



USER MANUAL

KEA Step-Through Trekking ebike



PLEASE READ CAREFULLY



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Safety Instructions

Thank you for purchasing an **evinci** electric bike, designed by NZEBIKES. Your KEA trekking bike features the most recent innovation in technology and applies to the AS/NZ standard. For safety reasons, it is most important that you read this User Guide BEFORE you operate the bike. Improper handling can reduce its riding performance and most importantly, pose danger to your safety and health!

NZEBIKES is continuously updating and innovating this product. The printed manual may therefore not always include the latest updates. However, we shall make sure that our online manual will always be up to date on evinci.nz/support.

We want also encourage you to **register** your bike with your frame serial number. This allows us to help you finding your bike in case of theft, as we get contacted by the police when bikes are recovered.

Your frame serial number is stamped into bottom of the motor.



To register just go to our **evinci** website (evinci.nz) and click on "Login/Register" to create an account with your details. You may register up to two bikes within the same account.

Symbols

Please pay particular attention to information next to one of the symbols shown below as it can be very important for your safety.



WARNING

This symbol indicates that improper handling poses a risk to your health and safety



ATTENTION

This indicates that improper handling could damage components and make void the warranty.



NOTE

Points out to useful tips

Introduction

You have decided in favour of a Pedelec (Pedal Electric Cycle) - a bicycle that is equipped with an electric motor to give you additional assistance when riding. With this bicycle, you can make better progress in headwinds, when transporting heavy loads or on steep slopes.

You can select the level of power assistance required according to the weight of your load and/or the prevailing road conditions, the effectiveness of the power assistance depends on your pedal power and the level of assistance selected. Before switching on the electric assistance system, please read the chapter "Charging the battery". The battery must be fully charged before you go for a ride the first time.

Mode of operation and extent of electronic power assistance

As soon as you turn on the electric assistance system and begin pedalling or pushing the throttle, electronic power assistance is available. Depending on the selected assistance level the motor will add a certain amount of power to assist you. The amount of support is also proportional to the force pushed into the pedals thanks to the torque sensor integrated into the mid drive motor system. An average rider can easily reach on flat tracks up to 110km out of the standard 16Ah battery.

Modes of support

This ebike comes with two different riding modes.

Torque: will support the rider using torque sensing. Choose out of 5 levels how much the motor should add to your

Cadence: enables pedal-assist mode, which reacts as soon as you start moving the pedals. You will get a fixed amount of assistance depending on selected level between 1 and 5.

What comes with the bike?

- 240V mains charger
- Manual

Optional accessories

- PowerBuddy: a 12V direct charger. Allows charging your battery through your car or RV battery without an additional inverter.
- Heavy duty front basket (mounted to head tube)
- Rear basket

You can order these accessories through your local dealer.

Components



1	Colour Display	5	Battery Charge Port
2	Control Buttons	6	Battery Lock
3	Throttle	7	Suspension Lockout Control
4	Mid-Drive Motor	8	Rebound Control

Basic Safety Tips



Always pull the brakes and hold the handlebar firm and straight before taking off to make sure you stay in control of the bike when power assistance is in action!

For your road safety

- Always wear a suitable bike helmet
- Wear bright clothing or reflective elements to be seen better by other road users
- Wear shoes with a non-slip sole
- Wear close-fitting clothing on your legs or wear trouser clips
- Wear bicycle gloves



Ref (1)

How to use your charger

Your KEA comes with a 3Ah quick charger to charge your battery. Please do not use any other charger.

The typical time to charge the standard 16Ah battery if it is empty is about 6 hours.



If you want to charge your battery from a car or motor home (12V systems), NZEBIKES or your retailer can supply a special charger called PowerBuddy for this purpose.

If you use your bike regularly you can recharge the battery whenever you have use it.

Before you use the charger the first time please read the following notes regarding safety carefully!



- Keep the charger away from children!
- to prevent any possible injury, this charger should only be used for the original lithium battery which is supplied together with the KEA e-bike



- Any other battery is not compatible and risks to explode while charging, causing serious injury to people as well as damage to other equipment
- Using this charger for batteries not supplied by Evinci could risk catching fire, provoke electric shock and/or cause serious injury
- Please make sure that the charger is always kept dry and does not get wet at any time.

The charger LED (1) indicates the battery status:



LED	STATUS
green	the battery is not connected
red	the battery is charging
green	the battery is charged, the charger has switched off



Before using your battery the first time, it has to be charged once overnight for at least 12 hours.

