

## Index

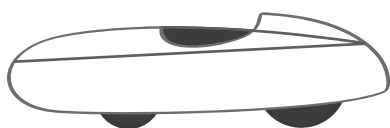
1. Introduction
  - 1.1 Specifications
2. Operation Tips
  - 2.1 Driving features
  - 2.2 Traffic
  - 2.3 Use
3. Use
  - 3.1 Entry and exit
  - 3.2 Clipless pedals
  - 3.3 Luggage
4. Personalized set up of the bike
  - 4.1 The seat
  - 4.2 Setup: leg extension and pedals
  - 4.3 Adjusting the bottom bracket
5. Operation
  - 5.1 Tiller
  - 5.2 Brakes and Parking
  - 5.3 Gears
  - 5.4 Lights
  - 5.5 Bell
  - 5.6 Cycle Computer
  - 5.7 Foam Cover
6. Driving the Quest / Strada / QuestXS
  - 6.1 Place in traffic
7. Safety
  - 7.1 Visibility
  - 7.2 Visibility in the dark
  - 7.3 Helmet
8. Maintenance
  - 8.1 Tires
  - 8.2 Punctures
  - 8.3 Tire wear / wheel alignment
  - 8.4 Spokes
  - 8.5 Removing front wheel
  - 8.6 Removing rear wheel
  - 8.7 Light system
  - 8.8 Strut lubrication
  - 8.9 Brakes
  - 8.10 Chain / derailleur
  - 8.11 Steering adjustments
9. Electric scheme 2013
10. Dealers - Contacts

# 1. Introduction

This manual provides guidance regarding the maintenance and operation of your bike. Taking the time to read it will help you to understand how your bike works and when it needs maintenance. This will be rewarded by many kilometers of enjoyable and carefree cycling.

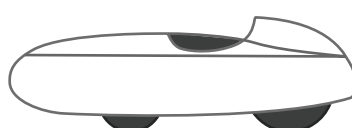
## 1.1 Specifications

The Quest/Strada or XS comes ready-to-ride, including light system, bike computer, bell, air pump, spare tyre and tyre repair set.



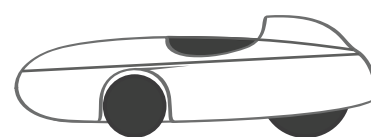
### QUEST

<b>Length</b>	2,85 m
<b>Width</b>	0,765 m
<b>Height</b>	0,9 m (unladen)
<b>Weight (approx)</b>	34 kg / 29,5 kg carbon option
<b>Turning Circle</b>	11 m (afhankelijk van breedte voorbanden)
<b>Seat Angle</b>	35 - 40°



### QUESTXS

<b>Length</b>	2,6 m
<b>Width</b>	0,765 m
<b>Height</b>	0,855 (unladen)
<b>Weight (approx)</b>	31 kg / 27,5 carbon option
<b>Turning Circle</b>	12 m (afhankelijk van breedte voorbanden)
<b>Seat Angle</b>	35 - 40°



### strada

<b>Length</b>	2,65 m
<b>Width</b>	0,76 m carrosserie/0.80 m at tires
<b>Height</b>	0,95 m (unladen)
<b>Weight (approx)</b>	34,5 kg / 29,5 carbon option
<b>Turning Circle</b>	8 m (afhankelijk van breedte voorbanden)
<b>Seat Angle</b>	35 - 40°

#### Electric Components

- B&M Lumotec IQ Cyo (adjustable from inside)
- Spanninga LED rear and brake light
- B&M NiMH 4,5 Ah 6 volt battery/B&M battery charger, interior light
- Optional turn signals flashers (8x luxeon 1W LED), electric horn, 2nd battery and /or 2nd front light

#### Crankset

#### Pedals

#### Chain

#### Cassette

#### Derailleurs

#### Shifters

#### Brakes

#### Tires

#### Spokes

#### Rims

Driveline ISIS triple 53/42/30  
Shimano PDM 525 (spd)  
KMC X9  
Sram 9v 11/12/13/14/16/18/21/24/28  
Other compatible cassettes possible  
Front Shimano Tiagra, Rear Sram X-9  
Sram Grip shift X-9  
SA Alloy Drum 70 or 90 mm  
Front: Schwalbe Kojak 35-406  
Rear: Schwalbe Kojak 50-559  
Front: Sapim 163 mm strong butted 13/14 rvs (90 mm 158 mm) RVS  
Rear: Sapim 264 mm race butted 14/15/14 RVS  
KHE Alloy Black 36H

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KHE Alloy Black 36H

## 2. Operation Tips

The Quest /Strada/XS has a number of special features. Give yourself plenty of time to get accustomed to them:

### 2.1 Driving features

- Controls for steering and brakes are different from a typical bicycle.
- A tricycle has a very different behavior in turns than a bicycle. Taking turns too quickly can raise the inside wheel and could ultimately cause the trike to overturn. Start gently as you learn the handling characteristics of the Quest/Strada/XS.
- You can easily reach higher speeds. Higher speeds require longer stopping distances.
- The Quest/Strada has limited ground clearance. Look out for large speed bumps and changes in pavement level that are not parallel to your line of travel.
- The brakes on the Quest/Strada are Sturmey Archer drum brakes. On longer mountain descents the drums may overheat if engaged for long periods. Stop if you smell the brakes overheating or if performance decreases and allow some time for the brakes to cool. Remove the front wheel covers if you intend to ride in areas with longer descents, as the brakes cool better without them.
- Before each ride check the tires for wear and deformation. A tire blowout can cause a loss of control.
- A Quest/Strada/XS has a derailleur drive system. You can only shift if you are pedaling forward. If force is applied to the pedals when the derailleur has the chain out of position (if for example you shifted with bike at a standstill) you can cause damage to the shifting mechanism. Stop if you hear the chain making sounds when reversing.
- **Note:** the stability of the Quest/Strada/XS is strongly influenced by hard crosswinds. Depending on circumstances such as cornering speed, road gradient, presence of vegetation and buildings and the weight of the rider, a gusting wind from the side can be dangerous.

### 2.2 Traffic

- Be courteous in traffic: a velomobile is a relatively new and striking phenomenon on the street. Your behavior in traffic will be critically assessed.
- Others will often underestimate your speed. Many will assume the Quest/Strada/XS is a larger vehicle and think it is further away than it really is.
- In some circumstances, a low bike is less visible. Parked cars, fences or hedges can hide you from other vehicles. Keep this in mind, even if you have the right of way.

