

2012
recumbent
technology



Gekko
hpvelotechnik.com

Gekko fx
hpvelotechnik.com



Operating manual and service instructions

January 2012

HP
Velotechnik
www.hpvelotechnik.com

Table of contents

General safety instructions

- Intended use – 3
- The first miles – 3
- Legal requirements – 3
- Load capacity – 4
- Carrying luggage – 4
- Transport with the car – 5
- Do not take kids with you – 5
- Trailers – 5
- Added parts and accessories – 5
- Fairings – 5
- Replacement of parts – 6
- No alteration of parts – 6
- Final assembly – 6
- Screws and bolts – 6

Adjusting your new trike

- Adjusting the leg length – 7
- Adjusting the seat position – 11
- Adjusting the handlebars – 12

Handling instructions

- Folding (Gekko fx) – 14
- Disjointing (Gekko) – 17
- Learning the new riding technique – 18
- Wear protective clothing – 19
- Use clipless pedals – 19
- Slowly increase the strain – 20
- Do not ride freehand – 20
- How to ride correctly and safely – 20
- Quick release levers – 21
- Brakes – 22
- Gear system – 24
- Lighting system – 25

Maintenance and care

- Wear and tear – 26
- Brakes – 26
- Gear system – 28
- Chain – 29
- Chain tubes – 31
- Chain roller – 33
- Front wheel alignment – 34
- Headset – 37
- Mudguards – 37
- Water bottle cage – 38
- Wheels – 39
- Cleaning and conservation – 40
- Storing the trike – 42
- Screws and bolts – 42
- Tightening torques for screws – 43

Warranty pass

- Warranty – 44
- Warranty Pass – 45
- Service Plan – 46
- Proofs of service – 50

Revision January 2012. For latest product information, please check out our website at www.hpvelotechnik.com. All trademarks belong to their respective owners.

HP VELOTECHNIK
Elisabethenstrasse 1
65830 Kriftel / Germany
Tel. ++49 (0) 61 92 - 97 99 2-0
Fax ++49 (0) 61 92 - 91 02 18

Introduction

Dear customer,

thank you for buying a recumbent trike designed by HP VELO-TECHNIK and congratulations on the purchase of your new Gekko or Gekko fx! With this high-quality trike, you will enjoy many years of exhilarating riding pleasure.

Your safety and your satisfaction are our main concern. On the following pages, this manual will inform you about important safety issues as well as maintenance and care instructions.

Even if you have many years of experience with bicycles please do take your time to read this manual carefully before the first ride. Your recumbent trike is designed with the latest recumbent technology by HP VELOTECHNIK that partly needs special treatment and care.

In this manual you will find detailed instructions on how to optimize your trike to meet your demands and riding style as well as your size and weight. In addition to this, we have put together a collection of information on care and maintenance as well as special technical advice from our engineers. Important: Please send us the attached warranty registration form for your extended warranty (see *page 44.*)

This guide helps you to keep your trike in perfect condition so you will always experience maximum fun, comfort and safety.

Enjoy yourselves and have a great ride!

**Paul J.W. Hollants, Dipl.-Ing. Daniel Pulvermüller
and the HP VELOTECHNIK team**

Introduction

The manuals of component manufacturers such as the brake manufacturer, the gear system manufacturer, and the pedal manufacturer also belong to this manual. They give detailed information on operating and maintaining these specific parts. Please read the manuals of the part manufacturers as carefully as this manual. Please provide this manual to any other user of your recumbent before using it.

The maintenance and adjustment of this recumbent partly requires special tools and skills. Do only works within your limits and, for the purpose of your own safety, do not go beyond. Should you be uncertain at any point, get in contact with your local dealer.

This manual is valid for both Gekko and Gekko fx models. In the following text we will only use the name Gekko fx for both versions. Only the instructions on how to fold are separate for each model.

The instructions in this manual apply only to a completely assembled Gekko fx trike with standard parts from the series production of HP VELOTECHNIK.

On special demand HP VELOTECHNIK delivers frame kits to put a specialist dealer in a position to assemble a tricycle individually. In this case the manuals on the operation and maintenance of the parts only represent a guideline, please read every manual of every part manufacturer separately. The specialist dealer is responsible for the expert assembly, please contact him for detailed information! A tricycle that has been assembled from a frame kit must always be tested and approved by a qualified bicycle mechanic before your first ride.

Caution! The texts in the grey boxes are particularly important for your safety. Texts that begin with "**Danger!**" mark an immediate danger for your life and your health. Please read them carefully.



General safety instructions

Intended use

Your Gekko fx is a tricycle for the use on streets and paved roads.

This tricycle is not designed for the use in racing and off-road riding, for jumping or acrobatics, and you must not ride across curbs, stairs, etc.

Damage through inappropriate use, assembly errors, accidents or similar activities and wilful damage results in the loss of any warranty.

The intended use also includes the precise observation of the prescribed usage and maintenance regulations and instructions.

The first miles

The first 300 km (186 miles) are an important for breaking in the tricycle. During the first use of a new tricycle the screws may settle and become loose. Cables and spokes may stretch. Bearings may show play. Please be very attentive during that period.

After 300 km or after two months at the latest you will have to take your tricycle to a bicycle mechanic for the first service. Please record this first service and the works performed in the warranty pass on *page 50*. This first service is the prerequisite for further use of the tricycle and for your warranty claims.

Legal requirements

When you ride your trike on public roads it must comply with national legislation and guidelines. These will vary from country to country.

In general, there are minimum standards for brakes, reflectors and lighting systems, as well as usually a general duty to ensure that your vehicle is in roadworthy safe condition. There will also be a duty to ride in a safe and responsible manner. If you ride your HP VELOTECHNIK trike in traffic you should be sure to observe all the applicable laws and regulations.

In most countries, including Germany and the UK, two independent braking systems are required. Do not ride with only one brake working!

Please contact your local dealer to find out about your legal obligations.

As an addition, we recommend to mount a flag on a pole for better visibility in traffic.

The safety equipment on your trike must be checked before every ride and maintained in proper condition.

General safety instructions

Load capacity

The maximum load (rider + luggage) is 130 kg (286 lbs). The maximum total weight (bicycle + rider + luggage) is 150 kg (330 lbs). The lower limit is valid.

With an attached trailer, the maximum total weight must not be higher than 150 kg (330 lbs)

The rear rack is designed for standard bike panniers. They need to be removed before folding the Gekko fx.

Take care that your luggage does not cover the lighting system and the reflectors of your tricycle and that they stay fully functional.

Carrying luggage

Luggage transport is only allowed on the special racks designed by HP VELOTECHNIK .

Maximum permitted load on the rear rack is 25 kg (55 lbs).

Additional loading can influence the handling of your trike considerably. If you plan on riding with heavy luggage we advise you to make a test ride on a street with no traffic to get used to the new situation.

The load should be placed as close to the body of the rider as possible, since this results in better riding performance. You can also improve the handling of the trike by positioning the center of gravity of the luggage as low as possible, so pack heavy items in the bottom of your panniers. Be careful that your luggage is safely stored on the racks. Bags must be tightly fastened to the racks so they can not move. Make sure that loose parts like straps or belts can not touch the wheels or the derailleur.

Transport with the car

The best way to transport your tricycle is inside the car. The Gekko fx is very space saving when folded and has minimum space requirements inside a car. Due to the special folding mechanism there are no parts which have to be stored separately.

If you want to transport it outside the car we recommend a roof-rack or a rear carrier. Take care to fasten your tricycle at the frame only.

Please remove any parts that could come loose during transport (seat cushion, water bottles, luggage bags, pumps, pennants, etc.).

Do not take kids with you

The Gekko fx is not designed for the transport of children. You are not allowed to mount a child's seat. It is only allowed to transport children in a trailer that has been specially designed for that purpose.

Trailers

You are allowed to use trailers (double trail only) up to 40 kg (88 lbs) with the Gekko fx.

You can mount a common trailer coupling on the frame's left dropout. HP VELOTECHNIK recommends using a coupling by WEBER.

Always check the proper function of trailer and towing trike after mounting a trailer.

For CHARIOT trailers you can purchase a special lowered towing bar from dealer ZWEIPLUSZWEI for bikes and trikes with 20" rear wheel.

Added parts and accessories

Additional accessories may impair the function of your Gekko fx. We advise you to generally contact your dealer before mounting any special parts or accessories to your tricycle.

Caution! Mounting additional parts or accessories is at your own risk. It is important that you carefully read the installation guide of the manufacturer. Additions like fairings, handlebar fittings, bottle holders, etc. may impair your safety due to additional loading or clips with sharp edges.

Take care that the handlebar and the folding mechanism always stay moveable. You must not add any parts to the handlebar, the seat, or the main tube that might endanger the rider through sharp edged or pointed shapes while steering, getting on and off the trike or bumping against something.

Before you purchase a bell or a lighting system make sure that these accessories conform to your national laws and regulations.

Fairings

As a front fairing for the Gekko fx, you may use the Streamer fairing offered by HP VELOTECHNIK. Please take care to assure a good vision over the fairing and sufficient freedom of movement below.

Please take into account that any fairing makes the tricycle more prone to crosswind influences. In strong wind or gusts of wind unsafe situations may occur. Please remove the fairing before riding in such weather conditions.

General safety instructions

Replacement of parts

The replacement of parts relevant for safety (especially brakes, lighting system, stem, handlebar, knuckles, drivetrain) should only be done with original parts by a qualified bicycle mechanic, since it requires a certain degree of skill, suitable tools and mechanical aptitude.

Any technical change you perform on your own is at your own risk!

Danger! If any part is deformed (e.g. due to an accident or overload), especially frame, knuckles, handlebar, seat mountings, pedals, cranks and brakes, it is not allowed to use it any further or repair it. Do not try to straighten bent parts. You must replace them for your own safety. If you do not replace a damaged part it can result in a total failure of the part and you may be seriously injured!

No alteration of parts

Caution! You are not allowed to perform any work on the parts of the tricycle, especially frame, knuckles, handlebar and seat, which might endanger their solidity. These works include drilling holes, welding, brazing, paint methods that add heat or any other chemical treatment. If any of these works is done improperly it may result in a loss of strength by direct damage or increased susceptibility to corrosion.

If you wish to have your tricycle coded the code can be added to the gusset under the crosstube. However, HP VELOTECHNIK recommends the use of code stickers.

Final assembly

Your trike has been delivered to your specialist dealer only partly assembled.

Your dealer has carefully finished the assembly, perhaps altered the specification of your trike to meet your special requirements and performed a test ride. Please make sure that this pre-delivery service is recorded in the Warranty Pass at the end of this manual.

All screws must be checked and tightened, especially on the handlebar, stem, knuckles, and wheels. Please follow the tightening torque settings listed in the table on page 43.

Derailleurs and brakes must be checked and adjusted. Please follow the instructions in the manuals of the parts manufacturers that come with this manual.

