2016

recumbent technology

... recline in style!

Gekko fx

hpvelotechnik.com

HP Velotechnik

hpvelotechnik.com

Operating manual and service instructions

Feb. 2016

CE

Scheme of the Gekko fxs and its components.
Parts marked with * are options.
Parts marked with ** belong to the optional electric assist system.

Introduction

Dear customer,

thank you for buying the recumbent bike Gekko fxs designed by HP VELOTECHNIK and congratulations on the purchase of your new recumbent tricycle!
With this high-quality tricycle, you will enjoy many years of exhilarating riding pleasure.

Your satisfaction and the safety of your child 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 tricycle 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 tricycle 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 76).

This guide helps you to keep your tricycle 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

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General safety instructions

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 share the information you have read with your child and involve it in this process. Make sure, that it has understood all relevant functions of safety. Please provide this manual to any other user of your recumbent before using it. Attendants of mentally handicapped persons have to make them understand all safety-related functions prior to every ride; these drivers are only allowed to use the Gekko fxs supervised by an adult.

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.

The instructions in this manual apply only to a completely assembled Gekko fxs tricycle with standard parts from the series production of HP Velotechnik.

The texts in the grey boxes are particularly important for your safety. Please read them carefully. The signs explained below will be used in this document without beeing explained again!

Danger! Texts that begin with „Danger!“ mark an immediate danger for your life and your health. Please read them carefully.

Attention! Hints with the text „Attention“ are important for your safety!

General safety instructions

Intended use

Use your HP Velotechnik tricycle only for the intended use.

The Gekko fxs is a bike 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.

The Gekko fxs allows children and teenager with specific handicaps (see indications) to gain individual mobility. Physiotherapy gets supported, to hold up and keep balance is trained as well as the coordination of movements.

The power transmission takes place in a reclined position. Actuation occurs by a rotation that the leg muscles transmit on the pedal cranks. An optional electric motor can give support.

Using your bike on public roads is only allowed if it has been equipped with the accessories that are required by the applicable traffic regulations of the country in which you are using it.

Never drive without holding on! Before your first ride, read the chapter "Riding a recumbent tricycle" on page 12 and get carefully used to the different vehicle performance.

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.

Indications

According to your child's therapist suggestion, indications for riding this tricycle may be:

Neuromuscular disorders:
e. g. cerebral palsy or muscular dystrophy

The tricycle can also be used for rehabiltation of the mobility with coordination or balance disorders and restricted natural movement.

The tricycle should always be considered when a child owing to its special physical conditions is unable to ride standard children bicycles or vehicles, even with training wheels.

Contraindications

The bike may not be used by persons who are not able to ride a bike safely and independent. For example in the case of blindness or the unability to move necessary extremities controlled.

Individualisation

It is possible to adapte the Gekko fxs to indivual demands. HP Velotechnik offers a huge variety of optional accessories. For example: electric motor, one-hand operation, special pedals, head rest, standing-up aid, handrest, walking aid mount and companion bar.

General safety instructions

Load capacity

The maximum load (rider + luggage) is 100 kg (220 lbs). The maximum total weight (bicycle + rider + luggage) is 130 kg (286 lbs). The lower limit is valid. With a coupled trailer, the maximum total weight must not exceed 130 kg (286 lbs).

Carrying luggage

Luggage transport is only allowed with the special racks designed by HP Velotechnik.

Rear rack on Gekko fxs

Danger! Additional loading can influence the handling of your tricycle 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 tricycle by positioning the centre of gravity of the luggage as low as possible, so pack heavy items in the bottom of your panniers.

Take care 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, the derailleur, or the suspension.

The rear rack is designed for standard tricycle panniers. Take care that your luggage does not cover the lighting system and the reflectors of your tricycle and that they stay fully functional.

Maximum load for carriers:

The maximum load on the rear rack is 25 kg (55 lbs).

Final assembly

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

Your dealer has to have carefully finished the assembly, perhaps altered the specification of your tricycle to meet your special requirements and has to have 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, swing arm pivot and wheels. Please follow the tightening torque settings listed in the table on page 74.

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

General safety instructions

Bolts and nuts

Attention! Screws must be tightened with prescribed tightening torque. In this manual tightening torques are given in „Nm“ (Newton meter). 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 tables with the prescribed torque settings on page 88 and 89 in this manual.

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

In the tables on page 74 and 75 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 thread locker e.g. Loctite, 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.

Quick release levers

Quick release levers 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.

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.

General safety instructions

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 leer should increase considerably, corresponding in the end to 15–20 kg (33–40 lbs). In its final position, the lever should come 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) that can only be opened with a special tool. For this please consult your local specialist dealer.

Danger! Check the proper setting of quick release levers always before riding, especially when the bicycle has been unattended.

The first miles

The first 300 km (186 miles) are 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 77. This first service is the prerequisite for further use of the tricycle and for your warranty claims.

Safety instructions (bicycle)

Legal requirements

When you ride your tricycle on public roads it must comply with national legislation and guidelines. They 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 tricycle 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.

In the scope of German StVZO your equipment has to meet the following requirements:

- two functional, independent brakes
- a dynamo or battery driven lighting system with a white headlight aiming forward whose beam center touches the road 10 m ahead
- a red taillight and a red rear reflector which may be combined
- at least one white reflector aiming forward and a red large area reflector with "Z" label aiming to the back
- two yellow reflectors attached to the spokes in every wheel; may be substituted by tires or rims with white reflective ring
- yellow pedal reflectors on both sides for the pedals
- a bell

By default the Gekko fxs is equipped accordingly to the current valid StVZO.

As an addition, we recommend to mount a flag on a pole for better visibility in traffic. You can find a bracket for the pole at the rear rack or the rear light mount.

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

Traffic regulations may change. Please check currently valid regulations or ask your specialist dealer.

In Germany, children under the age of eight only may use a bicycle on sidewalks and under adult supervision. Take especially care of pedestrians.

No alteration of parts

Attention! You are not allowed to perform any work on the parts of the tricycle, especially frame, fork, 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.

Safety instructions (bicycle)

Frame number and identification marks

The frame number is placed on the one side of the steering tube. If needed, an additional identification number can be engraved at the other side of the stering tube.

However, we recommend to use adhesive stickers for additional identification numbers.

Position for identification mark on the Gekko fxs

Added parts and accessories

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

Additional accessories may impair the function of your recumbent tricycle. We advise you to generally ask your dealer before you mount any special parts or accessories to your tricycle.

Take care that the handlebar and the wheels always stay moveable. You must not add any parts to the handlebar or the seat that might endanger the rider through sharp edged or pointed shapes while steering, getting on and off the tricycle 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.

Replacement of parts

The replacement of parts relevant for safety (especially brakes, lighting system, stem, handlebar, knuckle, drive train) may only be done with original parts by a 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! This can also result in the loss of any warranty.

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!

Safety instructions (bicycle)

Transport of children

HP VELOTECHNIK tricycles are 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.

Pedelec system

Instructions for the use and safety of the optional pedelec systems are referred in the systems manufacturer's manuals. Please read them carefully before use.

Trailer

You are allowed to use trailers (double trail only) up to 40 kg (88 lbs).
When using a rear rack, you will need a WEBER coupling.

Please make sure the maximum allowed load on the trailer hitch is not exceeded.

WEBER offers a special, lowered coupling for CHARIOT trailers on 20 inch rear wheels.

Riding a recumbent tricycle

Learning the new riding technique

Your new tricycle has been assembled by your dealer and adjusted together with you as described on the pages 15 and following in the chapter „Adjusting your new tricycle“. Before you sit down on your tricycle 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.

Attention! When getting on and off the tricycle, make sure to avoid pulling at the handle bars or stepping on the tie rods. To get off the tricycle, 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 using 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 tricycle 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 tricycle.

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 mounting a well visible and reflecting flag to the tricycle while using it in traffic. Find more information about lighting systems on page 43. Please ask your dealer for more information.

Riding a recumbent tricycle

How to ride correctly and safely

Attention! 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.

Do not ride freehand

Danger! In order to ride safely you have to keep both hands at the handlebar. Even when signalling 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.

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 special pedals

The Gekko fxs comes with heel support pedals by default.

If you wish, you can equip your recumbent tricycle with clippless pedals, ergonomic safety pedals or ergonomic pedals with lower leg fixation. To accomodate persons with different physical impairments, the ergonomic versions can optional be choosed for one side or both side.
Find more information on pages 27 and following.

Riding a recumbent tricycle

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 pedalling 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 occuring while riding this is usually the result of too much power put into pedalling. 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. Advices for increasing the training can be found in a lot of cycling books or magazines. Your pedalling 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.

Please contact your physician if you have pain over a longer period of time.

Adjusting your new tricycle

Your position on the recumbent bicycle is essential for your riding comfort, well-being and efficient cycling. Therefore you should adjust the frame, seat, handlebar and suspension to your individual requirements. Find detailed information about the possibilities of adjustment on the following pages.

Adjusting range of the Gekko fxs

If your tricycle is equipped with the optional front boom quick adjust, please read the instructions in the separate manual in addition to the following instructions.

The Gekko fxs can be adapted for riders between 1,20 m to 1,80 m (3'11" to 5'11"). The basic adjustment takes place by changing the frame length.