### 2.3 Use

- The Quest/Strada/XS is built as light as possible. The body is strong enough to absorb the forces that occur during driving, but can be damaged by improper use.
- Park your bike in a sheltered place during strong winds, especially in the vicinity of buildings where strong gusts can occur. In extreme cases, the bike can be overturned.
- You can use a cable or bracket type lock to secure the Quest/Strada/XS by passing it through the wheel. Remove the wheel cover or make a hole in it. At night, your bike is best protected against risks in the garage at home.
- To estimate the value of your bike for insurance purposes, be sure to take into account its contents (computers, GPS etc.), this usually adds little extra cost to your premium.

## 3. Use

### 3.1 Entry and Exit

Easy entry and exit from the Quest / Strada / XS requires some skill and practice.

- Hook the tiller behind the rim, so it is not in the way.
- You can put your feet on the crossbar between the wheel arches or on the seat. Do NOT stand on the floor beside the seat.
- You can use your hands on the sides of the cockpit to support yourself. You can sit at the back edge of the cockpit opening.
- Now put your feet forward while you lower yourself onto the seat.



### 3.2 Clipless Pedals (SPD)

The bike is equipped with SPD “clipless” pedals. This system requires special cycling shoes with bolt on cleats. The correct position of these cleats is important, read the instructions supplied by the manufacturer. Tall people that have issues with limited foot space, can move the cleats to the outside and the front of the shoe to gain more clearance.

The SPD (or similar) system is strongly recommended for this bike. The ride is more relaxing if you're not constantly using your leg strength to keep your feet in position on the pedals. When clipped in you can more efficiently transfer your power. In addition, your feet cannot slip off the pedals, striking the vehicle's body and resulting in damage and / or injury.

### 3.3 Luggage

The Quest / Strada / XS has space for luggage beside the seat. The storage space in the back of the bike is easily accessible by folding the seat forward. Avoid placing heavy items on the chain and sprocket guards or behind the wheel. Pack compact, heavier, items right behind the front wheels next to you, so the bike remains stable in sharp curves. Placing luggage high, or further back, decreases the stability of the bike in turns.

## 4. Personalized setup of the bike

It is important for your comfort that your Quest/Strada/XS is properly adjusted. An improper positioning of the bottom bracket will provide a poor return on your pedalling effort and can lead to injuries.

### 4.1 The Seat



- Wrench 8 mm
- Allen Wrench 4 mm
- Wrench 10 mm

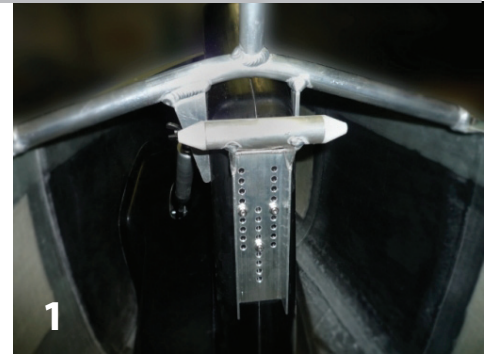
The seat position in the Quest / Strada / XS is adjustable and should be optimized to provide you the best comfort and performance. Follow these guidelines when adjusting your seat.

For a stable seating position, the space between the shoulders and the bike filled with foam shoulder pads, these are available in different thicknesses.

**Height.** You should be high enough in the seat that you have good view but your shoulders should be below the edge of the cockpit opening. The lower the seat, the lower the center of gravity. A lower center of gravity will add stability in turns. Also, raising the seat may decrease knee clearance with the top of the body. The seat height adjustment has 3 positions.

**Recline.** The recline angle of the seat can also be changed. As you recline the seat, you shift the portion of your body that is supported, away from your gluteus (bum) and more towards your back.

You can change the height of the seat at the top by moving the upper seat support. It is held in place by three bolts (picture 1). Be sure that the underside of the seat is well supported (Picture 2 and 3). The aluminum plates on the front fenders can be moved forward or backward and can also lower the seat (picture 4).



## 4.2 Setup; leg extension and pedals

Leg extension is adjusted by moving the bottom bracket. A rule of thumb for this distance is: with the pedal in the distal position (furthest away from the seat), the heel of your shoe should just be able to touch the pedal. Depending on personal preference, this can be varied somewhat. If the pedals are too far away from you, it can cause an Achilles tendon injury, pedals too close can cause knee injury.

### 4.3 Adjusting the bottom bracket



- Marker
- Allen 5 mm
- Plastic Hammer

It is useful to mark the original position of the bottom bracket on the frame with a marker before making an adjustment. This allows you to see how far you have moved the bottom bracket. If the bottom bracket is moved more than a few centimeters, the chain length will need to be adjusted. Please note that the chain length will change

twice as much as the amount the bottom bracket is moved. The bottom bracket is adjustable via the foot holes, to make this easier, lay the bike on its side using a blanket to protect the finish.

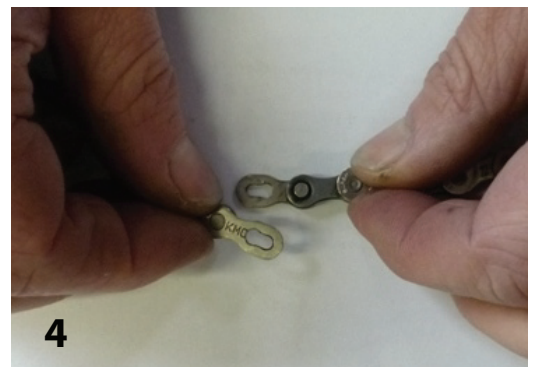
Loosen the four 5 mm Allen bolts that hold the clamps. (Picture 1)

Tap the crank with a rubber mallet to move the bottom bracket to the desired position. Make sure the clamps are positioned properly and tighten them again. (Picture 2)

If the bottom bracket appears to be stuck, it may be necessary to completely remove the clamps before it can be moved.

**Note:** If the crankshaft is moved, the chain length should be checked. The chain should always be long enough so that when it is on the big chainring in the front and the big sprocket at the back, the rear derailleur still has some slack. If that not the case, the rear derailleur will be damaged during downshifts.