Safety notes concerning the battery



- Keep the battery out of reach for children
- Never try to open the battery. Apart from this being dangerous, all warranty will be void
- Do not provoke a shortcut circuit with metal gadgets
- Remove the battery from the bike when transporting on an external bike rack
- Do not dip the battery in water or any other liquid
- Do not keep the battery close to heat or open fire
- A battery needs to be recycled after use, never throw it in an open fire as it could explode
- If the battery is damaged because it has been dropped or because of a biking accident, there might be a risk of an internal short-circuit. Immediately stop using a damaged battery.

To maximise the use of this battery, please consider the following:

The battery will not charge when exposed to temperatures below +0°C or above +60°C. It is therefore recommended to keep the battery at room temperature before charging it.

The charger operates with a microcomputer system with automated control functions. It automatically stops charging when the battery is full. It cannot be damaged by overcharging.

None the less, we strongly recommend to always disconnect the power plug from the wall socket after the battery is charged as power surges, i.e. lightning, through the grid can damage the charger or battery electronics!

Longterm Storage

KEA batteries come with an active balancing battery management system (BMS), this keeps the battery cells happy, but it does also consume some power. Therefore it is important to recharge the battery once every 3 months to prevent the battery from going in a safety shutdown.

Also do not leave the battery on the bike as this also can cause further discharge even if the bike is not turned on.

Charging your battery



You may charge the battery on the bike or remove it to a more convenient place.

1. Open the rubber plug cover at the left side of the down tube (#5)



pull at the round side of the cover, don't use force!

2. Connect charger cord to the battery
3. Connect the power cord to a mains socket

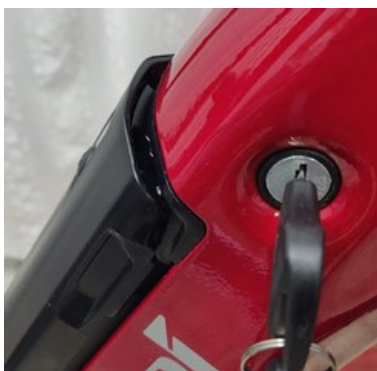


The charger will get warm while charging – do not cover while in use as it might cause a malfunction.

Always close the rubber cover for the charge socket at the down tube! Water will damage the battery.

How to remove and insert the battery

1. Removal: unlock the battery lock at the right side of the down tube
Turn the key clock-wise till you hear an audible click noise
2. The battery will pop out from it's rail, lift the battery out of the down tube
3. Insert: first put key into lock and turn clock-wise till you hear the click noise, this makes sure the lock is open. Slide the battery into the down tube, push the battery down at the top till it locks itself. Turn the key anti-clockwise to lock the battery and remove the key.



Unlocked



Locked

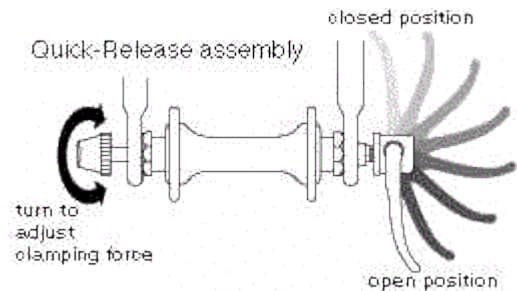
Before starting to ride

Mount or dismount front wheel

For easy transport, you may remove the front wheel using the quick release at the front wheel axle.

To remove the wheel open the lever to release the pressure. Now hold the lever and turn the nut on the other side about 8-9 times – do not remove the nut! You should be now able to lift the wheel out of the fork.

To mount the wheel repeat procedure the other way round. Hold the lever pointing parallel to the fork in the open position (downwards), turn the nut till you feel a slight resistance. Try to close the lever – if it is too hard to do so, loosen the nut a small bit and try again.



Before every ride make sure the quick release is tightened properly. To fail so can lead to serious injuries!

Adjust seat height

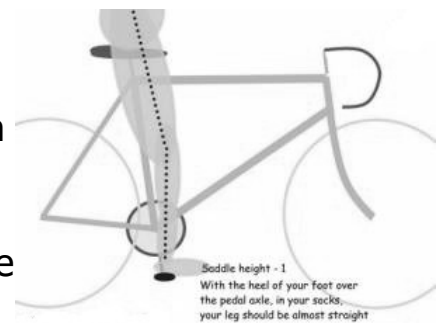
Open the quick-release lever at the seat clamp, adjust the seat height and close the lever firmly. If the lever is too loose, open the lever again and turn the adjusting nut clockwise until you feel resistance. Now close lever again. It should close with noticeable resistance.