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

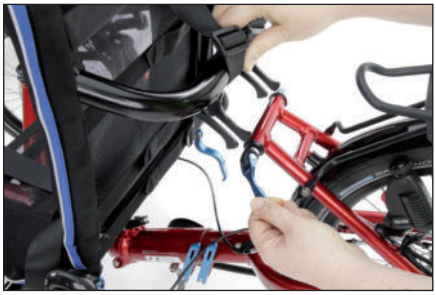
Danger! All procedures described here require a certain degree of skill, suitable tools and mechanical aptitude. After any adjustment perform a static check and take a test ride on a quiet street, away from traffic. If you have any doubts please contact your local dealer.

Basic adjustment of the frame length

For the basic adjustment of the frame length for different body heights, the rear frame tube and the seating have to be adjusted with the blue quick release levers.

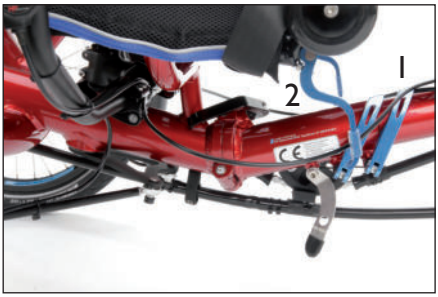
If you open these quick release levers of the OrthoFlex-seat, seat depth and frame length can interdependent be slided in or pulled out.

First, open the seatback quick release lever that allows to adjust the seat angle. Then, swivel the seatback to the front.



Opening the seat back quick release lever

Adjusting your new tricycle



Rear frame with frame quick release levers (1) and seat quick release levers (2)

The seating length can be slided in or pulled out.

Now open the frame quick release lever (on the left side, in front of the rear wheel). Then, you can slide the rear frame part in or pull it out to the required lenght.

Make sure, that the end of the frame tube is not visible in the clamping slot when you look from below. In the case it is visible, slide the rear frame part back in until the tube end is not visible anymore.

If the desired length is reached, align the rear frame part to a neutral position. Then, close the quick release lever only half.

Open the two seat quick release levers at the rear edges of the seating. If necessary, knock a little on the quick release levers in order to loosen the wedge inside the seat tube.

Then, you can slide the seating length in or pull it out. If the movement is not working or wedged, you can help with small knocks on the lower part of the seatback.

Make sure, that the seat net in the front part slides along as well.

Next, slide the seating so far in that you can insert the seat mountings easily back into the mounting of the seatback quick release levers.

Check if the seat back is perpendicular to the riding direction if you look from above. Correct if not.

Then close the seating quick release levers and the frame quick release levers completely.

Finally, adjust the desired seat back angle (see page 18) and close the seat quick release lever.

You can use the optional adjustable end stops, that allow an exact positioning of the seat.

Attention! The minimum insertion depth of the rear frame part into the main frame is 6,5 cm (2 1/2"). The end of the rear frame part 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.

Adjusting your new tricycle

Attention! Always tightly close the seatback quick release lever, the seating quick release levers and the frame quick release levers. The seat is a structural part of the tricycle frame. An opened quick release may lead to frame damage. Please pay attention to the instructions about quick release levers on page 7.

The OrthoFlex mesh seat

The Gekko fxs comes with the OrthoFlex mesh seat. The seat is integrated into the frame and remains on the tricycle for folding. The seat cushion and the characteristic of the seat net material the OrthoFlex mesh seat is slightly cushioned.

The seat mesh is washable and has lateral reflective strips to improve visibility at dusk. In the top of the backrest is a practical pouch where you can put small items like keys, wallet as well as an optional rain protection cover for the seat.

OrthoFlex mesh seat with retention belt system

The seat can be individually adjusted to different therapeutic needs.

The OrthoFlex base length can be be infinitely adjusted together with the rear frame to the riders size (see page 15). With a quick release, the seat angle can be adjusted between 48 and 64 degrees.

The contour of the seat can be adapted to the natural S-shape of the spine. The support of the pedaling forces takes place in the area of the lumbar vertebrae. By arranging the eight individually adjustable padding elements in the seat pockets adjustments in the lordotic area (lower lumbar spine) are possible.

The OrthoFlex-seat is also a practical base platform for therapeutic changes by an orthopaedic technician who can install custom seat support pads in the pockets.

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

The Gekko fxs has a retention belt system with customizable straps on the seat. The adjustable retention belt system can be used, depending on the therapeutic need, as lap belt or as 4- or 5-point-belt.

Riders above 1,40 m (4'7") can install an optional head-rest, adjustable in height and angle.

At the left top edge of the seatback is an adapter for a flag post.

Adjusting your new tricycle

Adjusting the seat mesh

Eight tension belts on the back side of the seat allow the adjustment oft the seat net to your needs.

Does the seat feel to soft or gives you the feeling of sitting on the seat frame, increase the tension of the belts on the back side of the seat.

Is it hard or uncomfortable, or do you feel like slipping off when going through curves, release the belts in the relating area.

It may be necessary to put a high force on the belts to apply sufficient tension to the belts. If it can not be done by hand, make use of a flat nose pliers and pull the lose end of the belts firmly. To easily loosen the belt, pull up the round end of the strap retainer.

Adjusting the seat back angle

A great advantage of the OrthoFlex mesh seat on your Gekko fxs is the possibility to adjust the seat back angle very quickly. Thus rides in an upright seat position or in a flat position are possible according to the individual needs.

The seat back is fastened with a quick release lever on a slotted aluminium seat mounting. You can adjust the seat back angle by 16 degrees by simply opening the quick release lever. 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.

Attention! Always tightly close the seatback quick release lever. The seat is a structural part of the tricycle frame. An opened quick release may lead to frame damage. Please pay attention to the instructions about quick release levers on page 7.

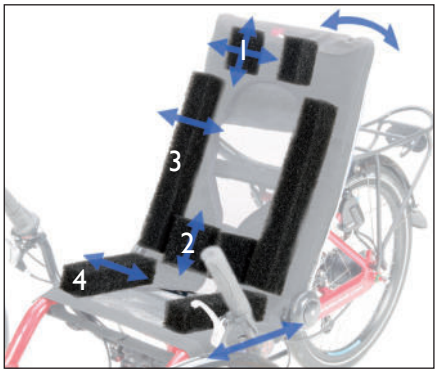
Padding with seat cushion elements

The sides of the seat are equipped with special pockets – their openings are clearly marked by blue ribbons. Open the hook-and-loop straps of the mesh seat there.

The pockets for the padding are closed with hook-and-loop straps.

Now, you can arrange the eight individually adjustable padding elements in the pockets according to the rider‘s needs.
You can slightly reduce the tension of the seat seat net to get more play for inserting the padding elements.

Adjusting your new tricycle



The OrthoFlex seat with adjustable padding cushions.

Following areas may be padded:

Head
The padding cushions No. 1 may be adjusted in distance and height in order to support the head in an ideal position and give some orientation.

Lordotic area (lower lumbar spine)
The padding cushions No. 2 may be adjusted in width and height to form a lumbar support.

Sides
The padding cushions No. 3 and 4 may be adjusted in width to give lateral support and orientation.

Every padding cushion can be individually cut with a knife. Replacements of padding cushions may be reordered. When not needed, the seat can also be used without padding cushions.

After adjusting the padding cushions, close the sides and press the hook-and-loop straps tightly together.

Proceed as described above, if you want to use custom-made orthopedic moldings in the OrthoFlex seat.

The entire seat mesh can be detached from the seat frame and be washed at 30° C with the tension belts.

Attaching the retention belt system

The retention belt system on the Gekko fxs consists of a lap belt, a harness belt and a crotch belt. These can be combined as a single 2-point belt and a 4- or 5-point belt.


5-point retention belt

Depending on the required retaining function, straps may be removed or re-attached to the seat. The belts can be adapted to the body proportions.

For attaching the belts to the tricycle, the tension straps and the seat frame are used.

First attach the lap belt with the two supplied neoprene hook-and-loop sleeves to the rear seating tension belt.

Adjusting your new tricycle

Attaching the lap belt

Then the harness belt is looped on the thick seat frame cross tube between the seat mountings. The straps then go underneath the upper seatback tension belt and the thin seat frame cross tube. The harness belt parts are connected with a slidable buckle. With this, the desired width of the harness belt can be adjusted at the neck. The left and right side of the lap belt get put through the loops at the ends of the harness belt.

Positioning of the harness belt

The crotch belt has to be looped around the middle seating tension belt. It is adjustable in length with a buckle. Before closing the belt, put the lap belt through the loop at the end.

Position of the crotch belt

Open or close the lap belt with the red press button of the lap belt buckle.

Attention! Loose belt parts can be caught in the wheel and cause an accident. Make sure that the belt is always closed and no loose belt ends are hanging off the bike.

Adjusting your new tricycle

The head rest

OrthoFlex-seats can be equipped with a head / neck rest which is adjustable in height and angle. Mounting and adjustment is possible with two quick-release levers on the seat frame.

Head rest on the OrthoFlex-seat

Position of the head rest in the neck when using a helmet.

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

Adjusting to your size

Adjusting 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.

Loosing the bolts to adjust the front boom

Unscrew the bolts M8 x 35 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.

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. Thus the chain is not under tension.

Attention! 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.

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 bicycle.

While you are pedalling, the ball of your foot should be positioned above the centre 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, pedalling 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.

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. This can result in serious accidents.

