

User manual



vanraam
Let's all cycle



O-Pair²



Van Raam BV
Aaltenseweg 56
7051 CM Varsseveld
The Netherlands

Versie 14.10

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Contact details manufacturer

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Conformity

Van Raam declares as manufacturer that the O-Pair² bicycle has been produced in accordance with the 93/42/EEG guidelines.

Introduction

This user manual gives important and necessary information about the use of your bicycle. We ask you to go through the manual thoroughly before using the bicycle.



**READ
THOROUGHLY!**

Delivery

- bicycle with possible packaging
- user manual(s)
- foot support
- possible charger(s), depending on options
- sparekey(s)

Intended usage

The bicycle is designed for normal use on level and solid ground. The usual bicycle caution should always be taken into consideration. At the same time all safety instructions as described in this manual should be complied with explicitly. Also the local traffic rules should always be complied with.

All other use, including damage or physical injuries due to this, are not the manufacturer's responsibility.

Safety measures

- Ensure the bicycle is in good condition each time before using it.
- Check before **each** ride that the brakes are in order.
- Check the lights and reflectors.
- Regularly check whether all screw joints are tight.
- Regularly check whether the wheels, the handlebars and the saddle are secure.
- Make sure there is sufficient air in the tyres.
- Only use the bicycle on a **solid and level surface**.
- Make sure that wide trousers or loose hanging clothing don't get caught in the chain, spokes or pedals.
- Do not use a pressure washer or a steam cleaner for the cleaning of the bicycle.
- Use the parking brake if you or your passenger is getting on or off the bike.
- **Never** drive without a passenger. This will cause instability of the bike and will lead to dangerous situations.
- In case that the bicycle is equipped with the Silent electric motor system, make sure that you get used to riding with electric support. Beware when you turn on the system and make sure you don't get startled by unexpected behaviour because you turned on the electric support.
- Make sure that no dangerous speed develops when driving downhill and entering tunnels. Brake on time and don't ride faster than 30 kilometres per hour.

Load

The maximum load should not be exceeded. See information in the index of technical details on page 24. By permitted load we mean the total load, including the load on the luggage rack.

Make sure that the permitted load on the luggage rack is not exceeded.

Damaged or worn out parts

The replacement and repair of parts (frame, forks, illumination, brakes, drive mechanism and the handle bars) should **always** be performed by a dealer. If not, the guarantee ceases to be valid and you will be personally responsible in the event of possible damage.



Specific safety parts should **always** be replaced by new parts!

Delivery inspection

Check the delivery immediately after receiving it.

In the event of damage or incomplete delivery we ask you to contact your dealer immediately.

Adjustment of the bicycle

Before using the bicycle, adjust it to the measurements of the cyclist and the passenger. This is of great importance, especially the saddle, the handlebars and the seat.

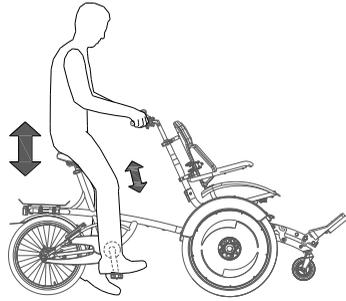


If an optimal adjustment of the bicycle, as defined in the instructions, is not possible, you can contact your dealer for a fitting solution.

The brakes are correctly adjusted as standard and can only be adjusted by the dealer during periodic maintenance.

Saddle height

When the cyclist is sitting on the bicycle and can put a foot on the pedal in the lowest position, the saddle height is correct. Adjust the saddle height in such a way that the leg is stretched but relaxed in that position.



To adjust the saddle:

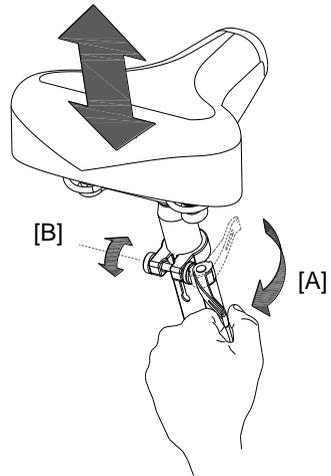
1. Open the quick-clamp [A].
2. Slide the saddle to the correct height.
3. Close the quick-clamp.



Make sure clothing cannot get caught in the clamp!



If the clamp closes too easily, the clamping force is too low. In this case, open the clamp and tighten the nut (B) a bit more. If a lot of force is necessary to close the clamp, the nut should be loosened slightly.



Do not pull out the saddle pin **further** than the marking. The tube will not go into the shank deep enough and will risk coming off. This can lead to serious injuries.

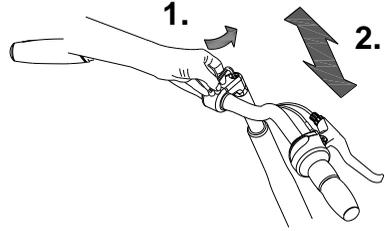


Handle bar height

The height of the handle bars affects the comfort of the ride. It determines the pressure on the hands and the position of the back. Determine your own most comfortable height by using the bike.

To adjust the handle bars:

1. Slightly loosen the screw by using an Allen key.
2. Slide the handle bars to the correct height and tighten the screw very firmly again.



