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### 1.0 Introduction

Welcome and congratulations on buying your new A2B Ferber\*, the electric bike that's taking transport in a whole new direction. It's the new revolutionary way to get to work, pop to the shops or just get some fresh air. Compared to jumping in the car, an ebike is a lot more fun, easier to park and will reduce your fuel costs as well as your impact on the environment... as you'll soon find out!

This manual refers to the design of A2B Ferber. Graphical representations may vary from your product.

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<sup>\*</sup>A2B Ferber is termed as 'A2B' throughout the rest of this manual.

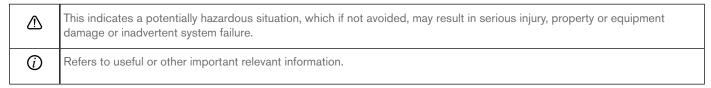
## 2.0 Important information

This owner's manual contains important safety, performance and service information. Please ensure you read this thoroughly before your first ride.

Your A2B should be fully assembled and the battery charged by your A2B dealer prior to delivery. If not contact us immediately as this will void your warranty. Please ensure that all users of your A2B read and understand the following important information.

- According to national rules a bicycle has to be equipped with two independently working brakes, a bell, head light, tail light, side reflectors on the wheels or integrated reflection stripes on the tyres, and front and rear reflectors.
- The A2B is designed for public road use. Don't ride off-road, in water and don't use the A2B to jump in bumby terrain or for competition events.
- We recommend that you always wear light or fluorescent clothing at night when riding the A2B.
- Make sure you know and practice the rules of safe and responsible riding. There is always a risk of serious / fatal injury or damage as a result of an accident while riding an A2B. By choosing to ride the A2B you assume responsibility for that risk.
- Your existing insurance policies may not provide accident cover for your A2B. Contact your insurance company or agent for information.

#### Important symbols



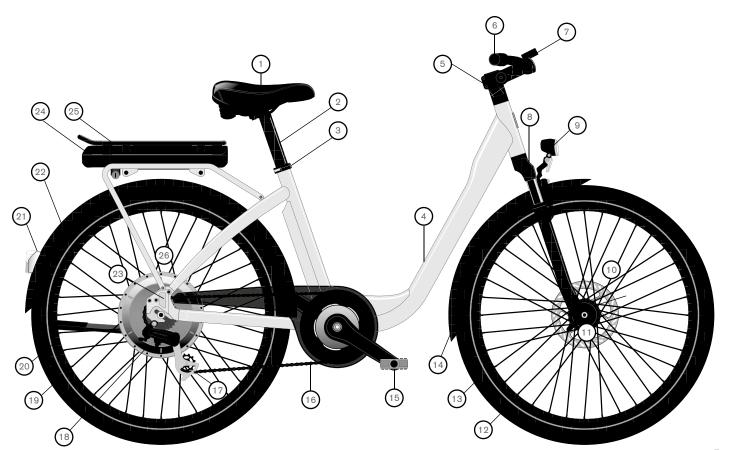
If you have questions or do not completely understand any of the instructions in this owner's manual, please ask your A2B specialist dealer.

### **3.0 Your A2B**

#### 3.1 Components

- Saddle (seat)
- 2. Seat post
- 3. Seat post quick release
- 4. Frame
- 5. Stem
- 6. Grips & Brakes
- 7. Display
- 8. Front fork
- 9. Headlight
- 10. Front brake
- 11. Quick release front wheel
- 12. Front wheel tyre
- 13. Front wheel rim

- 14. Front mudguard
- 15. Pedal, crank arm and chain ring
- 16. Drive chain
- 17. Derailleur and freewheel
- 18. Motor
- 19. Rear wheel tyre
- 20. Rear wheel rim
- 21. Rear light
- 22. Rear mudguard
- 23. Sensor
- 24. Battery
- 25. Rear rack
- 26. Rear brake



#### 3.2 Changing components or adding accessories

Before installing any component or accessory, including a different tyre, make sure that it is compatible with your A2B by checking with your A2B dealer.

Read, understand and follow the instructions that accompany the component or accessory you purchase for your A2B.

As with all mechanical components, the bicycle is subjected to wear. Different materials and components may react in different ways to wear or stress fatigue. If the design life of a component has been exceeded, it may suddenly fail possibly causing serious or fatal injuries to the rider. Any form of crack, scratches or change of colouring in highly stressed areas such as frame, fork and handle bar, indicates that the life of the component has been reached and it should be replaced immediately by an A2B dealer.

⚠ Failure to conform with compatibility, proper installation, operation and maintenance of components or accessories can result in serious or fatal injury.

⚠ Using non-genuine components or replacement parts may compromise the safety of your A2B and void the warranty.

If you change components or add accessories, you do so at your own risk because Hero Eco may not have tested that component or accessory for compatibility, reliability or safety on your A2B.

#### 3.3 Brake lever adjustment

Can you comfortably operate the brakes? If not, take your A2B to an A2B dealer and ask them to adjust the angle of the brake levers. Alternatively, follow the instructions below to adjust the brake lever angle:

- Loosen the bolt underneath the brake lever with an appropriate allen key.
- 2. Adjust the angle to suit your riding position.
- 3. Tighten up the bolt underneath, ensuring the brake lever is firmly fixed in place.

② Should you need to adjust the brakes themselves, please take your A2B to an A2B dealer to make the required adjustments.

#### 3.4 Handlebar adjustment

- 1. Loosen the bolts (A) using an appropriate allen key.
- 2. Position the handle bar symmetrically to the bar stem.
- 3. Turn the handle bar to the desired angle.
- 4. Tighten the bolts consistently to 12 Nm.

#### 3.5 Display adjustment

- 1. Loosen the bolts (B) using an appropriate cross-head screwdriver.
- 2. Position the display to the desired angle.
- 3. Tighten the bolts consistently.