Adjusting to your size

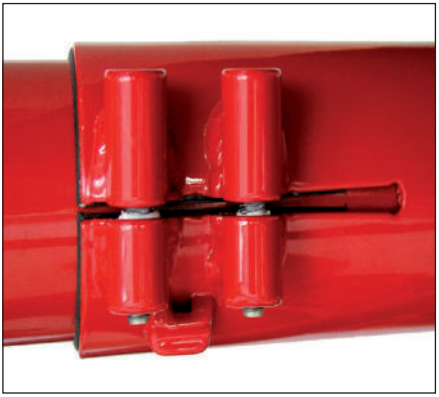
Adjust the front boom so that your knee will not be fully straightened when paddling.

Attention! 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.

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.

The maximum insertion of the front boom is limited by possible heel cycle of the frame's cross bar, depending on the rider's shoe size. Please check before riding your tricycle that there is enough heel clearance (depending on insertion depth of the front boom and your shoe size). If you colide, you have to choose a shorter crank. There are cranks in following lengths: 115 mm, 135 mm and 155 mm.

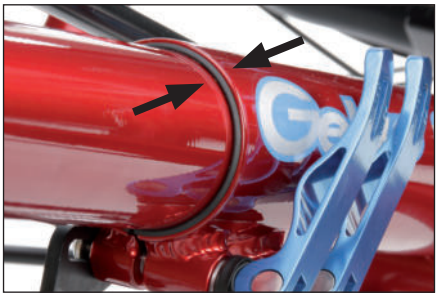
Look beyond the bottom bracket shell at the rear wheel axle and align the front boom parallel to it. Then sit down on your tricycle and check the position.



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

Tighten the bolts with a torque wrench (tightening torque 14–16 Nm). On your first ride check whether there is sufficient clamping. There might be the danger otherwise, that a single bolt overloads and the frame gets damaged.

Adjusting to your size



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

Danger! There must be a bushing (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.

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

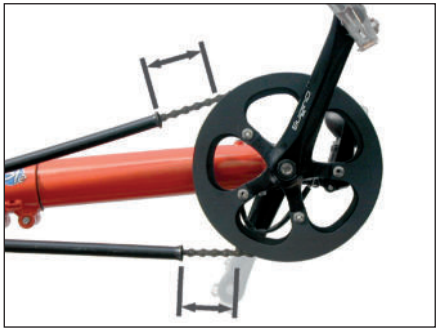
After the basic adjustment of the leg length done by your dealer before handing over the tricycle, the chain has to be shortened so that the derailleur cage is not fully turned forward while shifting on the largest chain ring in front and the smallest sprocket behind. In order to choose the right chain 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.

Adjusting to your size

We recommend to slightly readjusting the front boom every 3 months 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 pedalling. In addition we recommend riding 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 in the chapter „Slowly increase the strain“ on page 14.



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.

The chain tubes must be prevented from moving by a rubber tube over the retention spring.

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.

Attention! 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. The front upper tube can be moved to the rear for length adjustment. 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.

Adjusting the length with front boom quick adjust

The front boom quick adjust is additional equipment for HP Velotechnik recumbents that feature a telescopic front boom for leg length adjustment. It replaces the standard bolts of the front boom clamping by quick release levers. Two pulleys provide chain length compensation while moving the front boom.

The front boom must be clean and free from wax or tenacious remains of chain lube to make sure it can be easily slid in and out.

First, shift the chain to the largest chain ring and the largest sprocket to check the correct chain length.

Open both quick release levers. Slide the front boom into the frame or pull it out until you've reached the required frame length.

Adjusting to your size

Routing of the chain over the idlers of the front boom quick adjust

To slide the front boom in, grip the cranks and turn them against the tensioned chain. The force on the chain helps to move the front boom into the frame tube.

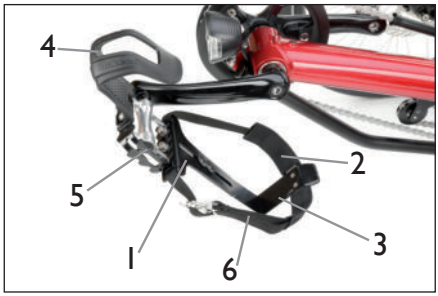
To pull the front boom out, grip the derailleur tube if available. If you pull at the cranks, you'll have to turn them backwards at the same time, else the tensioned chain will balk the motion.

Moving the front boom is easier when turning it a little bit from side to side. When doing this, make sure the pulley bracket doesn't scratch the frame and its lug won't be bent. That's why we recommend to only turn the front boom clockwise (and back afterwards) when looking from the front. Align the bottom bracket axis horizontally when looking from the front. Close both quick release levers. Please pay attention to the instructions about quick release levers on page 7.

Move the chain to the smallest chain ring and the smallest sprocket. Check the chain length. The rear derailleur cage should not be completely swivelled to the back to still apply tension to the chain. It is possible to adjust the whole adjusting range of the front boom with the front boom quick adjust.

Special pedals

Heel support pedal



Heel support sheet (1), heel support strap tube (2), heel support hook (3), pedal toe clip (4), pedal (5) and heep support strap (6)

The Gekko fxs comes with the HP Velotechnik heel support pedals by default. This is a comfortable alternative to clipless pedal systems.

It offers a safe foothold while riding recumbent tricycles without wearing special cycling shoes.

Mounting the pedal on your tricycle

The heel support pedal comes completely assembled and ready to mount on your tricycle.

Depending on the mounting side, the thread is a left hand thread (left side) or a right hand thread (right side). If there are already pedals on the bike, demount them first.

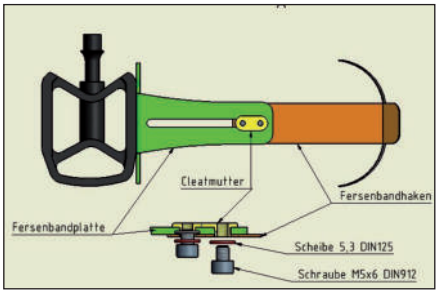
Use a little bit of fitting grease on the thread of the pedal. Screw the pedal into the crank and use a 15 mm open end wrench or 6 mm Allen wrench to tighten it.

Adjustment

The pedal is suitable for shoe lengths from 22 to 28 cm (8.5 – 11 inches). If you need larger pedals, there is a version for shoe lengths from 27 to 35 cm (10.5 – 13.5 inches) available.

As a first step open the pedal to its maximum length: Loosen the strap by pushing the buckle mechanism and pulling the strap through it. Don't pull the strap out of the buckle.

Loosen the M5 screws on the bottom side that connects the heel support hook with the heel support sheet with a 4 mm Allen wrench. Then pull it out to maximum length.



Adjusting the lenght by sliding heel support sheet and heel support hook.

Put your shoe into the pedal and pull the strap until the spring steel sheet in the heel support tube is under tension. The rear part bends around the heel. Check if you can pull out the shoe easily and then put it into the pedal again. Now tighten the M5 screws on the bottom side.

Special pedals

Get onto the tricycle and test getting into and out of the pedal as described below.
If the heel support hook does not slip over the heel easily or if it feels to lose, the setting might be wrong. Try varying the length of the strap and, if necessary, the length setting of the heel support hook.

Using the pedal

Getting in:

The heel support pedal aligns itself to the entering position by its centre of gravity. You can easily get into it with one movement of your leg without using a hand.

Move the tip of you toes from the bottom side into the pedal toe clip.

When you have reached completely inside the pedal toe clip, push a little bit onto the pedal.

The heel support hook will slip over your heel and hold your foot safely in the riding position.

Getting out:

To get out of the pedal, push the heel support hook a little bit with your hand and lift the foot from the pedal.
Now you can move your foot downwards out of the pedal toe clip.

Special pedals

Attention! Take care that the heel support strap will not get in contact with the crank. If necessary bend the steel spring sheet in the strap support hook slightly away from the crank.

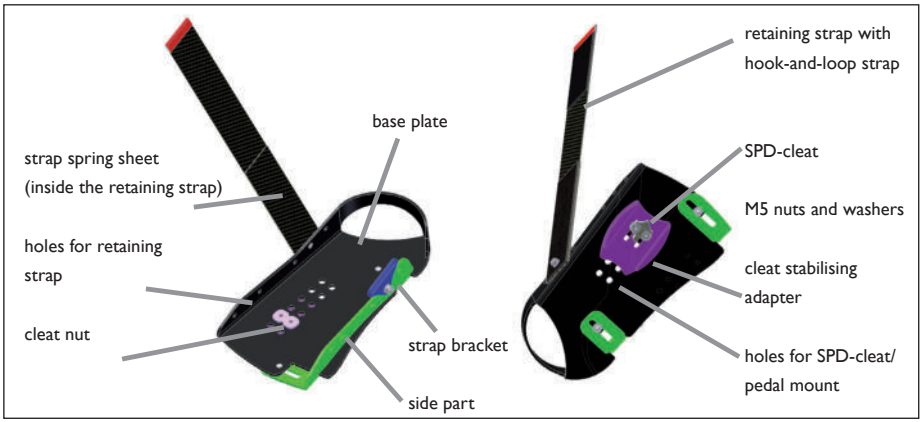
Danger! Do not use the heel support pedal with other than recumbent tricycles. Using the pedal on two wheeled bicycles may cause crashes and serious injuries.