Do **not** pull out the handle bars **further** than the mark. Otherwise the tube will not be deep enough in the shaft and will risk coming off, which can lead to serious injuries.

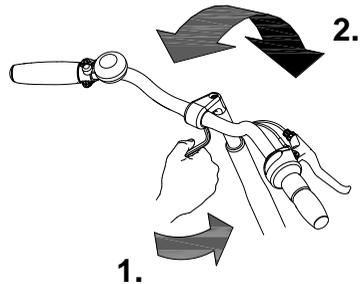


Position handle bars

You can tilt the handle bars. This influences the distance from the handle bars to the upper body. Determine your own most comfortable position by using the bike.

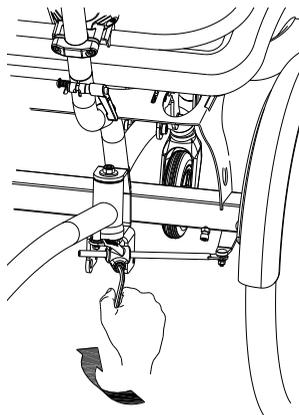
To tilt the handle bars:

1. Slightly loosen the screw with an Allen key.
2. Put the handle bars in the desired position and then tighten the screw very firmly again.



Steering damper

The steering damper affects the stability during steering. By adjusting the screw, steering gets more rigid and stability will increase. Determine your own most comfortable setting for using the bike.

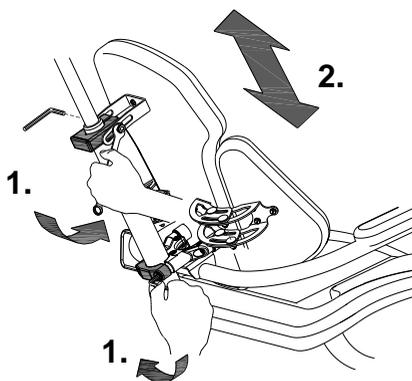


Backrest chair

Adjust the position of the backrest and the side support of the passenger.

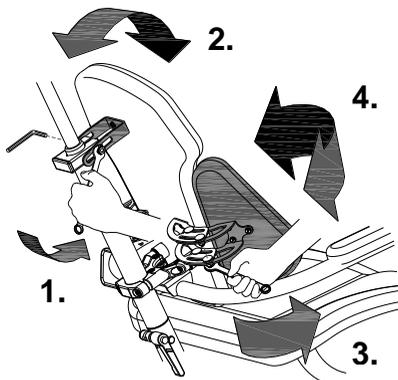
Start with the height of the backrest and armrests. To adjust these:

1. Loosen the nut on the upper bracket slightly by using a socket wrench. Loosen the two screws of the lower bracket slightly with an Allan key.
2. Adjust the backrest. The backrest is adjusted correctly if the passenger can easily rest with the lower arms on the arm rests and the upper ones straight down. Tighten the nut and screws again.



Next, adjust the backrest in the desired position. To do this:

1. Loosen the nut of the upper bracket slightly by using a socket wrench.
2. Turn the backrest, so that the passenger is sitting comfortably. Tighten the nut again.



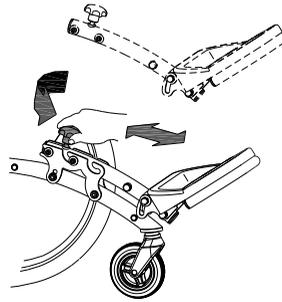
At last, adjust the side supports. To do this:

3. Loosen the four screws slightly on both sides using a socket wrench.
4. Turn the side supports to the body, in such a way that the passenger is sitting most comfortably. Tighten the screws again.

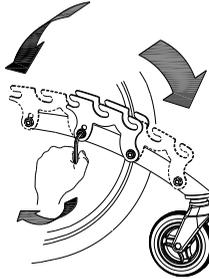
Chair foot support

Adjust the position of the passenger's foot support. To do so:

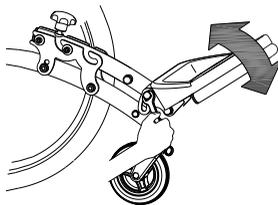
1. First determine if the foot support is in the correct location. This is depending on the length of the passenger's leg. By loosening the knob, the support can be taken out of the bracket and attached again one hole further.



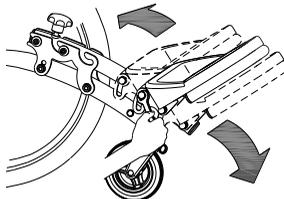
2. There is another alternative for adjustment if it is not possible for these adjustments to find the correct position. Both bracket plates can be mounted one hole to the front or one hole to the back. To do this: Loosen the screws completely with an Allen key and move the plates to the desired position. Tighten the screws again.



3. To adjust the position of the foot support: Slightly loosen the screw of the foot support and put the foot support in the desired position in such a way that the passenger is sitting most comfortably. Tighten the screw again.



4. There is another alternative for adjustment if it is not possible for these adjustments to find the correct position. The foot support can be mounted one hole to the front or one hole to the back. To do this: Loosen the screws completely with a socket wrench and move the foot support to the desired position. Tighten the screws again.