Screws and bolts

Caution! Screws must be tightened with prescribed tightening torque. In this manual tightening torques are given in "Nm" (Newtonmeter). Always use a torque wrench wherever a torque setting is given in this manual. Never rely on "feeling". Screws tightened too much or not enough can break, which can lead to dangerous accidents. In case you don't own a torque wrench have your bicycle mechanic do the respective work. You will find a table with the prescribed torque settings on page 43 in this manual.

Adjusting the leg length

Before the first ride: adjusting your new Gekko fx

Your position on the Gekko fx is essential for your riding comfort, well-being and efficient cycling. Therefore you should adjust the frame, seat, and handlebar to your individual requirements.

In order to adapt the Gekko fx as closely as possible to your body dimensions and to find your ideal position you need to adjust the front boom, seat and handlebars.

Danger! All procedures described here require a certain degree of skill, suitable tools and mechanical aptitude. After any adjustment perform a static check and take a test ride on a quiet street, away from traffic. If you have any doubts please contact your local dealer.

If your trike is equipped with the optional front boom-quickadjust, please read the instructions in the separate manual in addition to the following instructions.

Adjusting the leg length: moving the front boom

In order to adjust the leg length you have to move the front boom (the front part of the frame where the cranks are mounted) in the main frame. Unscrew the bolts M8x35 under the main tube with a 6 mm Allen key. Take a grip on the front derailleur tube or both cranks and move the front boom further into the frame or pull it out while cautiously turning it from side to side.

Before you pull out the front boom shift the chain to the smallest chain ring and sprocket. Turn the cranks a little bit backwards while pulling.



Unscrew the clamping bolts to adjust the front boom.

Caution! After you have unscrewed the clamping bolts take them off and examine them for deformation. Lubricate threads and heads thoroughly. Then re-fit the bolts. If they don't turn easily you will have to replace the bolts.

Adjusting the leg length

Sit down on your trike to find out the correct front boom position.

Adjust the front boom in a way that your leg is fully extended when your heel (wearing flat shoes) is in the foremost position on the pedal. Experience shows that the pedal-to-seat distance on a recumbent can be slightly longer than on a conventional bike.

While you are pedaling, the ball of your foot should be positioned above the center of the pedal axle.

It is important that your leg is not fully straightened when the crank is in the foremost position. If the distance is too long it is difficult to overcome this dead point, pedaling becomes uncomfortable and there is too much strain on the sinews of your feet and legs. If the distance is too short you may suffer from knee pain.



Adjust the front boom so that your knee will not be fully straightened when pedaling.

Danger! When you insert the front boom, the front boom and the inner wall of the tube must be totally free from grease, otherwise it will not clamp properly and may turn while you are riding.

For riders with short leg length the front boom has to be cut by a bicycle mechanic, so it can be inserted maximum possible. It is important to trim the end of the tube neatly. The bare metal of the shortened tube end has to be protected against corrosion with a paint stick or wax spray.

Caution! When you move the front boom take care that its end does not damage any light cables that possibly come out of the main frame. Please inform yourself about the length of the front boom on your trike before you do any work. While moving the front boom you also have to move the light cables. The light cable must never be stressed by pulling.

The maximum insertion of the front boom is limited by possible heel strike of the frame's cross bar, depending on the rider's shoe size. Please check before riding your trike that there is enough heel clearance. For shorter riders under 175 cm body height we recommend to use shorter cranks.

On the left underside of the front boom there is a fine line. Align this line with the sticker on the main tube's front end right above the clamping bolts to adjust the bottom bracket axle to a horizontal position. Additionally, you can look beyond the bottom bracket shell at the rear wheel axle and align the front boom parallel to it. Align your eyes with the bottom bracket axle and not the front derailleur tube. Then sit down on your tricycle and check the position.

Tighten the bolts with a torque wrench (tightening torque 14–16 Nm). On your first ride check whether there is sufficient clamping.



The rear end of the front boom must never be visible in the clamping slot.



The plastic bush between front boom and main frame must be visible at all time.

Caution! The minimum insertion depth of the front boom into the main frame is 8 cm (3 1/5"). The end of the front boom must not be visible in the clamping slot when you look at the main frame from below, since this may result in a damage of the frame.



If the bush is missing or not aligned properly or the screws are tightened too much, the frame can break!

Danger! There must be a bush (a slotted tube of plastic with edges to the front and the clamping slot) in the main frame's front boom hole that is glued in the frame. This bush ensures safe clamping of the front boom and protects the paint. It is important to take care that this bush is always visible at the front end of the main frame. The lower slot has to be aligned in coincidence with the slot in the main frame. If this bush is missing or moved to the back of the tube while inserting the front boom, safe clamping is no longer guaranteed, even if it seems to be the case at first glance. If the front boom is not clamped properly it may turn and lead to a fall. A missing or misaligned bush will lead to frame damage.

Danger! If the bolts are tightened too much or bent, the screw or the frame can break! If the clamping is insufficient the front boom can turn during a ride which may cause your feet to slip from the pedals and lead to injuries.

Adjusting the leg length

After moving the bottom bracket tube your dealer has to adjust the chain length. By default the Gekko fx comes with a very long chain so the adjustment range of the tricycle can be fully used without the need to lengthen the chain.

After the basic adjustment of the leg length done by your dealer before handing over the tricycle, the chain has to be shortened so that the derailleur cage is not fully turned forward while shifting on the largest chain ring in front and the smallest sprocket behind. The derailleur must still be able to compensate a length change of the chain of at least 4 cm (1 1/2"). In order to choose the right chain length, please consult the manual of the derailleur manufacturer.

Danger! After the chain has been shortened it must be closed with a special closing link or a chain riveting tool that expands the rivet while riveting (i.e. ROHLOFF-Revolver). A poorly joined chain may break and thus lead to damage or injury. Chain length adjustments or chain changes should be done by your bicycle mechanic.

Caution! Take care that the chain tubes have a clearance of at least 5 cm (2") to the rear derailleur and the front derailleur even under maximum tension of the chain and make sure that the tubes are held tight in their fastenings. Shorten the tubes if necessary. If the end of the chain tube gets in touch with the rotating chain rings it can be locked-up and destroyed.



Check that there is at least a 5 cm (2") clearance between the end of the chain tube and other parts of the drive train.

After adjusting the front boom the gap in the clamping slot between the front boom and the main frame should be sealed with wax or silicone in order to protect your frame from the penetration of water and dirt and hence damage through corrosion which may lead to a broken frame.

We recommend to slightly readjust the front boom every 3 months so that knees in order to provide a slightly different position to your muscles and ankles. You might also find a more comfortable and more efficient riding position.

A wrong adjustment may lead to pain in your knees and inefficient pedaling. In addition we recommend to ride with a high pedalling cadence, which means to pedal fast and with little pressure. Pedalling with too much pressure may also lead to pain in the knees. You will find more information about this on [page 20](#).

Adjusting the seat position

The Gekko fx meshseat

Your Gekko fx is equipped with a meshseat which needs not to be removed for folding the trike. Using eight straps, the seat surface can be adjusted individually to your back. The backrest angle is fully adjustable with a quick release. The seat is ergonomically shaped and supports the natural S-curve of your spine. Forces from pedaling are supported in the area of your lower back just above your hips. The seat is bowed up in this area (lumbar support).

The adjustment of the seat mesh and the proper seat angle is crucial for a comfortable feeling while riding your recumbent.

Adjusting the seat mesh

By means of eight straps on the backside and underside of the seat frame the tension of the seat mesh can be adjusted according to your needs.

If the seat feels too soft, you sink in too far at one spot or you sit on the seat frame you'll have to tighten the straps in that area.

If there is some spot where the seat feels too hard and uncomfortable or you don't have enough lateral support you'll have to loosen the straps in the respective area.

You can use gripping pliers to tighten the straps in case the force you can apply with your hand is not enough. To loosen a strap the semicircular side of the plastic connector must be lifted to release the strap out of the connector.

Adjusting the seat back angle

A great advantage of the mesh seat seat on your Gekko fx is the possibility to adjust the seat back angle very quickly. For beginners or rides in the city you can choose an upright seat position for a better view, and for longer rides you can choose a flat position for better aerodynamics.

The seat back is fastened with a quick release lever on a slotted aluminum seat mounting. You can adjust the seat back angle by 8 degrees by simply opening the quick release lever. In the medium seat position the angle is about 38° from horizontal. Having set up your desired seat back angle close the quick release tightly to make sure the seat back will not move during the ride.

Caution! Always tightly close the quick release at the seat back. The seat is a structural part of the trike frame. An opened quick release may lead to frame damage.

Adjustment of the head rest

To relax the muscles in your neck on long rides you can purchase a head / neckrest to mount on the seatframe. Its height and inclination is adjustable at the clamp. Wearing a helmet the headrest pad should be positioned under the lower helmet edge next to your neck. Adjust the inclination in a way that the headrest does just not touch your neck / head while riding. It may be necessary to cut the two tubes protruding the clamp on the underside to prevent them from touching your back.

Caution! Do not push or carry your trike on the head rest, this may damage the head rest or the seat!

Adjusting the handlebars

Adjusting the handlebar angle

By changing the angle of the handlebars you can adjust the position of the grip to the length of your upper body and your arms. The handlebar is clamped in a stem under the seat. The stem may rotate in the frame and transmits the rotation to a sheetmetal under the frame tube. There are track rods attached to the sheetmetal which transmit the steering movement to the wheels.

Most riders are comfortable with a 85° angle so that the bent grips point upwards and slightly forward.



The handlebar angle is individually adjustable.



Handlebar width is adjusted at the stem clamp under the seat.

In order to change the angle loosen the four screws of the stem/handlebar clamping. Move the handlebars until they are in your favourite position. Tighten the clamping screws with 5–7 Nm. Check the correct clamping of the handlebars by sitting down on your trike and pulling the handlebars. Doing so the handlebars must not turn in the stem.

If the clamping screws are tightened too hard, the handlebar may be deformed, and no proper clamping can be achieved.

Please take care that the clamping area of the stem is thoroughly trimmed and there are no sharp edges which may cause handlebar failure.

Danger! If the handlebar grips are adjusted pointing too far forward or too wide, your hands or the brake levers can touch the front wheels or mudguards when cornering sharp, leading to injury. Make sure you have at least 5 cm (2") clearance between brake levers and front wheels / mudguards at all steering angles.

While riding you should allow your arms to rest in a relaxed position on the handlebars. Do not push or pull on the handlebars. If the handlebars turn in the stem clamping during the ride stop immediately and tighten the clamping screw of the handlebars. If the handlebars are not sufficiently clamped the handlebars or the stem may be damaged or deformed. In this case, safe clamping can no longer be guaranteed, not even with the correct tightening torque, and handlebars and stem have to be replaced.

Caution! When getting on and off the trike, make sure to avoid pulling at the handle bars or stepping on the tie rods. To get off the trike, sit upright on the front seat edge and then stand up. Grip the front wheels or the seat back as an extra support, not the handlebars. If you pull firmly at the handlebars, the steering mechanism can be damaged.

Adjusting the cable length

Caution! After having adjusted the handlebar position you have to readjust the length of the brake cables and shifter cables. The cables have to run smoothly without any sharp turns and they should not be bent sharply or stretched when the handlebar is at maximum angle. Also avoid large bows that could be caught up by the front wheels or other parts or touch objects under your trike.

