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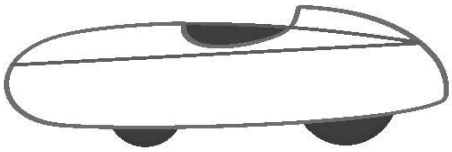
Contact Information:
bluevelo inc.
388 Carlaw Avenue, Unit 119
Toronto, Ontario
Canada
Tel. 416-871-2349
info@bluevelo.com

For questions, comments, components and maintenance, please contact: **bluevelo inc.**

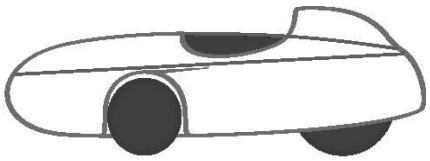
1. Introduction

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



QUEST



strada

	QUEST	STRADA
Length	2.85 m	2.65 m
Width	0.765 m	0.76m body /0.80m at tires
Height	0.9 m (unladen)	0.95 m (unladen)
Weight (approx)	35 kg (29.5 kg for carbon option)	34 kg (28.5 kg for carbon option)
Turning Circle	11 m (depending on tire width)	8 m (depending on tire width)
Seat Angle	35 - 40°	35 - 40°
Optional Electric Components		
◊	Inoled extreme / B&M IQ Cyo Low power consumption LED rear/brake light	Inoled extreme / B&M IQ Cyo Low power consumption LED rear/brake light
◊	Flevobike 11.1V 6.6Ah Li ion battery/ battery charger	Flevobike 11.1V 6.6Ah Li ion battery / battery charger
◊	Optional: turn signals -emergency flashers high intensity interior light, electric horn, second battery	Optional: turn signals -emergency flashers high intensity interior light, electric horn, second battery
Crankset	Driveline ISIS triple 53/42/30	Driveline ISIS triple 53/42/30
Pedals	Shimano 324 (SPD) (600s for carbon)	Shimano 324 (SPD) (600s for carbon)
Chain	SRAM 971 (KMC SL for carbon)	SRAM 971 (KMC SL for carbon)
Cassette	SRAM 9 Speed (XT for carbon) 11/12/13/14/16/18/21/24/28 Other compatible cassettes possible	SRAM 9 Speed (XT for carbon) 11/12/13/14/16/18/21/24/28 Other compatible cassettes possible
Derailleurs	Front Tiagra, Rear SRAM X-9/LX	Front Tiagra, Rear SRAM X-9 /LX
Shifters	SRAM X-9/Attack Grip Shift	SRAM X-9/Attack Grip Shift
Brakes	Aluminum drum SA (70mm or 90mm)	Aluminum drum SA (70mm or 90mm)
Wheels	Rigida Alloy 36H	Rigida Alloy 36H
Tires	Front Schwalbe Kojak slicks 35-406 Rear Schwalbe Marathon Supreme	Front Schwalbe Kojak slicks 35-406 Rear Schwalbe Marathon Supreme
Spokes	Sapim butted strong 13/14 stainless 36 spokes/wheel	Sapim butted strong 13/14 stainless 36 spokes/wheel

2 Operation Tips

The Quest /Strada 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.
- 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 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 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 is a larger vehicle and think it is further away that 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 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 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.

3.1 Entry and Exit

Easy entry and exit from the Quest / Strada 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

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 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 is properly adjusted. An improper positioning of the bottom bracket will provide a poor return on your pedalling effort and can lead to injuries.

Tools Needed

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

4.1 The Seat

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

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).

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

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 bottom bracket

Tools Needed
- 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.