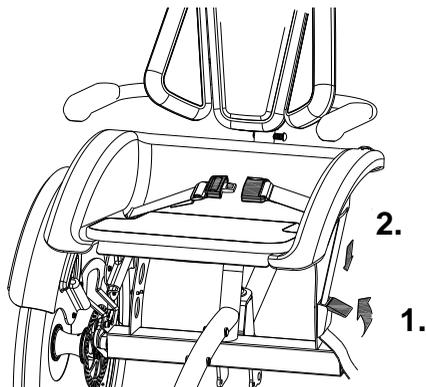


Waist belt chair

Wrap the belt around the body and buckle it.
Push the red button to unfasten the belt.

Set the belt for the passenger by:

1. Unfastening the belt.
2. Pull the belt until it fits around the body of the passenger. Then buckle it.



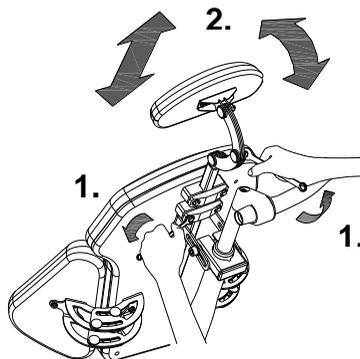
Accessories

Depending on your order, you can use the accessories as described below.

Head rest

To set the head rest:

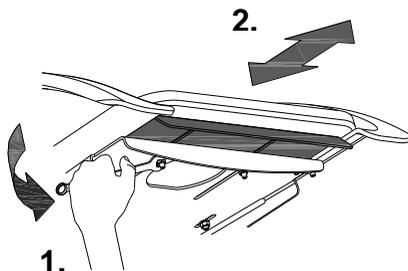
1. Slightly loosen the nuts of the head rest with a socket wrench.
2. Position the head rest. Height, depth and angle can be adjusted at the same time. Then fasten the nuts again.



Adjust the seat depth

To adjust the seat depth of the chair to the passenger:

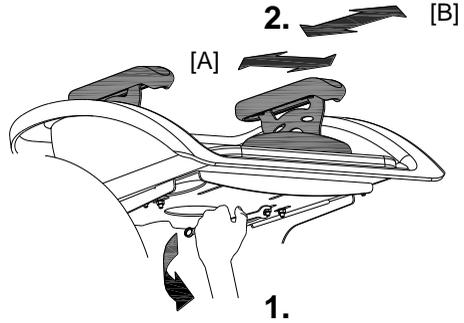
1. Slightly loosen both nuts with a spanner.
2. Slide the seat so it fits the legs of the passenger. Fasten the nuts again.



Adjust the seat width

The width of the chair can be adjusted to the passenger (A). Also adjust the supports to the front or to the back (B) so the passenger can rest comfortably on the supports. To adjust this:

1. Slightly loosen the four nuts with a socket wrench.
2. Slide the supports so they fit the body of the passenger. Then fasten the nuts again.

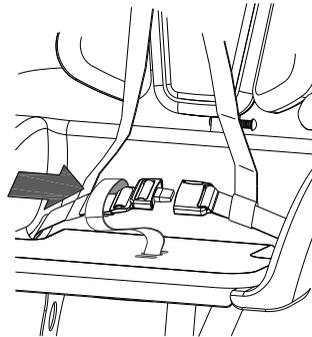


Four- and five-point belt

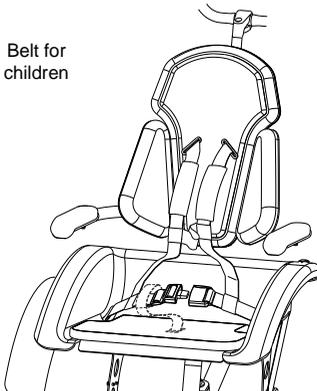
Wrap the belt around the body and buckle it. Push the red button to unfasten the belt again.

To use the five-point belt, one side of the waist belt is slipped through the loop of the lap belt.

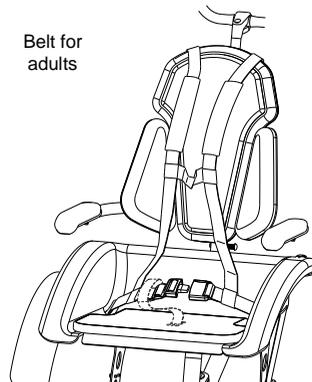
Belts for children are adjusted over the side supports and then through the upholstery. For adults, the belts are adjusted over the chair.



Belt for children



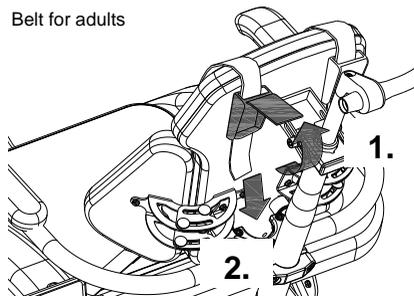
Belt for adults



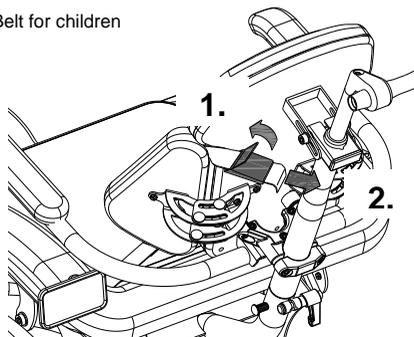
Adjust the belt to the passenger by:

1. Un-buckle the belt.
2. Tighten the belt till it fits the body of the passenger. Then buckle it.

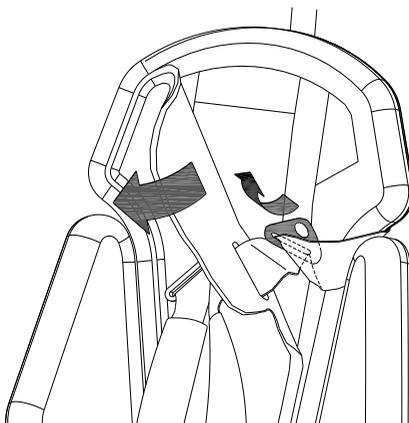
Belt for adults



Belt for children



The child's belt slides through the clamp on the front side of the back, behind the upholstery. Remove the upholstery and slip the belt through the clamp.

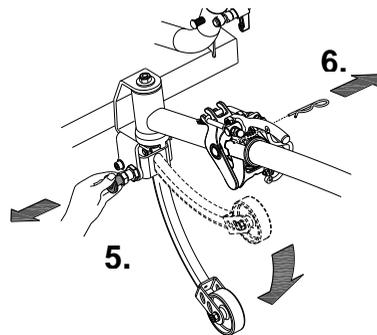
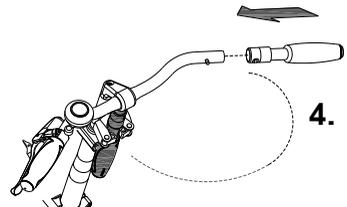
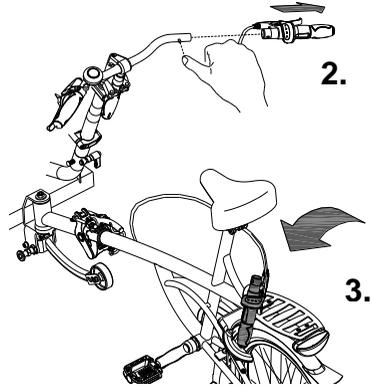
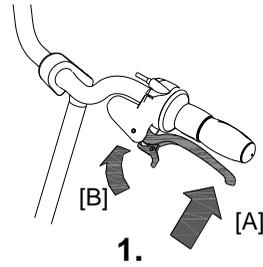


Dividable frame

The wheelchair can be separated from the bicycle part, so you can also go for a walk.

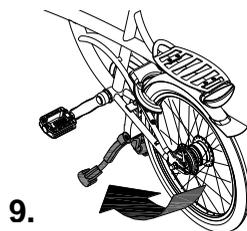
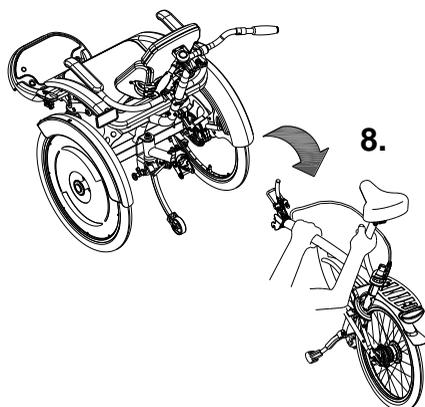
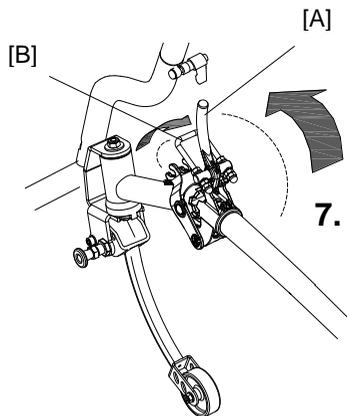
To disconnect the wheelchair:

1. Use the parking brake by pressing the left brake (A) and securing the brake with the pellet (B).
2. Remove the grip (with the gear) from the handle bars. Push the pellet of the small spring so the grip can be removed from the handle bars.
3. Hang the grip together with the brake handle on the luggage rack or other suitable parts.
4. Remove the (extra) loose grip from the holder and place it on the handle bars. Push the pellet of the small spring to slide the grip on the handle bars. Make sure the small spring is secured in the grip.
5. Lower the support wheel by pulling out the knob.
6. Remove the safety pin.



7. Lift up the handle [A]. Loosen the clamp [B] and pull back the handle again. Slowly lower the wheelchair to the front on the nose-wheel.
8. Remove the bicycle part from the coupling.
Caution: This is heavy. Hold the frame firmly with both hands.
9. Place the rear end on the stand.

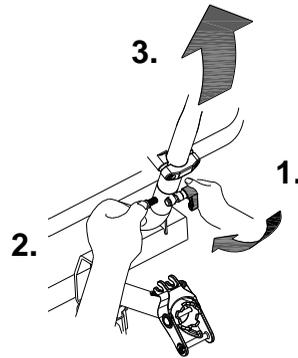
To assemble the bicycle again, follow these steps in reverse order.