Never tighten the seat post if the maximum mark is visible, otherwise, you can injure yourself or damage the seat post.

How to find the correct saddle height?

1. Sit on the bike saddle
2. Try to reach pedal with your heel when it is in the bottom position. Your knee should be more or less fully straightened out
3. Place the ball of your foot on the centre of the pedal. If your knee is now slightly bent, the saddle height is correct



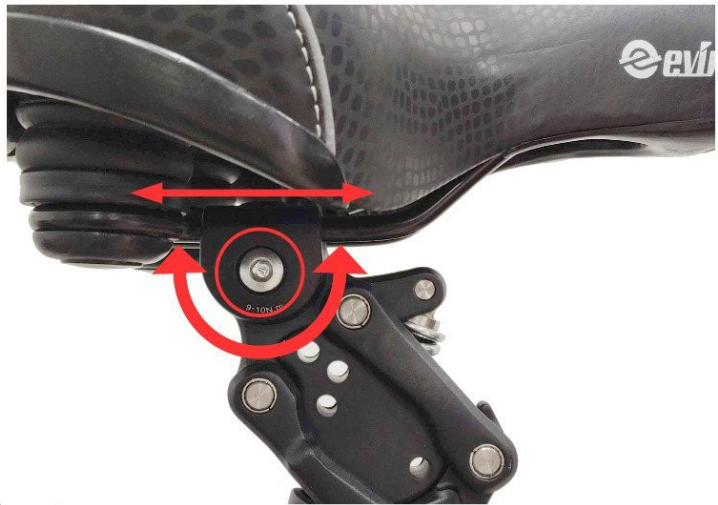
Adjusting the saddle angle

Best riding comfort is found when the saddle is horizontal, some riders prefer a slight forward angled seat.



Never angle a seat backwards as it can quickly lead to back pain or physical injuries

1. Loosen the clamping screw anti-clockwise
2. Tilt the saddle to the required angle
3. Tighten the clamping screw clockwise. Make sure that the screw is tightened firmly (10 NM)



Adjust the stem and handlebar

The angle of the stem can be adjusted by opening the 6mm Allen Key screw at the left side of the stem. Do not remove the screw! There are two clamp plates, as soon as both are release you may adjust the angle. Re-tighten properly!



Re-adjust the tilt of the handlebar by opening two of the handlebar clamp screws (upper or lower, 5mm Allen Key).



Check tire pressure

It is very important to maintain the correct tire pressure. Too low pressure will decrease the range and can lead to rim or tire damages when riding over kerbs. The recommended tire pressure is 40 psi. For muddy undergrounds, the tire pressure can be reduced to improve traction.

Suspension seat post

The high-end parallelogram seat post suspension can be adjusted to the riders weight and preferences. Use a 6mm Allen key, turn the screw counter-clockwise to make the suspension softer. Turn it clockwise to stiffen up the suspension. Please bear in mind that a very soft setting will increase the wear on the rubber stopper (replaceable spare part).



Suspension fork

Your KEA mountain bike is equipped with a high-performance air suspension. This fork allows the rider to adjust the suspension to their riding style and terrain.



The pressure of the air-cartridge can be adjusted on the left side by adding or releasing air pressure. A special pump is required for this purpose – your local dealer can help you with this. The pressure should be set according to the weight of the rider.

Lock Out Lever

The right side lever allows to lock the oil cartridge. If the lever is turned clockwise any fork movement will be prevented. When going uphill it is usually better to lock your fork to prevent fork pumping.



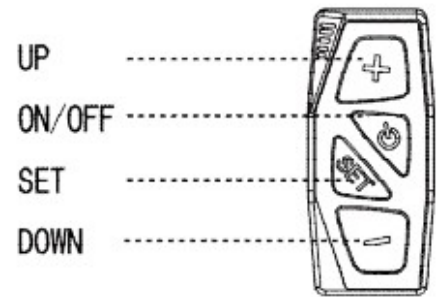
Rebound Control

A rebound control knob can be found at the bottom of the right fork leg. For slow and bumpy rides adjust to (+) for fast rides that need good brake control choose a faster rebound setting (-).



Operation

- Turn the display on by pushing the (I) button
- Select the desired assistance level with the UP or DOWN keys. Start riding.
- Use the throttle as desired to add additional power to the selected assistance
- To change the riding mode (torque/cadence) push the set key once
- When finished riding press the (I) button for 3 sec to turn the system off (it will also turn off after 5 min when not used)



Display

Battery Level: The display shows the battery level with 5 segments. Each level is about 20% of power. Below 10% the controller or battery might turn off when a higher load is applied, i.e. riding uphill. The voltage is a direct readout of the battery, giving the rider a precise information how much is actually left. The range is from 41.6V (full) to 32.5V (empty).