You can make smaller adjustments by moving the cables in their guides at the frame and the stem, so there is enough clearance for all movements. If this is not the case you will have to have your specialist dealer shorten the cables or replace them by longer ones.

Cover all contact areas where cables move and touch the frame with frame protection stickers available at your specialist dealer or sturdy transparent tape. This protects the paint against scratching and wear.

Handlebar grips

The grips on the handlebar are susceptible to wear and tear. Have your grips replaced by your bike shop once they don't feel comfortable any more. The grips always need to be attached firmly to the handlebar.

Folding (Gekko fx)

Folding with D.F.F.-move

Thanks to the Dual-Flat-Fold (D.F.F.) technology, your Gekko fx folds from a comfortable touring trike to a compact package within 10 seconds. Then it can be stored upright or towed on its integrated rollers.

To fold the trike stand on the right side next to the seatback.

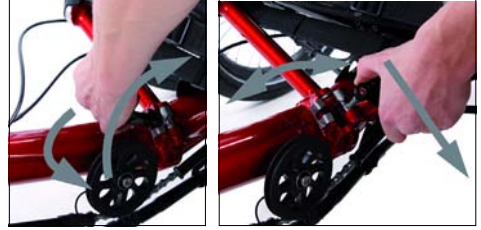
1. Open the quick release behind the seat and swivel the seatback to the front.



2. Take the velcro strap off the second strap and apply it to the soft velcro under the cross tube to secure the seatback in its position.



3. Open the quick release at the folding hinge. Release the safety bolt against spring pressure. Slightly open the folding hinge. Swivel the quick release lever to the upside so that it is held in an upright position by the sheetmetal.



4. Grab the main tube with your right hand in front of the seatback (knuckles facing to the right, away from the frame). Push a little bit to prevent the folding hinge from snapping in. Grab the left seat stay with your left hand from the upside (knuckles facing the rear wheel).



5. Now do the D.F.F.-move: Lift the frame, turn it sideways and fold the rear wheel transversely below the frame in a smooth motion. Make sure the folding buffer passes through the long hole in the stem underpart to lock the steering. The buffer must not crash on the stem underpart as the sheetmetal may be deformed.





6. Push the frame together until you can hear the locking sheetmetal snaps in.

7. Place the folded Gekko fx upright on the integrated rollers and the buffer inside the folding hinge.

2. Grab the main tube directly in front of the seatback (knuckles facing away from the trike).

3. Do the reverse D.F.F.-move: Lift the package with drive and pull both frame parts away from each other. Push the folding hinge away from your body. The securing bolt snaps in. Turn the bike outward during the move and put it down on the floor.



Caution! Don't turn the cranks after folding. To pull the folded bike you have to pull it at the frame, not at the cranks or pedals. Else the chain roller or the chain retention hook may be damaged.

4. Close the folding hinge quick release.



5. Release the velcro under the cross tube and put it back on the seat strap.

6. Rearrange the seatback to your desired position and close the quick release.

Unfolding with D.F.F.-move

To unfold the Gekko fx stand next to the left front wheel.

1. Grab the left seat stay with your left hand (knuckles facing to the rear wheel). Slide your right hand between main tube and seatback and push the locking sheetmetal's tongue away from the seatback. At the same time slightly open the frame with the left hand.



Folding (Gekko fx)

Folding on the floor

Alternatively, the Gekko fx can be folded on the floor:

1. Open the quick release behind the seat and swivel the seatback to the front.
2. Take the velcro strap off the second strap and apply it to the soft velcro under the cross tube to secure the seatback in its position.
3. Turn the bike on the right front wheel.

Caution! Don't rest the bike on the rear rack. It may become deformed.

4. Open the quick release at the folding hinge. Release the safety bolt against spring pressure. Slightly open the folding hinge. Swivel the quick release lever to the upside so that it is held in an upright position by the sheetmetal.
5. Swivel the rear part forward comfortably. Make sure the folding buffer passes through the long hole in the stem underpart to lock the steering.



6. Push the frame together until you can hear the locking sheetmetal snaps in.
7. Tilt the folded Gekko fx sideways to make it stand upright on the on the integrated rollers and the buffer inside the folding hinge.



Unfolding on the floor

To unfold the Gekko fx stand next to the rear wheel of the tricycle standing on its rollers.

1. Tilt the trike on the right front wheel.
2. Use your right hand to push the locking sheetmetal's tongue downwards. Grab the seat stays with your left hand.
3. Swivel the rear part of the Gekko fx completely to the right. The folding hinge's securing bolt snaps in.
4. Tilt the trike back on its wheels
5. Close the folding hinge quick release.
6. Release the velcro under the cross tube and put it back on the seat strap.
7. Rearrange the seatback to your desired position and close the quick release.

Danger! Make sure the folding hinge is properly closed. The safety bolt must be snapped in correctly and the quick release fastened tightly.

Caution! Always tightly close the quick release at the seat back. The seat is a structural part of the trike frame. An opened quick release may lead to frame damage.

Disjointing (Gekko)

Disjointing

To save storage space or for car transport of your Gekko the seatback can be swivelled forward and the main frame can be separated under the seat.

1. Shift the chain to the smallest chainring and the smallest sprocket.
2. Open the quick release behind the seat and swivel the seatback to the front.
3. Take the velcro strap off the second strap and apply it to the soft velcro under the cross tube to secure the seatback in its position.
4. Alternately loosen both clamping bolts key size 6 on the left frame underside right behind the chain roller.
5. Pull the rear frame part rearwards out of the front frame part while cautiously turning it from side to side.



6. Put the rear frame part on the seatback swivelled to the front. Use the velcro strap provided with the trike to fix the part. Make sure the chain tubes and cables are not bent too hard but run in a smooth curve from front to rear part. If necessary, use some protection layer in between (cloth, cardboard) to protect the paint from scratching.



Rejoining

1. Open the velcro strap and move the rear frame part back to the tube of the front frame part. Take care for correct cable and chain routing. Put in the rear part and adjust it roughly to the front frame part.
2. Release the velcro under the cross tube and put it back on the seat strap. Swivel the seatback carefully to its original position. Adjust the rear frame part by pushing in / pulling out in a way that the seatback's long hole sheets slide on their guides (stainless steel bushings on the quick release axle) easily.
3. Check the positioning of the rear wheel (perpendicular to ground) and correct if necessary.
4. Alternately tighten both clamping bolts key size 6 with 14–16 Nm.
5. Rearrange the seatback to your desired position and close the quick release.

Danger! Not properly tightened clamping bolts will result in a non-rigid frame. This may lead to crash and injury. Always tightly close the quick release at the seat back. The seat is a structural part of the trike frame. An opened quick release may lead to frame damage.

Learning the new riding technique

Learning the new riding technique

Your new tricycle has been assembled by your dealer and adjusted together with you as described on the previous pages under "Adjusting your new tricycle". Before you sit down on your trike and enjoy your first ride please make yourself familiar with the instructions on riding technique and handling.

To ride this recumbent you will have to make yourself acquainted with the different riding position. Make sure that you and all other future users of this tricycle will have read this manual carefully prior to the first ride. If you are in doubt please consult your local dealer.

Before the first ride the users of this recumbent have to practice and make themselves familiar with the different handling. We recommend to practice on a quiet road away from traffic. Before you ride the tricycle in traffic you must master the handling completely.

Caution! When getting on and off the trike, make sure to avoid pulling at the handle bars or stepping on the tie rods. To get off the trike, sit upright on the front seat edge and then stand up. Grip the front wheels or the seat back as extra support, not the handlebars. If you pull firmly at the handlebars, the steering can be damaged.

Danger! Never touch the ground with your feet while the tricycle is still moving. The feet could be caught on the ground and be pulled backwards and dragged under the cross bar which could lead to a serious injury. We strongly recommend to use a pedal binding system like clipless pedals or toe clips and straps.

Keep all three wheels on the ground while riding. If you are cornering too fast, your trike can be upset and fall over. Lean into curves when turning sharply. At high speed, keep your upper body quiet as any upper body movements can influence the steering of the trike.

Practice cornering away from traffic to learn what speed is safe at a specific turning angle.

If you lift up a front wheel, immediately steer in the opposite direction to bring it safely back to the ground.

Danger! Please be aware that due to your low seat height other road users may notice you very late. Ride anticipatory with this in mind. This is especially important while riding in darkness. You yourself have a much better view than others perceive you. Ride defensively. We recommend to mount a well visible and reflecting flag to the tricycle while using it in traffic. Please ask your dealer for more information.

Protective clothing, Clipless Pedals

Wear protective clothing

Riding a tricycle is a potentially dangerous sport where accidents can happen even when you take care of every safety instruction prescribed.

We recommend you to wear an approved bicycle helmet that fits well. Protect yourself by wearing special sports clothing that fits tight and is reflective. If you're wearing wide pants use clips to protect them from getting caught in the chain - or use an old fashioned method and put the pants in your sockets.

When you fall with a recumbent you'll usually land on the side of your hips and your hands. Wearing reinforced cycling shorts and gloves reduces the danger of skin injuries considerably.

Use clipless pedals

The pedals of your Gekko fx can be upgraded on demand with a binding system. As soon as you are comfortable with riding your Gekko fx you should use those clipless pedals. Due to the rigid connection between shoe and pedal you don't have to keep your foot on the pedals with pressure anymore. This enables a more relaxed and round pedaling movement where you may even pull a little on the pedals. Without this connection to the pedals your feet may come off suddenly which may result in a fall. Modern system pedals with binding therefore contribute to safe riding.

At first you will have to practice with these pedals to make sure that you can get off quickly in a dangerous situation. Please read the manual of the pedal manufacturer that comes with this manual and have your dealer explain the use of the pedals to you. In the beginning set the release force of the binding to a low value to make sure you can get off safely.

Please use exclusively the original shoe plates / cleats from the manufacturer of the pedals, do not use any other brand. If you're using shoe plates that are not authorised the binding system won't work properly.

Strain, Riding freehand, Way of riding

Slowly increase the strain

We recommend you to perform only short rides without much power during the first weeks.

Always use a low gear and ride with a high pedaling frequency. Only after having acquired some training do increase the strain slowly.

When you ride on a recumbent you use different muscles than on a conventional bicycle, and they have to be trained first. The very high position of the bottom bracket requires your muscles and blood transport system to slowly familiarise with the new position.

In case of an overload the blood circulation in your legs may be affected which shows in loss of power, a prickling in the toes, falling asleep of the legs or cramps. When you feature a sporty way of riding it can take up to 6 months until you have become accustomed to your new recumbent.

If there is pain in your knees occurring while riding this is usually the result of too much power put into pedaling. The good support of the back sometimes misleads to putting the full power of the legs in the pedal, similar to the leg training machines in a fitness center. When you repeat it regularly it is harmful for the knees. Pain in the knees often results from an overuse of the muscles in the knee that can also be strengthened by exercise.

Also, a wrong adjustment of the front boom to the leg length (in most cases too short) can lead to pain in the knees.