A piece of chain can be added using quick-connect links. One such link is already present in the chain. (Picture 3 and 4)

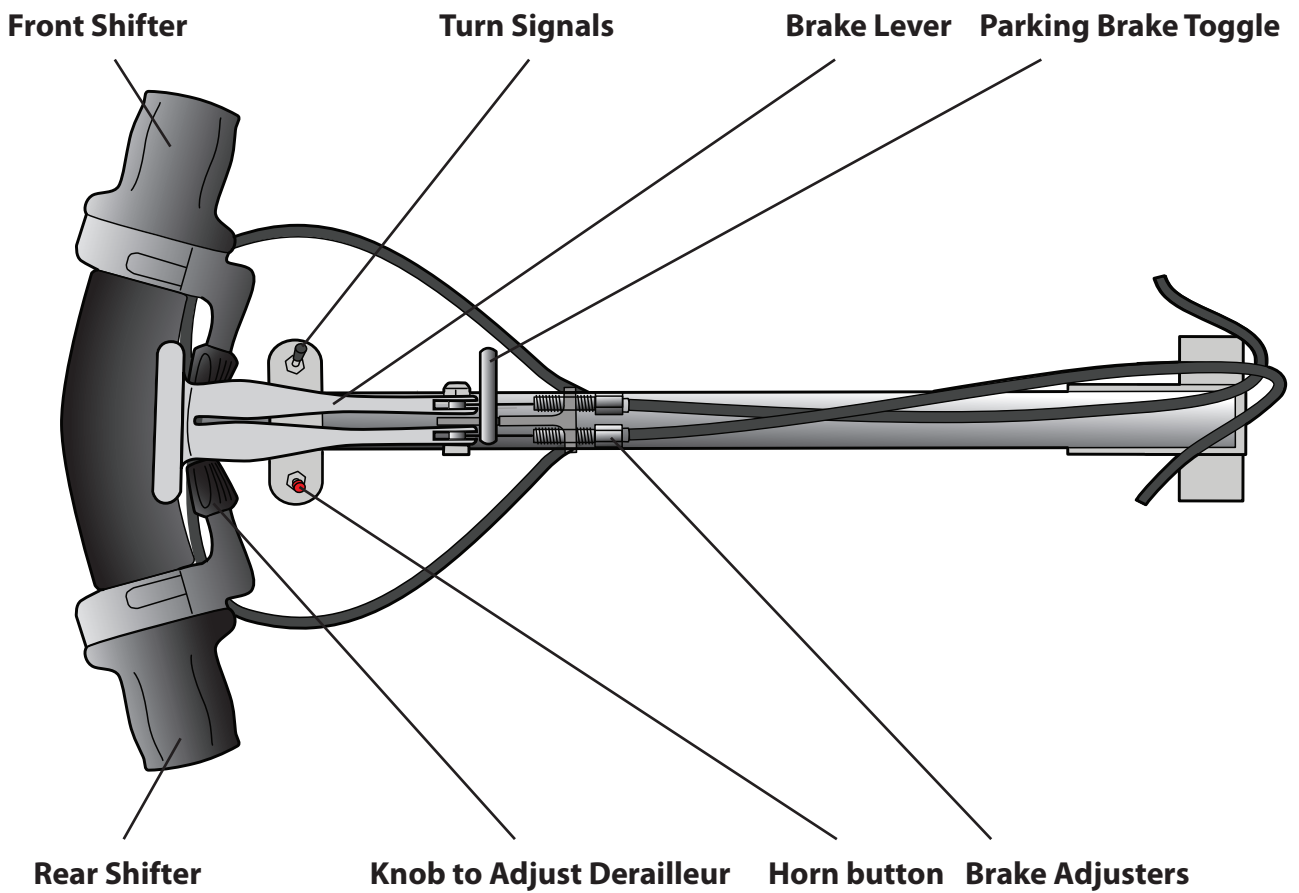


## 5. Operation

The controls you use most often when riding are all within easy reach on the tiller; brakes, gears, horn and turn signals. The switches to control the lights and computer are on the dashboard.

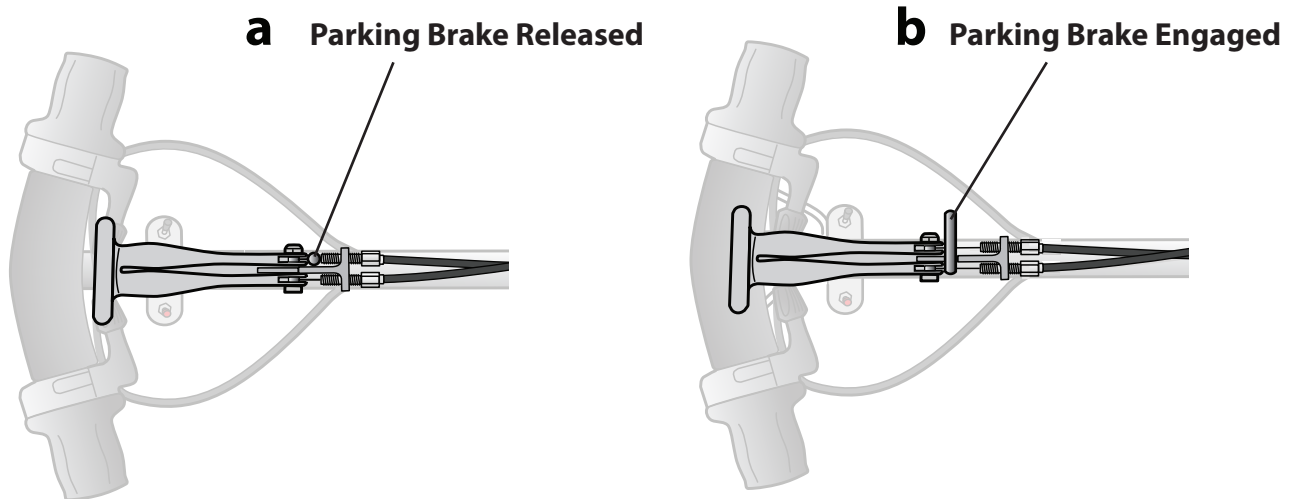
### 5.1 Tiller

The Quest/Strada/XS is steered with a rotating tiller. It can be moved up and down or left and right without affecting the steering. Twisting the tiller will turn your bike. You can hold the tiller in a position that you find comfortable.



## 5.2 Brakes and Parking

In the center of the tiller there is a lever for the brakes. It has a blocking device which serves as a parking brake. To set the parking brake, squeeze the brake lever and position the aluminum toggle to lock the brakes. To release, squeeze the brake lever until the toggle moves out of position. To prevent draining the battery, the aluminum toggle will also switch the brake light off when the bike is parked, make sure that the brake light actually goes out and does not bend the tab on the switch.