Ergonomic pedal / Ergonomic pedal with lower leg fixation

Attention! HP Velotechnik Ergonomic Pedals can be used for medical rehabilitation and therapeutic purpose. Please consult your doctor for a complete list of indications, warnings, precautions or adverse effects. Make sure you can use this product and ride your tricycle safely in all situations without affecting your health negatively.

Attention! When using the Ergonomic Pedal, make sure that it does not affect the functionality and safety of your tricycle.

Special pedals



The HP Velotechnik ergonomic pedal is available with or without lower leg fixation and fits for shoe sizes from approx. 32 to 41 (UK 1 – 8 ½) or in a lager version from approx. 37 to 45 (UK 5 – 11 ½) depending on the shoe length.

It is used for positioning and fixing of the foot and allows active or passive movement and mobilisation of the leg while riding tricycles. It also helps to compensate misalignment of leg or foot. Due to a spring steel sheet inside the foot straps, the entry is easy and only one hand is needed to open and close the straps safely. The ergonomic pedal without lower leg fixation will be connected via Shimano SPD-System witch allows a joint-friendly heel movement of approx. +/- 3° while pedalling and plus a safety release functionality.

The ergonomic pedal comes as a pre-assembled top piece and is ready to use with the Shimano SPD-System.

The ergonomic pedal with lower leg fixation allows a comfortable support of the leg by fixing the calf. For safety and stability reasons, the top piece of this version is fixed rigidly to a pedal and will be used instead of a standard pedal.

Mounting

Ergonomic pedal without lower leg fixation

To apply the ergonomic pedal with foot fixation to your bike, please mount a Shimano SPD-compatible pedal to the crank of your tricycle. The SPD-cleat on the underside of the base plate will connect the pedal pod to the binding of the pedal.

Please pay attention to the instructions of the SPD-pedal manufacturer Shimano about mounting and adjusting the release strength of the SPD-pedals.

The easiest way to engage the pedal pod to the SPD-pedal is by fixing it to your foot first and the step into the pedal binding as shown in figure 1. The cleat stabilising adapter will help you to easily find the correct position.

Special pedals

This version of the ergonomic pedal can be also be fixed rigidly to a standard pedal: After removing the SPD-cleat and cleat stabilising adapter and follow the steps explained in „Adjusting the medial position of the pedal axle – ergonomic pedal with lower leg fixation“.

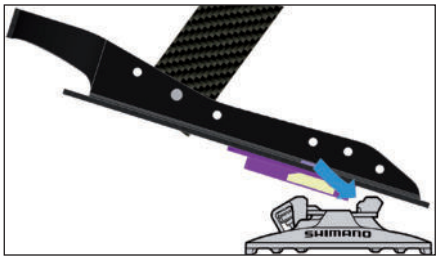


figure 1: engaging the pedal pod to the SPD-pedal

Ergonomic Pedal with lower leg fixation

This version of the ergonomic pedal will be mounted instead of a standard pedal. The base plate and the lower leg support are fixed rigidly to a pedal body.

Depending on the mounting side the turning direction of the thread will be clockwise on the right side or counter clockwise on the left side for tightening.

With a 6 mm Allen key or with a 15 mm open end wrench, screw the pedal into the crank and tighten the axle of the pedal in the crank with a tightening torque 35 – 55 Nm (304 – 477 in. lbs.).

Adjustment of the ergonomic pedal

The base plate is the same for both versions and allows the adjustment of the

(1) shoe size and shape
(2) medial position of the pedal axle
(3) angle of the pedal axle

The version with lower leg support additionally allows the adjustment of

(4) lateral position of the calf padding
(5) orientation of the calf padding
(6) height of the calf padding
(7) distance of the calf padding
(see figure 2)

To adjust the lower leg support, loosen the clamps of the lower part, set up the preferred position and fix the clamps with a torque of 5 - 6 Nm.

Adjustment of the retaining straps

You can use one or two hook and loop straps on various positions. The longer one is designed for the rear position.

Loosen the M5 self locking nuts and remove the washers, the retaining strap and the strap brackets (figure 2 (8)).
Loosen the pressed in threaded bolt with a light tap of a hammer and the place it in the position you prefer.

Prevent the bolt from falling out again by fixing it with your finger while re-assembling the strap, the strap bracket, the washers and the nuts. The bolt should lock himself against rotation.

Make sure that the flat rear part of the bolt will not be pulled too far into the material by not exceeding the tightening torque of 3 - 5 Nm.

If the threaded bolt rotates while tightening the self locking nut, you can use a standard M5 nut to pull it into the hole until it locks itself.

Adjusting the medial position of the pedal axle

Ergonomic pedal without lower leg fixation

To adjust the Ergonomic Pedal to your shoe size and to your preferred medial foot position above the pedal axle, there are 6 pairs of holes where the SPD-Cleat can be fixed.

Loosen the M5 bolts that fix the SPD-cleat and remove the cleat nut from the base plate. Choose the preferred cleat position and put the cleat nut back into the respective holes. Now place the cleat stabilising adapter, the cleat nut and the cleat washer on the underside and fix them with the M5 bolts. Make sure the SPD-cleat has correct orientation.

Please pay attention to the instructions of the SPD-pedal manufacturer SHIMANO about mounting of the SPD-system.

Make sure that there will be no contact between the parts of the pedal and the cranks or other parts of your tricycle. If necessary, reposition only the orientation of the cleat.

Ergonomic pedal with lower leg fixation

Try to adjust the base plate to your shoe size and preferred foot position above the pedal axle by loosing the bolts on the underside slightly. If the adjustment range is too low, disassemble the system by removing the 4 M5 bolts that connect the pedal adapter with the base plate on the underside. You can choose out of three 3 positions medial as well as lateral to mount the base plate on the pedal body (figure 2, pos. 2). To change the pre-mounted position, put the two cleat nuts into the base plate at the preferred position with two holes between.

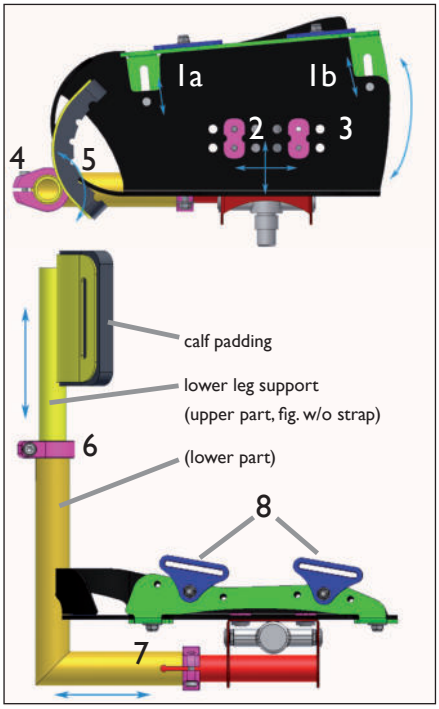


figure 2: adjustment options of the ergonomic pedals

Place the pedal adapter on the underside of the base plate. Screw the M5 countersunk bolts into the threads of the cleat nuts. Use the washers with d_i = 8,4 mm to mount the parts. Tighten the bolts hand tight to adjust the orientation of the ground plate to fit your needs.

Special pedals

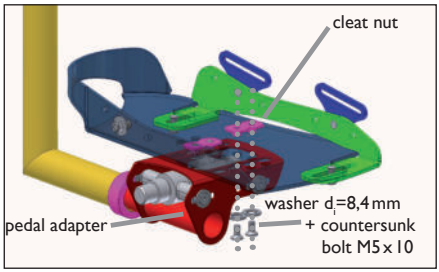


figure 3: re-assembling the pedal with lower leg fixation

You may need to loosen the pedal body from the pedal adapter to reach the bolt heads depending on the position you chose.

When the pedal is mounted to the crank arm of your tricycle, make sure that there is enough space between all parts while pedalling and no collision can occur.

Finally tighten all four bolts with a torque of 5 - 7 Nm until the base plate can not move any more.

Using the ergonomic pedal

Getting in and out

To get into the Ergonomic Pedal sit down on your tricycle first. Open the hook-and-loop strap(s) by pulling the blue coloured end. Due to the integrated spring steel, the straps will rise and open the way to easily place your foot and shoe through it on the base plate.

figure 4: guiding of the opened hook and loop retaining strap through the strap bracket

figure 5: laying of the hook-and-loop retaining strap for calf fixation

The strap does not need to be pulled out of the strap bracket. Once your foot is in position, tighten the strap by pulling the blue coloured end and close it by laying the free end with the hook part over the loop part (figure 4).

Special pedals

To fix your lower leg to the support, open the retaining strap on the calf pad. Place your calf on the support, guide the retaining strap around your lower leg and fix it with the hook-and-loop.

You can cut the end of the strap if it is too long.

Pushing the trike with lower leg fixation mounted

Attention! When using the lower leg fixation the parts of the pedal can collide with the frame or touch the floor.

To protect the pedal parts when the tricycle is standing, you can apply the round hook and loop adhesive part to the frame. Place it on the most forward position of the main frame above the front boom clamping.

Turn the crank into the lowest position and fix the retaining strap of the lower leg support in a way that the telescopic part remains in horizontal position and no parts are touching the floor.