Your pedaling cadence should stay between 80-100 revolutions per minute and not fall below 60 revolutions when going uphill. If necessary have your specialist dealer adjust the gear range to your riding style and the terrain you usually ride.

You will find many tips on proper training for cyclists in miscellaneous books and magazines for cyclists.

In case of persistent problems please consult your doctor.

Do not ride freehand

Danger! In order to ride safely you have to keep both hands at the handlebar. Even when signaling keep at least one hand at the handlebar. Otherwise, unforeseen bumps in the road or oscillations of the steering may lead to a serious fall.

How to ride correctly and safely

Always adjust your speed to the traffic, the road and the weather conditions. Ride slowly in curves and on unknown roads. Always ride at a safe distance from other road users, and when you ride in a group never ride side by side.

When you approach a traffic light never ride past the line of waiting cars since even the most attentive car driver may not see you due to your low riding position.

Way of Riding, Quick release levers

Caution! Always carry your tricycle over stairs and curb stones. Do not ride through big road holes. Especially when road holes are filled with water it is very difficult to guess how deep they really are. In case you hit such an obstacle frame and steering may be damaged which can result in a serious fall. At first, the damage may be unnoticed. Please check your tricycle immediately for deformations and cracks. If you are in doubt please consult your local dealer.

Quick release levers

Quick release levers fix the frame together and hold wheels and seat in position.

A quick release lever consists of two basic parts: the lever on one side provides the clamping force. With the adjusting nut on the other side you adjust the clamping tension on the screw thread. (This is not applicable for the folding hinge quick release.)

Danger! An incompletely or improperly closed quick release can result in parts coming loose, and hence in a crash, possibly resulting in serious injury.

To open the quick release, move the lever away from the frame. In doing so the inscription "open" should be visible on the lever.

To close the quick release, move the lever with power in the other direction so that the word "close" is visible on the outward side of the lever. At the start of the lever's motion, for, say, half of its movement, the lever should move very easily, without any clamping action.

In the second half of the lever's movement the force on the lever should increase considerably, corresponding in the end to 15-20 kg (46 lbs).

In its final position the lever should lie parallel with the tricycle and should not stick out to one side.

Check the security of the lever by attempting to twist the lever. If the lever can be made to pivot around in a circle the clamping is too loose. You must re-open the quick release, hold the lever and increase the clamping tension. Do this by screwing the adjustment nut on the other side by half a turn. Close the lever and check the clamping anew.

Finally, check that the part being secured is firmly fixed: Lift each wheel several inches off the ground and give it a slap onto the tire from above. A properly fixed wheel will remain secure in the frame's dropouts.

Parts that are fastened with a quick release open easily. Thus, they are more susceptible to theft. Therefore, always secure the wheels with a lock when you park your tricycle. It is also possible to exchange the quick releases with special security screws (e.g. from PITLOCK or KRYPTONITE) that can only be opened with a special tool. For this please consult your local specialist dealer.

Brakes

Brakes

The Gekko fx is equipped with a powerful high-quality braking system. Please read the separate manual of the brake manufacturer that comes with your trike for details.

Make yourself familiar with the braking system. In the standard assembly, both front wheel brakes are operated separately: The left brake lever operates the left front brake, the right brake lever operates the right front brake.

Danger! Make sure to brake evenly using both hands. Braking unevenly or only one side could influence the steering of your trike. Maximum braking performance is only achieved when braking with both hands.

If your trike is equipped with a rear brake or a parking brake, use this brake only as an emergency brake in the unlikely event of a failure of the front brakes. If the rear wheel is locked up, the trike can immediately spin around and slide to the side. Remember which lever pulls the front brake and which the rear brake.

Danger! In case you get into a situation like that during an emergency stop you have to let go of the brakes immediately, balance your trike and brake again. If you are not familiar with the brakes we recommend you to train at first at low speed and with little braking effect until you find the correct dose for an emergency stop.

Do not brake in a bend, always brake before a bend. Braking increases the risk of slipping. Especially when it is wet the rear wheel immediately slides out of the bend while braking and this can result in a serious fall!

As an option, you trike can be equipped with a coupled braking system with one brake lever operating both front brakes.

For optimum handling soem braking systems provide the option to adjust the distance between the brake grip and the handlebar with a small hex-headed screw at the grip, please see the respective manual for details.

The braking effect of modern braking systems can be more powerful than what you have been used to until now. Brake carefully. When you brake too hard with the front brake the rear wheel may lift off the street and the trike may tumble over.

If you should hear any unusual sounds while braking the brake pads might be worn out. Do not use your trike any further until you have checked the brake pads according to the manual of the brake manufacturer or asked your local dealer to do so.

Danger! Please note that the braking distance is much longer when it is wet or when the trike is heavily loaded. When riding on wet, sandy, icy or slippery roads you have to use the front brake very carefully to avoid that your front wheels slip. If they do so you will no longer be able to control your trike, which might lead to a serious crash.

Danger! Always make sure that the disc and brake pads are free of oil and grease. If these parts are dirty please do not use your tri-cycle. You can clean oily discs with alcohol or a special spray. Oily brake pads have to be replaced. If you are in doubt, please have your specialist dealer maintain your braking system.

Danger! Disc brakes can overheat on long down hill rides, fade and fail! On down hill rides, do not brake constantly, but in several intervals with higher pressure. If you notice that the brake power starts to fade, stop immediately and let your brakes cool down.

Danger! Never touch neither the brake disc nor the brake caliper after long braking as this may cause serious injury (risk of burns).

New braking systems, new brake pads and new brake discs need a break-in period to achieve maximum brake power. This period lasts for about 30-40 stops from about 30 km/h (20mph), which should be done in a safe area without traffic.

Check before every ride:

- that the braking system does not have any damages or leaks by activating the lever, holding it and checking the hose connections for possible leaks.
- that the brake lever pressure is ok by pulling the lever and ensuring that full braking performance is achieved before the lever touches the handlebar. If this is not the case, adjust the cable or change the brake pads, for hydraulic disc brakes pull the lever several times (pump) until it feels firm.
- the hydraulic braking system for keeping pressure by pulling the lever, holding the pressure and checking the hose connections, bleeding screw and compensating tank for possible leaks.

Parking brake

Always secure your trike against rolling away when parked.

In the standard assembly, the brake levers are equipped with a parking brake-button that locks the pulled lever. To release the parking brake, pull the brake lever.

As an option the trike can be equipped with a parking brake that is operated with a thumb-shifter mounted at the handlebar. It is connected with a V-brake at the rear wheel. Make sure to fully open the parking brake before you start riding.

Gear system

Gear system

With the gear system you can adjust the pedaling frequency, i.e. the number of revolutions of the crank per minute, to the terrain and the desired speed.

Your pedaling frequency should stay between 80-100 revolutions per minute and not fall below 60 while going uphill. If necessary consult your local dealer and have him adapt the gear range to your style of riding.

Your Gekko fx comes standard with a derailleur gear or with an internal hub gear system. The following section refers to the derailleur gear system only. Please also refer to the manual of the gear manufacturer.

You operate the gear changer with the grip-shifters or bar end shifters on the handlebars.

The right lever for the rear derailleur has an index derailleur system that positions the chain always on the chosen sprocket, so that you don't have to "search" for the gears.

The left bar end shifter is not indexed so you have to adjust the front derailleur while shifting by slightly moving the shifter to stop the front derailleur from dragging against the chain while pedaling.

Riding a recumbent requires foresighted gear shifting. Before stopping you should timely change in a low gear to make it easy to start off again, without having to pedal heavily.

You should only change the gears while you keep pedaling, smoothly and without applying great force, all the time that the chain is moving between the sprockets.

Caution! Under no circumstances allow the trike to roll back while changing the rear gears, or try to pull the trike backwards when the gear shifter lever has been moved, as this will damage the rear derailleur.

Due to the long cables that expand under pressure and the housing that compresses under pressure it may be helpful for changing gears quickly to turn the bar end shifter a little bit farther than necessary to select a gear and turn it back to the indexed position once the chain has properly shifted ("overshift").

When the chain length has been properly adjusted you can choose every combination of front chain rings and rear sprockets to shift gears. However, it is useful to ride the lowest gears (the biggest rear sprocket) with the smallest chain ring, the middle gears with the middle chain ring and the highest (fastest) gears with the biggest chain ring.

The setup of the chain rings and sprockets leads to an overlap of some gears. This means that different combinations of chain rings and sprockets can result in the same gear ratio. It would be possible to arrange a gear system so that double gears do not occur but this requires a lot of concentration when you shift gears while riding, since you will always have to change the rear sprockets as well as the front chain rings. If you would like to change the setup of your gears please consult your local dealer.

Danger! Practice shifting gears on a traffic-free street. In the course of this make yourself familiar with the functioning of the bar end shifters. Doing this in traffic could distract your attention from possible dangers.

Lighting system

Lighting system

If you want to ride your trike on public streets, it must be equipped with a legal light system. Do not only use your lights in the dark but also in the twilight of dusk and dawn. Due to laws and regulations the brightness of bicycle lights may be considerably lower than that of other vehicles. Therefore always keep in mind that other road-users may only see you very late or not at all.

For the Gekko fx, HP VELOTECHNIK offers a dynamo light systems with a tire dynamo or a hub dynamo.

Both light systems come with strong LEDs for headlamp and rear light. The LEDs last considerably longer (approx. 100.000 working hours) than a light bulb. For your safety the light system has a parking light system both at the front and at the rear light, which makes the LEDs shine on approximately 10 minutes after you have stopped riding. The electronic system is maintenance free. Because of the capacitors used you don't have to worry about batteries.

The cables and the contacts can be affected by corrosion or mechanical damage. Therefore, check the lighting system before every ride.

Tire dynamo

You turn on the light system with the tire dynamo at the rear wheel by unlocking the swivelling dynamo. For this purpose you press the red button at the dynamo until it moves towards the rear wheel. To turn the light off, swivel the dynamo back to its initial position by hand.



You switch on the tire dynamo by pressing the red button. To switch off the dynamo move it away from the wheel.

Danger! Do not try to move the dynamo while riding, your hands can be caught in the wheel and be injured! To turn the light system on or off stop riding, get up from your trike and only then move the dynamo.

Danger! The dynamo must always be safely fastened to the bracket at the frame, so that it can not turn. If the screws come loose the dynamo can get caught in the spokes and block the rear wheel - danger of a serious fall! Always check the position and secure attachment of the dynamo before a ride.

You can adjust the pressure of the dynamo against the wheel with the turning knob at the side. The pressure is right when the dynamo wheel just does not slip at the wheel, if the light flickers, the pressure is too low and you have to increase it. The dynamo should be positioned in a way that the extension of the dynamo axle points through the center of the wheel. Take care that the dynamo is mounted safely and can't be turned. Worn dynamo wheels can be exchanged. Please ask your specialist dealer.

Maintenance and care, Brakes

Maintenance and care

Your Gekko fx is equipped with the latest bicycle technology that does not require much maintenance.