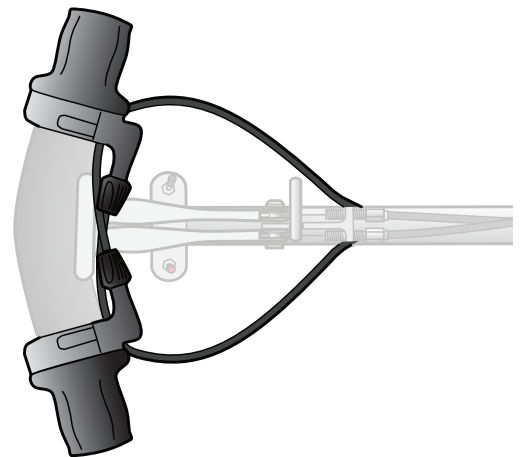


## 5.3 Gears

At the end of the tiller handles, are grips which are rotated to change gears. They have indexing positions, the left one has fine clicks for the front derailleur and the right handle has 9 clicks for the rear derailleur.

With a derailleur, gears can only be changed while pedaling. Relax the pressure on the pedals as you turn the gripshifters. If the derailleurs do not respond, refer to the instructions supplied by the manufacturer.

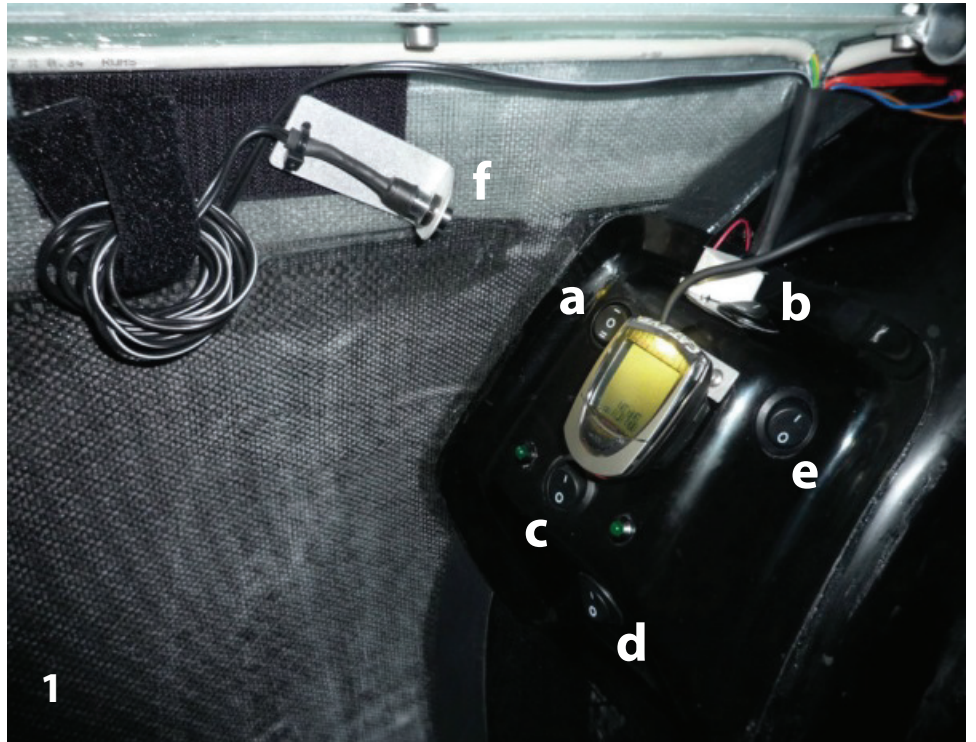
**Note:** if you let the bike roll backwards when the derailleur has the chain out of position (if for example you shifted with the bike at a standstill) you can cause damage to the shifting mechanism. Stop immediately if you hear the chain making sounds when reversing.





## 5.4 Lights

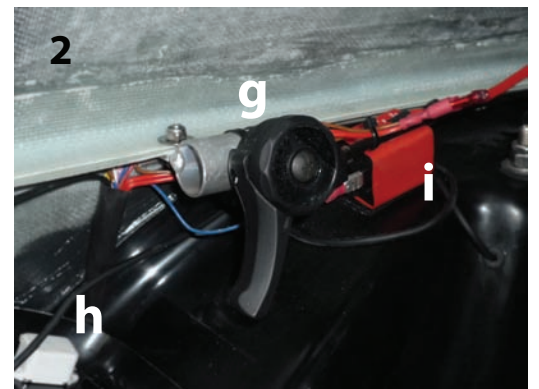
The Quest/Strada/XS has battery lighting with an LED headlight and taillight. It also has a cabin / breakdown light installed. A battery in good condition will power a standard headlight (2.4W) for about 6 hours. With the interior light you can read your bike computer in the dark. It also has a long cord and is removable so that it can be used to aid in changing a tire in the dark. The LED bulb has a very long life, but cannot be replaced separately.



- a) Head light with two stands; I the main light, II daytime running light
- b) Continuous brake light (mist light)
- c) Alarm light
- d) Interior light switch
- e) Secondary front light (optional)
- f) Interior light/breakdown light

- g) Handle headlight adjustment
- h) Buzzer turn lights
- i) Flashbox turn signals

The headlight is adjustable by using the handle above the wheel-box on the left side. When not in use the headlight can be positioned flush with the body. When driving the beam can be adjusted from high to low.



## 5.5 Bell

The bell mounted in the front of the bike and is operated by a pull cord. The Quest/Strada/XS is equipped with a standard bicycle bell so others will quickly recognize you as a cyclist (a battery operated electric horn is optional).

## 5.6 Cycle Computer

Refer to the cycle computer's factory (OEM) manual for setup instructions. The magnet for the bike computer is in the left front wheel, the sensor is on the left strut.

Below is a table with the circumferences of a few tires (in cm):

Schwalbe Kojak 35	149
Schwalbe Marathon Plus 47	155
Schwalbe Marathon Racer	150
Schwalbe Stelvio	146
Schwalbe Durano	146
Vredenstein Perfect Moiree 35	150
Vredenstein Perfect Moiree 47	154.5
F-Lite	157.5

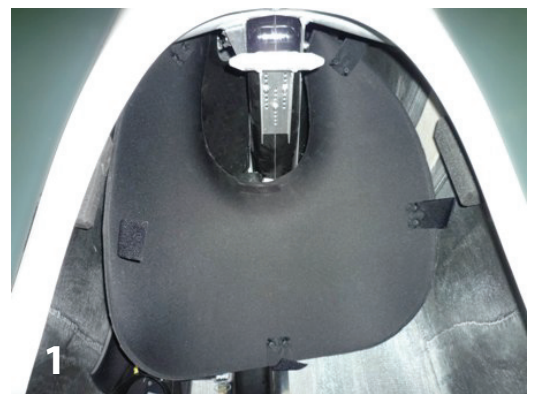
## 5.7 Foam Cover

The Quest/Strada/XS has a lid made of thermo-formed foam.