Pushing forward will be no problem then either. The cranks can rotate and the pedals or parts of them will not touch the ground. When pushing the tricycle backwards, you still have to be careful, but it is possible without producing collisions of pedal parts with the frame or the floor.

figure 6: position of the adhesive hook-and-loop part

Clipless pedal

The selectable clipless pedal of SHIMANO is a lightweight, multi-purpose pedal for normal and SPD-shoes. These are special cycling shoes with a metal plate (cleat) screwed underneath, which locks into the pedal. When the foot is placed on the pedal with enough pressure, the shoe locks in - to release the connection the foot has to be turned slightly to the side. The required release force can be variably adjusted.

Multi-purpose pedal on Gekko fxs

Special pedals

With the firm connection between shoe and pedal you do not need any power to keep the foot on the pedal. Thereby a more relaxed and round pedaling movement is possible in which you even can pull the pedals a little with your feet.

Without pedal binding, your feet might suddenly slip off the pedals, which can lead to a fall. Therefore, modern pedal system with binding contribute to safe riding. However, using these pedals have to be practiced first, so that you can get out from the pedals quickly in dangerous situations. Please read the manual of the pedal manufacturer and let yourself explain the usage of the pedals from your bicycle dealer. Adjust the release force of the binding to a low value to make sure to get out of it securely.

Use only the supplied cleats of the binding system manufacturer, no third-part products. Using unapproved cleats, the binding system might noth operate safely.

Adjusting the handlebars

A good setting for the handlebars

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.

Attention! When getting on and off the tricycle, make sure to avoid pulling at the handle bars or stepping on the tie rods. To get off the tricycle, 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.

Setting the width and angle

The grip position can be fitted to your body and arm length by adjusting the handlebar.

The handlebar consists of two parts. They are mounted to the stem by a slotted clamp on each side. The adjustment range in width is 3,5 cm on each side, giving a total range of 7 cm (aprox. 2 ¾").

The handlebar allows adjustment in width (1) and angle (2)

Most riders are comfortable with an 85° angle so that the bent grips point upwards and slightly forward. The more upright the grip position and the narrower the handlebar width, the larger the minimum possible turning circle as the handlebars touch your legs or the seat earlier.

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.

Adjusting the handlebars

The handlebar angle is individually adjustable.

Handlebar stem clamp with quick release lever

Danger! Do not exceed the handlebar width beyond the „Max“-mark, otherwise a safe clamping is not possible

In order to change the angle or the width, loosen the screws of the stem/handlebar clamping. Move the handlebars until they are in your favourite position. Tighten the clamping screws with 5–6 Nm. Check the correct clamping of the handlebars by sitting down on your tricycle and pulling the handlebars. The handlebars must not turn in the stem.

Your bike shop can supply a special fitting lubricant that increases friction between handlebar and stem.

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

Adjusting the handlebars

Adjusting the cable length

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.

Attention! 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 tricycle.

Cover all contact areas where cables move and touch the frame with 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

Folding of Gekko fxs

Thanks to the Dual-Flat-Fold (D.F.F.) technology, your Gekko fxs folds from a comfortable touring tricycle to a compact package in a few steps. Then it can be stored upright or towed on its integrated rollers.

To fold the Gekko fxs stand on the right side next to the seatback.

1. Open the quick release behind the seat (a) and swivel the seatback to the front (b). Make sure, that the seating quick release levers show downwards, because they are used as stand later on.

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.

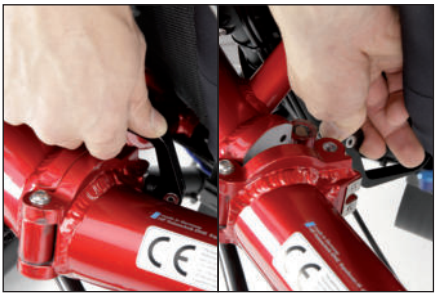
3. If your tricycle is equipped with a front boom quick adjust, the rod of the front boom quick adjust and the main frame rear end could collide.
   In order to avoid a collision, stand in front of the Gekko fxs, open the quick adjust levers of the front boom quick adjust and turn the front boom a little to the right. Then close the quick release levers slightly.

4. Turn the tricycle on the right front wheel.

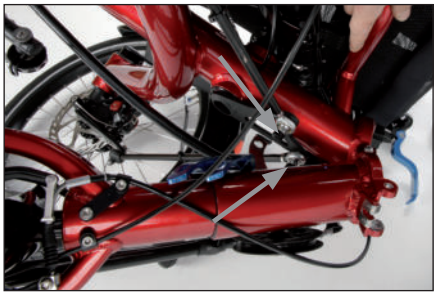
Attention! Don't rest the tricycle on the rear rack. It may become deformed.

5. Open the quick release at the folding hinge. Turn the quick release axis about 90° towards the handlebar. 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 sheet metal.

Folding



6. Swivel the rear part forward comfortably. Make sure the main frame tube gets placed betwwen the two black centre sleeves of the steering.

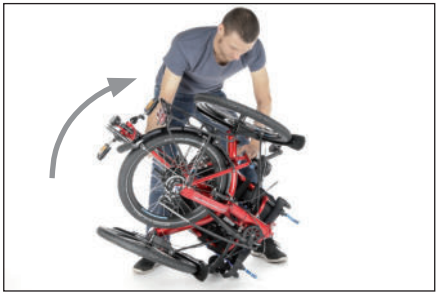


Attention! Do not deform the track rod, because the steering will be affected and a safe steering is not possible anymore.

7. Push the Gekko fxs frame together until you can hear the locking sheet metal snaps in.

Attention! Make sure that the chaintube or the brake cables do not obstruct the locking sheet while closing.

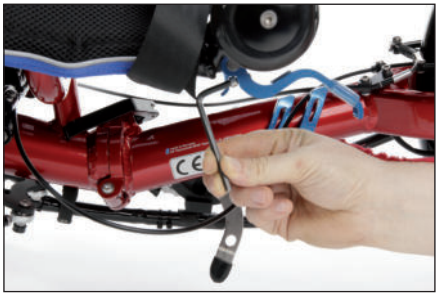
8. Lift the folded package, turn it by 90° and make it stand upright on the integrated rollers and the seating quick releases.



Folding

Rollers and seating quick releases mit standing option on Gekko fxs.

9. The stand angle of the folded bike can be adjusted by the set screw of the seating quick release.



10. For getting an even smaller package, the handlebar can be swivelled to the front after opening the stem clamp.

11. Before the transport, you should take standing-up aids or the companion bar, that might be mounted, off.

Attention! Don't turn the cranks after folding. To pull the folded tricycle 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.

Unfolding the Gekko fxs

To unfold the Gekko fxs stand next to the rear wheel of the upright standing tricycle.

1. Tilt the tricycle on the right front wheel.

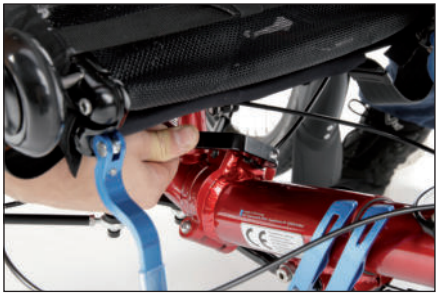
2. Use your right hand to push the locking sheet metal's tongue downwards. Grab the rear part of the tricycle with your left hand.

Folding

3. Swivel the rear part of the tricycle completely to the right. The folding hinge's securing bolt snaps in.

4. Tilt the tricycle 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.

8. Open the quick release levers of the front boom quick adjust completely and adjust the length of the front boom to the required frame length. Close both quick release levers.

Danger! Make sure the folding hinge is properly closed. The safety bolt must be snapped in correctly and the quick release lever fastened tightly. Cables or wires must run free. The handlebar must turn easily and freely.

Danger! Always tightly close the quick release at the seat back. The seat is a structural part of the tricycle frame. An opened quick release may lead to frame damage. Please pay attention to the instructions about quick release levers on page 7.

Lighting system

Lighting systems for bicycles

If you want to ride your tricycle on public streets, it must be equipped with a legal lighting 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. Make sure to have enough energy reserve if you use batteries.

For the bicycles, HP VELOTECHNIK offers a dynamo lighting system with a tire dynamo or a hub dynamo. The lighting system for pedelecs is powered by the propulsion system's accumulator.

All 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 lighting 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 lighting 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 lighting system on or off stop riding, get up from your tricycle 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

Lighting system

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. Laufrades zeigt.

Hub dynamo

The lighting system with a hub dynamo is switched on electrically. For this purpose you will find a switch on the back of the rear light with three labelled switch positions. With the switch you can turn the lighting system ON, OFF or set it to SENSOR. In the SENSOR position a twilight sensor in the lamp turns the lighting system on and off automatically depending on the brightness of the environment.

For the hub generator light system and battery poweredlight systems on pedelecs, there is an integrated switch at the front light to turn the lights on and off.

The SON hub dynamo is highly efficient and works silently. When the dynamo is turned off it has a very low turning resistance.

Although you can feel the single poles of the used permanent magnets very distinctly when turning it by hand the real rolling resistance is minute. (The loss is below 1W at 15 km/h / 9,5 mph.)

SON dynohub

Battery lighting system

To turn the lighting system for pedelecs on and off there is a switch at the back of the headlight with two positions: ON and OFF.

Rear light on rear rack

Danger! Do not switch the lights on or off while driving. There is a serious danger of accidents!

Brakes

Handling of the brakes

Your tricycle is equipped with a powerful high-quality braking system. Please read the separate manual of the brake manufacturer that comes with your tricycle 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 tricycle. Maximum braking performance is only achieved when braking with both hands.

