval	To be carried out by	
			End customer	Dealer
Lights	Check	Before every trip	x	
Tyres	Check the air pressure	Before every trip	x	
	Check the profile height and sidewall	Monthly	x	
Brakes (hydraulic, rim)	Check the lever travel/check the pad thickness and the position to the rim/test the brakes while stationary	Before every trip	x	
	Clean	Monthly	x	
Brakes (disc)	Check the lever travel/check the pad thickness and the position to the rim/test the brakes while stationary	Before every trip	x	
	Replace the brake medium (with DOT fluid)	Annually		x
Brakes (roller)	Check the lever travel/test the brakes while stationary	Before every trip	x	
Brake performance	Visual and tactile inspection for leaks	Before every trip	x	
Brake cables and outer sleeve	Visual inspection	Before every trip	x	
Suspension fork	Check the screws	Annually		x
	Oil change	Annually		x
Rim with a rim brake	Check the wall thickness	No later than after replacing the brake pads for the second time		x
Rear wheel axle	Check the eccentric rings of the axle bearings and reattach them if necessary	Monthly	x	
Inner bearing	Check the bearing clearance	Monthly	x	
	Grease the housing	Annually		x
Chain	Check, lubricate	Monthly and after each regular trip	x	
	Replace	Every 1,000 km or 50 operating hours		x
Chainrings	Check and replace	Between 1,500 km and 3,000 km		x
Telescopic saddle	Service	Annually	x	
Pedal crank	Check, tighten	Monthly	x	
Paint	Preserve	Monthly	x	
Wheels/spokes	Check they run true and the spoke tension	Monthly	x	
	Centre and retighten	As required		x
Rear wheels locknut	Check it is securely attached	Monthly	x	
	Replace	Annually		x
Handlebar	Visual inspection	Monthly	x	
	Replace	After an accident or after 10,000 km or after 2 years (whichever comes first)		x
Steering bearing	Check the bearing clearance	Monthly	x	
	Regrease	Annually		x
Metallic surfaces (except the rim flank for rim brakes, brake discs)	Preserve	Monthly/at least every six months	x	
Hubs	Check the bearing clearance	Monthly	x	
	Regrease	Annually		x
Pedals	Check the bearing clearance	Monthly	x	
Seat post/stem	Check the screws	Monthly	x	
	Remove and regrease	Annually		x
Rear derailleur/front derailleur	Clean, lubricate	Monthly	x	
Quick release mechanism/quick release axle	Check it is securely attached or tighten it	Before every trip	x	
Screws and nuts (hub gears, mudguards, other components, accessories)	Check or retighten	Monthly	x	
Valves	Check they are securely fitted	Before every trip	x	
	Visual inspection	Monthly	x	
Stem and steerer tube	Replace	After an accident or after 10,000 km or after 2 years (whichever comes first)		x
	Remove and grease or replace	Annually		x

Tab.:7

Component	Torque (Nm)	Tools required
Cover cap in the shaft tube claw	3 - 4	Allen key 5 mm
Ahead claw	2,5 - 3	Allen key 5 mm
Bar ends	15 - 17	Allen key 8 mm
Brake lever (down tube mounting)	5 - 7	Allen key 4 mm
Brake lever clamp	2,5 - 3	Phillips screwdriver
Brake lever clamp	6 - 8	Allen key 4 mm
Brake cable counterholder	6 - 8	Allen key 4 mm
Cantilever brake – pad fixing	1 - 2	Phillips screwdriver
Cantilever brake - brake shoe	8 - 10	Open-ended spanner MW10
Cantilever brake - holder	5 - 7	Allen key 5 mm
Cantilever brake – cable clamp	6 - 9	Allen key 5 mm
Cleats (SPD)	5 - 8	Allen key 4 mm
Freehub – freehub body	35 - 50	Special tool
Freehub – cassette (locking ring HG)	30 - 50	Special tool
Rear wheel tricycle	30	Open-ended spanner MW10
Inner bearing cone	60 - 70	Cone wrench 36 or 40 mm
Inner bearing cartridge	50 - 70	Special tool
Chainring bolt	6 - 11	Allen key 6 mm
Crank bolt	35 - 50	Allen key 8 mm and crank bolt counterholder
Hub – axle nut	20 - 40	Cone wrench MW15
Hub – cone locknut	10 - 25	Cone wrench MW13, MW14
Hub - quick release lever	9 - 12	Quick release lever
Pedal axle	35 - 40	Allen key 6 mm or pedal wrench MW15
Saddle clamp, double	8 - 14	Allen key 4 mm
Saddle clamp, single	14 - 34	Allen key 5 mm
Seat post clamp	8.5 - 11.5	Allen key 5 mm or quick release lever
Shift brake lever – clamp	2,5 - 3	Phillips screwdriver
Shift brake lever – clamp	6 - 8	Allen key 5 mm
Gear lever – thumb switch	2,5	Allen key 3 mm
Gear lever – twist grip	1,5	Allen key 3 mm
Rear derailleur - fastening bolts	8 - 10	Allen key 5 mm
Rear derailleur – pulley wheel	3 - 4	Allen key 5 mm
Rear derailleur - tension clamp	4 - 7	Allen key 5 mm
Disc brake - brake pad	5	Allen key 5 mm
Disc brake - calliper	5	Allen key 5 mm
Disc brake - hub (6-hole mount)	5	Torx wrench TX25
Side pull brake – brake body	8 - 10	Allen key 5 mm, open-ended spanner MW10, MW12, MW13
Side pull brake – brake shoe	5 - 9	Open-ended spanner MW10
Side pull brake – tension clamp	5 - 8	Allen key 5 mm
Headset – ahead clamp	17 - 20	Allen key 5 mm
Headset - cone clamping screw	20 - 30	Allen key 6 mm
Headset – locknut	34	Cone wrench 32, 36, 40 mm
Front derailleur - fastening clamp	5 - 7	Allen key 5 mm
Front derailleur - solder base	7	Allen key 5 mm
Front derailleur - tension clamp	5 - 7	Allen key 5 mm
V-brake - base	5 - 7	Allen key 5 mm
V-brake – brake shoe	6 - 8	Allen key 5 mm
V-brake – tension clamp	6 - 8	Allen key 5 mm
Stem – handlebar clamp	11 - 30	Allen key 5 mm
Steering column (ScooterTrike, Scoobo, Scoobo+, Trizon, Tibo+), top	8	Allen key 6 mm
Steering column (ScooterTrike, Scoobo, Scoobo+, Trizon, Tibo+), bottom	12	Allen key 5 mm