POWER:

The white bar segments on the left lower side show how much power the motor consumes. This allows the rider to see how efficient he or she is riding, less bars mean the battery capacity will last further.

Riding Modes: push SET to toggle



T = torque mode



C = cadence mode



Assist: your selected level of assistance. 0 = no support, 5 = max support

KM/H: shows your current riding speed

TRIP: accumulates until manual reset

Reset trip: push SET button for >2sec. Select '1. General Set' menu Push SET. Select '1.1 Trip Clear', push SET again: The 'N' turns red. Now use (+) or (-) to toggle to 'Y'. Push SET again and move up (- key) to '<<'. Push SET again. Move down to '4. Save & Exit'. Push SET to exit.

Please do not change other settings.

TIME: Time of each ride – gets reset when powered off

ODO: the total distance you have travelled with this bike (can't be reset)

Lights: to turn the LED lights of your bike on or off push the ON/OFF (I) button (<1sec).

Error Code: if there is a problem in the electrical system you might encounter a Error code message. Please refer to the Troubleshooting section or ask your dealer for assistance.

Walk assistance: you can activate the motor to support you pushing the bike up a hill. Press and keep depressed the DOWN (-) button. After 2 seconds the motor will start with a maximum speed of 6kph.



Walk assistance is not supposed to be used while riding the bike

Throttle

The left hand side thumb-throttle allows the rider to add power to the selected assistance level. This can be useful when starting or to give you an extra boost when riding up a hill.



The throttle shall not be used to operate this ebike like a motorbike. Using the throttle consistently in a wrong gear combination can lead to motor overload and voids the warranty.

Gears



Only change gears while pedalling otherwise the derailleur might get damaged

Your KEA ebike is equipped with a high performance Shimano 10-gear system. Since this ebike uses a mid drive motor which supports the crank, it is essential to choose the right gear depending on your riding situation. I.e. the motor will not be able to support you adequately up a hill if you have selected a much too high gear, similar as if you would try to get up a steep hill in a manual car in gear five.

If you have to adjust gears before riding, i.e. to start in first gear, lift the rear wheel using the side stand and turn the crank while changing the gears.

As a rule of thumb, gears on a mid-drive bike are changed and used similar to a car with a manual gearbox.

You will start in 2nd gear, on a flat road you will choose gear 6 or 7 to pedal along. Uphill go back to 3 or for steeper hills gear 1. If you ride faster or downhill choose higher gears.

While you change gears a sensor will reduce the motor power to avoid as much as possible too high forces and nasty noises. You can help with this process by reducing your pedal power with each gear change. Your chain and cassette will thank you with a higher life expectancy.

The assistance level chosen on the display will assist you up to a certain speed and adds motor power according to how much you push into the pedals.

Choose the assistance level and gear according to your needs and riding style.

Watch your crank revolutions, if you have the feeling you have to push too hard at too low revolutions, change to a lower gear. If you pedal very fast with less effort, choose a higher gear or reduce the assistance level.



When you intend to stop it is good practice to change the gear back to a low gear so you may start without any problems. This can easily be done while braking and slowly pedalling as the motor will not push you further.

Brakes

We recommend always using both brakes at the same time – this allows the rider to take the best control over the braking process without stressing the front or rear brake. To brake efficiently, your front brake is there to stop you and the back brake is there to shave off speed. Roughly 70-80% of your stopping power comes from the front brake. Leaving 20-30% for the back brake.



Please note that this bicycle uses high performance hydraulic brakes with motor cut-out. To engage the motor cut-out a certain amount of brake force is required.

Maintenance

Your KEA e-bike needs regular maintenance as any other normal pushbike. All bike shops can help you with these maintenance steps.

There is no maintenance of the electrical components necessary.

Brakes

This bike uses hydraulic brakes which are self-adjusting. If you feel that the brake force gets lower or the way you have to press the brake levers exceed 50% of X (Fig 1) most likely the brake pads have to be replaced. Please see your local bike shop.