When the weather is nice it can be driven without the cover. The lid can be stored inside the bike in several places. It can be placed behind the seat (Picture 1 & 2), or positioned in the front of the fairing, above your knees. (Picture 3) Two Velcro strips are located above the knee area to hold the lid in its storage position. It can also be folded and then placed next to the rear wheel well. Do not leave the lid folded or rolled up for a long time as it could be permanently deformed.

The lid has 5 Velcro straps (XS has 6) attached to the bike. In strong winds it is recommended to secure all five. When used in the city, secure only the 2 side straps so that you may release the lid and stick your hand out to signal.

If you park your bike you can fasten the cover over the cockpit entrance.



## 6. Driving the Quest/Strada/QuestXS

Because the Quest/Strada/XS behaves quite differently from the standard bicycle that most cyclists are accustomed to, we recommend you take the time to relax and explore the riding characteristics of the bike.

The Quest/Strada/XS has a fast aerodynamic shape. Depending on the wind, you will be around 25% faster than you would be on a road bike. If you stop pedaling, the Quest/Strada/XS will coast a long distance. Accelerating takes more energy. An “efficient” driver adjusts his or her driving accordingly, seeking the ideal line in a turn. Naturally you need to be careful when taking turns so that you can still see the road ahead of you.

The energy necessary for acceleration is directly proportional to weight. The Quest/Strada/XS is about twice as heavy as a sport bike with a rack and lights. However, this does not mean that you need twice as much energy to reach a certain speed. You must consider the total weight of bike and rider together. In a Quest/Strada/XS, a rider weighing 80 kg would only weigh 16% more than the same rider on a sport bike. As the speed increases the Quest/Strada/XS benefits from its aerodynamic shape and has the advantage of lower air resistance. At speeds above 30 km/h (18.75 mph) you can accelerate faster than a road bike.

### 6.1 Place in traffic

In most locations a Quest/Strada/XS is considered a bicycle and is subject to the same road rules as a bicycle. Being a tricycle, the Quest/Strada/XS requires some special considerations. It is only 76 cm (30”) wide at the wheels and will therefore usually fit within most bike paths and cycle lanes.

It is your responsibility to consult the laws for your locality and to be sure you comply with all local, state and federal regulations.

### 6.1 Special precautions

**Winter Time:** Although a trike is potentially safer on icy roads than a two wheeled bicycle, there are still dangers. If you slide sideways from an icy patch to a dry part of the road, it is possible to flip over.

**Winds:** Strong winds will affect your Quest/Strada/XS. Side winds can actually have a sail like effect and propel you along making cycling easier. But strong winds can be dangerous, particularly as you turn into the wind, so exercise caution.

## 7. Safety

It is save to wear a helmet, your head is not protected by the body of the bike. Be aware that your rearwheel is the Achilles heel of your vehicle, a three wheeler may react fiercely when the rearwheel gets of track. A tire losing air rapidly or skidding on an icy spot can make you loose control.

If the rearwheel gets caught in a rail or runs besides the pavement and suddenly jumps on the road again it may cause the bike to go sideways and than tip over. If one or two wheels get of the pavement slow down and very slowly steer it back on the road.

### 7.1 Visibility

Quest / Strada / XS drivers riding in traffic often get the criticism that they are hard to see. We believe that someone who doesn't see a brightly colored object nearly 3 meters long is just not looking. Such comments from drivers often arise from the fact that the Quest/Strada/XS is an unknown phenomenon and will attract attention.

However, in some situations you can actually be less visible. If you appear from behind (parked) cars, bushes or fences, people may not see you. Another danger is that people may misjudge your speed. It is a good idea to keep this in mind as you encounter certain situations. Avoiding an accident is better than claiming that you had the right of way afterwards. Pay attention to whether others see you and make eye contact with your fellow road users.

### 7.2 Visibility in the dark

Test the lights and the condition of the battery regularly. Adjust your speed to match visibility, particularly at night.

### 7.3 Helmet

Always wear a helmet while cycling. Choose an approved model. A helmet with a flat back will be more compatible with the headrest. In certain driving conditions you may find a visor to be a desirable feature. The Quest / Strada / XS comes standard with a rear view mirror installed. Some find a helmet mounted mirror useful.

## 8. Maintenance

Work on key components such as suspension, steering, brakes and drive should be carried out with good engineering practices. Improper repairs affect your safety. We recommend that you have your bike inspected by a bike mechanic familiar with recumbent trikes every 10,000 km. If one is not available then Velomobiel.nl or one of our dealer would be happy to assist a local bike shop with a bike check-up.

Regular maintenance tasks include:

- Adjusting the brakes
- Maintaining proper tire inflation
- Checking for broken or loose spokes
- Lubricating the chain

### 8.1 Tires

Keep the tires properly inflated. The tire manufacturer provides pressure information on the sidewall of the tire. Proper inflation will give lower tire rolling resistance and better handling. The correct pressure of the tires is the best achieved using a manual pump with pressure gauge. Also occasionally remove any bits of glass or stones that may have become embedded in the tires as these can cause flat tires.

The front wheels on the Quest/XS are cambered for improved handling and will wear the tires slightly off center. Rotating the tires every 1,500 kilometers will increase their service life.

### 8.2 Punctures

Tires are a compromise between low rolling resistance, weight, durability and puncture resistance. Because your physical power is limited, a compromise has to be made, sacrificing durability for lower weight and reduced rolling resistance.

All wheels on the Quest/Strada/XS are attached to the suspension on only one side. This allows the tires to be changed without dismounting the wheels (picture 1).

You can support the bike on the tip of your toes to lift the wheel off the ground (pictures 2 and 3). You can also very gently lay the bike on its side on grass or on a blanket for a short period of time.

Be sure to find the cause of the flat tire (small rock in the tire, rim tape lying askew, thorn) or else it will cause another flat.

It is recommended (especially in the dark and / or rain) that you replace both the tire and the inner tube. Once home you can comfortably check and repair the punctured tube and inspect the tire.



## 8.3 Tire Wear / front wheel alignment



- Wrench 10 mm
- Wrench 10 mm
- Wrench 8 mm
- Wheel alignment tool

Tire life is highly dependent on your driving style and the type of surface that you ride on. Quick or aggressive turns will increase tire wear, but so will driving daily on a winding path.



The alignment of the wheels is very important for the life of the tires and the performance of the bike. The front wheels should run exactly parallel. Measuring the toe-in accurately should be done on a flat surface.