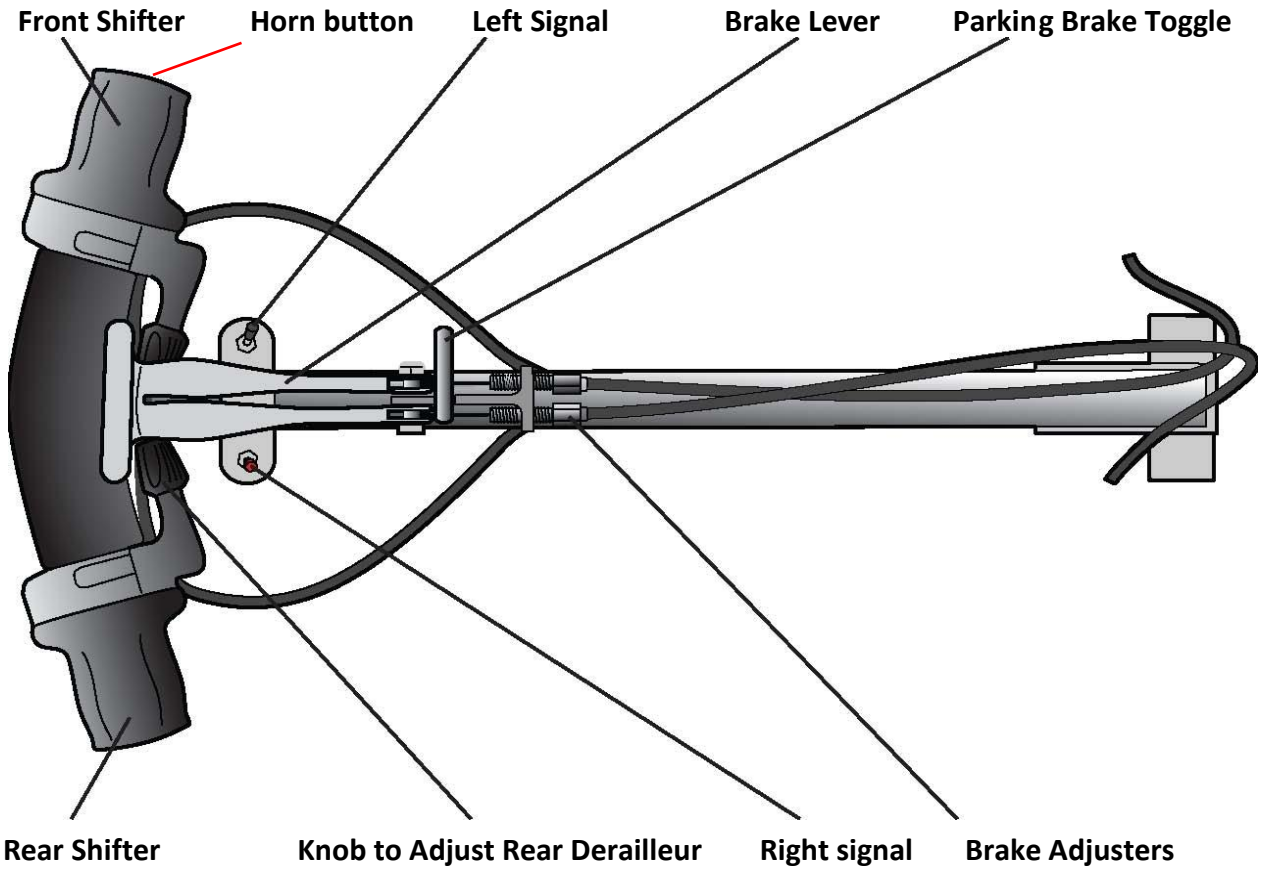
Note: If the crankshaft is moved, the chain length should be checked. The chain should always be long enough so that when it is on the big chainring in the front and the big sprocket at the back, the rear derailleur still has some slack. If that not the case, the rear derailleur will be damaged during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