31. MAINTENANCE LOG

Regular maintenance by a specialist workshop is a prerequisite for any warranty claims. In order to always maintain road safety and a technically perfect product, the maintenance intervals should be observed! **Confirm the maintenance here:**

200 km or 2 months		
_____	_____	_____
Date	Stamp / specialist workshop	Signature

1,000 km or 1 year		
_____	_____	_____
Date	Stamp / specialist workshop	Signature

2,000 km or 2 years		
_____	_____	_____
Date	Stamp / specialist workshop	Signature

3,000 km or 3 years		
_____	_____	_____
Date	Stamp / specialist workshop	Signature

4,000 km or 4 years		
_____	_____	_____
Date	Stamp / specialist workshop	Signature

5,000 km or 5 years		
_____	_____	_____
Date	Stamp / specialist workshop	Signature

32. BICYCLE LOGBOOK

Good advice

Write down the specific data related to your new bicycle right after you purchase it.

Then you can describe it in detail if it should ever fall into the wrong hands.

This is especially important if you report the theft to your insurance company.

If possible, register your bicycle/tricycle with the police.

Name	
House number/street	
Place of residence/postcode	
Telephone	
Purchase date	Purchase price
Bicycle/tricycle description	
Model:	Motor: <input type="checkbox"/> Front motor <input type="checkbox"/> Centre motor
Frame number (can be found on the seat tube)	
Frame colour	
Mudguard colour	
Tyres (tyre brand and size)	
Hub gear	
Number of gears	
Additional equipment	
Special features	

33. ADDENDUM TO THE HANDOVER CERTIFICATE

Model: _____

Bicycle frame number: _____

Product purchase advice:

- The dealer gave me detailed information about the different bicycle/tricycle types and their different riding characteristics and equipment variants.

Test ride:

- The instruction / adjustments were carried out by the dealer. I took one more intensive test rides and mastered the safe handling / correct handling of the selected bicycle/tricycle.

Renunciation of the test ride / instruction + adjustments:



- I confirm that I declined the test ride deemed to be necessary and the associated measures (instruction / adjustments to my needs) despite the recommendation or did not consider it necessary. I will be fully solely responsible for any damage, injury or consequential damage arising from these circumstances.
- The above-mentioned product has been set up for me.
- The delivery was complete and without any damage after the function check of all the components was carried out.
- I have received a user manual with maintenance and care instructions.
- It was suggested that I read the user manual before using the bicycle/tricycle for the first time.
- The basic operation of the bicycle/tricycle was explained to me.
- I am aware that the seller only has a warranty obligation for product defects. There is no guarantee for wear damage resulting from using the product, especially if this is to be regarded as "normal".


Date

Signature



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Supplementary user manual

Pedelec with front motor
Pedelec with centre motor

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1. INTRODUCTION

Dear Customer,

We are pleased that you have chosen a pfauteuc pedelec. This user manual is a supplement for our motorised models. General information, for example about the bicycle technology of your pedelec, can be found in the general user manual. It is important that you also read and observe the general user manual before your first trip.