If your tricycle 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 tricycle 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 tricycle 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. Practice on a quiet road away from traffic.

Try to avoid braking in bends, though if necessary, touch the brakes carefully! 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, your tricycle can be equipped with a coupled braking system with one brake lever operating both front brakes.

For optimum handling some 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 tricycle may tumble over.

If you should hear any unusual sounds while braking the brake pads might be worn out. Do not use your tricycle any further until you have checked the brake pads according to the manual of the brake manufacturer or before having you tricycle checked by your local specialist dealer.

Brakes

Danger! Please note that the braking distance is much longer when it is wet or when the tricycle 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 tricycle, which might lead to a serious crash

Danger! Always make sure that the disc or rims and brake pads are free of oil and grease. If these parts are dirty please do not use your tricycle. 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. Riding with contaminated braking systems can result in serious accidents!

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

Attention! Disc brakes can overheaton 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.

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 (20 mph), which should be done in a safe area without traffic.

Parking brake

Always secure your tricycle 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 tricycle 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.

One-hand operation for brakes

Optional or depending on the indication, it is possible to mount the Gekko fxs with one-hand operation.

Brakes

Maintenance of the brakes

Attention! Always read the brakes manufacturers manuals carefully before doing any maintenance or repair jobs on the brakes! Here you can find detailed information and pictures of how to do it!

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 kilometres. Please read the manual of the brake manufacturer carefully.

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.
- check the hydraulic braking system for the correct pressure by pulling the lever, holding the pressure and checking the hose connections, bleeding screw and compensating tank for possible leaks.

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.

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.

Attention! Damaged cables with single wires sticking out have to be replaced immediately. Otherwise your braking system may fail. 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.

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 bicycle 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 bicycle mechanic.

Hydraulic brakes

Hydraulic brakes on HP VELOTECHNIK tricycles 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 tricycle.

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.

In case of a damaged hose or any leakage of oil always consult a qualified technician in a bike shop.

Hydraulic disc brakes

Hydraulic disc brakes 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 (0.04"), of the brake disc it is 1,7 mm (0.07"). For further and more detailed information on your disc brake model please refer to the brake manufacturer's manual.

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.

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

RIGHT: Lead the wire in a wide bow to the track rod. Check clearance when steering left and right.

Brakes

Danger! If the brake pads or the brake disc are worn out (pads: thickness less than 2,5 mm (0.1") including metal back, disc: thickness less than 1,7 mm (0.07")) the pads may be torn out of the caliper while braking. This leads to total loss of brake power.

Attention! 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 tricycle 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.

Attention! 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.

Gear system and chain

Handling of the gear system

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

Your pedalling 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 recumbent tricycle 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 barend 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 pedalling.

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.

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

You should only change the gears while you keep pedalling, smoothly and without applying great force, all the time that the chain is moving between the sprockets. Using a gear hub, you can change gears while pedalling and while standing.

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").

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.

Gear system and chain

Adjusting the gear system

Your dealer will adjust your derailleur gearing system carefully before handing over the tricycle. 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.

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

Adjusting the gear indexing for the rear derailleur

If the chain does not climb onto the next sprocket, 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 tricycle.

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 a professional bicycle mechanic.

Danger! If the tricycle 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 tricycle is often parked outside in bad weather conditions.

Attention! 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.

Gear system and 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 recumbent tricycle is approximately 2.5 times longer than a standard bicycle chain (approximately 3.8 m (12'5")). But it also lasts longer since a chain only wears while bending at the sprockets and the chain rings.

Use 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 Dry-Lubetype 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.

Gear system and chain

Replacing the chain

The chain is one of the parts of the tricycle 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 (0.2"). For a more precise reading you can buy a chain measurement gauge in your bicycle shop.

Only use chains that are suitable for the gear system of your tricycle. 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.

Attention! 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 (12'5") 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 (0.16"). Please also see the manual of the derailleur manufacturer on the choice of the correct chain length.

Attention! 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.

Take care 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. There are different joining links available according to different chain types.

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.

Gear system and chain

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. 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 52.

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

Danger! 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 drive train the drive train can be blocked and the chain tubes may be destroyed.

Danger! 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 chainring and thus be damaged by the chain.

Danger! 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 (0.2–0.4") 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. 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.

Replacing the tubes

In order to exchange single parts in the upper chain tubes 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.

Changing the complete upper chain protection or 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.

The end of the threaded tube in the frame is protected with a plastic tube. Take the retention spring off this plastic tube and put on the new retention spring. Turn the spring so that the retention springs run under the spacer to the tubes and the wires lie 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 LOCTITE and tighten the bolt with 17–19 Nm. The recessed side of the chain roller has to face to the frame.

Make sure the washer is placed between chain roller and plastic tube / frame.

The front upper chain tube can be adjusted in length at the retention spring . Push the tube in the support to the desired position.

Changing the lower chain tube

The chain tube is connected to the mounting plate by a rubber sleeve. For dismounting the chain tube, 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 sidewards. 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.

Chain roller

The chain roller guides the chain below the seat to the rear wheel and is an essential part of the HP VELOTECHNIK No Squat design. It ensures that the suspension is not influenced by pedalling.

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.

Gear system and chain

Attention! If this chain retention hook is missing the chain may fall down. When you start pedalling 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.

Attention! 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 dismounted 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.

Chain roller and chain tubes on Gekko fxs

Dismounting and mounting of the chain roller

To dismount the chain roller, the chain tubes need to be removed. See also hints on replacing the chain tubes (page 55).

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

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

Go SwissDrive pedelec system

With the Go SwissDrive auxiliary drive a powerful electrical assist system is optional available for the Gekko fxs. The strong electric drive is easy to control and supports the drivers pedalling power. Independent moving becomes possible even with limited leg power.

HP Velotechnik provides a separate detailed manual for the Go SwissDrive-system.

Wheels

Disassembling the wheels

Front wheels

To remove a front wheel, loosen the bolt in the locking part at the inside of the knuckle at least 6 mm (0.24"). 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.

Disassembling front wheels: Loosen the screw in the locking part and then take out the front wheel out of 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.

Rear wheel

According to the configuration the rear wheel is mounted with a quick release or with nuts. Open the quick release or loosen the nut with a 15 mm (0.6") wrench to disassemble the rear wheel.

Make sure to properly close the quick release lever or tighten the nut with 40 Nm after reassembling the rear wheel.

Danger! Rear wheels can be 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.

Please pay attention to the instructions about quick release levers on page 7.

Tyres

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.

Wheels

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.

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.

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

Front wheels

When you exchange tires please note the maximum width limit of 50 mm (approximately 2"). On the front wheels you have to use tires of ETRTO size 406 (20").

Rear wheel

On the rear wheel you have to use a tire of ETRTO size 406 (20"). The tire width possible at your bicycle depends on the size of your rims. Please ask your local dealer.

Spokes

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.

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

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

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!

Headset

Adjusting the headset

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 tricycle 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.

View into head set with star fangled nut inside

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 hexheaded screw in the end cap a little bit by turning it counter clockwise. Fasten the clamp again afterwards.

The headset of tricycles is fastened a little tighter as the headset of bicycles. A headset that is too tight, leads to wearout and destroys the bearing.

Attention! 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 that the clamp is tightened as prescribed after you have finished your adjustment. Please pay attention to the table of fastening torques on page 74.

The holding sheet of the mudguard is fixed with the cap to the head set.

Wheel alignment

Measuring toe-setting

Both front wheels should be parallel to each other, viewed from above the tricycle, 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 b_v and b_h 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.

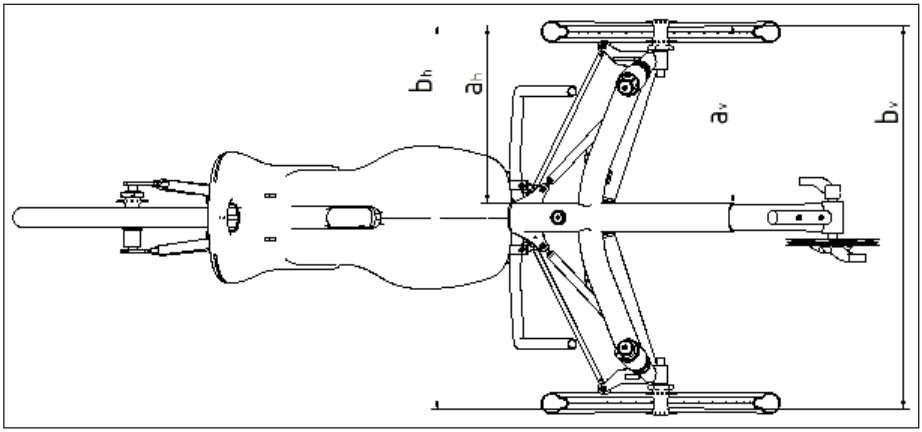
The distance between the front edges b_v must be 0–2 mm (1/16") smaller than the distance between the rear edges b_h.

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 tricycle. Measuring at varying heights results in measuring errors.

Adjusting toe setting

The front wheels are held by suspension struts which can turn at the ends of the main frame. The suspension struts 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 tierod 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 thread locker. Do not try to turn this side of the rod end.



Wheel alignment

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 rodend to the handlebar stem, note the washer.

Hold the rod-end with a wrench and loosen the nut that is screwed against the rod-end.

Attention! 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.