#### 3.6 Bar stem adjustment

- 1. Loosen bolt (C) using an appropriate allen key.
- 2. Once loose, align the stem with the front wheel.
- 3. Once aligned, tighten the bolt (C) to 15 Nm.

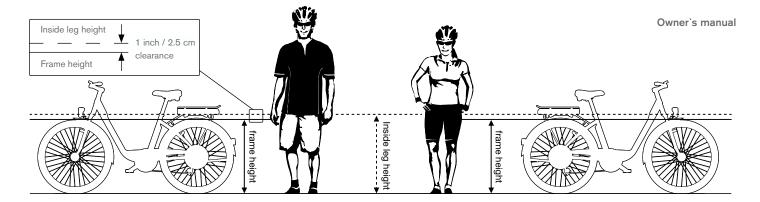
#### 3.7 Change the angle of the adjustable stem

- 1. Loosen bolts (D) using an appropriate 5 mm allen key.
- 2. Position the stem to the desired angle.
- Tighten bolts to 15 Nm ensuring the stem is aligned to the front wheel.



O Caution: The handlebar stem is an A-head stem, the top screw E is preloaded with 1-2 Nm and does not adjust the handlebar stem. Trying to tighten bolt E can damage the head set bearings.

⚠ Failure to correctly secure the handle bar and bar stem can result in serious or fatal injury. Ensure there is no play in the steering and that the steering is working smoothly. Should you need further advice to adjust the headset, please contact your A2B dealer.



#### 3.8 Adjustment of the seat height

he seat height may have to be adjusted. Please ask your A2B specialist dealer to adjust the seat height before your first tour. You may also adjust the seat height on your own as indicated below:

#### Determination of the correct driver's seat height

There are several ways of determining the correct seat height; the method which can be carried out without any further auxiliary means is described in the following: Sit on the saddle and stretch one leg. Put your foot's heel on the pedal which is on the lowest point of the crank turn. Your knee should now be almost straightened.

If you are sitting straight on the saddle while having this position, the saddle's height is correct.

Of course, you then do not drive with legs stretched. If you put your foot on the pedal while having the correct driving position (ball of

foot and metatarsophalangeal joint above the pedal axle), the knee will remain slightly angled also on the lowest point of crank turn if the saddle height has been adjusted correctly.

A short test ride is recommended to find out if the saddle is too high. If the pelvis tilts to the right and the left in the rhythm of pedalling, the saddle is too high. If the saddle is too low, you will usually find it out only after many kilometres through pain in the knees.

#### Height adjustment

- The seat height can be adjusted by loosening the quick release for the saddle post.
- Position the saddle at the desired height. Do NOT position the saddle higher than the minimum insertion mark located on the saddle post BY NO MEANS.
- Push the lever of the quick release towards the frame, until it will be closed again. The lever must not stick out to avoid danger of injuries. The lever is safely attached if you must use efforts to

push it into the closed position. The efforts are appropriate if the lever leaves a mark on the palm of your hand when pressing. A properly closed quick-release cannot be moved anymore unless it is reopened as specified above. If you can move the mechanism slightly, open the lever of the quick release, turn the adjusting nut by another 180° and try again.

- After height adjustment, check if the saddle cannot be moved in any direction.
- An improperly attached saddle may lead to severe or even fatal injuries. Ensure that the saddle clamp screw (saddle post saddle) has been tightened using 27 Nm.

## 4.0 Understanding your A2B

#### 4.1 A2B Overview

Having read this section, if you are still unsure, please ask an A2B dealer to explain any functions or features that you do not understand before your first ride.

The A2B has a 'true pedal assist' function, this means the motor engages only when the rider is pedalling. So you can choose to ride with the pedal assist switched off and go places under your own steam, yet have the comfort of knowing you can switch the motor on for an extra boost at any point during your journey.

#### 4.2 Starting and stopping

- Select a quiet area away from cars, other cyclists, obstacles or other hazards.
- 2. Make sure that the battery is fully recharged.
- 3. Power ON the electronic system by turning the battery power on.
- 4. Raise the kickstand into the riding position. DO NOT sit on the A2B while it is supported by the kickstand, you will damage the kickstand and possibly the frame.
- 5. Mount your A2B and get comfortable.
- 6. Apply motor power by pedalling the A2B.
- 7. Test the brakes at slow speed. The right brake lever actuates the rear brake and the left brake lever actuates the front brake. Applying brakes too hard can lock up a wheel, which could cause you to lose control and fall.
- Check out the handling and response of your A2B. Familiarise yourself with how the suspension responds to application of the brakes and shifts in rider weight.

Remember that there are power cut-off switches embedded into the brake levers. When you apply the brakes, power to the motor will turn OFF. Therefore, do not hold the brake levers when you want the motor to run.

#### 4.3 Operation and use of the display

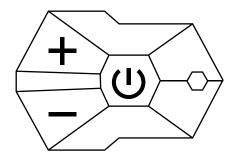
Your A2B has a modern LCD display attached to the handlebar remote (Controller).

#### Controller

The handlebars on your A2B Controller activate all functions, controlling your A2B drive system.

The following functions are defined:

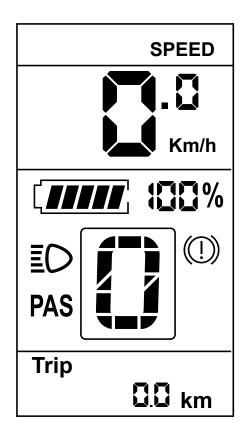
- 1. ON (+) (A step up)
- 2. Select button (on / off switch)
- 3. DOWN (-) (A step down)



#### The Display

The display is divided into three display areas:

- 1. Multi-function box for speed
  - a. Actual speed (SPEED)
  - b. Average speed (AVG SPEED)
  - c. Maximum Speed (MAX SPEED)
- 2. Battery charge status, display mode support, backlight, brake symbol
- 3. Multi-function field trip for optional display of:
  - a. Trip (TRIP)
  - b. Odometer (ODO)
  - c. Residual range with current battery charge with constant current drain (DIST)
  - d. Total time since last reset (TIME)



#### To use the system

After you have turned on the battery (see Chap. 5.0 using the battery), press the select button of the remote control (for longer than two seconds) to activate the system. When the system which has most recently been selected in the display, on the system settings is displayed and the system is ready for operation. You can operate your A2B between four Power levels (modes) which can be used when riding using the corresponding support.