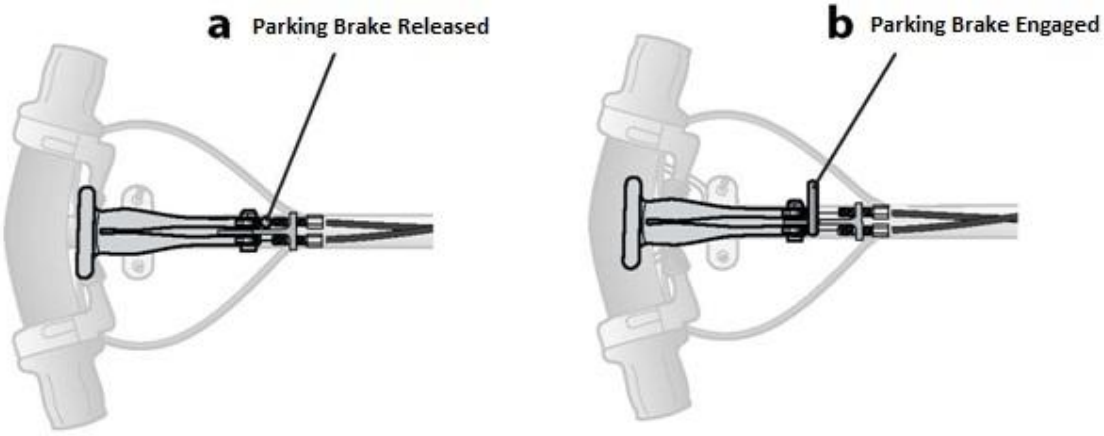
The Quest/Strada is steered with a rotating tiller. It can be moved up and down or left and right without affecting the steering. Twisting the tiller will turn your bike. You can hold the tiller in a position that you find comfortable.



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.

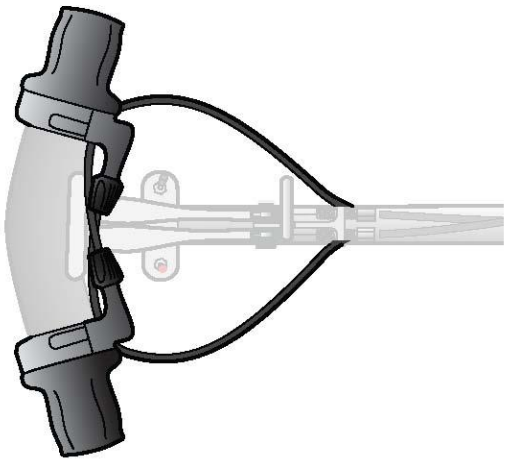
To prevent draining the battery, the aluminum toggle will also switch the brake light off when the bike is parked, make sure that the brake light actually goes out and does not bend the tab on the switch.



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 bike at a standstill) you can cause damage to the shifting mechanism if force is applied to the pedal. Stop immediately if you hear the chain making sounds when reversing.



5.4 Lights

The Quest/ Strada 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

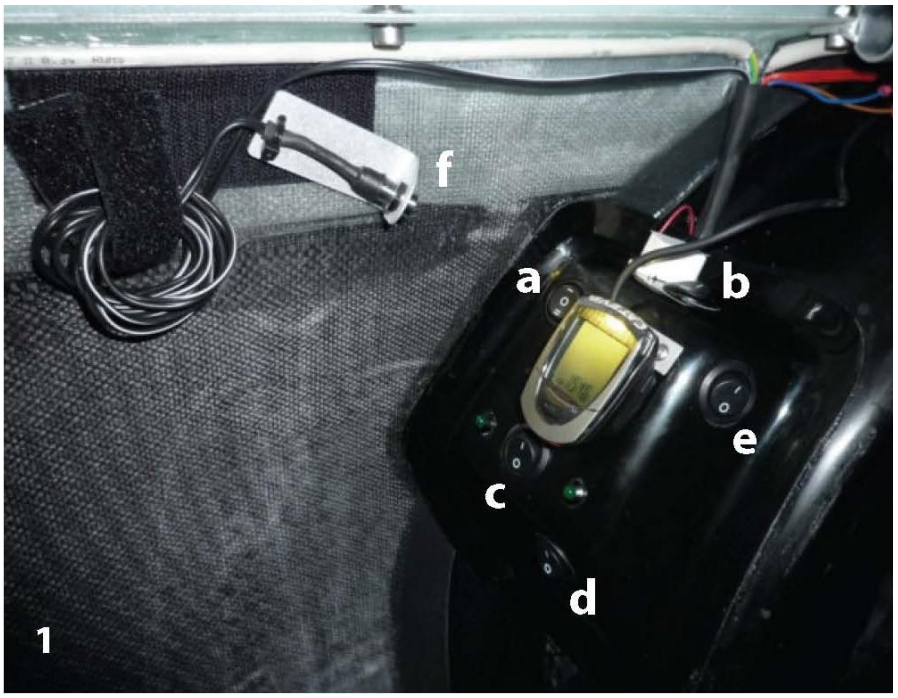
b) Running lights

c) Continuous brake light

d) Interior light switch

e) Secondary front light

f) Interior light



5.5 Bell

The bell mounted in the front of the bike and is operated by a pull cord. The Quest/Strada 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 mm):