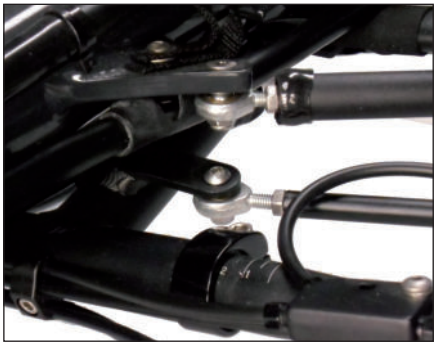
Screw the rod-end into the tie-rod to enlarge the distance bv between the front edges of the front wheel. Screw the rod-end out of the tierod to decrease the distance of the front wheel edges.

Danger! The rod end must be screwed at least 8 mm (0.3") into the tie-rod. If it is screwed out to far, the thread could tear out and the tricycle could become unsteerable. This means that with a standard length of the thread of the rod end of 24 mm (0.95"), a maximum of 11 mm (0.43") visible free thread length is allowed between rod-end and lock-nut.

Wheel alignment

Danger! The lock nut must be screwed tight to the tie-rod, otherwise the rod-end could loosen up or play could develop. Please pay attention to the table of fastening torques on page 74.

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.



Attach the tie-rod to the handlebar stem: First, the screw is put through the hole in the stem (from upside to downside).
Then slide the washer and the rod end onto the screw. Finally, put on the self-locking nut.

Measure the toe-in as described above. Repeat the adjustment process until you reach the required toe-in setting.

On the other side of the track rod the rod end is mounted on the underside of the suspension strut's steering lever. Between strut and rod end there is a washer and a spacer. There is an additional spacer between screw head and rod end.

Attention! Make sure the washer is between rod end and bracket to allow the full movability of the rod end.

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

Mudguards

Mudguards are exposed to very strong vibrations, especially 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.

Front mudguards

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.

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.

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.

Attention! You must not mount additional parts like rear lights or reflectors to the mudguards since those may break then. Retrofit mudguards are aligned at HP Velotechnik before they are sent out. After assembling them to the tricycle a final alignment must be performed.

Mounting of front 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, see page 63.

The little screw (1) in the mudguard mounting fits in the clamping slot (2) 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.

Mounting of front mudguards

Rear rack

Rear rack

Advantage of the Gekko fxs: You can attach two standard panniers. The solid rear rack is built out of 10 mm (0.4") tube and carries up to 25 kg (55 lbs). Useful detail: The integrated guard bracket for the rear light. At the same time, the plastic coated bracket is a comfortable grip to lift the bike or pull it backwards.

Rear rack on Gekko fxs

Danger! Additional loading can influence the handling of your tricycle 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.

Water bottle cages

Water bottle cage

You can mount a water bottle cage with a special bracket behind the seat. Therefore, water bottle kits are available as special accessories from HP VELOTECHNIK.
A useful alternative to water bottles are systems with a „water bag“ and a drinking hose, e.g. from CAMELBAK. You can simply strap them behind the seat or on the rear rack.

There are threads in the back of the seat frames to mount the water bottle brackets.

Gekko fxs with water bottle cage mounted.

Comfort and ability options

Companion bar

If the rider needs extra guidance, HP Velotechnik can install its unique companion bar. It allows an escort to actively control the trike's steering and brakes as well as to give the rider a little extra push. As the escort walks on the left side next to the rider, communication between the two is always possible.

As well as the basic vehicle Gekko fxs, the solid companion bar can be adjusted individually to driver and escort. It is adjustable both in height and in alignment and thereby adapts to the seat position of the driver as well as to the body dimensions of the companion. A reliable function without affecting the position of the driver is ensured. Of course, the companion bar can be removed without tools for transporting the vehicle. The safety-related connection of the braking system of the Gekko fxs remains – a detailed readjustment thus is omitted.

The solid companion bar on the Gekko fxs enables ermöglicht co-steering, accelerating and active braking.

Adjustment of the companion bar

The companion bar can be adjusted in height and angle. Open the middle clamp of the telescopic height adjustment and move the handle tube to the intended position. The minimum insertion depth is 5 cm (2").

Danger! There is „max"-mark on the handle tube. Do not pull the companion bar out beyond this mark. Otherwise a safe clamping is not guaranteed.

When adjusting the companion bar, make sure that the handle tube is oriented approximately horizontally and it does not collide with the rider when steering. Check it before every ride. The tightening torque of the middle and lower clamp is 7 – 9 Nm.

Attention! The companion bar is intended to give the rider a little extra push and help steering. It is not fitted for strong braking by pulling the handle tube. To brake the vehicle, the mounted braking lever must be pulled. The maximum force on the handle tube is 300 N (30 kg). Overloading can lead to deformation or breakage of the companion bar.

Comfort and ability options

Standing-up aid

The standing-up aid provides two grips, one positioned at each side above the left and right front wheel. They provide a firm grip and come handy to lift yourself up from the seat or to support when getting into your trike. The standing-up aid can be easily adjusted or removed with one screw.

Walking aid mount

The walking aid mount allows easy insertion, safe transport and fast removal of walking aids. The practical fastener adjusts seamlessly to diameters from 20–30 mm (0.8–1.2"). HP VELOTECHNIK's stainless steel clip fixates the walking aid and releases it with a non-fumbling one-hand operation again. Optionally for one or two walking aids.

It is possible to handle the system with only one hand: The stand of the walking aid is stuck in the quiver while the holder fixes the shaft with diameters from 20 to 30 mm (0.8–1.2"). The spring steel locking sheet prevents the holder from accidently opening and loosing the walking aid while riding the tricycle.

The mounting situation of the walking aid mount varies depending on the configuration of the tricycle - depending on the type and individual configuration, e.g. mounted rear rack or auxiliary drive.

Hint: Before fixing all screws tightly apply both, quiver and holder to the bike. After adjusting the parts to your needs, tighten all screws properly.

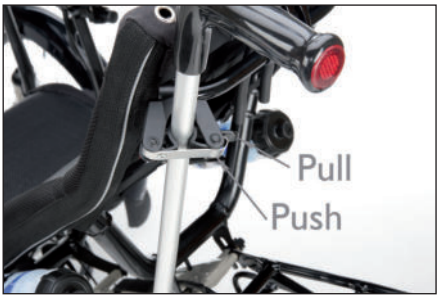
Handling of the walking aid mount

First you have to open the locking sheet on the holder. Put the stand of the walking aid into the quiver and then push the shaft into the rubber part of the holder.

Comfort and ability options

The securing sheet swivels around by itself and the walking aid will remain in its position. Now push the locking sheet until it clicks into place. Only if the locking sheet is locked in the secure position, the walking aid is protected from being released accidently!

To release the walking aid, pull the locking sheet slightly on the black latch. Do not open the holder completely. By taking out the walking aid, the securing sheet swivels around and the holder opens completely.



Attention! Make sure the safety of your bicycle will not be affected by the walking aid mount and by taking walking aids with you.

Attention! Only ride your bicycle when the securing sheet is locked in secure position to prevent the walking aids from being released accidently out of the holder.

Handrest

Handrests for additional control and comfort. The hands steer lightly without having to support the weights of the lower arm. The washable and comfortably padded hand rests can be individually adjusted to all angles and inclinations. Also available with a possibility to fixate the lower arm – an ideal add-on for the one-hand operation of brakes and drivetrain.

For an easy one-hand opening the hook-and-loop strap, the HP VELOTECHNIK retaining strap opens itself by the strap support spring steel sheet, so that you can comfortably slide your hand through. Ideal as an accessory for one-hand driving solutions.

Danger! When mounting the handrest, take care that the operating safety will not be affected. The steering angle must not be reduced.

Comfort and ability options

Handrest on both sides with one retaining strap

Adjustment of the handrest plate

Position of right handrest mounted on the handlebar

Attachement bolt M5 x 16 of pivotal clamp

<u>Adjustment of the handrest</u>

The handrest can be adjusted perfectly to your needs in any direction due to the multi-adjustment design with the pivot clamp and the handlebar mount: The saddlewasher allows the tilting of the plate on the pivot clamp. Rotate the pivotal clamp on the handlebar holder to adjust the pitch in the other direction. Slide the pivot clamp on the handlebar holder to adjust the distance from the handlebar and rotate the plate to additionally adjust its position.

Opening and closing the handfixation of the handrest

Maintenance routine

Your tricycle 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 77.

Attention! 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 lifetime 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.

Cleaning, conservation and disinfection

The frame of the Gekko fxs has a high quality and environmentally friendly powder coating. The surfaces of the aluminium 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 affects 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“ aluminium 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.

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.

Attention! 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.

Attention! 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.

Attention! 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 tricycle, 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 52.

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.

All fabrics are washable at 30° C. You can disinfect the contact points like grips or the seat with usual disinfectants. Make sure to use cleaning agents that do not affect plastic.

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

Maintenance routine

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 loose 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.

Transport in the car

The best way to transport your tricycle is inside the car. Take care that it does not lie on the derailleur.

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.).

Arrangements for further use

If the Gekko fxs has been used in accordance with regulations, got cleaned according to the cleaning tips and controlled by your bicycle dealer, the bike is suitable for further use.