The following driving modes are PAS = Pedal Assist Mode:

PAS 0 = no support

PAS 1 = economic (Minimum Motor support, ideal for saving energy and maximizing the range)

PAS 2 = standard (Normal Motor support, average distance per charge)

PAS 3 = high power (Maximum Motor support, maximum torque, shortest range)

To switch between modes press the Controller using the + button to select or the next higher level - button, to activate the lower level.

#### **Assistance Mode**

If you need extra motor support, for example on steep slopes.

Press the controller for longer than two seconds Button and hold it down.
Wait until the display appears:

Display PAS = P

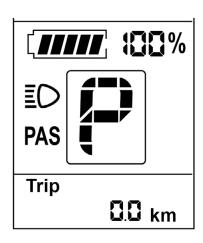
This indicates, that the pushing aid (assistance) is activated, once activated, release the sliding support.

The maximum speed of the Help shift is 4 km/h

#### More Screens in this display area

The light (LED) symbol will appear on the backlight of the display when activated.

When the light symbol appears on the right side of this Display panel, the display icon  $\widehat{U}$  indicates that you have at least one brake activated, your engine is turned off as long as you have both brakes activated.



#### Retrieval information of the display speed

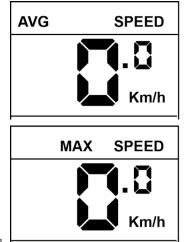
In the upper area of the display you can switch between displays showing the:

Current speed (SPEED),

The average speed (AVG SPEED) and the Maximum driven speed (MAX SPEED)

To switch, between modes, press the select button on the controller, for at least 1 second.

The values AVG SPEED and MAX SPEED are temporary values, which are deleted when resetting the trip meter.



# Retrieval information on the display panel is displayed in kilometres

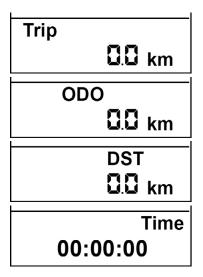
The multi-function display is in the lower third of the display, it is for the selective display of:

trip (TRIP),

the Odometer (ODO),

the residual range (DIST)

You can switch between these display values by pressing the select button on the controller.



#### Other functions

The + and - buttons control three functions. Press and hold + button to turn the backlight off or on.

Press and hold the - button to activate pedal assist mode.

Press and hold simultaneously to reset the trip odometer (TRIP)

\* This will also reset

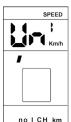
Time (TIME) Average Speed (AVE SPEED) Maximum speed (MAX SPEED)

#### Basic settings

Double click on the select button to access the basic settings menu.

Pressing the select button again will move through the following screens in order.

\* After you set your preferred settings, you can leave the basic settings menu at any time by double clicking the select button.

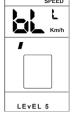


SPEED

1st screen:

### Select Kilometers or Miles

Press + or - to change.

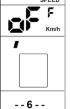


4th screen:

#### **Backlight settings**

To set the backlight to come on when the hike is switched on, press + button to select the -on-at the bottom of the display.





5th screen:

#### Power shut down setting

Set the period at which the power shuts down for non-use, to standby. Press + or - to increase or decrease from 1 to 9 minutes



--on--

LEVEL I

3rd screen:

#### Setting the contrast of the screen

Press + or - to increase or decrease contrast.

### Turning off the System after completing a journey

Press and hold the select button, for more than two seconds.

#### 4.4 Error Codes

#### **Controller Errors**

Display of a large c in the middle of the display, the error code to the multifunctional field, eg speed 16E.

CAN_ERROR_SLOW_OVER_VOLTAGE	
CAN_ERROR_SLOW_UNDER_VOLTAGE	
CAN_ERROR_OVER_TEMP_135	
CAN_ERROR_OVER_TEMP_INT (Controller)	
CAN_ERROR_CORRUPT_HALL_VALUE	
CAN_ERROR_RECOVER_WHILE_DRIVE	
CAN_ERROR_I_OFFSET_OVER_LIMIT	
(for wheel stall)	
CAN_ERROR_TORQUE/GRIP_OFFSET	
(torque over limit)	
CAN_ERROR_TORQUE_OFFSET_UNDER_LIMIT	
(torque under limit)	
CAN_ERROR_FLASH_MEMORY	
(controller flash memory defective)	

#### **Battery Fault**

Display of a large **b** in the middle of the display, the error code to the multifunctional field, eg: speed 2E.

	OVER_VOLTAGE	1
	UNDER_VOLTAGE	
5	OVER_DISCHARGE_CURRENT	3
6	UNDER_CHARGE_CURRENT	4
7	OVER_DISCHARGE_TEMPERATURE	5
8	OVER_CHARGE_TEMPERATURE	6
9	UNDER_DISCHARGE_TEMPERATURE	7
2	UNDER_CHARGE_TEMPERATURE	3
3	SHORT CIRCUIT	Ç

#### 15 Display Error

Display of a large **d** in the middle of the display, the error code to the multifunctional field, e.g. speed 2E.

7	COMMUNICATION_ERROR_CONTROLLER
	COMMUNICATION_ERROR_BATTERY
	COMMUNICATION ERROR CONTROLLER AND BATTERY

Alarms are reset automatically when the Error message is no longer present.

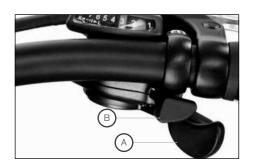
If you receive a constant Error message, please contact your A2B dealer.