However, you will have to maintain your bicycle regularly, as it is with other vehicles too. At least once a year the bicycle has to be taken to a bicycle mechanic for an overall service. Only this way a long lasting and safe function of all parts of your bicycle can be guaranteed. It maintains the value of your bicycle as well as the fun and the safety while riding for many years.

Read in this chapter how to perform smaller maintenance and care works between the services.

For a quick overview of the works to be done take a look at the Warranty Pass on page 46.

Caution! The maintenance works on this recumbent partly require special tools and skills. Do only work within your limits and, in the interests of your own safety, do not go beyond. Should you be uncertain at any point, get in contact with your local dealer.

Wear and Tear

As on many other vehicles, some parts on a bicycle are affected by wear and tear. The life-time expectation of these parts depends on the intensity and type of use as well as on the maintenance and care. Please keep in mind that the process of wear and tear is normal and no reason for a warranty claim against your dealer or HP VELOTECHNIK.

You will find more specific information on wear and tear in the chapters on the relevant parts.

Brakes

The brake pads suffer from wear due to friction and have to be exchanged then. Depending on riding conditions, they can last between a few hundred up to several thousand kilometers. Please read the manual of the brake manufacturer carefully.

Cable operated (mechanical) brakes

The brake pads of your brakes are worn when you can pull the lever further and further to the handlebar before the pads touch the rim.

To compensate the wear of the brake pads you can tighten the cable with the adjuster barrel where the cable touches the brake lever. First loosen the locknut, then unscrew the barrel so far that the wheel still turns, barely not touching the pads, hold the barrel and tighten the locknut again towards the brake lever housing. Take care that the barrel's slot points downwards to prevent moisture from entering.

Caution! Damaged cables with single wires sticking out have to be replaced immediately. Otherwise your braking system may fail - danger! Please take care that the cable ends are always protected with a cap. Always keep the cables shortly trimmed. Leaving too much cable extending past the cable anchor can result in the cable catching in the rotor or wheel causing the wheel to lock up.

Caution! Keep the brake cable clean where it is not protected by the cable housing. Due to the mounting position of the brake lever, moisture and dirt may enter the cable and cause drag and excessive wear. Lubricate the ends of the cable to protect against moisture.

Mechanical disc brakes

To readjust the brake pads you have to use the big red knobs on each side of the brake caliper. Adjust the inner and the outer pad evenly. In case you are not sure, have this adjustment work done by a qualified bike mechanic.

Check your brake pads frequently as explained in the manual supplied by the brake manufacturer. Worn brake pads, oily or damaged pads must be replaced immediately by a qualified bike mechanic.

Hydraulic brakes

Hydraulic brakes on HP VELOTECHNIK bikes use low viscosity mineral oil that, contrary to DOT brake fluid used in cars, does not absorb water. Thus, you don't have to change the oil. Please read the brake manufacturer's manual that comes with the trike. In case of a damaged hose or any leakage of oil always consult a qualified technician in a bike shop.

Danger! All maintenance work on the hydraulic system of your brakes may only be carried out by a qualified technician. In case these works are carried out without the required knowledge and skills the braking system might fail which can lead to a serious crash.

Hydraulic disc brakes

Hydraulic disc brakes on the Gekko fx feature a fully automatic pad wear adjustment. Brake pads and discs are subject to wear, therefore regularly check the thickness of your brake pads and discs and replace them if necessary. The minimum thickness of the brake pad is 1 mm, of the brake disc it is 1,7 mm. For further and more detailed information on your disc brake model please refer to the brake manufacturer's manual.

Danger! If the brake pads or the brake disc are worn out (pads: thickness less than 2,5 mm including metal back, disc: thickness less than 1,7 mm) the pads may be torn out of the caliper while braking. This leads to total loss of brake power.

Caution! Never activate the brake lever with the brake pads not in place or with the wheel dismounted. When you transport the bicycle without wheels always use the transport clips delivered with your trike or put a piece of cardboard in the brake caliper to replace the disc. Carefully separate brake pads that have moved together with a screwdriver.

Caution! Keep the brake lever clean. Due to the mounting position, water and dirt can collect inside the lever around the hydraulic cylinder. This may lead to excessive wear or leakage of the hydraulic system.

Danger! The hose at the left knuckle must not be routed under the track rod. This may lead to snapping off the hose. The hose should leave the caliper slope upwards and run in a wide bow to the track rod. The zip ties fixing the hose to the track rod must be tightened properly to prevent it from moving.



The bow of the hose is routed under the track rod: Danger of snapping off the hose (cf. arrow).

Gear system

Gear System

Please read the manual of the gear system manufacturer carefully before working on the gear system.

Your dealer will adjust your derailleur gearing system carefully before handing over the trike. But during the first 300 kilometres (186 miles) of riding the cables can stretch, making the gear indexing imprecise. The chain then climbs only hesitantly onto the next sprocket.

Adjusting the gear indexing for the rear derailleur

Adjust the adjuster barrel where the shift cable touches the rear derailleur. Do it in small steps of half a turn.

Check after each adjustment whether the chain moves smoothly up to the next larger sprocket. To do this, either turn the cranks by hand or ride the trike.

When the chain climbs up easily, you need to check that it still goes down easily onto the smallest sprocket. If necessary turn the adjuster barrel a little more and then try shifting gears again.

Danger! If the chain shifts over the smallest or the biggest sprocket you have to readjust the end-limit adjusters of the rear or the front derailleur. Incorrect adjustment can lead to the chain coming off, getting stuck or damaging the spokes, which may result in serious falls. The adjustment of the end-limit adjusters is a job for the professional bike mechanic.

Danger! If the trike falls over, the derailleur or its mounting can be bent which results in a change of the derailleur movement range. Check the movement range and have it readjusted by your bicycle mechanic, if necessary.

All moving parts of the gear system are affected by wear. Cleaning and lubricating these parts frequently can prolong the life of these parts. However, they will have to be replaced once worn out.

The cables have to be checked, cleaned and serviced regularly. Expect more wear and corrosion when the trike is often parked outside in bad weather conditions.

Caution! Damaged cables that show for example single wires have to be changed immediately. Otherwise they may damage your gear system. Take care that the ends of the cables are protected with fitting caps.

Chain

Chain

The chain is a wearing part that has to be lubricated regularly and to be changed at signs of excessive wear and tear. The amount of wear depends on maintenance and care as well as on the circumstances of your ride (rain, dirt, salt). Regular cleaning and lubricating can increase the chain's lifetime, nevertheless the chain has to be changed when its wear limit is reached.

Lubricating the chain

Diligent lubrication is important. The chain of your Gekko fx is approximately 2.5 times longer than a standard bicycle chain (approximately 3.8 m). But it also lasts longer since a chain only wears while bending at the sprockets and the chain rings.

Use a good chain oil that won't leave a sticky film on the chain. The chain oil must not contain any aggressive chemical substances that might affect the surface of the chain tubes or chain idler.

Specialist stores sell biodegradable lubricants. HP VELOTECHNIK recommends a DryLube-type lubricant. This lubricant is purely based on PTFE (Teflon) that keeps the chain clean and dry. This way dirt simply falls off and the tubes always stay clean.

It is important that you clean the chain with a cloth before lubricating. Otherwise the fresh oil washes the dirt that clings to the chain into the gaps and the bushings where the dirt causes heavy wear.

Do not use any solvents to clean the chain! The solvent washes the oil off the bearing parts, stays there and dilutes the fresh oil so that a sufficient lubrication is not guaranteed. If you have treated the chain with a solvent you will have to heat it up with a hot air gun or boil it in chain grease.

Danger! Take care not to pour any oil on the rims, brake discs or the tires. The braking system could fail or the tires could slip away suddenly. The oil affects the rubber of your tires and can damage it. While lubricating cover the surrounding area.

An effective protection against corrosion is crucial for a long chain life. Some minutes after you have oiled the chain rub it with a cloth to remove superfluous oil from the outer surface. Wax the chain thoroughly with a wax spray. The wax keeps off water, protects from corrosion and makes dirt fall off easily.

If the chain has become wet after riding in the rain you should put your bicycle in a dry and heated room, and every day you should turn the crank and so move the chain until it is dry again. Otherwise it is difficult for the moisture in the tubes to evaporate which may lead to corrosion at the chain.

Chain

Changing the chain

The chain is one of the parts of the trike that will wear out. This shows in a stretching of the chain. Worn out chains do not fit the sprockets and chain rings any more and wear them away very quickly.

Check the chain for lengthening regularly. For this purpose try to remove the chain from the chain ring. The chain may come off to a maximum of 5 mm. For a more precise reading you can buy a chain measurement gauge in your bike shop.

Only use chains that are suitable for the gear system of your trike. Otherwise a precise gear shifting is not guaranteed any more. Please consult your dealer on this topic. He will also assist you in checking your sprockets and chain rings. A new chain does not fit a worn sprocket or chain ring. We recommend rust resistant Rustbuster-chains from KMC with smoothly rounded edges. They also provide a good gear changing performance.

Caution! When you change the chain take care that the new chain does not show any sharp edges or burrs.

HP VELOTECHNIK delivers spare chains by the meter via your dealer. For this purpose please indicate the exact length of your chain or order it a little bit longer if you want to be sure it fits. You will need approximately 3,8 m of chain.

The chain length has to be fitted so that the arm of the derailleur is not fully stretched when you shift on the big chain ring in front and the big rear sprocket. The derailleur must still be able to compensate a shortening of the chain by 4 cm. Please also see the manual of the derailleur manufacturer on the choice of the correct chain length.

Caution! The chain has to be closed with a special joining link or a chain riveting tool that expands the ends of the rivet while riveting (ROHLOFF revolver). A poorly joined chain may break, you can come off the pedals and fall. If you are in doubt please have adjustments of the chain length or the changing of the chain be done by your bicycle mechanic.

See that the joining link is not bigger in size than the other chain links to avoid irregular chain sounds. We recommend the joining links by KMC. Every time you change the chain you also have to apply a new joining link.

Make sure that any chain links in the chain are not stiff, as this can cause some annoying and not obvious problems with the gear system.

Make sure that you have not twisted the chain 180 degrees before joining it back together.

Chain tubes

Chain tubes

The chain protection tubes are made of a long lasting plastic that features very low friction, slow wear and good noise damping. The tubes protect your clothes against the chain oil as well as the chain against dirt from the road.

The upper tubes are fastened with an interchangeable retention spring, the lower tube runs through an adjustable clip.

The tubes are worn by the chain and have to be cut at the ends and expanded again (or exchanged) after 3.000-5.000 km approximately, depending on the chain type and the overall riding condition. You can extend this maintenance interval by turning the tubes by a quarter turn from time to time so that they do not keep wearing out in the same place.

The intensity of the wear depends mainly on the chain type. Please see also the instructions on "Chain" on page 29.

In order to perform any work at the chain tubes you'll have to open the chain and finally close it again. Please see the instructions on "Chain" on page 29.

The distance of the upper chain tube to the chainwheel can be adjusted by sliding the tube in the retention spring. It must be secured with the rubber tube over the spring.