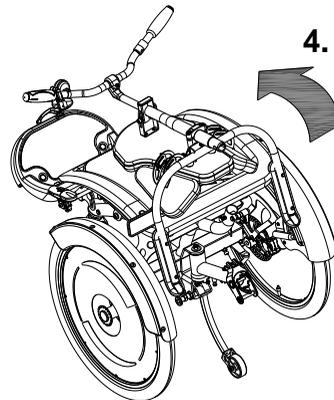
Folding the back rest

To fold the back rest:

1. Slightly loosen the fastener handle.
2. Push the pin until the handle bars are released.
3. Pull out the handlebars from the tube.
4. Now fold the back rest to the front.



Notice that the cables are not bent when folding!



Extra accessories are available at your dealer.

Silent electric motorsystem

The electric motor has the following functions:

- Pedal assistance while cycling
- Start assist
- Backwards pedalling with assistance

Press the on/off button to turn on the system. After the system is turned on, the electric motor is active in level 1.

Level 1 provides light support. Level 3 provides optimum support. You can change the level while cycling.

The Silent electric motor has a start assist. This allows the driver to accelerate without pedalling up to a speed of 5 km/h. To accelerate, press the launch button and keep it pressed down. The motor is activated after 2 seconds.

The reverse mode is activated by pedalling back from a standing position. Within a few seconds the motor is activated and the tricycle cycles at a speed of about 3KM/h backwards when you start to pedal backwards.



Do not be frightened by an unexpected noise of the electric motor. If you e.g. wait for the traffic light and you play with the pedals by moving them backwards the reverse gear is activated and the tricycle cycles backwards.

With the on/off button, you can turn off the system. When the system is not used, it will automatically turn off after a certain time.

You can see the battery level at the indication lights at the coloured display. If only the red light is on, the battery is almost empty and needs to be recharged or replaced by a new, fully charged battery.

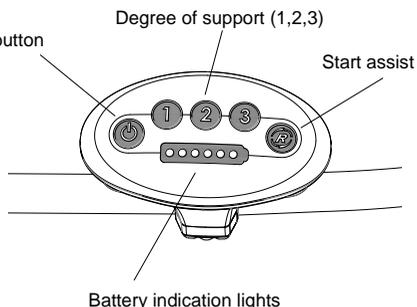
When the last red light flashes, the battery is empty and the engine will not support you any longer while cycling.



When you don't use the electric system for a couple of days, the battery will go into sleep mode. This is to protect the battery. To get the battery out of sleep mode, you should cycle for a couple of metres while pressing the on/off button on the display. At the moment the display lightens up, the battery is out of sleep mode. When you cannot cycle at this moment, for whatever reason, it's also possible to connect the charger for a couple of seconds to get the battery out of sleep mode.



When you push the bicycle, turn off the system.



To charge the battery:

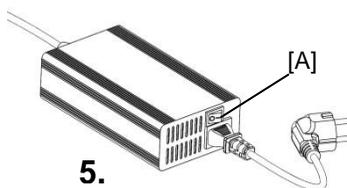
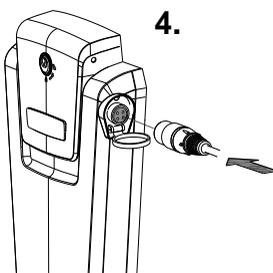
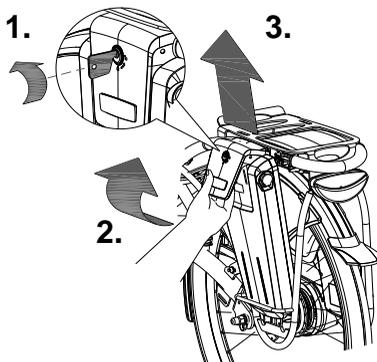
For the best performance and to prolong the life of the battery, we recommend that you charge the battery at home at room temperature.

1. Open the little lock by turning the key a quarter (to the right).
2. Pull the handle forward.
3. Take the battery pack from the holder.
4. Take the battery inside. Plug the charger into the plug contact of the battery.
5. Connect the charger plug into the socket. Turn the switch [A] 'on'. A green LED light on the charger will start to blink fast.



Beware! If the battery is not connected properly, the green LED light blinks fast.

6. Depending on the battery level, the charging time is about 1,5 hour. If the green LED light stays on, the battery is fully charged.
7. Once the battery is charged, pull the plug from the socket first or turn switch [A].
8. Then pull the connector from the battery.