#### 4.5 Gears

Your A2B has a rear derailleur controlled by the gear shifter on the right hand side of the handlebar.

To shift gears, pedal at a steady pace and push the shift lever A or B until you find the gear most comfortable for you and the current conditions.

To make pedalling easier (when encountering a hill), push up lever A in riding direction to down-shift, this will also make you pedal faster to achieve any given speed. Push up lever A against stop to down-shift two gears at once.



To ride faster (on a flat section or a downhill), push up lever B to upshift, allowing you to pedal more slowly for a given speed, but with more effort required.

⚠ Never pedal backward while shifting gears. The chain could derail and you could lose control, resulting in an accident that could cause serious or fatal injury and/or property damage. Always pedal forward at a steady pace when shifting gears.

The rear derailleur operates independently of the motor. Using the derailleur control, adjust the gear setting to find a gear that makes pedalling comfortable while assisting the motor.

#### 4.6 Light

To switch the light on and off push the switch on the headlight to on or off position.

② You can ride your A2B without attaching the battery. The motor will generate power for the lights.





#### 4.7 Luggage Carrier

Your A2B equipped with a durable luggage carrier. Please carefully read the instructions below before using the luggage carrier.

- The rack is attached to the carrier support by 4 x countersunk screws. The support is screwed on the frame by 4 x countersunk screws. If you are frequently using the luggage carrier, always check that the screws are secured tightly at torque value 6-8 Nm.
- 2. The maximum weight that could be carried is 10 Kg.
- Please ensure that the luggage is fastened securely, so that it can not fall off while riding. Take care that loose straps or other items can not get caught by the spokes or wheels while riding.
- The luggage carrier is not designed for carrying a second rider or for the attachment of a child seat. It should also not be used to pull a trailer.
- 5. Do not modify the luggage carrier.

- Distribute the weight of your luggage or goods evenly between the two sides of the luggage carrier.
- 7. Please be aware when the luggage carrier is loaded, your A2B may behave differently, especially when steering or braking.
- 8. Once you have attached your luggage to the luggage carrier, please be aware that the rear light and reflector may be obscured by your luggage.

⚠ Failure to observe these instructions can result in serious or fatal injury.



#### 4.8 At the end of your ride

If you have any questions, or if you feel anything about your A2B is not as it should be, ask your A2B dealer before you ride again.

#### Recharge your discharged battery

Fully recharge your battery within 3 days if the battery is completely discharged because a lithium ion battery left in a discharged condition deteriorates much faster than a fully charged battery. See sections 5.3 & 5.4.

#### 4.9 Understanding the range of your A2B

Factors affecting range include:

- The pedal assist mode
- Battery state-of-charge
- Use of gears appropriate to your speed
- Tyre inflation pressure
- Front wheel bearings and both brakes (tight bearings or a dragging brake shoe reduces range)
- Rider weight (it takes more battery power to accelerate a heavier person)
- Your speed and wind conditions (range is reduced when pedalling hard against a strong wind)
- Terrain (riding on a soft surface or climbing a hill uses more power)
- Frequent starts and stops (full power from a standing start draws the most amperage from the battery)

#### Maximise your range

- Fully charge your battery before each ride
- Check tyre pressure regularly and inflate to the pressure of 2.8 bar (40 psi) for both the front and rear tyre
- Have your A2B serviced at least once a year to ensure that the wheel bearings turn freely and the rims do not bind the brake shoes when the brakes are not applied
- Minimise the weight that you carry
- Ride at slower speeds
- Use the economy mode as much as possible and support the motor by pedalling with your own power
- Keep the chain and derailleur lubricated with chain spray recommended for bicycles

## 5.0 Battery use, storage and disposal

#### 5.1 Battery and charger



image showing rack battery

- 1. ON/ OFF-switch
- 2. Charging port with cover
- 3. Battery state-of-charge
- Use only the battery supplied with your A2B or a battery provided by A2B as a replacement for the battery supplied with your A2B.
   Use of any battery not supplied with your A2B WILL void the warranty and may cause damage to the electrical system and the hub motor.
- Improper use and poor storage of this battery will void the warranty and may cause serious or fatal injury or other hazardous situations such as fire and property damage.

- Improper use includes: using this battery with any other vehicle or appliance, subjecting the battery to intense physical shock or severe vibration.
- Poor storage includes: storing near excessive heat and/or open flames, long term exposure to sunlight.
- Use only the battery charger supplied with this battery. Use of any other battery charger will void the warranty and may cause damage to the battery, serious or fatal injury and/or other hazardous situation.
- Improper use of this battery charger will void the warranty and may cause serious or fatal injury or other hazardous situations such as fire and property damage.
- Improper use includes: subjecting it to intense physical shock or severe vibration.
- The battery charger supplied with this battery is for INDOOR use only.
- Avoid any contact with water or other fluids. If the battery charger or any connections become wet, immediately unplug the charger and thoroughly dry all components prior to charging the battery.
- Do not disassemble the battery. Attempting to disassemble the battery will void the warranty and may cause damage to the battery, serious or fatal injury and/or other hazardous situation.

#### 5.2 Charging the battery

- 1. Make sure that the Battery is turned OFF.
- 2. Plug the charger into the wall outlet. The LED will illuminate GREEN when the charger is connected to a wall outlet.
- 3. Connect the charger to the battery by plugging the connector into the charger socket.
- 4. The LED will illuminate RED as long as the battery is charging.
- When charging is complete the indicator LED will illuminate GREEN.
- 6. Switch off the power and carefully unplug the charger from the battery by pulling the connector out of the battery socket. Then unplug the charger from the wall outlet.

\*Your battery is now ready for use.

Battery charging	
Charging times Before using battery for first time Completely discharged battery	Hours 12 5-6

#### 5.3 Battery charging

To maximise battery life, recharge as soon as possible after every use.