Caution! Take care that the chain tubes keep at least a 5 cm distance to the rear and front derailleur when the chain is stretched to the maximum, and that the tubes are well fastened. If necessary you will have to shorten the tubes. If the end of a chain tube gets into the rotating parts of the drivetrain the drivetrain can be blocked and the chain tubes may be destroyed.

Caution! The rear ends of the upper chain tube have to be secured against moving with a tight rubber tube over the retention spring. Without the rubber tube the chain tube may be dragged forward into the turning chain roller or chainering and thus be damaged by the chain.

Caution! Check the chain tubes frequently if they are damaged or defective. Replace defective chain tubes immediately. If the chain tubes are worn in the area of the retention spring or tube mountings, the chain will touch the retention spring, leading to failure of the spring and mountings. As a result, the chain tube can get into the drive train and block it!

Expanding the tube ends

The ends of the tubes are expanded like a trumpet so that the chain can enter smoothly without friction and without making noises.

When the ends are worn out you can renew them by expanding them again. Remove the chain by opening the power link or open it with a special chain riveting tool. Cut the worn part of the tube exactly perpendicular with a sharp knife.

Heat the last 5-10 mm at the end of the tube with a gas burner, a hot air gun, or a candle and turn it permanently until the colour of the utmost edge turns from a dull black to a shiny black. Now you expand the end with a proper tool, e.g. the rounded grip of a screwdriver. Quench the expanded end immediately with cold water.

Chain tubes

Take care that the tubes don't catch fire. At any rate work in a place with sufficient ventilation.

If the tube is too short after you have cut it so that there is not enough protection anymore it has to be replaced. You can buy spare tubes either as uncut tubes or already cut into the correct length, complete with retention spring from your specialist dealer.

Changing the tubes

In order to exchange the upper rear chain tube cut the old tube at the retention spring at the chain roller and pull the remaining part off the spring. Now move the smooth part of the new tube through the spring and rubber tube, then expand the tube end as described above.

For exchanging the upper forward chain tube cut the zip tie that connects the chain tube with the mounting strap. Align the velcro of the new tube to the mounting strap and secure the tube with a new zip tie.

Changing the retention spring

Remove the bolt in the chain roller with an Allen key 6 mm. Take off the chain roller, the washer and the chain retention hook.

Take the retention spring off this plastic tube and put on the new retention spring. Turn the spring so that the retention spring runs under the bolt to the tube and the wire lies between frame and chain tube; that way the spirals face outwards.

Push the bolt back through the chain roller, the washer and the chain retention hook, secure the thread with threadlocker and tighten the bolt with 17-19 Nm. The recessed side of the chain roller has to face to the frame.

Changing the lower chain tube

The chain tube is connected to the mounting plate by a rubber sleeve. Additionally it is routed through a mounting strap in front of the folding hinge. For dismantling the chain tube, first cut the zip tie at the mounting strap, then grab the sleeve on its rear end and pull it together with the chain tube to the rear. The rubber sleeves will release the rear tongue of the mounting plate then. Swivel the chain tube sideways. Having done that pull the chain tube to the front to release the sleeve from the front tongue of the mounting plate. Replace the chain tube and mount it by following the above steps vice versa.

Exchange the lower chain tube. Slide it through the lower loop of the mounting strap. Hook it to the mounting plate in reverse order to dismantling. Fix the tube to the mounting strap with a new zip tie.

Chain roller

Chain roller

The chain roller guides the chain below the seat to the rear wheel.

Compared to other models the chain roller has a big diameter and it has a higher area in the middle to make the chain move as smoothly as possible. Due to this higher area the chain does not lie on the roller with its sharp edged links but with the bushes in the middle that work like small bushings. In addition to a very low rolling resistance it also supports a quiet chain movement. A chain retention hook between the frame and the chain roller locks the roller at the bottom and keeps the chain on the roller when you pedal backwards.

Caution! If this chain retention hook is missing the chain may fall down. When you start pedaling then the chain roller, the seat or the frame may be damaged through the chain. Please consult your local specialist dealer in case this hook is missing.

The chain roller wears slowly and gradually shows a sprocket shape in the higher area in the middle. When this middle area is worn completely the links of the chain will run on the roller. In that case you will notice that the chain makes more noise while running and you should change the roller. You can purchase the plastic part without the bearing or the complete roller through your dealer.

The chain roller is not symmetrically shaped; the recessed side of the chain roller has to face to the frame, the flat side outwards.

Caution! The roller comes with two maintenance free sealed bearings. The bearings are exchangeable. Between the bearings there is a spacer that keeps the correct distance. If you forget to put in the spacer after you have dismantled the bearings they will be destroyed when you tighten the screw while remounting them.

The bearings must not be treated with a jet of water from a high-pressure cleaner or with solvents since this may destroy the sealings and remove grease from the bearings. If the bearings don't move smoothly anymore you'll have to replace them.

Dismounting the chain roller

See the notes on changing the chain tubes, page 31.

The chain roller is mounted with a special high strength screw of the German strength grade 12.9 and it should only be replaced by a screw of the same type and strength.

Front wheel alignment

Measuring toe-in

Both front wheels should be parallel to each other, viewed from above the trike, compare picture below.

The condition of the front ends of the front wheels being closer together than the rear ends of the front wheels (b_v smaller than b_h) is called toe-in, the condition of the front ends of the front wheels being further apart than the rear ends of the front wheels (b_v larger than b_h) is called toe-out. The measures are taken at wheel axle height on the rim sidewalls.

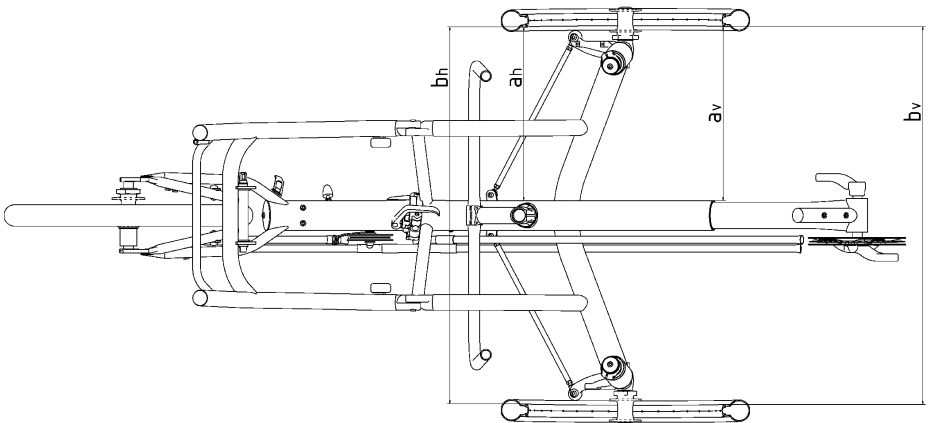
If the front wheel alignment is incorrect, you will suffer excessive tire wear and increased tire drag. Check your front wheel alignment regularly. The proper tolerance on toe-in is 0–2 mm (1/16"). For correct measuring properly trued wheels are required.

To check the toe setting turn the handlebars into the neutral position, so that the wheels are aligned straight forward. Measure the distance between the front inner or outer edges of the front wheel rims and the rear inner or outer edges of the front wheel rims 25 cm (10") above the ground.

The distance between the front edges b_v must be 0–2 mm (1/16") smaller than the distance between the rear edges b_h .

It is important to measure the distances at the same height of 25 cm (10") above the ground, as the front wheel are not exactly perpendicular to the ground, viewed from the front of the trike. Measuring at varying heights results in measuring errors.

Gekko and Gekko fx: $b_h - b_v = 0 - 2 \text{ mm}$



Adjusting toe-in

The front wheels are held by knuckles which can turn at the ends of the main frame. The knuckles are connected by tie rods to the handlebar stem.

The rod ends consist of ball-and-socket bearings that can be screwed in or out of the tie-rod for length adjustment.

Length adjustment is done at the inner tie-rod end, at the connection to the handlebar stem. The outer rod-end is screwed completely into the rod and secured with threadlocker. Do not try to turn this side of the rod end.

First make sure that the handlebar is aligned perpendicular to the main frame tube. Identify which wheel (or perhaps both wheels) needs adjustments of the toe-in by measuring the distance between rim wall and main tube on the most forward point and on the most backward point of the rim (value a_v and a_h in the picture). The distances should be roughly identical for one wheel.

Remove the bolt that connects the inner rod-end to the handlebar stem. Hold the rod-end with a wrench and loosen the nut that is screwed against the rod-end.

Screw the rod-end into the tie-rod to enlarge the distance b_v between the front edges of the front wheel. Screw the rod-end out of the tie-rod to decrease the distance of the front wheel edges. Attach the tie-rod to the handlebar stem and measure the toe-in as described above. Repeat the adjustment process until you reach the required toe-in setting.

Align both rod-ends parallel to each other. Grip the rod-end with a wrench and tighten the nut against the tie-rod with 4–5 Nm.

Danger! The rod-end must be screwed at least 8 mm into the tie-rod. If it is screwed out too far, the thread could tear out and the trike could become unsteerable. This means that with a standard length of the thread of the rod end of 24 mm, a maximum of 11 mm visible free thread length is allowed between rod end and locknut. The lock nut must be screwed tight to the track rod, otherwise the rod end can loosen up or develop play.

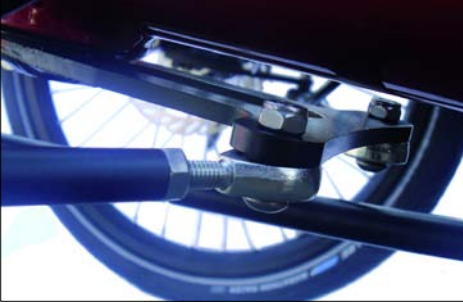
Caution! Do not move the rod end beyond its limits, or it will be destroyed or get excessive play. Always hold the rod end with a wrench or secure the tie rod with a wrench against turning when tightening the lock nut.

Put the rod end under the sheetmetal bracket at the handlebar stem. Insert the bolt and tighten the self-locking nut.

On the other side of the track rod the rod end is mounted on the underside of the knuckle. There is washer and a spacer between steering lever and rod end. There is another spacer between rod end and self-locking nut.

Front wheel alignment

Danger! Secure the thread of the bolt with threadlocker. Check all connections of the steering system before every ride. If a connection loosens, the trike becomes unsteerable which may lead to serious injury.



The inside rod end is mounted under the sheetmetal of the stem, the button-head is facing downwards.



The outside rod end is mounted under the knuckle. It is protected by a rubber sleeve from dirt and moisture. On top of and below the rod end there is a spacer bushing mounted.

Headset, Mudguards

Adjusting the head set play

The knuckles that connect the front wheels to the frame are supported by A-Head-type headsets.

The headsets must be adjusted in order to let the knuckles with the front wheels attached turn easily without showing play.

To check the bearing play, pull the front brake and grab the upper bearing cup with your other hand. Now move your trike back and forth. If the bearing has play the upper cup moves noticeably in contrast to the fixed part. In this case loosen the clamping screw of the clamp above the upper bearing and tighten the screw in the cap a bit more. Afterwards, fasten the clamp again.