2. BASIC INFORMATION

2.1 READ THE USER MANUAL

NOTE

Note that this user manual only contains general information about the features of a pedelec. This manual does not constitute comprehensive instructions on the usage, repair or maintenance of your pedelec. Please contact a specialist for all repair and/or maintenance work.



Read all warnings and information in this supplementary manual carefully before using the pedelec.

Information leaflets and additional sheets are part of the user manual. Keep the user manual close at hand so that it is available at all times. If you pass on your pedelec on to a third party, hand over this user manual and the general user manual as well.

A pedelec assists you when pedalling with an electric drive. The word pedelec stands for pedal electric cycle.

Different drive systems are fitted depending on the model. For specific information about your pedelec, read the operating instructions of the component manufacturer.

If you have any questions or do not understand anything, please ensure your safety first and foremost and contact our hotline or ask a specialist.

Subject to changes due to technical progress.

2.2 IDENTIFICATION OF THE WARNINGS

Pay particular attention to the following warnings. They are used in this manual to warn of personal injuries and property damage. The warnings require your full attention and understanding of the statements. Failure to observe a warning may result in personal injuries or injuries to others. Failure to do so will not result in any warranty or liability. The warnings in this user manual have the following meanings:

CRITICAL

Indicates a high-risk hazard that many could result in death or serious injury if not avoided.

DANGER

Indicates a medium-risk hazard that may result in death or serious injury if not avoided.

ATTENTION

Indicates a low-risk hazard that may result in minor or moderate injury if not avoided.

NOTE

Warns of possible property damage.

3. INTENDED USE

Intended use requires that the information in the general user manual is noted and observed, see section "6. *Intended use*" on page 11.

In addition, observe the battery's intended use and the operating instructions of the component manufacturer. Any other use is considered to be improper use and may result in accidents, serious injuries or damage to the pedelec. The warranty will become invalid if the pedelec is not used for its intended purpose. The pedelec is not designed for mounting a child seat or trailer of any kind.

4. STATUTORY PROVISIONS

NOTE

These regulations apply to you when you are in the European Union. Other regulations may exist in other countries, but in individual cases also in other European countries. Before using your pedelec abroad, please inform yourself about the jurisdiction applicable there.

NOTE

Your pedelec is fitted with a battery-powered headlight depending on the model. If the light system is powered from the battery, you must not ride the pedelec without the battery. Read section "10. *Lights*" in this regard.

There are different types of pedelecs and e-bikes, for which different statutory regulations apply within the scope of the European Union. Our pfautec bicycles/tricycle are pedelecs (pedal electric cycle); they only provide motor assistance when the rider starts to pedal. The support of a pedelec is effective up to a speed of 25km/h. It is therefore still considered a permissible bicycle/tricycle.

Note:

You can also ride your pedelec over 25 km/h with pedalling power, but the motor switches off from a speed of 25 km/h.

4.1 PEDELECS

Within the scope of EU law, a pedelec is subject to the same requirements as a bicycle; it must comply with the road traffic regulations (StvZO).

The use of cycle paths is also regulated as for bicycles/tricycles without motor assistance. Please note the explanations and general information in this regard in the general user manual in section "5. *Statutory provisions*" on page 10.

- The average motor power is limited to 250 W. The motor assistance must only be active when the rider themselves starts to pedal.
- The motor switches off at a speed of 25 km/h.
- Your pedelec may have a "pushing aid" so you don't have to get on to it. This provides assistance if you need to overcome a ramp.
- The A-weighted emission sound pressure level on the rider's ears is less than 70 db (A).

Note:

With the pushing aid, the pedelec can be moved slowly at a speed of up to 6 km/h without you having to start to pedal.

- There is no insurance or driving licence obligation. The directives and regulations for pedelecs are constantly being revised. Follow the daily press to see if there are any recent changes in the legal situation.
- The obligation to wear a helmet is still being discussed; follow the latest regulations. However, in the interests of your own safety, you should never ride without a suitable helmet.

5. GENERAL SAFETY INSTRUCTIONS

⚡ CRITICAL

Note that other road users underestimate your speed. Please note that you travel much faster with a pedelec than with a bicycle/tricycle without motor assistance; this can lead to misconduct by other road users. Therefore, look ahead while riding your pedelec, adjust your riding speed and be ready to brake, anticipate the misconduct of other road users and if necessary use your bell in good time as a warning.

Risk of accident!

- Note that pedestrians will not hear you when approaching at high speed.

▲ DANGER

A pedelec has more weight compared to a bicycle/tricycle without motor assistance. The braking distance is extended.

Risk of accident!