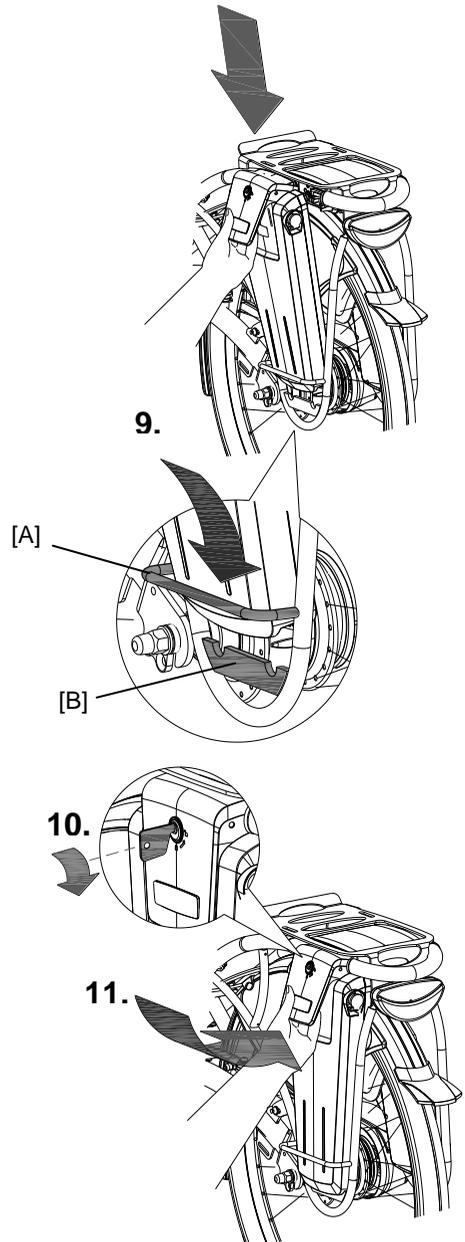
When charging the battery, **first** connect the charging point and **then** insert the plug into the socket!
After being charged, **first** disconnect the socket and only **then** remove the charger from the tricycle!



If a red LED light on the charger starts blinking, remove the plug from the socket and don't use the charger any more. Contact your dealer.

9. Put the battery back in the holder. Slide it behind bar [A] and press it firmly on strip [B].
10. Pull the handle backwards and push the battery on the top to the connector as shown in the drawing and close the lock.
11. Push the handle forward and close the lock.

It is also possible to charge the battery while it is still in the holder.



Ensure that the battery is always pushed straight into the holder.

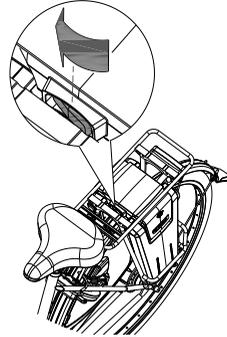


Make sure that the switch is set to the side the battery is placed.

Backup battery (optional)

The bike can be supplied with a second battery.

To activate the second battery (when the first battery is empty) turn the switch under the luggage carrier to the right sight in order to activate the second battery.



Keep in mind that your bike provides less support when it's cold (-10°C and less) and the battery will discharge faster. Charging also takes more time at lower temperatures.



The action radius depends on a lot of different factors and is strongly influenced by: capacity and voltage of the battery, degree of support that is used, temperature, wind speed, tyre pressure, cycling speed, weight of the user and the luggage, use of gearing etcetera.

Charging and maintenance tips for the battery



Every battery discharges automatically over time. This process is called self-discharge. A battery that is empty and not charged, will self-discharge and within two months will be deep discharged. The battery can be permanently damaged during this process. In case of deep discharge, the warranty will be voided.

Beware:

- Never stall the bike with an empty battery. We advise to charge the battery as soon as possible when it's totally empty.
- Only charge the battery with the supplied charger!
- Make sure that the battery is not charged at a temperature lower than 5°C . We advise to charge the battery at room temperature.
- Only use the charger in non-humid indoor environments, the charger may *not* get wet.
- Charge the battery until the green LED light on the charger continues to stay on.
- The battery housing and charger housing may never be opened! When there is a problem, contact your dealer.
- Don't charge the battery in full sunshine.
- Don't drop the battery, this can cause damage.

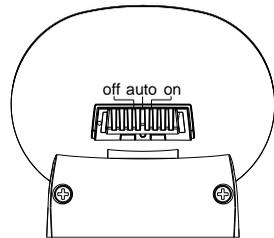
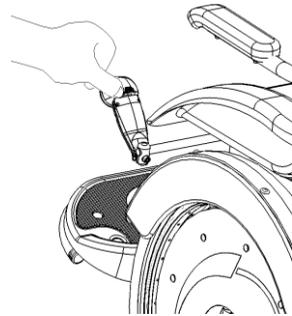
Lights

Headlight

The headlight has a switch (sliding switch) with 3 positions: **Off- Auto-On**.

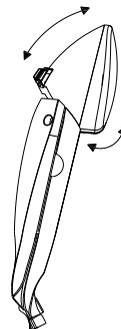
The headlight can be manually switched on or off with the "On/Off" position.

In the "Auto" position, the headlight turns on or off automatically with the help of light & movement sensors. When the bicycle stands still for a while, the light will automatically turn off.



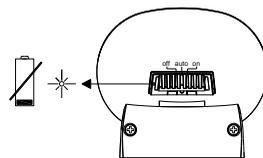
Adjusting the headlight

Set the angle of the headlight such that the centre of the light beam falls approximately 10 m ahead of the bike.

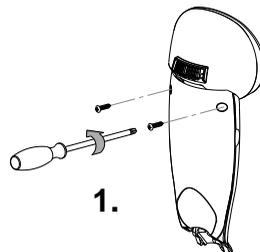


Replacing batteries

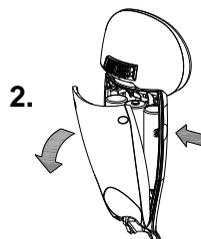
The headlight works on batteries. When the batteries are almost empty, a red LED light flashes on the headlight. Follow the next steps to replace the batteries.