To check whether the front wheel turns smoothly lift your bicycle at the frame so that the front wheel moves freely above the ground. When you hold the frame straight and push the handlebars slightly they should move smoothly from their middle position. If the bearing is too tight, loosen the clamping screw of the top clamp and loosen the hex-headed screw in the end cap a little bit by turning it counterclockwise. Fasten the clamp again afterwards.

Danger! The hex-headed screw in the cap only adjusts the play of the head set bearing. This screw will not safely hold the knuckle in the frame. Take care the clamp tightened as prescribed after you have finished your adjustment.

If your bike is not equipped with mudguards, there will be a spacer (5 mm) between cap and clamp. When mudguards are installed, the spacer is replaced by the mudguard mounting.

After adjustment of the head set bearing, align the mudguards in a way that they won't touch the front wheel.

Mudguards

Mudguards are exposed to very strong vibrations at suspended wheels which may cause them to break. Please check the stays and mountings of the mudguards regularly for their position and check the mudguards themselves for cracks or deformations. Replace damaged mudguards immediately.

Caution! You must not mount additional parts like rear lights or reflectors to the mudguards since those may break then.

If the wheels are removed, the tricycle must not rest on the front mudguards. Loosen the screw between mudguard mounting and knuckle to remove the mudguard.

The front mudguards are adjustable in height to accommodate different tire heights by means of the slotted holes in the mudguard mounting.

Mudguards, Water bottle cage

Danger! If branches or other obstacles get caught in the wheels while riding and are moved around they may drag the mudguards along. The mudguard can possibly fold up between frame and tire and hence block the wheel, which may lead to a serious fall. If you hear any unknown noises while riding stop immediately and remove anything that might cling to the mudguards or the wheels.

After having performed service work or after replacing mudguards check if the wheels turn freely. There has to be a distance of at least 7 mm between mudguard and wheel.

Mounting mudguards

The front mudguard mounting is attached by headset's cap and screw and fastened against the headset clamp. Make sure this clamp is fastened properly

The little screw in the mudguard mounting fits in the clamping slot of the headset clamp and secures the mounting against turning.

If you decide to uninstall the mudguards, replace the mudguard mounting with a 5 mm spacer.

Water bottle cage

You can mount a water bottle cage with a special bracket behind the seat. The derailleur tube at the front of the frame comes with threaded inserts M5 for an additional water bottle cage as well.

An useful alternative to water bottles are systems with a "water bag" and a drinking hose, e.g. from SOURCE or CAMELBAG. You can simply strap them behind the seat or on the rear rack.

Raincover

To keep the meshseat dry when your tricycle is parked in the rain there is a raincover available as accessory. It can be stowed in the bag of your meshseat.

There are two plastic clamps on the underside of the most forward strap of the seatmesh. The raincover must be hooked to this clamps.

Caution! Do not sit down on the raincover. It may get broken.

Wheels

Wheels

The correct air pressure is decisive for smooth running and a good protection against punctures. The maximum pressure is printed on the sidewall of your tire. You might find an indication of the minimum required pressure on the sidewall of the tire as well.

Since the tubes in the tires gradually loose air you should check the air pressure before every ride.

The tubes come with Presta valves (also called french valves). They are very airtight and easy to pump up.

To do so, first screw off the valve cap. Now you see a small threaded rod with a knurled nut that comes out of the valve. Loosen the knurled nut as far as it is possible.

To pump up the tire and check the pressure you need a pump with a gauge, preferably a solid floor pump. Put the knob of the pump on the valve, push it completely on the valve and then retract it a little bit. Now you can pump up your tire easily.

After you have pumped up the tire to the desired pressure pull off the pump knob. Secure the valve by turning the knurled nut on the threaded rod properly against the valve body. Finally put on the valve cap again.

Danger! Never pump up your tires beyond the maximum pressure. The tire may burst while riding or come off the rim, which may result in a serious fall and injury.



Before pumping up the tire, you have to unscrew the little knurled nut on the valve.

Danger! Check your tires for damage on a regular basis. You should exchange tires with worn threads or damaged sidewalls. Damaged rim tapes have to be exchanged immediately. Damages at the tires may lead to a sudden burst of the tire and thus result in a serious fall and injury.

When you exchange tires please note the maximum width limit of 50 mm (approximately, 2 "). You have to use tires of ISO size 406 (20") on all wheels. The tire width possible at your bicycle depends on the size of your rims. Please ask your local dealer.

After you have exchanged the tires please check if the wheels turn freely and check the minimum distance between mudguards and frame.

The spokes of the wheels connect the rim to the hub. They transmit the braking power of the disc brakes, and in addition they transmit the pedal forces at the rear wheel.

Wheels, Cleaning and conservation

The tricycle requires a high spoke tension ($> 1000 \text{ N}$) as the wheels have to bear high side loads. Any damaged spokes must be replaced immediately.

Danger! Take care that your spokes are always in perfect condition and the spoke tension is balanced. Do not ride with wheels that run untrue or wheels with loose or missing spokes. These faults may lead to a total failure of the wheel while braking and result in a serious fall!

Caution! To true up the wheels you need special skills, please have this work done by an experienced bicycle mechanic.

The wheels are fastened with a quick release mounting and therefore they are susceptible to theft. For this reason always lock the wheels along with the frame to a solid object when you park your bicycle somewhere.

To remove a front wheel, loosen the bolt in the locking part at the inside of the knuckle at least 6 mm. Pull the locking part away from the knuckle. Pull the wheel a few mm away from the knuckle and slide the axle through the slot in the knuckle.

Take care not to bend the brake disc. When reinstalling the wheel, slide the disc carefully between the brake pads and take care not to damage them. Tighten the screw in the locking part with 8–10 Nm.



Loosen the bolt inside the locking part to remove the wheel from the knuckle.

Cleaning and conservation

The frame of the Gekko fx has a high quality and environmentally friendly powder coating. The surfaces of the aluminum parts are either polished or anodised. Threads and technical contact areas can be unfinished and must be protected with wax.

To keep the surfaces brilliant over many years and to protect them effectively against corrosion the bicycle has to be cleaned from dirt and then conserved.

Dried sweat but also environmental influences such as air pollution, dirt on the roads and especially grit affect the parts, and not only may this cause flaws but also serious structural damage of the parts by corrosion.

In contrast to a widespread belief particularly the "non-rusting" aluminum is dramatically affected by grit! This kind of damage may not be visible in the beginning but it leads to a serious danger when the part breaks. Clean and conserve your bicycle diligently!

The best things to clean your bicycle with are warm water and a soft cloth. If your bicycle is very dirty first take a wet sponge to soften the dirt and then remove it. In case of bad grease or oil stains you should use a special cleansing agent for bicycles in addition.

Caution! Do not use any cleansing agents that scrub or are chemically aggressive since they affect the paintwork. Before using any cleansing agent please test it at a part of your bicycle that is not immediately visible.

Caution! Do not use any high-pressure cleaner. The strong jet of water goes through the seals of the bearings, blows away the lube and causes corrosion of the bearing parts and the chain. In addition to this it may damage stickers.

While cleaning your bicycle check it for any cracks, scratches, deformations, damaged parts, loose spokes etc. If you are in doubt please consult your local bike shop.

Caution! Any damage of the paintwork has to be cleaned from rust and repaired immediately, else the damaged part in the frame gives way to corrosion that nests in the surrounding paintwork. This can result in damage of the frame.

In case of small scratches at the surface of the powder coating of the frame or the surface of the seat you can simply polish them away. You can buy a special polishing agent for epoxy resins at a specialist dealer for boat building. Do not use a polish for metal!

After cleaning the trike, dry it and treat the paintwork and the metal surfaces with wax. You can purchase this wax from your local bike dealer as a convenient spray.

The wax passes moisture and flows into tiny gaps and pores. After some minutes the solvent evaporates and leaves a dull and glutinous film. Now polish the waxed parts of your bicycle with a soft cloth to make it real shiny.

Do not only wax the frame but also the spokes, hubs, screws and nuts etc. You can also conserve the chain with wax spray after lubricating it, see also the chapter on "Chain", page 29.

The frame has small holes for ventilation that prevent condensation in the frame. These holes must not be sealed. However, moisture may enter the frame through the holes. Therefore protect the inside of your frame by applying wax spray through the holes.

Protect the parts where cables or chain tubes may scratch the frame. You can buy special stickers at your bike dealer or extra strong transparent tape at your do-it-yourself-store. That way you avoid scratches in the powder coating and coating coming off.

Caution! Take care that after folding the trike there are no parts rubbing against the frame. This may damage the paintwork.

Storing the bicycle, Screws and bolts

Storing the bicycle

Before storing your bicycle over a longer period of time, e.g. during winter, please take care of the following steps:

- Clean your bicycle and protect it from corrosion as described in the chapter on "Cleaning".
- Store your bicycle in a dry and warm place.
- Avoid direct sun and storage close to the heating since it affects the rubber of your tires.
- Choose the smallest sprocket and the smallest chain ring. That way the cables are in the most relaxed position.
- The tubes of your tires lose air when standing over a longer period of time. If the bicycle then rests on flat tires the tires may be damaged. Therefore hang up your bicycle or check the air pressure regularly.

The winter months are a convenient period of time for the annual service since then you won't have to wait long for an appointment. Many dealers offer special prices for the winter check.

Screws and bolts

Screws gradually settle in and hence they can come loose. Therefore check the screws and bolts regularly if they are tightened appropriately with a torque wrench.

In the following table you will find the prescribed tightening torques, they refer to greased screws!

The grease also prevents your screws from seizing in their threads so that they won't unscrew anymore. In particular, screws made of stainless steel are susceptible to this and therefore have always to be put in with grease.

Do use high quality acid free grease, if possible a lubricant with added solid particles like Teflon or MoS₂. Their ingredients still work properly after the thinner grease has been removed from the contact surfaces.

Alternatively you can use threadlocker that you apply to the screw before you put it into the thread.

Always check the screws very diligently for signs of corrosion. Rust at the screw heads may also lead to the screw seizing in the thread. When the metallic and shiny coating of galvanised screws comes off and discloses dull, gray-brown steel you have to exchange the screw.

When you exchange screws please only use screws of the same type. Screws come in different strength classes. Please only use galvanised screws of the same type and strength, corresponding to the German strength class 8.8 or stainless steel screws grade A2-70, when not given any other recommendation. If you are in doubt please ask your specialist dealer.