▲ DANGER

Before you ride your pedelec for the first time, it is essential to read the general user manual in addition to this supplementary user manual. Observe the safety instructions described there.

▲ DANGER

Use your pedelec only for its intended use *see section "4. Statutory provisions" on page 89.*

▲ DANGER

Familiarise yourself with the riding characteristics of your pedelec, the possible higher speeds and acceleration in a quiet and safe place before cycling in road traffic. You should practise setting off, braking, tight cornering and riding on narrow roads in particular. Do not start with a low level of assistance.

Risk of accident!

▲ DANGER

In contrast to a mid-mounted motor, the front motor runs briefly after you stop pedalling.

Risk of falling!

▲ DANGER

Modifications and/or alterations to the pfautec pedelec or individual components is not permitted and can lead to injuries and misconduct.

▲ DANGER

The mid-mounted motor starts immediately when you start to pedal. With a front motor, the assistance starts after about half a pedal revolution. Familiarise yourself with this initial supportive boost.

Risk of falling!

▲ DANGER

Note that the higher drive power in the front or rear wheel increases the risk of falling in slippery conditions (wet, snow, gravel, etc.). This applies even more when riding around bends.

Risk of falling!

▲ DANGER

The permissible total weight of your pedelec must not exceed the value specified in section "30.1 Performance data (technical data)" on page 77; "Tab.:5". The total weight includes the bicycle/tricycle weight + the permissible user weight + the permissible luggage load of any kind (e.g. basket and side pockets including the contents).

- Do not hang bags or weights on the handlebar and store luggage only on the luggage carrier!

Risk of accident and injury!

▲ DANGER

Note that some light systems are powered by the battery. Never ride without the battery if this is the case with your model.

▲ DANGER

Note that the brakes of your pedelec are always more powerful than the drive. Apply the brakes of your pedelec carefully if you have problems with your drive (for example, because it thrusts forward before a bend).

! ATTENTION

Please use only the spare parts and original accessories available from PFIFF Vertriebs GmbH!

The use of unapproved or third-party accessories will result in loss of the manufacturer's liability and warranty. For more information on the optional accessories for your tricycle, refer to our order forms.

! ATTENTION

Do not ride into a tight bend or at low speeds with a high level of assistance. Instead, select a low assistance level.

Risk of accident!

! ATTENTION

The pushing aid assist function is not a start assist function, but is designed to move the weight of the pedelec along a slight incline at walking speed, together with the maximum possible luggage carrier load.

! ATTENTION

Find out if the child is the prescribed age and has the driving licence that may be required before you let them ride the pedelec! Do not let children handle the pedelec without supervision and without detailed instruction!

📌 NOTE

To protect the components, avoid extreme weather conditions (cold, heat, rain). The pedelec is an electric bicycle/tricycle. Treat it with great care.

📌 NOTE

The mechanical components are subjected to higher loads than a non-motorised bicycle/tricycle.

📌 NOTE

The directives and regulations for pedelecs are constantly being revised. Observe the daily press to determine recent changes in the legal situation.

5.1 ELECTRICAL AND ELECTRONIC SAFETY INSTRUCTIONS

⚡ CRITICAL

Risk of injury, fire and explosion!

Improper handling of the battery and charger can lead to heat generation and explosion resulting in serious injuries. Read and follow the safety instructions in the component manufacturer's system instructions for the battery and charger.

⚡ CRITICAL

- Be careful not to expose your battery to fire or heat.

Risk of explosion!

- Protect the battery and charger from moisture. Never clean or spray the battery and charger with liquids.

Risk of short circuit!

- Store your battery in a safe place where it cannot accidentally short circuit with metal or other batteries.

Risk of short circuit!

- Make sure that no conductive objects (e.g. metal) come into contact with the charger plug and the contacts of the battery!

Risk of short circuit!

⚡ CRITICAL

Take special care when children are present, especially if objects could be inserted into the motor through housing openings. This may pose a risk of a life-threatening electric shock.

Risk of fatal injury!

⚡ CRITICAL

Live parts can be exposed when opening covers or removing parts. Connection points can also be live. Maintenance or repair of the open motor may only be carried out by a specialist workshop.

Risk of fatal injury due to misuse!

⚡ CRITICAL

The charger is not intended to be used by individuals with reduced physical, sensory or mental capabilities or lack of experience and/or knowledge. Unless they are supervised by a person responsible for their safety or have received instruction on how to use the charger. The charger should generally be kept away from children.

Risk of fatal injury due to misuse!

⚡ CRITICAL

Protect your children. Prevent young children from handling the battery and charger. Make older children aware of the dangers. Store the battery and charger so that they are always inaccessible to children and animals, even in the short term.

Risk of fatal injury!