Avoid leaving the battery charger plugged into your battery for more than 12 hours at a time. Once the battery is fully charged, unplug the charger from the wall outlet then carefully unplug the charger from the battery pack.

⚠ Avoid charging the battery at a temperature lower than 0 °C or over 40 °C. If possible charge the battery at room temperature.

① You may recharge the battery at any time, regardless of its state-of-charge. As your battery ages, it will gradually lose capacity. With proper care and maintenance, your battery will retain up to 80% of its capacity over at least 500 discharge/recharge cycles. As capacity diminishes, you will notice a gradual drop-off in the maximum range your A2B can achieve. When range falls to an unacceptable level, contact your A2B dealer for a replacement battery.

#### 5.4 Low battery charge

The motor controller and battery management system (BMS) are designed to turn off the power to the motor when the voltage of the battery drops to a predetermined point. This is to protect the battery from the harmful effects of a complete discharge.

When the power turns off due to a low battery, recharge the battery within 3 days. It will take 5 - 6 hours to fully recharge a completely discharged battery.

If you have any questions about this battery or its usage, contact your A2B dealer.

⚠ Never attempt to use the remaining power once the BMS has switched off the battery. You will damage your battery.

Charging instructions for storage - half charge	
Charging instructions for storage	Hours
Before storing battery Half re-charge at least every 90 days	2 2

#### 5.5 Battery storage

Disconnect the battery from the bike and store the battery in a cool (10°-21°C, 50°-70°F), dry place. Avoid exposure to direct sunlight. The Battery Management System (BMS) is always on consuming a small amount of power from the battery.

① Ensure the battery is at least 50% recharged before you store it.

Make sure that the battery is turned OFF.

⚠ Failure to follow these battery storage charging instructions will void the warranty.

#### 5.6 Battery disposal

⚠ DO NOT dispose of the battery as household waste. Dispose of, or recycle according to local authority guidelines or contact your A2B dealer for guidance.



#### 5.7 Attaching and connecting the battery to your A2B

- 1. Insert battery into carrier rail and attach correctly as shown in Picture 1. Lock battery and remove key.
- 2. Make sure that the battery is attached correctly and lock the battery. Remove the key.
- 3. To activate the system turn on your battery using the ON / OFF switch on the right side (Picture 2 Fig 1). LED illuminates RED (Picture 2, Fig 3).



Picture 1 - Battery Installed



Picture 2

## 6.0 Important Pre-ride Safety Information

#### Special note for parents or guardians

As a parent or guardian, you are responsible for the activities and safety of the child when they are using the A2B. You need to make sure that:

- Ensure that your approved child carry seat is correctly mounted on the bike.
- It is in good repair and safe operating condition.
- You and your child have learnt and understood the safe operation of the A2B.
- You and your child have learned, understand and obey local motor vehicle, bicycle and traffic laws.
- You and your child apply the common sense rules of safe and responsible riding.
- You and your child have read this manual, reviewed the warnings and the A2B functions and operating procedures with your child before letting them ride it.

#### To ensure safe and enjoyable use of your A2B

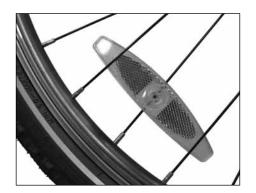
- NEVER carry a passenger. Overloading your A2B with a second rider can lead to severe injury or death.
- OBEY all traffic laws. Always ride on the correct side of the road, with and not against the flow of traffic.
- Watch out for car doors. Be aware of the possibility of car doors opening into your path.
- Be extra careful in wet conditions. In wet conditions it might take double or triple the distance you need to stop your A2B. Ride slower, anticipate your stops and apply the brakes earlier. Wet roads are slippery – take corners carefully.
- Make sure you are seen. In poor light conditions and at night, wear light coloured clothing, preferably with reflective strips.
- Ride attentively. Watch out for both moving and stationary vehicles.

#### 6.1 Check your A2B before every ride.

Do a 'walk around' of your A2B before every ride checking brakes, tyres and the tightness of all the important fasteners. Have your A2B checked by an A2B dealer at LEAST once a year. Your safety depends on the roadworthiness of your A2B .

- Reflectors: Your A2B has reflectors to make you more visible at night. Ensure they are in place, properly positioned and clean before each ride.
- Lights: Your A2B has a front light and rear tail light to make you
  more visible at night. Ensure they are functional and clean before
  each ride.

- Brakes: Check your brakes before each ride. Right brake lever actuates the rear brake and the left brake lever actuates the front brake.
- Brake Pads: When checking your brakes, it is important to check the full brake system. Brake Pads are subject to normal wear and tear and over time wear down. Brake Pads should never be worn down to their limit. Ask your A2B dealer to check and replace brake Pads.

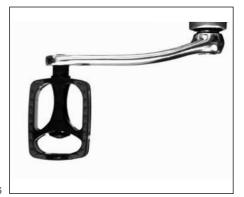






- Pedals: Ensure that your pedals are properly installed and tightened before each ride.
- **Saddle:** Ensure that your saddle is properly adjusted and tightened before each ride (see section 3.8).
- Tyre pressure: Your A2B features heavy duty inner tubes to help avoid flat tyres. However, bicycle tyres normally lose pressure over time. An under-inflated tyre can cause premature tyre failure, and will require significantly more energy (electric and human) to propel your A2B. Low tyre pressure will significantly reduce the range. The recommended tyre pressure for the front wheel and rear wheel is 2.8 bar (40 psi).

• Quick release. Make sure that your front wheel quick release is properly adjusted and tight. Failure to properly adjust and lock your front wheel quick release may result in the wheel falling off while riding which could result in serious or fatal injury and/or property damage. If you are uncertain about any aspect of the assembly and adjustment of your A2B, ask your A2B dealer.







- Handle bar and steering: Please ensure, that the bolts of the handle bar (see section 3.5) and of the bar stem (see section 3.6) are tightened with the correct torque. The two allen screws for the handle bar clamp have to be tightened with 5 Nm torque.
- Battery: Check the display prior to setting off on your journey to ensure the battery has enough charge to easily last your journey.