To determine alignment:

- Set the wheels in the straight position.
- Measure the distance between the wheels at the front and back, due to camber it is important you measure at the same height.

You can make an alignment tool or purchase one by [Velomobiel.nl](http://Velomobiel.nl) (Picture 1). A long metal ruler can also be a simple tool for checking alignment.

If the difference in the distance is more than 2 mm then you need to adjust the alignment or toe\*.

Follow this procedure:

- Loosen the locknut on the steering rod while you keep it from moving with a second wrench (Picture 2).
- Loosen the retaining nut on the balljoint to remove it from the steering mechanism. The balljoint has a flat area right underneath the ball for a wrench. Use a thin wrench to keep the ball from turning while you loosen the retaining nut (Picture 3).
- Pull the balljoint loose from the steering mechanism.
- Turn the balljoint in or out in the required direction to make the rod shorter or longer.
- Reassemble without tightening the nuts and measure again.
- If the alignment is correct, tighten the locknut and the retaining nut.



**Note:** The balljoints are not meant to be disassembled.

\* Front end alignment is generally referred to as Toe. If the wheels are closer in the front than the back it is called Toe-in. If they are closer together in the back it is called Toe-out. Target a front end alignment of 0 - 2mm of Toe-in. Toe out is not recommended.

## 8.4 Spokes



- Screwdriver
- Spoke Wrench

During fast turns the wheels are subjected to large lateral forces. Occasionally spokes may break. Check your wheels for broken or loose spokes. Quest/Strada/XS wheels have 36 spokes.

- spoke length front wheels **Schothorst** : 179 mm (for 70 mm drum) or 176 mm (for 90 mm drum)

- spoke length front wheels **KHE (black)**: 163 mm (for 70 mm drum) or 158 mm (for 90 mm drum)
- spoke length rear: 264 mm

If you replace a spoke make sure it is as tight as the other spokes. All spokes should be tight and have even tension. Loose spokes can move while driving and will soon break due to metal fatigue.

Wheel truing requires some experience. Using a wheel building stand with Quest/Strada/XS wheels will require an adapter because they are designed for wheels supported on both sides. These adapters are available from your local dealer.

The spokes that most frequently break, are the nine with the head on the outside of the inner hub flange. On the Quest/XS, these spokes can be replaced without removing the wheel (on the Strada, the wheel is very easy to remove from the bike).

Follow these steps:

- Unscrew the nipple and remove the broken spoke. (Picture 1)
- Bend the new spoke slightly crooked. (Picture 2)
- Insert the spoke through the hole in the flange by placing it in the tunnel for the steering mechanism. (Picture 3)
- Twist the spoke between its neighbors, in the same manner as the others in the wheel.
- Screw the nipple back on, first using a screwdriver and then with the spoke wrench.
- If you tighten the new spoke to the same tension as the others, it is usually not necessary to true the wheel.

To replace other spokes in front or rear wheels, it is necessary to remove the wheel from the bike.



## 8.5 Removing a front wheel



- Wrench 13mm
- Wrench 13mm
- Wrench 8mm\*
- Gear Wrench 10mm\*
- Allen 5mm

Removal of the Quest/XS front wheel, requires disassembly of the suspension as they come out together. This is not necessary in the Strada, so you can skip to Step 4.

Loosen the two M8 (using two 13 mm wrenches) nuts that are tightened against each other on the strut assembly (thin nut on top) and remove the rubber ring and washer. (Picture 1)

Pull the computer with its holder from the tab on the wheel well and push the cable through the hole, into the inside of the wheel well. (Picture 2)

**Note:** This step will not be necessary if your bike is equipped with a wireless computer.

Use the 8 mm wrench (a thin wrench will fit more easily) to keep the balljoint from turning and the 10 mm wrench to loosen the retaining nut. Remove the nut and separate the balljoint from the suspension member.

**Note:** The ball joints can not be disassembled. (Picture 3)

Remove the strut from the wheel well; it is now only attached to the brake cable and the computer (unless wireless). Remove the rubber hubcap and loosen the wheel bolt with a 5 mm Allen, then pull out the axle. (Picture 4)

To remove the computer sensor from the strut, cut the cable ties. (Picture 5) Again, this step is not necessary for a wireless computer.

Unhook the brake cable and the strut can be taken off the bike. (Picture 6)

\* available in  
Velomobiel.nl





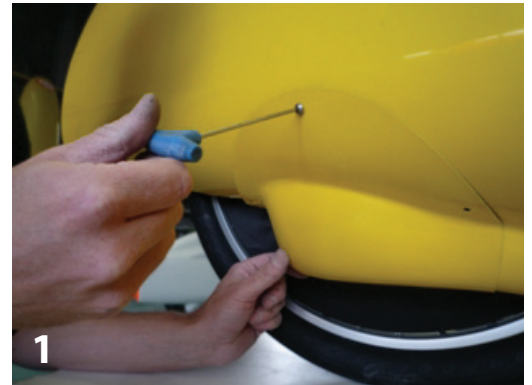
## 8.6 Removing the rear wheel



- Wrench 13 mm
- Wrench 13 mm
- Allen 3 mm
- Allen 4 mm
- Axle Puller

The rear wheel is supported by three 6002ZZ bearings in the swingarm. A 15 mm diameter axle runs through the bearings and has the cassette and the wheel mounted on it. An M8 bolt holds the wheel to the hub and double M8 nuts retain the other side. The puller needed for disassembly comes with a new bike or it can be purchased from [Velomobiel.nl](http://Velomobiel.nl) or our dealers. The hole in the cartridge body is enlarged by [Velomobiel.nl](http://Velomobiel.nl); a standard body will not fit.

Remove the derailleur cover with 3 mm Allen wrench.



Set the derailleur in the 9th gear. This places it in a position to clear the body as the wheel moves down. Then disconnect the wing nut at the top of the shock and let the rear wheel drop.



Two M8 nuts are locked against each other at the end of the axle on the derailleur side.



Loosen them using two 13 mm wrenches and remove them together with the thick washer.



Then remove the M8 bolt with thick washer on the wheel side. If necessary, keep the shaft from turning with a 4mm Allen on the derailleur side.



Thread the axle puller onto the end of the axle.