⚡ CRITICAL

Electric shock caused by incorrect handling of electrical current and live components.

Risk of fatal injury!

- Only connect the charger to a suitable power supply.

⚠ DANGER

Note that the motor of the pedelec may heat up during a long ascent. Be careful not to touch it. You could burn yourself. **Risk of burns!**

⚠ DANGER

Risk of injury, fire and explosion!

Burning batteries are difficult to extinguish.

- Call the fire service immediately and keep yourself and others away from a burning battery.

⚠ DANGER

Do not touch both electrodes at the same time, this may pose a risk of an electric shock.

⚠ DANGER

Damage to the skin or eyes due to a lithium leakage if the battery is damaged. Wear protective clothing, protective gloves and goggles when handling a damaged battery.

Risk of injury!

⚠ DANGER

Never expose the battery to shocks or strong vibrations.

⚠ DANGER

Do not remove the battery from the pedelec during the charging process.

! ATTENTION

Observe any information on the corresponding label on the battery or charger.

! ATTENTION

Check the charger, power cable, mains plug and battery before each use. Damaged chargers, cables and connectors, as well as the battery, increase the risk of an electric shock.

- Do not charge the battery if you suspect that it is damaged.

! ATTENTION

Do not use the battery if you notice an unusual smell, heat or discolouration and/or if the battery is damaged. Never open, disassemble, puncture, or deform the battery or charger. Always contact your dealer for repairs or if you have a question, problem, or defect. A lack of expert knowledge can lead to serious accidents and injuries. **Risk of short circuit and fire!**

! ATTENTION

Always transport and store the battery separately.

! NOTE

Make sure that you do not completely discharge your battery (so-called deep discharge). This may occur if the battery has been completely depleted and the pedelec is then switched off for a few days. Deep discharge permanently damages the battery of your pedelec. Contact your dealer.

! NOTE

Do not dispose of your battery in normal household waste! Refer to *section "9.6 Disposing of the battery" on page 100.*

! NOTE

Remove the battery from your pedelec if you will not use the pedelec for a longer period of time. Keep it clean and dry and store the battery at 50% to 70% charge.

! NOTE

Lithium-ion batteries do not have a memory effect so you can charge the battery at any time without sacrificing charging capacity.

! NOTE

The electrical system of your pedelec is very powerful. It is necessary that it is regularly serviced by a dealer to ensure correct and safe use of it.

! NOTE

Check the battery charge and capacity before every trip. Do not set off until the charge level is sufficient for your planned trip. Always allow for some battery reserve as well.

! NOTE

If you are riding a pedelec in winter, please note that the battery range decreases due to cooler temperatures. Store your battery at room temperature and connect it to the pedelec just before your trip.

! NOTE

Before doing work of any kind on your pedelec, turn off the electrical system and remove the battery.

NOTE

If your battery is almost empty, the motor may not run smoothly and start to “stutter”. In this case, switch off the drive system so that it does not suffer any damage.

6. RESIDUAL RISKS

Despite observing all the safety and warning information in the supplementary user manual and the general user manual, the use of the pedelec is associated with the following unforeseeable residual risks in addition to the residual risks (see section “8. Residual risks” on page 15) of the general user manual:

- Other road users underestimate your speed.
- The weather can damage the battery.
- Battery malfunction.

7. BEFORE SETTING OUT ON A TRIP

7.1 BEFORE YOUR FIRST TRIP

DANGER

Risk of personal injury and property damage!

Improper use may damage the battery. Before charging the battery for the first time, be sure to read the manufacturer’s operating instructions for the components and arrange for your dealer to provide instruction to you.

DANGER

The pedelec may start suddenly if used incorrectly.

- Read the description in the separate operating instructions of the motor manufacturer.

All the checks listed in section “9.2 Before your first trip” on page 16 of the general user manual must also be carried out for a pedelec:

Controls

Familiarise yourself with the functions of the controls, refer to the separate operating instructions of the motor manufacturer. Do not ride your pedelec if it displays a warning message.

Battery

Familiarise yourself with the handling and installation of the battery; refer to the system instructions of the drive manufacturer. Check that your battery is securely fitted. The battery should be fully charged before your first trip. Follow the operating instructions of the component manufacturer.

Connectors and connections

Check that the connectors and connections in the electrical system are securely fitted.

Brake system

Check that the brake levers are positioned as they should be. Pedelecs are manufactured with different versions and combinations of motors and

batteries. The position of the battery and motor depends on the model. The controls and display elements also vary depending on the model. For individual technical details, refer to the operating instructions of the electrical system manufacturer.

8. RIDING WITH MOTOR ASSISTANCE

Switch on the system and start to pedal to get assistance from the motor. The display panel allows you to view a variety of information such as the assistance mode, battery charge level, riding speed, total mileage and daily mileage. Please refer to the operating instructions of the electrical system manufacturer for information on the functions and display options of your controls.