(i) If you don't understand any aspect of the assembly, use and care of your A2B, please ask your A2B dealer.



### 7.0 Maintenance

Have your A2B serviced by an A2B dealer at least once a year.

#### 7.1 Wheels

The front and rear wheels should be centred in the fork and frame. Wheels should be checked regularly for proper spoke tension and rim alignment.

DO NOT ride your A2B if it has broken or missing spokes. Wheels should rotate smoothly without wobbling from side-to-side or up-and-down.

#### 7.2 Hub bearings

Check the hub bearing adjustment periodically by lifting the wheel off the ground and spinning it and try to move the rim from side-to-side between the fork or frame. No lateral movement should occur. If you detect lateral movement in either wheel, the hub bearings must be adjusted or replaced.

#### 7.3 Wheel rims

The rims must be smooth, without cracks, bulges or flat spots. Take your A2B to your A2B dealer to repair and/or adjust your wheels if necessary.

#### 7.4 Drive chain

Your A2B has a high quality chain that needs to be cleaned and lubricated regularly with bicycle industry approved synthetic lubricant.





#### 7.5 Brakes

Check cables for signs of wear and fraying. Squeeze the brake lever firmly and check for proper brake function. Ensure rotors are free of foreign substances and oils. Brake pads should never be worn down to their limit, replace as necessary. Should your brake pads appear to be worn down or your brakes are not as responsive as they used to be, ask your A2B dealer to check and replace brake pads. Brakes lose effectiveness when wet.

If riding in wet weather is unavoidable, remember that stopping your A2B will require extra distance. Ride slower, keep a larger gap between you and other traffic, and begin braking sooner than normal. Failure to take these precautions could lead to an accident causing serious or fatal injury and/or property damage. If you are uncertain about any aspect of the brake operation, ask your A2B dealer.

⚠ Brake discs and brake pads must be free of oil and grease.





#### 7.6 Tyres

Check tyres for any damage, cracking, unusual or excessive wear. The tyre should be properly seated in the rim and the fit of the tyre bead in the rim should be periodically checked. Check for foreign objects in the tyre tread and that the valve stem is straight in the rim. Damaged or worn tyres should be replaced immediately. Take your A2B to an A2B dealer or a qualified bicycle mechanic to repair and/or replace your tyres if necessary.

In the unlikely event of having a flat tyre you need to know the correct procedure for removing and re-installing the front or rear wheel.

#### 7.7 Removing and re-installing wheels

#### Removing front wheel

- 1. Release the front brake.
- Release the front hub quick-release by rotating the quick-release lever away from the hub until it is fully open.
- Turn the adjusting nut on the opposite side of the hub from the lever ANTI-CLOCKWISE until the nut and lever body clears the safety protrusions on the fork tip.
  - \*The front wheel can now be removed from the bike.

#### Re-installing front wheel

- Position the wheel in the front fork so that the quick-release lever is located on the left side of the front fork.
- Move the quick-release lever to the OPEN position (lever curves away from the hub) and position the wheel in the front fork so that the axle is located in the fork drop-outs.
- Turn the adjusting nut on the right side of the hub clockwise such that you feel resistance to closing the lever when the lever is parallel to the centreline of the hub.



4. Firmly grip the fork with your left hand, and push the lever over to the closed position towards the fork, ensuring that it does not protrude so as to cause injury to the rider. The lever is securely tightened when it takes a significant amount of force to position it in the closed position. The appropriate amount of force necessary to close the lever when it is properly adjusted will result in an imprint of the lever in the palm of your hand. Once closed, the OPEN designation on the lever will no longer be visible. When properly closed, it is impossible to move unless you open it again by reversing the steps above. If you can easily move it, open the quick-release lever and tighten the adjusting nut another 180° and try again.

- Ensure that the brake disc is correctly inserted into the brake callipers and is correctly adjusted.
- If you are unsure about this brake set-up and adjustment procedure, please take your A2B to your A2B dealer and ask for assistance in adjusting the brakes. Improperly adjusted brakes may cause reduced braking performance, leading to an accident that could result in serious or fatal injury and/or property damage.

DO NOT ride your vehicle if you are not confident that the brakes are working properly.

#### Removing rear wheel

- 1. Ensure that the battery is disconnected.
- Remove the cable retaining clips using an appropriate allen key also located on the underside of the left hand chain stay.
- Disconnect the motor power and motor controls connectors.
- 4. Using a 19 mm spanner, loosen and remove the hub axle nuts.
- Loosen and remove the torque arm retention bolt from the left hand side drop out.
- 6. Remove the torque arm from the A2B by sliding it off the axle.
- Remove the rear wheel by sliding it out of the frame while disengaging the chain from the freewheel.

#### Re-installing rear wheel

Reverse the removal instructions (7-1).

- Re-install the torque arm. Failure to do so will result in damage to the frame.
- Ensure correct replacement of the chain on the front and rear chain rings.
- Install the cable clips for the motor cable to the frame.



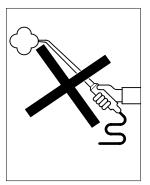


Ensure that the rear wheel is properly centred in the frame before securely tightening the axle nuts to 60 Nm.

Ensure that the brake disc is correctly inserted in the brake calliper, and the wheel rotates freely without interference from the brake shoes.

If you are unsure about this brake set-up and adjustment procedure, please take your A2B to your A2B dealer and ask for assistance in adjusting the brakes. Improperly adjusted brakes may cause reduced braking performance, leading to an accident that could result in serious or fatal injury and/or property damage. DO NOT ride your A2B if you are not confident that the brakes are working properly.

## 8.0 Cleaning the Vehicle



D Rubber and plastic parts could be damaged by aggressive or penetrating cleaning agents or solvents.

After cleaning and before beginning your ride, always test your brakes!