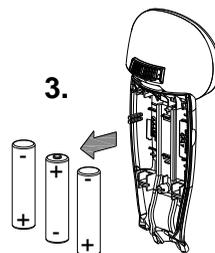
1. Remove the 2 screws at the back of the front light.



2. Dismantle the rear cover by pressing with the thumb and index finger at the cavity on both sides of the front cover and pulling the rear cover back.



3. Replace the alkaline batteries (1.5 V - 1500 mA) and assemble the rear cover.



Rear light

The rear light has three options which you can choose by pressing the button repeatedly: **On-Auto- Off**.

The setting is as follows:

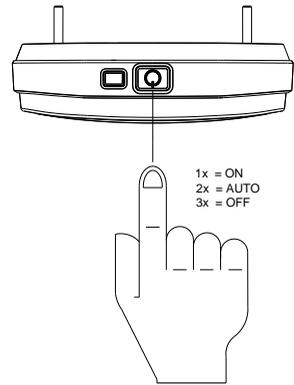
Press **1x**: light is on

Press **2x**: lighting is automatic

Press **3x**: light is off

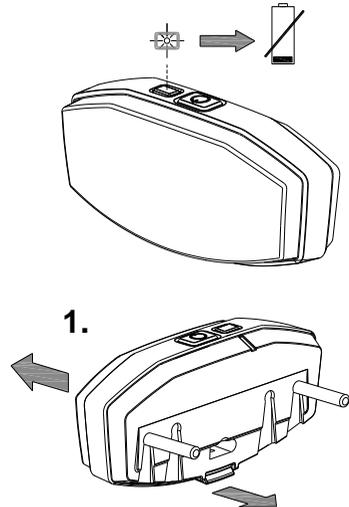
With the “On” or “Off” mode, the rear light can be manually switched on and off.

With the “Automatic” mode the rear light automatically turns on and off with the help of light- and movement sensors. If no movement is signalled for more than 4.5 minutes, the light automatically turns off.

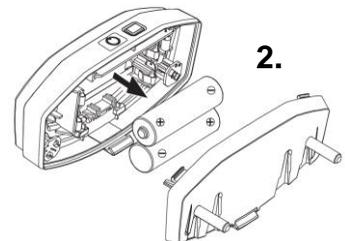


The rear light works on batteries. When the batteries are almost empty, a red LED light on the top starts blinking. To replace the batteries, follow the next steps:

1. Dismantle the cover of the holder by pressing in the lip at the bottom of the light.



2. Replace the alkaline batteries (1,5 V - 1500 mA) and assemble the cover.



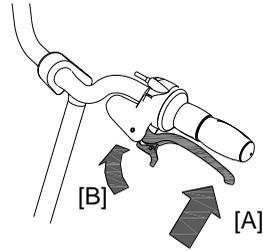
*Batteries cause environmental pollution.
Follow the local regulations
during disposal.*

Parking brake

Always use the parking brake if you park the bicycle and leave it behind.

To operate the parking brake, squeeze the left brake [A] and lock it with the pin [B].

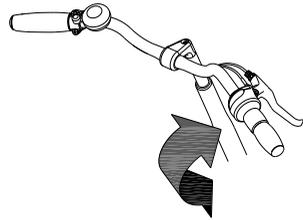
By squeezing the brake again it will unlock itself.



Gears

Standard the bicycle has 8 gears. The gears are used by turning the grip. **Do not use the pedals** when turning the grip.

Option: When your bike has an electric motor, there are 6 gears.



Check before every ride:

- the brakes (including the parking brake)
- the tyre pressure
- the lights
- that all parts are fitted properly

Contact your dealer and do not use your bicycle if you identify any irregularities!

As with all mechanical parts, the bicycle is subject to wear and tear and high loading. If a component fails, it can lead to very dangerous situations. This can lead to damage or injuries to the user of the bicycle. Any form of tearing, scratching or changing of colour is an indication that the part should be replaced.

Points of interest during cycling

After you have adjusted the bicycle to the measurements of the cyclist and the passenger, you can start using the bike.



The tricycle gives a very different ride experience than a bicycle with two wheels!

Practice, in particular, with bends and braking, because a tricycle can react contrary to what you would expect. It may happen that the front wheel comes off the ground on the inside when going round a bend. To avoid this the rider leans towards the inside of the bend with his body.



High speeds in the bends, driving on rough ground, and sharp bends can lead to the tricycle **falling over!**

Important safety points for the cyclist

- Go very carefully during the first ride.
- When riding the bicycle hold both hands firmly on the handle bars and feet on the pedals.
- Test the riding style of the bicycle on rough ground at moderate speed. This way the cyclist learns how to react to unexpected movements of the bicycle and the handle bars during use.
- Explore how the tilting movements of the bicycle react to body posture. Tilt to the inside of the bend.
- Small obstacles should be cycled over with appropriate speed.
- Obstacles higher than 5 cm should be avoided.