8.1 RIDING WITHOUT MOTOR ASSISTANCE

You can ride your pedelec as normal, even without drive assistance. If you are riding your pedelec without a battery, make sure that the battery connections do not become dirty or wet. It is best to cover the connectors with a suitable cover.

Note that without a battery, the functions of the control unit are no longer available to you. Depending on the model, if your pedelec is fitted with a battery-powered headlight or the light system is powered by the battery, you may not ride without a battery. Read *section "10. Lights"* in this regard.

9. BATTERY

NOTE

Observe the hazard symbols on the product and packaging and read and observe the meanings of the symbols in the component operating instructions.

9.1 REMOVING/INSERTING THE BATTERY

! ATTENTION

Batteries may only be used in the pedelec for which they are intended.

NOTE

Damage to the electronics caused by incorrect removal of the battery. **Risk of damage!**

- Switch off the drive before removing the battery.

NOTE

Damage to the battery due to a fall. **Risk of damage!**

- Before use, check that the battery is correctly inserted into the holder and engaged in the lock.

Observe the system instructions of the component manufacturer. Since the battery is removed and inserted differently depending on the drive system. _

9.2 BATTERY CHARGING PROCESS

⚡ CRITICAL

Use only original components.

Risk of explosion!

- Do not charge the battery with any charger, even if the plug is suitable. Only use the corresponding standard charger! If necessary, label the charger to avoid confusion with chargers from other manufacturers.
- Use the battery that is supplied only for the original drive system.
- Use only approved original batteries for the original drive system. Otherwise, the battery could overheat or damage the system.

⚡ CRITICAL

Do not use the charger in case of excessive dust, excessive sunlight (heat!), thunderstorms or high humidity. **Risk of short circuit, fire and explosion!**

⚡ CRITICAL

Make sure that no conductive objects (e.g. metal) come into contact with the charger plug and the contacts of the battery! **Risk of short circuit!**

⚡ CRITICAL

The charger is intended for indoor use only and may only be connected to a suitable power supply. **Risk of short circuit, fire and explosion!**

⚡ CRITICAL

Never touch the charger or plug with wet hands.

Risk of fatal injury!

⚡ CRITICAL

If the charging time is significantly longer than the time specified by the component manufacturer in the technical data, cancel the charging process and contact customer services. **Risk of fire and explosion!**

⚡ CRITICAL

Disconnect the charger from the power supply as soon as the charging process is complete. **Risk of fire!**

⚡ CRITICAL

Protect your children. Prevent young children from handling the battery and charger. Make older children aware of the dangers. Store the battery and charger so that they are always inaccessible to children and animals, even in the short term.

Risk of fatal injury!

⚠ DANGER

Make sure that the room is adequately ventilated while charging the battery. **Risk of fire!**

⚠ DANGER

After charging, cover the charging socket with the battery cap. **Risk of short circuit!**

! ATTENTION

- Only connect the charger to a suitable power supply.
- Only charge the battery under supervision.
- Only charge your battery during the day and in rooms fitted with a fire and smoke detector, but not in the bedroom.
- While charging the battery, protect it from other heat sources, such as direct sunlight or radiators.
- Use the charger indoors only.
- Always place the battery and charger on non-flammable materials (e.g. stone, glass, ceramic). Make sure that the charger is positioned correctly.
- Do not charge your battery for a longer period of time when it is not in use.

! ATTENTION

Charge the battery indoors at room temperature. In the event of extreme outdoor temperatures, allow the battery to reach room temperature before charging it.

! ATTENTION

If you remove your battery from the holder to charge it and your pedelec is outside during the charging process, you should protect the connectors from moisture and dirt, e.g. with a plastic bag. If your connectors are dirty, clean them with a dry cloth.

📌 NOTE

Always unplug the charger after use and before maintenance.

📌 NOTE

Do not insert foreign objects into the charging socket. **Risk of damage!**

📌 NOTE

Follow the instructions on the charger before you start charging the battery.

📌 NOTE

Excessive force should not be applied to the charger plug or when disconnecting the charger plug. When connecting the charger plug, make sure that it points in the correct direction and is not inverted or tilted. Make sure it is plugged in properly.

On certain models, you can charge the battery while it is inserted in the pedelec.

For others, the battery must be removed to charge it. Refer to the electrical system operating instructions of the component manufacturer.

9.3 BATTERY CHARGING TIMES

📌 NOTE

If the charging process lasts too long, disconnect the battery from the charger and contact your dealer.

The duration of the battery charging process depends on the following factors:

- Battery charge level,
- Battery temperature,
- Ambient temperature,
- Battery capacity,

- Battery model,
- Charger,
- Age of the battery.