⚠ Do not use any steam or highpressure cleaning devices! The high water pressure can damage the gaskets, the battery and the entire electrical system.



Polish only with a soft cloth or chamois! Do not wipe off dust and dirt with a dry rag (otherwise you may scratch the varnish and the panelling).



① Do not use paint polish on any of the plastic parts.

After longer rides, thoroughly clean the A2B and preserve with a commercially available anti-corrosion agent.

① In the interests of environmental protection, we would ask you to use care products sparingly and to only use such products that have been labelled 'environmentally friendly'.

If the vehicle will be used during the winter months, road salt may cause considerable damage.

① Do not use warm water which increased salt corrosion. At the end of the trip, immediately clean the vehicle with cold water; thoroughly dry off the vehicle; treat parts liable to corrosion with wax borne anti-corrosion agents.



# 9.0 Trouble Shooting

No power? Here are some solutions. If they do not solve your problem ask an A2B dealer for help.

Problem	Possible cause(s)	Solution
A2B does not turn on.	Dead battery	Recharge the battery. See section 5.3
A2B turns on, but the motor does not run (display illuminates and state-of-charge indicator shows a charged battery).	1. A brake lever is applied.	Do not apply the brakes when starting the vehicle. Make sure brake levers are fully forward.
	2. The motor power connector is not properly connected.	Ensure the motor power connector is securely connected.
	3. No assist level selected (P0-0).	Select assist level (P0-1, P0-2 or P0-3).
Motor power is decreasing while climbing uphill.	Motor temperature is getting too high.	Let the motor cool down.

### 10.0 Technical Information

#### General performance specification

Overall dimensions: 1750 mm x 630 mm x 1080 mm

■ Tyres: 26" x 1.95"

• Frame sizes: 17" and 20"

Curb weight without battery: 22.2 kg

Curb weight with battery: 25.0 kg

Maximum permitted load: 140 kg

Maximum permitted load on rear carrier: 10 kg

 Maximum speed with motor support, flat level ground: 25 km/h (15.5 mph) Note: regulated

 Maximum range with motor support, flat level ground, no head or tail wind, no start/stops: 50 km (31 miles)

 Operation conditions: Temperature -5 to 40 °C (+23°F to 104°F), maximum humidity 80%

#### Electrical specification, battery

Battery type: Lithium-ion

Nominal voltage: 36 V

Normal voltage operating range: 30 to 42 V

Nominal capacity: 9.0 Ah

Charging method: CC/CV (constant current/constant voltage)

Weight: 2.8 kg

#### Battery management system (BMS)

- Controls and stops over-charging
- Controls maximum charge current
- Controls over-discharge amperage
- Controls over-discharge voltage
- Over temperature shut-off
- Provides cell-to-cell balancing function

#### Electrical specification, battery charger

Input voltage: AC, 115/230 V, 50/60 Hz

Output voltage: VDC, 42 ± 0,5 V

Output amperage: 2.35 A

AC line fuse rating: 10 A

#### Electrical specification, motor

Motor type: brushless DC, gearless

Motor voltage rating: 36 V

Continious power output: 250 W

#### Electrical specification, motor controller

 Control function: current, voltage, temperature, speed, dynamo function motor

Position: inside the motor

## 11.0 Warranty and Safety Notes

#### **A2B Warranty**

#### 1. Definitions

The following definitions laid down in this provision apply to the warranty:

Goods mean: In conjunction with the A2B: the frame, the motor system (motor and motor controller), the lithium ion battery and all other components of the A2B with the exception of the tyres, hoses and brake pads.

**A2B means:** Light electric vehicle, manufactured and distributed by Hero Eco.

**Period means:** For the frame, five years as of delivery date of the A2B to you; for the motor system (motor and motor controller), two years as of the delivery date of the A2B to you; for the lithium ion battery, two years as of delivery date of the A2B to you; for all other A2B components with the exception of the tyres, hoses, brake pads, grips, chain, chain rings and sprockets, two years as of delivery date of the A2B to you.

Hero Eco means: Hero Eco Ltd.

**You means:** The original purchaser of the A2B from an authorised A2B specialist dealer.

#### 2. Warranty

- 2.1 Hero Eco guarantees that the goods upon delivery of the A2B to you and for the specified periods:
  - 2.1.1 are in agreement in all material respects with the relevant description, depending on any conditions or information in brochures, advertisement or in other documents:
  - 2.1.2 are of satisfactory quality;
  - 2.1.3 are suitable for the purposes specified by Hero Eco or for any appropriate purpose for which you utilise the goods;
  - 2.1.4 do not exhibit any significant defects with regard to the structure, material and processing;
  - 2.1.5 satisfy all applicable legal and regulatory requirements with regard to sales of the goods in Europe.
- 2.2 Hero Eco grants this warranty in addition to your legal claims with regard to goods that are defective or do not satisfy the warranty conditions in other respect. Your local consumer advice centre or authority for consumer protection will provide you with information about your legal claims.
- 2.3 This warranty is not applicable in the event of defects to the goods:
  - 2.3.1 due to normal use and wear;
  - 2.3.2 due to intentional damage, accident or negligence by you or third parties;
  - 2.3.3 if your A2B was assembled by parties other than Hero Eco or an authorised A2B specialist dealer;

- 2.3.4 if you use the goods in a manner not recommended by Hero Eco, such as using the A2B for commercial purposes or in competitions or when training for such activities or events; owner's manual;
- 2.3.5 due to your disregarding our instructions, such as in case of any modifications, alterations or repairs which you carry out without prior written permission by Hero Eco.
- 2.4 The warranty is also applicable to any goods repaired by Hero Eco or goods which they have ordered as spare parts in the improbable event that the original goods were defective or could not fulfil this warranty in other respects.