Tightening torques for screws

The values indicated are meant for a friction value $\mu=0,125$ (greased threads and screw heads). They only refer to the indicated parts. Please do always follow the values given in the manuals of the parts manufacturers since the following values may not be up to date due to changes in the product line!

part	connection	screw	tightening torque
V-brake:			
-brake lever	handlebar/grip	M6 key size 5	4 Nm
-brake caliper	caliper/frame	M6 key size 5	5–7 Nm
	cable clamping	M6 key size 5	6–8 Nm
disc brake:			
-brake lever	handlebar/grip clamping	M6 key size 5	4 Nm
-brake caliper	caliper/frame	M6 key size 5	7–9 Nm
-brake disc	disk/hub	M5 Torx T25	5–6 Nm
-brake housing	brake lever	key size 8	4 Nm
dynamo	dynamo/adaptor	M6 key size 5	6–8 Nm
	adaptor/frame	M5 key size 4	4–6 Nm
rear rack	at the seat tube	M5 key size 4	5–6 Nm
b.b. set	cartridge/frame		50–60 Nm
chain roller	roller/frame	M8 key size 6	17–19 Nm
crank	crank/axle	key size 8	35 Nm
	chain ring screws	key size 5	8–11 Nm
hub	cassette ring		38–42 Nm
	front hub quickmount	M8 key size 5/6	8–10 Nm
quick release	wheel/frame		9–12 Nm
pedal	pedal/crank	key size 15	35–40 Nm
shifting lever	twist shifter	key size 3	2–2,5 Nm
	barend shifter	key size 6	5–6 Nm
derailleur	derailleur/frame	key size 5	8–10 Nm
	cable clamping	key size 5	4–6 Nm
mudguard	stay/frame	M5 key size 4	4–5 Nm
frame	front boom clamping	M8 key size 6	14–16 Nm
	frame clamping	M8 key size 6	14–16 Nm
front derailleur	front derailleur/frame	M5 key size 5	5–6 Nm
	cable clamping	M5 key size 5	4–6 Nm
handlebar	handlebar/stem	M5 key size 4	4–6 Nm
stem	stem / axle	M5 key size 4	4–6 Nm
headset	headset clamp	M6 key size 5	4–6 Nm
track rods	track rod / knuckle	M6 key size 4	7–9 Nm
	counter nut	key size 10	4–5 Nm

Warranty

Warranty

Your authorised dealer has to fully set up and adjust your bicycle, so that safe function is guaranteed. The dealer has to make a final safety check and carry out a test ride.

Your cycle dealer is obliged by law to ensure, among other things, that your bicycle is not affected by defects which materially diminish its value of suitability for the described purpose. The exact details will vary according to the country. In Germany, this liability ends two years after purchase.

In addition to this HP VELOTECHNIK offers a 10 year warranty on the frame of the Gekko fx against damage through material or manufacturing defects. This warranty applies only to the original purchaser.

Damage caused by wear and tear, corrosion or damage at the surface coating is excluded.

Damage caused by inappropriate use, inadequate care and maintenance, falls, crashes, overloading through excess weight, incorrect assembly or modifications to the trike is also not covered. The onus rests with the purchaser. The warranty is void if any of the instructions in this manual are neglected.

The warranty starts with the date of purchase (receipt of the trike dealer) of a new bicycle. The warranty is processed via the trike dealer who ordered the bicycle from us.

In case of damage the dealer has to send the damaged frame to us so that we can check it, if asked to do so by us.

In case of warranty we will replace or repair the damaged part with a part of our choice or a new part equal to the old one (warranty obligation). We do not cover any transport, labour or any secondary costs.

In the event of any action that falls under warranty the original warranty period will not be prolonged and no new warranty will be given. If HP VELOTECHNIK refuses to count a repair as warranty case we will only carry out a repair with costs after having talked to the customer or his representative, the respective dealer.

It is necessary for the purchaser to fill in the enclosed warranty registration form to benefit from the extended warranty. This filled in form has to be sent to HP VELOTECHNIK within 4 weeks after the purchase.

The warranty is only valid when the warranty pass at the end of this manual has been filled in when you received your trike and when every inspection listed has been done and recorded by your bicycle mechanic within the described time schedule.

In the event of any warranty the warranty pass together with a copy of the proof of purchase has to be sent to HP VELOTECHNIK through your dealer.

This warranty does not have any influence on the rights of the purchaser according to his statutory rights.

Warranty Pass

Warranty Pass

With the HP VELOTECHNIK Warranty Pass you can assure the safety and proper function of your tricycle for many years.

Like any other vehicle your trike has to be checked for safe operation before riding. Your bicycle has to be maintained at regular intervals, at least once a year you will have to take your trike to a qualified bicycle mechanic for a thorough check.

The service plan on the next page shows you our mandatory maintenance and service works.

If you wish you can set an upper price limit for the service with your bicycle mechanic. If the necessary works exceed this limit you will be informed in advance.

You can avoid seasonal waiting periods in spring and summer when you have your annual inspection done in the quiet months from October to January. Many bike shops then have special winter check offers. At any rate do make an appointment. Clean your bicycle prior to the inspection since then many of the checks by sight can be done quickly and at low cost.

Please have your specialist dealer record every inspection and service work in the Warranty Pass. This is a requirement for the validity of our extended warranty that exceeds the legal warranty.

Service Plan

Service Plan	
part	work
lighting system	check function adjust headlamp and rear light, check cable contacts clean reflectors, replace missing reflectors
tires	check air pressure check tread and sidewalls
brakes	check for damages check for leaking oil check rigid feel brake lever blades when pads reach rotor check brake pads for wear
bottom bracket bearings	check bearing play
rims	check wall thickness, wear, condition
chain	grease and check for wear
chain tubes	check for wear expand ends or exchange tubes
chain roller	check for wear, check bearing
crank	check, tighten
paintwork	conserve and repair
wheels	check alignment and spoke tension
handlebar	check for damage / bends check track rod for proper mounting
headset	check bearings, grease

see page	before every ride	monthly	annually	note
25	•		•	
	•			
39	•	•		
22 / 26	•			
	•			
	•	•		
			▲	
39			▲	
29	•			
31		•	▲	
33		•		
			▲	
40		•		
39		•		
12			▲	
12	•			
37			▲	

Warranty Pass

Service plan (continued)	
parts	work
hubs	check bearing play and brake discs mounting
pedal	check bearing play, check binding mechanism
frame	check clamping of the front boom clean and conserve check for damage, damage to paintwork
quick release	check correct closing
derailleur	check for movement and function clean and lubricate
screws and nuts	check and tighten
mudguards	check for damage and correct position
valves	check for correct position and air tightness
stem	check clamping check clamping screws
cables	dismount, lubricate, replace if necessary

This service plan is intended to give you a rough overview over the required maintenance and service works. In no case it can replace the detailed instructions in this manual!

You can perform service works marked with a "●" if you have the required skills and tools as for example a torque wrench.

If you discover any defects while checking your bicycle they have to be repaired immediately. If you are in doubt please consult your local bike shop.

Works marked with a "▲" should only be carried out by a trained bicycle mechanic.

At the annual service the bicycle mechanic has to carry out all works listed as well as all services and maintenance works necessary according to the momentary technical standard and professional knowledge.

Please follow at any rate the manuals of the parts manufacturers.

see page	before every ride	monthly	annually	note
			▲	
			▲	
7 40	●	● ●		
21	●			
28	●	●		
43		●		
37		●		
39	●			
13 / 37	●		▲	
28			▲	

The service intervals given in this Warranty Pass refer to an average use and a riding performance of 3.000 km per year.

When you ride more kilometres per year or often ride under bad conditions like rain, grit or dirt it is necessary to have shorter maintenance intervals.

In order to measure your riding performance we recommend to use a bicycle computer.

The regular service maintains the safe operation and the value of your bicycle. Not only does the completed Warranty Pass record the maintenance works for the validation of your warranty but also does it prove the care and the value of your bicycle - a good thing to have when you are going to sell your Gekko fx one day.

Warranty Pass

Your personal Warranty Pass

name:

address:

telephone:

frame no:

(on the underside of the crosstube gusset)

I have received the bicycle in good condition, adjusted to my size and performed a test ride. I have been informed about the correct use of the recumbent, the components like deraillieur and especially steering and brakes as well as the necessity of regular service and maintenance. I will read the manuals prior to the first ride and have all future users read them too. I am aware that I need to send the warranty registration form to HP Velotechnik within four weeks of the purchase to qualify for the extended warranty.

Date:

Customer's Signature:

Dealer's Signature and Stamp::

service at delivery

At the delivery of a new Gekko fx

Order No.:

milage approx. km:

Date:

Dealer's Stamp and Signature:

Exchanged or additionally mounted parts:

(When you assemble a frame kit please list the components on an extra sheet and attach it to this Warranty Pass.)

1st service

No later than 300 kilometers or 2 months after the purchase.

Order No.:

milage approx. km:

Date:

Dealer's Stamp and Signature:

Exchanged or additionally mounted parts:

2nd service

No later than 3000 kilometers or one year after the purchase.

Order No.:

milage approx. km:

Date:

Dealer's Stamp and Signature:

Exchanged or additionally mounted parts:

Warranty Pass

3rd service

No later than 6000 kilometers or two years after the purchase.

Order No.:

milage approx. km:

Date:

Dealer's Stamp and Signature:

Exchanged or additionally mounted parts:

4th service

No later than 9000 kilometers or three years after the purchase.

Order No.:

milage approx. km:

Date:

Dealer's Stamp and Signature:

Exchanged or additionally mounted parts:

5th service

No later than 12000 kilometers or four years after the purchase.

Order No.:

milage approx. km:

Date:

Dealer's Stamp and Signature:

Exchanged or additionally mounted parts:

6th service

No later than 15000 kilometers or five years after the purchase.

Order No.:

milage approx. km:

Date:

Dealer's Stamp and Signature:

Exchanged or additionally mounted parts:

Warranty Pass

7th service

No later than 18000 kilometers or six years after the purchase.

Order No.:

milage approx. km:

Date:

Dealer's Stamp and Signature:

Exchanged or additionally mounted parts:

8th service

No later than 21000 kilometers or seven years after the purchase.

Order No.:

milage approx. km:

Date:

Dealer's Stamp and Signature:

Exchanged or additionally mounted parts:

9th service

No later than 24000 kilometers or eight years after the purchase.

Order No.:

milage approx. km:

Date:

Dealer's Stamp and Signature:

Exchanged or additionally mounted parts:

10th service

No later than 27000 kilometers or nine years after the purchase.

Order No.:

milage approx. km:

Date:

Dealer's Stamp and Signature:

Exchanged or additionally mounted parts:

Warranty Pass

11th service

No later than 30000 kilometers or ten years after the purchase.

Order No.:

milage approx. km:

Date:

Dealer's Stamp and Signature:

Exchanged or additionally mounted parts:

12th service

No later than 33000 kilometers or eleven years after the purchase.

Order No.:

milage approx. km:

Date:

Dealer's Stamp and Signature:

Exchanged or additionally mounted parts:

13th service

No later than 36000 kilometers or twelve years after the purchase.

Order No.:

milage approx. km:

Date:

Dealer's Stamp and Signature:

Exchanged or additionally mounted parts:

14th service

No later than 39000 kilometers or thirteen years after the purchase.

Order No.:

milage approx. km:

Date:

Dealer's Stamp and Signature:

Exchanged or additionally mounted parts:

2012
reclining
technology



HP
Velotechnik
www.hpvelotechnik.com

HP Velotechnik • Paul J. W. Hollants und Dipl.-Ing. Daniel Pulvermüller GbR
Elisabethenstr. 1 • D-65830 Kriftel • Tel. ++49 - 61 92 - 97 99 2-0 • Fax 91 02 18 • www.hpvelotechnik.com