Schwalbe Marathon Racer	1500
Schwalbe Stelvio	1460
Schwalbe Durano	1460
Schwalbe Kojak	1510
Vredenstein Perfect Moiree 35	1500
Vredenstein Perfect Moiree 47	1545
Vredenstein Perfect Moiree 54	1585

5.7 Foam Cover

The Quest/Strada 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 tape straps 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

Because the Quest / Strada 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 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 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 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, 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 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 is considered a bicycle and is subject to the same road rules as a bicycle. Being a tricycle, the Quest/Strada 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.

6.2 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. 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

7.1 Visibility

Quest / Strada 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 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 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 **bluevelo** 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 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 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

Tools Needed
- Wrench 10 mm
- Wrench 10mm
- 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. 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

Tools Needed

- 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 wheels have 36 spokes.

- spoke length front wheels: **179** mm or **176** mm for 90mm 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 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, 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

Tools Needed
- Wrench 13mm
- Wrench 13mm
- Wrench 8mm
- Wrench 10mm
- Allen 5mm

Removal of the Quest 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 6) Again, this step is not necessary for a wireless computer.

Unhook the brake cable and the strut can be taken off the bike. (Picture 5)

8.6 Removing the rear wheel

Tools Needed
- Wrench 13mm
- Wrench 13mm
- Allen 3mm
- Allen 4mm
- Axel Puller

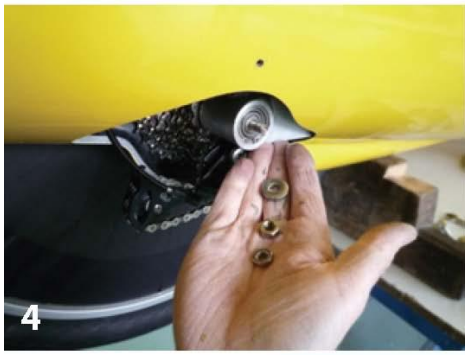
The rear wheel is supported by three 6002ZZ bearings in the swingarm. A 15 mm diameter axle runs through the bearings and has the cassette and the wheel mounted on it. An M8 bolt holds the wheel to the hub and double M8 nuts retain the other side. The puller needed for disassembly comes with a new bike and is included in the shipping crate. A replacement can be purchased from **bluevelo**.

The hole in the cartridge body is enlarged at the factory; 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 axel 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 Electrical Components

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The Quest / Strada has a 11.1V, 6.6Ah Li Ion battery. The Inoled headlight consumes approximately 3 W.

Additional electrical components:
Taillight -- 0.2 W
Running lights -- 0.24 W
Brake light -- 1W
Interior lighting -- 0.12 W.
Optional equipment:
LED Flashers -- 1W each
Horn -- 9W

Cold weather or an older battery will diminish the amount of time the equipment can be powered.

- Never store the battery for an extended period of time in a discharged condition; this will shorten its life span.
- Charging time for a discharged battery is approximately 2 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.

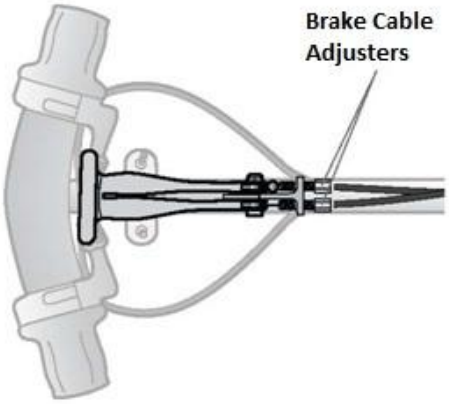
Squeaking and creaking noises should disappear. Overuse of oil may reduce the frictional damping of the shock over time.