Technical Data

Technical Data

Seat height	36 cm (14.2")
BB heigth	37–44 cm (14.6–17.3")
Seat angle	48–64° adjustable
Wheel size	20" (ISO 406)
Max. tire width	5 cm (2")
Width	83 cm (32.7")
Length	137–175 cm (54–69")
Heigth	87 cm (34") (upright seat)
Folding system	HP *Dual Flat Fold* D.F.F.
Folded dim.	from 92 x 57 x 86 cm (36.2 x 22.4 x 33.8")
Wheelbase	91,5–98,5 cm (36–39°)
Track width	78 cm (30.7")
Turning cycle	4,55 m (15') outside
Ground clearance	9 cm (3.5")
Handlebar width	57–63 cm (22.4–25")
Weight	from 19,5 kg (39 lbs)
Payload max.	100 kg (220 lbs)
Frame material	aluminium 7005T6
Powder coating	magma red or
(anti-corrosion coat + colored coat + clear coat)	custom color
Rider size	1,20–1,80 m (3'11"–5'11")
Warranty on frame ..	10 years

Tightening torques

The values indicated are meant for a friction value μ=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
brake: V-brake			
- brake lever	handlebar/grip	M6 SW5	4 Nm
- brake caliper	- caliper/frame	M6 SW5	5 – 7 Nm
	- cable clamping	M6 SW5	6 – 8 Nm
brake: disc brake			
- brake lever	handlebar/brake lever clamping	M6 SW5	4 Nm
- brake caliper	caliper/frame	M6 SW5	7 – 9 Nm
- brake disc	disc/hub	M5 Torx T25	5 – 6 Nm
- brake tube	brake tube/brake lever	SW8	4 Nm
dynamo	dynohub/mounting sheet	M6 SW5	6 – 8 Nm
	mounting sheet/frame	M5 SW4	4 – 6 Nm
rear rack	at the seat tube	M5 SW4	5 – 6 Nm
bottom bracket	cartridge/frame		50 – 60 Nm
chain idler	chain idler/frame	M8 SW6	17 – 19 Nm
crank	crank/axle	SW8	35 Nm
	chain ring screws	SW5	8 – 11 Nm
hub	cassette ring		38 – 42 Nm
(nur bei E-Antrieb)	rear instantaneous axis	SW15	38 – 42 Nm
	front hub quick mount	M8 SW5/SW6	8 – 10 Nm
quick release lever			9 – 12 Nm
pedal	pedal/crank	SW15	35 – 40 Nm
shifting lever	twist shifter	SW3	2 – 2,5 Nm
	barend shifter	SW6	5 – 6 Nm
derailleur	derailleur/frame	SW5	8 – 10 Nm
	cable clamping	SW5	4 – 6 Nm
mud guard	stays/frame	M5 SW4	4 – 5 Nm
seat	upper seat/seat mount	M6 SW4	5 – 6 Nm
	lower seat/seat mount	M6 SW4	3 – 4 Nm
frame	front boom clamping	M8 SW6	14 – 16 Nm
	frame clamping	M8 SW6	14 – 16 Nm

Tightening torques

front derailleur	front derailleur/frame	M5 SW5	5–6 Nm
	cable clamping	M5 SW5	4–6 Nm
handlebar	handlebar/stem	M5 SW4	4–6 Nm
stem	stem/axle	M5 SW4	4–6 Nm
headset	headset clamp	M6 SW5	4–6 Nm
track rods	track rod/knuckles	M6 SW5	7–9 Nm
	counter nut	SW10	4–5 Nm
companion bar	clamp head tube	M6 SW5	7–9 Nm
	clamp handle tube	M6 SW5	7–9 Nm
	clamp taper socket knuckles adapter	M6 SW5	7–9 Nm

Warranty

Warranty policy

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 against damage through material or manufacturing defects. This warranty applies only to the original purchaser.

Warranty is only valid for original parts from HP Velotechnik. 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.

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 tricycle 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 is void when using the bicycle for commercial purpose such as rental or leasing.

The warranty starts with the date of purchase (receipt of the tricycle dealer) of a new bicycle. The warranty is processed via the tricycle 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 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 tricycle 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 Gekko fxs for many years.

Like any other vehicle your tricycle 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 tricycle 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.

Name:

_____

_____

Address:

_____

_____

Telephone: _____

Frame no. (see page 10 for further information)**:**

_____

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 derailleur 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:

_____

Dealers signature and stamp:

_____

Warranty Pass

Service at delivery

At the delivery of the new tricycle:

Model: _____

Order No.: _____

Date: _____

Dealer's stamp and signature:

_____

Exchanged or additionally mounted parts:

_____

_____

_____

_____

_____

_____

1st service

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

Order No.: _____

Mileage approx. km: _____

Date: _____

Dealer's stamp and signature:

_____

Exchanged or additionally mounted parts:

_____

_____

_____

_____

_____

_____

Warranty Pass

2nd service

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

Order No.: _____

Mileage approx. km: _____

Date: _____

Dealer's stamp and signature:

Exchanged or additionally mounted parts:

3rd service

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

Order No.: _____

Mileage approx. km: _____

Date: _____

Dealer's stamp and signature:

Exchanged or additionally mounted parts:

Warranty Pass

4th service

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

Order No.: _____

Mileage approx. km: _____

Date: _____

Dealer's stamp and signature:

_____

Exchanged or additionally mounted parts:

_____

_____

_____

_____

_____

_____

5th service

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

Order No.: _____

Mileage approx. km: _____

Date: _____

Dealer's stamp and signature:

_____

Exchanged or additionally mounted parts:

_____

_____

_____

_____

_____

_____

Warranty Pass

6th service

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

Order No.: _____

Mileage approx. km: _____

Date: _____

Dealer's stamp and signature:

Exchanged or additionally mounted parts:

7th service

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

Order No.: _____

Mileage approx. km: _____

Date: _____

Dealer's stamp and signature:

Exchanged or additionally mounted parts:

Warranty Pass

8th service

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

Order No.: _____

Mileage approx. km: _____

Date: _____

Dealer‘s stamp and signature:

Exchanged or additionally mounted parts:

9th service

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

Order No.: _____

Mileage approx. km: _____

Date: _____

Dealer‘s stamp and signature:

Exchanged or additionally mounted parts:

Warranty Pass

10th service

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

Order No.: _____

Mileage approx. km: _____

Date: _____

Dealer's stamp and signature:

Exchanged or additionally mounted parts:

11th service

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

Order No.: _____

Mileage approx. km: _____

Date: _____

Dealer's stamp and signature:

Exchanged or additionally mounted parts:

Warranty Pass

12th service

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

Order No.: _____

Mileage approx. km: _____

Date: _____

Dealer‘s stamp and signature:

Exchanged or additionally mounted parts:

13th service

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

Order No.: _____

Mileage approx. km: _____

Date: _____

Dealer‘s stamp and signature:

Exchanged or additionally mounted parts:

Service plan

Service plan

The service plan on the following pages 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.

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 tricycle one day.

Service plan

part	work
lighting system	check function adjust headlamp and rear light, check cable contacts clean reflectors, replace missing reflectors
tyres	check air pressure check tread and sidewalls
pedelec system	check battery charge condition check plug and socket connection of the propulsion system
brakes	check for damages check for leaking aid 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 setting
hubs	check bearing play and brake disc 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

Service plan

see page	before every ride	monthly	annually	note
43	● ●		●	
57	●	●		every 6 months during a non-use
56	●	●		
45	● ● ●	●		every 6 months
			▲	
58			▲	
52		●		
54		●	▲	
55		●		
			▲	
72		●		
57		●		
36		●	▲	
59		●		
			▲	
			▲	
70	●	● ●		
7	●			
50	●	●		
7, 74		●		
63		●		
57	●			
36	●		▲	recommended interval to replace aluminium stem: 2 years
51			▲	

2016

recumbent technology

HP Velotechnik

hpvelotechnik.com

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Elektrische Hilfsantriebe

Die Ausstattung mit anderen elektrischen Hilfsantrieben als den von HP VELOTECHNIK ausdrücklich für das jeweilige Fahrzeugmodell freigegebenen Hilfsantrieben ist nicht zulässig.

Gefahr! HP VELOTECHNIK Liegeräder können durch die Verwendung von nicht durch HP VELOTECHNIK freigegebenen Antriebsteilen beschädigt werden. Zum Beispiel kann ein Rahmenbruch auftreten. Diese Schäden können zu Unfällen mit Verletzungen bis hin zur Todesfolge führen.

Die verwendeten Antriebsteile dürfen unter keinen Umständen zu höheren Kettenkräften führen, als sie durch original von HP VELOTECHNIK verbaute Komponenten hervorgerufen werden.

HP VELOTECHNIK verweist ausdrücklich auf die in der Originalbetriebsanleitung beschriebenen Konsequenzen durch den Einbau von nicht freigegebenen Komponenten auf die Garantie. Das entsprechende Kapitel finden Sie unmittelbar vor den Inspektionsnachweisen.

Electric assist

The installation of and operation with an electric assist system not expressly approved by HP VELOTECHNIK for the respective model is not permitted.

Danger! HP VELOTECHNIK recumbents can be damaged by the use of drivetrain components not approved by HP VELOTECHNIK. For example, frame breakage may occur. This damage can lead to accidents with injuries or even death.

Under no circumstances must the used components of the drivetrain lead to higher chain forces other than specified by components originally installed by HP VELOTECHNIK.

HP VELOTECHNIK expressly refers to the consequences described in the user manual by the installation of non-approved components on the warranty - this can be found next to the inspection certificates.