Technical details

Length (cm)	197
Width (cm)	70
Boarding height (cm)	52
Front wheel	24"
Back wheel	20"
Weight (kg)	From 40
Max. load luggage rack (kg)	20
Total max. load (kg)	220
Brakes, front	Disk brakes
Brakes, back	Cantilever brakes

Maintenance and adjustments to be done by owner

Below you can find the instructions for maintenance and adjustments that you can do yourself on a regular basis, which will keep your bicycle in top condition.

Cleaning

The frame of the bicycle can be cleaned with a damp cloth. For areas that are dirtier you can use a mild detergent. The wheels can be cleaned with a damp brush with plastic hairs (not a wire brush!) The saddle, seat (except the upholstery) and the grips can be cleaned with mild soap and water.



Do not use a pressure washer or a steam cleaner!

Cleaning the upholstery of the seat

The upholstery and the back rest of the seat are removable and can be cleaned. You can wash them in the washing machine at 40°C maximum.

Inspection of the bicycle

After 200 kilometres or after a period of 2 months the bicycle should be inspected. Check the brakes, the illumination and the spokes. Also check the tyre tread depth. This should be at least 1 mm. Worn out tyres or possible faulty parts should be replaced.

Also check the parking brake. With the parking brake pulled up, the bicycle should not ride away with the cyclist.

The right lubricant

The chain should be cleaned and maintained at regular intervals (every 3 months approximately). Only use special chain grease or Teflon spray. This is the only way to make sure that the chain will run smoothly, will stay water resistant and will not rust. Wipe the chain with a cloth, treat it with grease or spray and remove any excess lubricant with a rag.

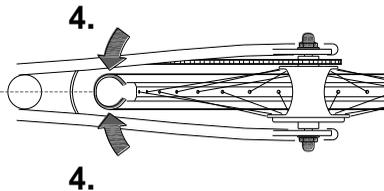
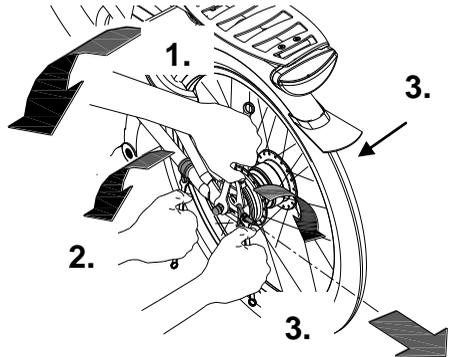
Other parts should not be treated with a lubricant.

The correct tension of the chain

The chain should not be too tight. It should hang loose. Without effort you should be able to move the chain up and down, half a centimetre approximately.

To keep the chain tension correct, the back wheel axle is adjusted. Follow the instructions below:

1. Slightly loosen the nuts of the back wheel axle, so that it can move backwards and forwards.
2. Slightly loosen the nut of the bracket, so it can also move.
3. By tightening the adjusting nuts **at both sides**, the back wheel slowly moves backwards. Tighten the adjusting nuts in such a way that the chain is hanging loose, as described above.
4. At the same time, make sure that the wheel is straight and positioned in the centre of the frame, as illustrated. Not to the left or to the right.
5. Slightly tighten the nuts of the back wheel axle.
6. Check whether the chain tension is correct and whether the wheel is straight and in the centre of the frame.
7. Tighten all the nuts again.



Checking the rim

Due to the combined action of the brake and the rims, not only the brake lining but also the condition of the rim is important. For this reason the rim should be checked at regular intervals, for example when you inflate the tyres. The presence of fine cracks in the spoke punches or deformation of the rim when there is higher air pressure, indicate more serious wear and tear. In that case the rim should be replaced, because it can lead to loss of brake function or even a crack in the rim, which can lead to all kinds of dangerous consequences.

Repairs and maintenance to be done by dealer

It is recommended that the bicycle has a yearly inspection carried out by the dealer. In the event of technical trouble or faults, the bicycle should be taken to the dealer for repairs **immediately**.

The replacing of safety-related components (especially frame, brakes, illumination, handle bars, front fork and actuation) should be performed by the dealer.

If you still decide you want to replace components yourself, you are responsible for damage or harm due to incorrectly fitted components.

Only use **original** spare parts, which you can buy at you dealer. If requested the dealer will make the necessary information on repair and maintenance available.

Disposal

If you want to dispose your bicycle, contact your dealer. You can also contact the local waste disposal company. They will dispose the bicycle according to the regulations of your town.

Handover/sale to a new owner

When you hand over your bicycle to a new owner it is important that you also hand over all necessary technical documentation so that the new owner can use the bicycle safely.

Guarantee

The guarantee is valid for all faults in the product, which are proven to be caused by material or manufacturing error.

For our bicycles we give a guarantee of 5 years on the frame and the front fork. For the paint, all accessories and other parts (except wear parts) we provide a 2 year guarantee, as legally regulated.

Beware!

The guarantee as well as the product liability in general expires if the instructions stated in this manual are not followed. This is also the case if unauthorized maintenance is carried out or if technical changes or additions are made without permission of Van Raam.

Frame number

The frame number is printed on the sticker. This sticker is located on the frame, see the image below.

Example sticker:



Position of sticker:



Please fill in the details of your bike:

Date	. . . - . . . -
Manufacturer	Van Raam
Type of bicycle	O-Pair ²
Frame number	
Key number	