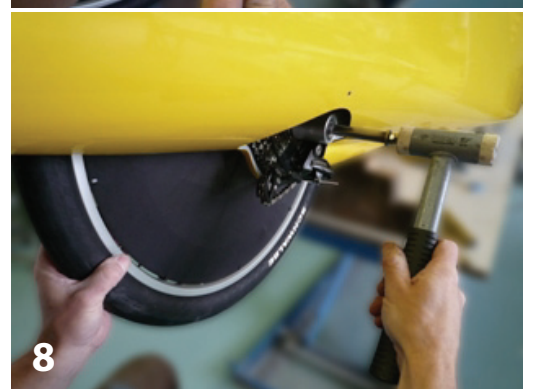


Pull the axle out of the wheel hub and bearings by turning the nut on the puller. With the axle halfway out, you can remove the wheel in a downwards direction. If you pull the axle out further, the cassette can also be removed.



### To Reassemble:

Put some grease on the shaft and place a nut on the end. Refit by gently tapping with a rubber mallet and rotating it. Make sure that everything is aligned first. Tighten the two nuts against each other and do not forget the thick washer. Tighten the M8 bolt on the wheel side, but not so tight that the threaded rod with the two nuts on the other side is damaged over time.



Make sure that the splines on the hub fully engage into the cassette body.



## 8.7 Light system

The headlight is adjustable by using the handle inside your velomobile.

The Quest/Strada/XS has 6V 4,1 Ah NiMh battery. The battery will give you a theoretical 24,6 Watt hour, the B&M Lumotec IQ Cyo headlight consumes 2,4W thus the battery will last 10 hours with the headlight alone.

But you also have :

Taillight	- 0.2 W
Running lights	- 0.24 W
Brake light	- 1W
Interior lighting	- 0.12 W

As an accessory you may have:

Indicator lights	- 1W each LED
Horn	- 9W

### The battery:

- In cold weather conditions or with a older battery you will not get the theoretical performance.
- The NiMh battery can be charged at any time and doesn't have to be depleted before charging like a NiCd battery.
- Never store the battery for an extended period of time in a discharged condition; this will shorten its life span.
- When the charger is charging the red light is on, if the light turns green it is fully charged, this may take up to six hours.
- The charger may be connected to the battery for a longer period of time it will shut off automatically when the battery is fully charged.
- Charging time for a discharged battery is approximately 5 hours.
- It is not good for a battery to fully discharge it, charge it as soon as the lights begin to dim.
- If there is a short circuit in the wiring, the fuse will blow. Do not bypass the fuse without first fixing the short, as even a small battery can cause a fire.
- Even if a battery is not used it will discharge over time.



## 8.8 Strut Lubrication

The struts should be lubricated once a year. There is a vent hole at the very top of the strut. Ten to twenty drops of light oil should be sufficient. The oil will sit inside strut and after several hours of driving, it will lubricate the sliders.

Squeaking and creaking noises should disappear. Overuse of oil may reduce the frictional damping of the shock over time.

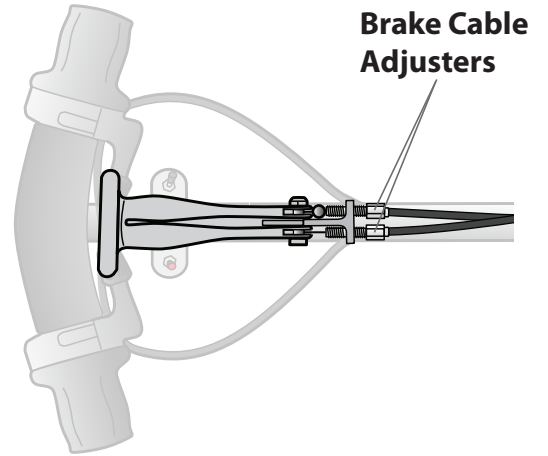


## 8.9 Brakes



- Wrench 10 mm
- Allen 5 mm

You can adjust the brakes by turning the adjusters in the brake levers. To check the brake after tightening the cable you can lift the bike on its side and turn the wheel by hand. A quick way to make sure that both brakes adjusted equally, is to set the parking brake and lift the rear of the bike. Swinging the rear left or right should take the same effort.



Secure the locknuts with threaded locking compound or hairspray.

If the brakes are not working smoothly or continue to stick after you release them, it's time to lubricate the bearings surfaces and pivots on the brake mechanism. Use a thin oil or Teflon spray with high penetrating power.

It is possible to lubricate the brake pivots without removing the wheel. Unscrew the wheel bolt from the axle and remove it together with the thick washer (picture 1).



Push the wheel slightly and then lubricate the lever shaft from the inside and outside. Push the lever back and forth several times and lubricate again, repeat this until the lever moves smoothly again. Put a drop of oil between the pressure points of the brake shoes (picture 2 and 3).



Do not forget to lubricate the other pivot point (picture 4) and clean any spilled oil. Install the wheel and tighten the wheel bolt with thick washer securely.



**Note:** lubricate sparingly, there should be no oil on the brake shoes!



## 8.10 Chain / Derailleur

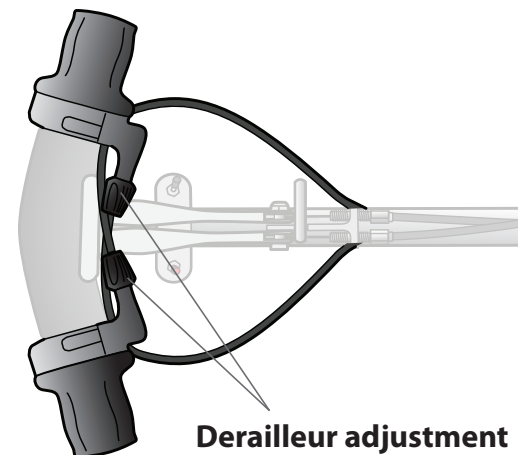
The chain should be lubricated occasionally. It can be done with Shimano oil we add to new velomobiles.

You can easily lubricate the chain on the bike by placing a wooden block underneath it to allow the rear wheel to turn. Remove the chain cover under the seat to access the chain. Apply lubricant to the chain as you move it to expose more chain.



Over time, the shifter cable may stretch a little and the shifting of the rear derailleur can become inaccurate. To compensate for this, turn the adjuster screws where the cable comes out of the gripshifters. You can do this while you ride the bike so that you can check the impact immediately.

Of course be very alert of traffic. Alternately you can place a wooden block under the tunnel to lift the bike. Then you can adjust the derailleur while you "dry" cycle with the rear wheel off the ground.