Observe the system operating instructions of the component manufacturers in this regard.

9.4 BATTERY RANGE

The range depends, for example, on the assistance level, the riding style, the weather and weight, the technical condition of your pedelec, the charge level and battery capacity and therefore is not exactly predictable.

You can check the charge level of your battery on the controls and the battery. Refer to the electrical system operating instructions of the component manufacturer in this regard.

To achieve the highest possible range, you can consider the following points:

- Ride on flat or hilly sections with less assistance (Eco).
 - The stronger the assistance mode, the lower the range.
- Check the tyre pressure regularly.
- Ride with constant pedal power and use the gears regularly. Use the gear shifter as if you were riding without assistance.
 - Change into a low gear in good time before cycling uphill.
 - Before stopping, shift to a low gear in good time and start in a low gear.
- Ride smoothly and with foresight to avoid unnecessary stops.
- Avoid unnecessary weight.
- In colder weather, do not insert the battery until just before your trip. The battery should be stored at room temperature.
- Do not place the pedelec in the blazing sun.

9.5 STORING THE BATTERY

⚡ CRITICAL

The battery must be stored in a dry, cool, frost-free room. **Risk of short circuit and fire!**

⚡ CRITICAL

Risk of short circuit and explosion!

- Be careful not to expose your battery to fire or heat.
- Protect the battery and charger from moisture. Never clean or spray the battery and charger with liquids.
- Store your battery in a safe place where it cannot accidentally short circuit with metal or other batteries.
- Make sure that no conductive objects (e.g. metal) come into contact with the charger plug and the contacts of the battery!

📌 NOTE

The battery should not discharge completely (so-called deep discharge). This may occur if the battery has been completely depleted and the pedelec is then switched off for a few days. Deep discharge permanently damages the battery of your pedelec. Contact your dealer.

If you do not want to use your pedelec for a longer period of time, please note the following points when storing the battery:

- Remove the battery from the holder and place it in a safe place.
- Store it in a dry and well-ventilated room. Store your battery at a room temperature of 10-23 °C and a charge level of 50%-70%.

- If you have not used your battery for 6 months, you should recharge the battery.
- After charging, always disconnect the charger from the battery and unplug the mains plug from the wall socket.

9.6 DISPOSING OF THE BATTERY

Batteries should be treated as dangerous goods. They are not residual or household waste and must be disposed of by your dealer. Their disposal is clearly regulated in the respective national laws. The symbols on the product, component operating instructions or packaging refer to their correct disposal.

10. LIGHTS

NOTE

If your pedelec is fitted with a battery-powered headlight light, the battery must always be inserted when riding in road traffic. This ensures that the light works at all times.

11. SMART FUNCTION

▲ DANGER

Do not hold your smartphone in your hand while on your trip, but insert it into a dedicated smartphone holder on the handlebar. Do not write text messages, read texts or play on the smartphone while riding. **Risk of accident!**

Your pedelec can be fitted with a smart function depending on the model. For technical details, refer to the operating instructions of the electrical system manufacturer.

12. KEY

You will receive a card with a key number for the battery or frame lock on the bicycle depending on the model. Please keep it together with your pedelec invoice. In the event of loss, you can reorder a new key with the key number.

13. CHILD SEATS

Our pfautec pedelecs are not designed for using with child seats of any kind.

14. TRAILERS AND CHILD TRAILERS

Our pfautec pedelecs are not designed for using with trailers or child trailers.

15. MAINTENANCE AND CARE INSTRUCTIONS

⚡ CRITICAL

It is not permitted to use a steam cleaner, high-pressure cleaner or water hose for cleaning. Water ingress into the electrical system or drive can destroy the equipment. The individual drive components can be moistened with a soft cloth and a standard neutral cleaner or with water, but not wet cleaned. Do not let the battery get wet or even immersed in water! **Risk of explosion!**

⚡ CRITICAL

When cleaning the battery, be careful not to touch and connect the contacts. If they are live, you may injure yourself and damage the battery.

⚡ CRITICAL

Maintenance and cleaning of open live parts may only be carried out by the dealer!

Risk of injury!

⚠ DANGER

Like all mechanical components, pedelecs are exposed to heavy loads and therefore wear. Different components and materials react differently to wear and continuous loading. If a component exceeds its planned service life, it may suddenly fail, possibly causing damage to the rider. Any type of cracks, scoring, or colour changes in high-stress areas (e.g. frame, fork, handlebar, brakes) will indicate the end of the component's service life and it should be replaced.

⚠ DANGER

Expertise and special tools are required for all adjustment, care and maintenance work on the bicycle. Arrange for your dealer to carry out all the work.

⚠ DANGER

Avoid damaging cables and electrical components. If this has happened, the pedelec must not be used until it has been checked by the dealer.