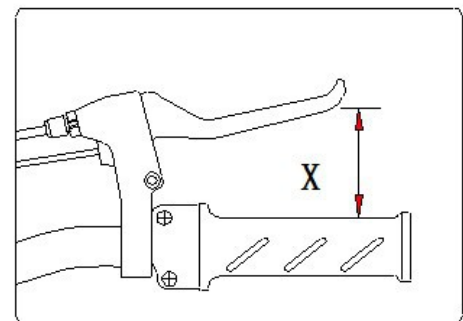


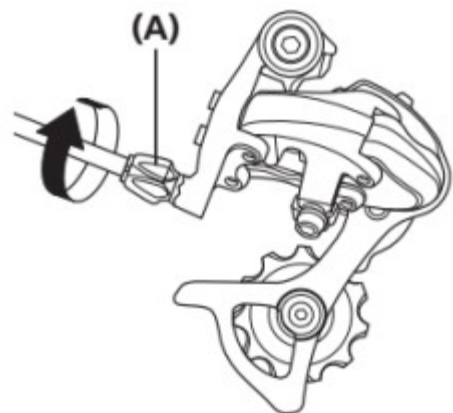
Fig 1

Gears

Our KEA bike uses a solid and easy to maintain Shimano Deore derailleur system.

After a while it can happen that gears do not perfectly change anymore or you experience a rattling noise while pedalling. This is normal due to the nature of the used control wire hulls which can get compressed over time. To re-adjust it is usually enough to slightly tighten the gear wire.

For the rear derailleur turn (A) anti-clockwise while turning the pedals till the rattle goes away.



Safety points

We recommend a 12-month interval service or every 1000 km.

Important checkpoints are:

- Quick-release front and rear axle
- headset
- stem clamp
- seat post clamp
- brake caliper screws
- spoke tension



Spoke tension has to be checked on a regular interval. Failing can cause spoke breakage and will void the warranty

Repairing a puncture in the rear wheel

Since the rear wheel comes with a quick release axle it is very easy to remove the wheel.

Just follow the same instructions as for the front wheel.

Troubleshooting

Problem	Resolution
The Battery is charged but the display won't turn on	<ol style="list-style-type: none">1. Check plug going from display to frame harness, unplug once and plug back together.2. If possible measure voltage at the battery socket (left and right pin). If no voltage can be measured, take the battery to your retailer.
The Charger is plugged in, but LED stays green	Try to use another charger, otherwise it might be a battery fault, please take the battery to your retailer
Getting Error 07 after turning bike on	Check the throttle lever – it might be jammed or otherwise engaged.
Getting Error 05 after turning bike on	Check both brake levers, must be in neutral position. Unplug cable coming from brake to disengage cut-out switch. See your dealer for adjustment.
Error 2, 15 or 10	Internal system error. Please see your dealer.
Error 03	Motor is stalling. Please make sure not to use the throttle in too high gear at a hill since the motor won't be able to start up.

Glossary

BMS

BMS is an electronic circuit for battery monitoring. It increases a battery pack's safety by making sure that all cells are operated within the permitted voltage range only. When current is too high, the temperature is too high or one line of batteries inside the battery is outside the permitted voltage range the charge output will be switched off. This avoids the total discharge of the battery during normal operation. An integrated balancer ensures that any differences in voltage between single cells are equalised. In case of a problem with the charging device, the BMS makes sure that the battery cannot be overcharged. A capacity gauge may be included to display the remaining capacity.

Controller

The controller is the heart of any electric bicycle. It has the power electronics to drive the motor and a microprocessor. The controller processes all input signals coming from the different sensors and it talks to the display on the handlebar. The microprocessor runs the firmware, which is the piece of software telling the controller what to do. Firmware updates can be applied to improve or add functions.

Display

The display is usually mounted to the handlebar and allows the rider to readout vital information about the e-bike system and control the functions in the controller. There are different kinds of controllers with LED or LCD interfaces.

Hall sensor

Hall sensors are used in motors, cadence sensors, brake switches, and power throttles. Inside the motor, they determine the motor direction and submit it to the controller so the motor will turn in the right direction right at the start. Inside the PAS they detect if the magnet disc is rotating. Inside the power throttle, they measure how far the throttle is rotated. Hall sensor can be of the analogue or digital kind. Functional principle: When hall sensors are passing by a magnetic field they emit an initial voltage, which is proportional to the product of magnetic field strength and current (Hall Effect). They are named after their inventor Edwin Hall.

Pedal Assist Sensor (PAS)

In an electric bicycle, the PAS measures if the crank is moving in riding direction. This information will be passed on the controller which then activates the motor to support the rider. The PAS can distinguish between forwards and backward movements of the crank.

Torque Sensor

The torque sensor measures the force generated by the rider when pushing into the pedals. Our sensor measures values between 1 to 80kg and applies motor support according to the selected PAS level.

References

Ref (1): Ministry of Health NZ, Website

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