8.9 Brakes

Tools Needed

- 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.

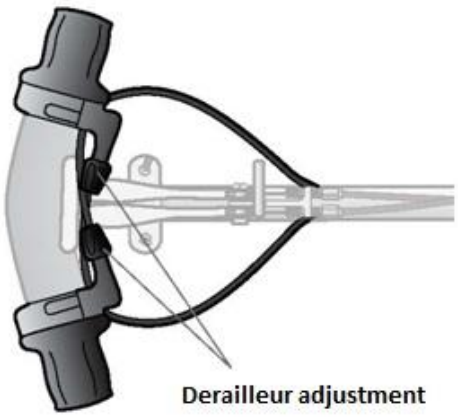
It is possible to lubricate the brake pivots without removing the wheel. Unscrew the wheel bolt from the axle and remove it together with the thick washer (picture 1).
Push the wheel slightly and then lubricate the lever shaft from the inside and outside. Push the lever back and forth several times and 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. 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.



Derailleur adjustment

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.

Battery Information from Flevobike

Flevobike has assembled a high-end Li-ion battery in an equally high end case. A battery power indicator has been integrated in the case so you can see the amount of power left in the battery at any time. Press the button for a few seconds and 1 to 5 LED lights will light up. Every LED light equals 20% of power.

The battery consists of 9 cells, 3 connected in parallel and those 3 connected in series. Each cell has a nominal voltage of 3.7V and a capacity of 2200mAh. This means that the entire battery is (3*3.7v=)11.1 Volts and (3x2,2Ah=)6,6Ah, which then comes down to a power of 73,26Wh. That's enough to supply over 8 hrs of light.

Li-ion batteries have a number of advantages compared to other types of batteries, as long as they are treated well they will last a long time. The advantages and disadvantages are as follows:

Advantages

- Very high density (a lot of capacity in a relatively compact and light battery)
- No self discharge
- No memory effect (you can charge your battery at any moment without any negative consequences)
- High power (high capacity in a relatively small battery)
- More environmentally friendly than other batteries
- Long battery life (when treated right, read more under *Battery life*)

Disadvantages

- Relatively high price
  Not suitable for full discharge
- Susceptible to extreme heat/cold

Battery life

Even though the battery has been provided with BMS (*B*attery *M*anagement *S*ystem), which protects the battery from discharging too much or charging too much, the battery life can be further increased when you have a better understanding of Li-ion battery technology:

Prolonging battery pack life

A Li-ion battery will start decreasing in capacity directly after production. How fast this process will develop depends on a number of factors. A fully charged battery will age faster than a battery that is charged to 50%. Discharging the battery isn't recommended either. A Li-ion battery ages the least at a charge of about 40%. The temperature of the battery is also very important in respect to aging. A Li-ion battery ages the least at 0°C /32°F. Any lower or higher and it will age faster.

When the battery is not in use it's best to store it in the refrigerator (not in a freezer) and charged to about 40 % (2-3 leds)

When in use it's best not to charge the battery to full capacity (if possible). Charged to about 80-90% the battery will age significantly less than when it's fully charged. Charging the battery when it's at least 20% charged instead of at less than 20% is also better, if the last indicator is still lit, charge for about 2 to 2,5 hrs to get the best result.

The battery is equipped with BMS. This monitors several parameters to make sure the battery has the longest life possible. The BMS is electronically protected at a maximum current of 4A. When the battery is short-circuited or is charged too high it will automatically shut the battery down and when the problem has been fixed will also turn it on again. .

Li-ion battery

Sizes

Length:	85mm
Width:	65mm
Height:	65mm
Weight:	620 gram
Voltage:	11,1V

Ah:	6.6Ah
Wh:	73Wh
Max. output current:	4A

Li-ion 11,1V/1,8A charger

Sizes

Length:	120mm
Width:	60mm
Height:	38mm
Weight:	235 gram
Input:	AC 100-220V·· 50/60Hz 0.3A
Output:	DC 12,6V·· 1,8A