⚠ DANGER

If you have removable elements, remove the battery or display before you carry out any work on your pedelec (e.g. inspection, repairs, assembly, maintenance, work on the drive, etc.). There is a **risk of injury** if the drive system is inadvertently activated!

📌 NOTE

Arrange for the components of your pedelec to be replaced only with original parts or those that have been approved by the manufacturer. Otherwise, warranty and guarantee claims may become invalid.

📌 NOTE

Inspections and maintenance are part of the intended use. Failure to do so could jeopardise your warranty or guarantee claims.

Read and observe the section on the maintenance and care instructions in the general user manual, see *section "26. Maintenance and care instructions" on page 71.*

15.1 WEAR PARTS

📌 NOTE

Due to the increased force exerted by the drive, brakes and tyres and, in the case of a mid-mounted motor, the chain and pinion can wear more than in non-motorised bicycles/tricycles.

In addition to wear parts listed in the general user manual *see section "26.3 Wear parts" on page 74.i*, the battery is also a wear part. Manufacturer defects are excluded from this. Observe the information in the system operating instructions of the component manufacturer. For more information on the warranty, refer to *section "2.2 Disclaimer" on page 7* of the general user manual.

16. AFTER A FALL

⚡ CRITICAL

Risk of injury, fire and explosion!

Internal damage caused by a fall or deformation of the battery can lead to overheating, outgassing and/or loss of fluid even long after the damage occurs. If you suspect damage:

- Wear protective gloves and goggles. Lithium can cause severe burns to the skin and eyes.
- Do not inhale the gases and ensure good ventilation.
- If the battery has been subjected to severe shocks or deformations, arrange for it to be checked by a specialist before using it.

⚠ DANGER

After a fall or accident, hidden damage may occur on the pedelec, e.g. hairline cracks. Aluminium components may be damaged, even if they are not visible.

Risk of accident and injury!

- After a fall or accident, arrange for your bicycle/tricycle to be thoroughly inspected by your dealer for possible damage.
- Be sure to have damaged components replaced by a specialist.
- Do not ride the bicycle/tricycle if you can see or suspect damage to it.
- If components are bent after a fall, they must never be straightened. There is an increased risk of breakage. This applies especially to the frame, fork, handlebar, stem, crank and pedals.

⚠ DANGER

Risk of short circuit and fire!

A battery can be damaged internally by shocks and knocks without any external damage.

- If in doubt, always arrange for a dealer to check the battery.

Even after a minor fall, check all the pedelec components, e.g. if the pedelec has fallen over, *see sections "7.1 Before your first trip" on page 95 and "9.2 Before your first trip" on page 16 of the general user manual.* Arrange for a dealer to check your battery.

17. INSURANCE COVER

Please note that you may only replace certain parts of your pedelec in order not to lose the insurance cover. Use only original spare parts.

18. TRANSPORT INSTRUCTIONS

! ATTENTION

Always transport and store the battery separately.

18.1 CAR

📌 NOTE

Incorrect use of bicycle carriers.

Risk of damage!

- Use only approved bicycle/tricycle carriers that allow the pedelec to be transported upright and that meet the requirements of the StVZO.
- Note the heavier weight of the pedelec, the carrier must be approved for this.

- Consult your dealer, for example, concerning the use of bicycle carriers.
- Secure the bicycle/tricycle against slipping and falling.
- Contact your dealer for an explanation on how to use the transport lock.
- Use the transport lock to transport the pedelec.
- Transport the bicycle/tricycle in an upright position.
- Make sure that the contacts are protected against short circuits.
- Remove the battery and, if necessary, a removable display or other removable components before transporting them. Store the battery in a safe location and store the battery so that it cannot slip or collide with other objects while driving. Protect it from compressive loads and avoid shocks by properly securing the load.
- Store the battery so that it cannot be heated by sunlight or other heat sources.

18.2 TRAIN

NOTE

- Check with the train company in good time to find out what conditions apply for the transport of your bicycle/tricycle.
- Protect your pedelec from falling over and damaging other items of luggage.
- It is recommended to remove the battery and all removable components before travelling by train and to reinsert them afterwards.

18.3 PLANE

NOTE

Check with the airline company you plan to fly with in good time to find out whether your pedelec can be transported by plane at all and, if so, what conditions apply for it.

Here you need to transport the battery as dangerous goods. You need to label it to this end. Please contact the airline company in good time in this regard.

18.4 SHIPPING A BATTERY



DANGER

Do not ship a battery! A battery is classified as dangerous goods that can overheat and ignite under certain conditions.

Since the battery is classified as dangerous goods, preparations and shipping must only be carried out by trained personnel. If you would like to lodge a complaint about your battery, consult your dealer.



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