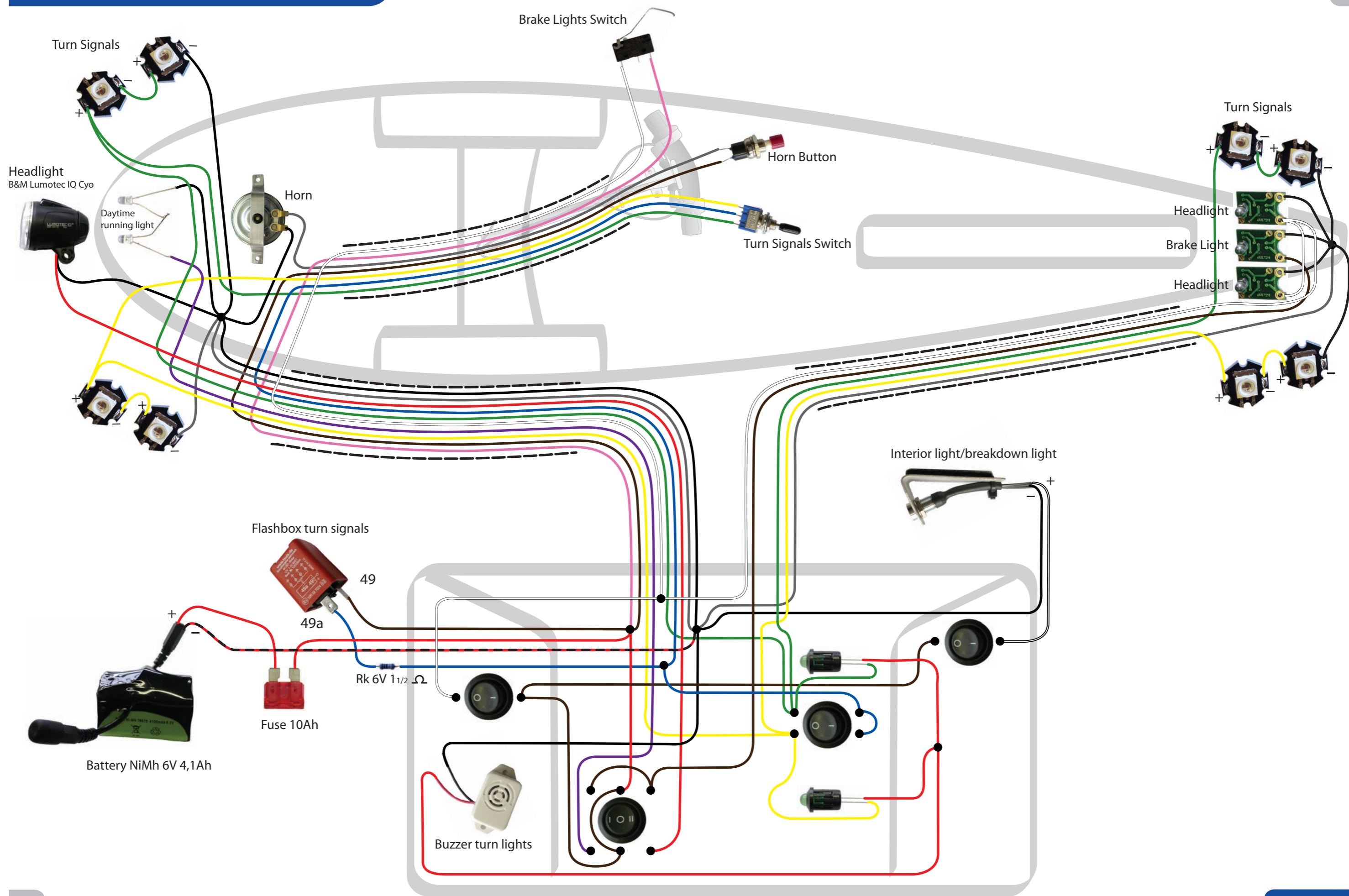
## 8.11 Steering Joint

Over time, play may develop in the plastic block for the universal-joint at the bottom of the steering mechanism. This can be remedied by adjusting the two bolts that go through it. Adjust one first then the other keeping in mind that each acts in a different axis.

**Note:** The steering must be free to move, otherwise the lower terminals of the block may cause unwanted steering reactions.

The bolts are screwed in to the threaded aluminium forks the nut is for securing its position.





## 10. Dealers - Contacts

### The Netherlands

For questions, remarks, cycle parts and maintenance contact us or our dealers:

#### **Velomobiel.nl**

De Vliet 6  
NL-8253 PB Dronten  
Tel: 0031 (0)321 332717  
Fax: 0031 (0)321 333638  
E-mail: [info@velomobiel.nl](mailto:info@velomobiel.nl)

#### **Elan**

Meijhorst 7017  
6537 EN Nijmegen  
Tel: 0031 (0)24 3430854  
Email: [info@elan.cc](mailto:info@elan.cc)  
[www.elan-ligfietsen.com](http://www.elan-ligfietsen.com)

#### **ACE**

Weurden 60  
7101 NL Winterswijk  
Tel: 0031 (0)543 530905  
Email: [info@ace-shop.com](mailto:info@ace-shop.com)  
[www.ace-shop.com](http://www.ace-shop.com)

#### **Sinner Bikes**

Stavangerweg 15  
9723 JC Groningen  
Tel: 0031 (0)50 5493415  
Email: [info@sinnerbikes.nl](mailto:info@sinnerbikes.nl)  
[www.sinnerbikes.nl](http://www.sinnerbikes.nl)

### Belgium

#### **EMvelomobiel**

Etienne Stienen  
Tel: +32 (0) 474 986 348  
Email: [info@emvelomobiel.be](mailto:info@emvelomobiel.be)  
[www.emvelomobiel.be](http://www.emvelomobiel.be)

### Germany

#### **Velomobiles Composite Design**

Elmar Maier  
Hammersteinpark Gebäude 104  
29392 Wesendorf, D  
Email: [mail@velomobiles.de](mailto:mail@velomobiles.de)  
<http://velomobiles.de>

### Denmark

#### **Velomobilcenter.dk**

Sandbakken 9 Toppevad  
3660 Stenløse, DK  
Email: [info@velomobilcenter.dk](mailto:info@velomobilcenter.dk)  
<http://velomobilcenter.dk>

### France

#### **CyclesJV Velomobiles Center Le Mans**

Joël Vincent  
11-15 rue du champ de Mars  
72100 Le Mans, F  
Tel: 0033 (0)6 14 48 37 35  
Email: [joelv@wanadoo.fr](mailto:joelv@wanadoo.fr)  
[www.cyclesjv.com](http://www.cyclesjv.com)

### Canada

#### **Bluevelo**

291 Pretty River Parkway North, Unit 1  
Collingwood, Ontario  
L9Y 4J3  
Tel: 416-871-2349  
Email: [info@bluevelo.com](mailto:info@bluevelo.com)  
<http://www.bluevelo.com>

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