#### 3. Defective goods and return

- 3.1 Consult either an authorised A2B specialist dealer or Hero Eco directly at A2B@heroeco.com
- 3.2 Hero Eco will ask you to take the A2B together with your proof of purchase to an authorised A2B specialist dealer. At its own discretion, after having verified that the goods are defective, Hero Eco will:
  - 3.2.1 refund, in whole or in part, the costs for the defective goods, or
  - 3.2.2 replace the defective goods or
  - 3.2.3 repair the defective goods.

#### 4. Limitation of liability

- 4.1 If you or Hero Eco do not abide by this warranty, then subject to provision 4.2 no party shall be liable for any of the resulting losses to the other party with the exception of losses representing a foreseeable consequence of non-compliance with this warranty.
- 4.2 Neither you nor Hero Eco shall be liable for losses due to Hero Eco's non-compliance with this warranty, specifically including the following:
  - 4.2.1 Loss of income or earnings;
  - 4.2.2 Loss of business;
  - 4.2.3 Loss of expected savings;
  - 4.2.4 Loss of data or
  - 4.2.5 Any lost time.
- 4.3 Provision 4.2, however, does not prevent claims with regard to foreseeable losses or damage to objects in your possession.
- 4.4 This provision in no way includes or limits the liability of Hero Eco for:
  - 4.4.1 Death or injuries due to negligence on the part of Hero Eco or
  - 4.4.2 Fraud or fraudulent misrepresentation or
  - 4.4.3 Any other matter in which it would be unlawful or illegal for Hero Eco to exclude its liability or to attempt such.

# 12.0 Disposal

We at Hero Eco Ltd support the proper disposal and recycling of our products. Please dispose of your ebike and associated components at your local recycling facility. If requested, Hero Eco can arrange for proper disposal for you.



### 13.0 Maintenance schedule

To ensure the proper functioning and safety of your A2B related therewith, you should have a service check carried out once a year, however, at least at the times indicated in the table. Please contact an A2B specialist dealer for this purpose and have the vehicle checked routinely. This also applies if you do not notice any problems or signs of wear and tear when using your A2B.

The check by your specialist workshop is documented in the following maintenance schedule. Therefore, please keep it in a safe place.

#### Checklist

The following pages contain the maintenance tables checked by your A2B specialist dealer at the following times:

- 1. Maintenance upon assembly
- 2. First inspection after 200, no later than after 300 km
- 3. Further maintenance: every 2,000 km

							Maintenance upon assembly
_	inspection	×		××	×	×	×
	Step	Component assembly: Frame-handlebars-stem-saddle post-saddle  Check components for cracks and replace, if necessary  Check screws on handlebars/stem/saddle  Clean & lubricate saddle post pipe	Front fork  Completely clean suspension fork, espec. sliding surfaces of the standpipes  Check standpipes for damage, replace, if necessary	Rear wheel slot  Clean TMM4 sensor using air, without demounting it  Check firm fit & state of the sensor plate  Check axle screws for firm fit	Component assembly: Crank - inside bearing-pedal  Clean crank & pedal / lubricate pedal axle  Check sprocket for wear, replace, if necessary  Check crank and pedal fastening for firm fit  Check play of bottom bracket bearing, replace, if necessary  Demount bottom bracket bearing, clean & lubricate casing & thread	Component assembly: Chain-cassette-sprocket  Clean all parts.  Check all screws for firm fit  Check components for wear, replace, if necessary  Clean & lubricate chain	Component assembly: Wheels-rims-tyres  Clean parts  Check tyres for damage and tread  Adjust tyre air pressure  Check front and rear wheel rim for lateral and radial run-out, adjust, if necessary  Check spoke tension, adjust, if necessary  Check functioning & bearing play of front wheel hub.
38	Š.	-	Ø	м	4	ιO	Φ

No.	Step	inspection
7	Steering head  • Check bearing play of steering head and adjust or replace, if necessary	×
ω	Component assembly: Derailleur system  • Clean and lubricate derailleur mechanism and derailleur.  • Check derailleur system cord and outer shells for state and function, replace, if necessary  • Check derailleur mechanism adjustment, adjust, if necessary  • Check all screws on the derailleur mechanism/derailleur for firm fit	××
o	Component assembly: Brake system  Component assembly: Brake system  Check brake pads, replace, if necessary  Check brake pressure, refill brake oil, if necessary  Check brake system for tightness.  Check brake system screws for firm fit  Check brake function and efficiency	××××
10	Guard plates-luggage rack-side stand-lighting system  Tighten all screws  Check lighting system for functioning & setting, adjust, if necessary	××
=	Component assembly: electrical drive system & lock  • Check lines for proper fastening, breakings, chafing, bends, replace, if necessary  • Check plug contacts for corrosion and scaling, clean or replace,	×
	Check cable joints for correct connection Check display for functioning & error codes Run current software update Check battery state and charge Check alignment & state of the battery slide rails, adjust/replace, if necessary Check locking cylinder on battery slot for functioning, clean and	× ×
	Check brake switch/motor stop switch for functioning	

)		
No.	Step	inspection
<del></del>	Component assembly: Frame-handlebars-stem-saddle post-saddle  Check components for cracks and replace, if necessary  Check screws on handlebars/stem/saddle  Clean & lubricate saddle post pipe	**
2	Front fork  • Completely clean suspension fork, espec. sliding surfaces of the standpipes  • Check standpipes for damage, replace, if necessary	×
m	Rear wheel slot  Clean TMM4 sensor using air, without demounting it Check firm fit & state of the sensor plate Check axle screws for firm fit	× ×
4	Component assembly: Crank - inside bearing-pedal  • Clean crank & pedal / lubricate pedal axle  • Check sprocket for wear, replace, if necessary  • Check crank and pedal fastening for firm fit  • Check play of bottom bracket bearing, replace, if necessary  • Demount bottom bracket bearing, clean & lubricate casing & thread	×××
ω	Component assembly: Chain-cassette-sprocket  Clean all parts.  Check all screws for firm fit  Check components for wear, replace, if necessary  Clean & lubricate chain	×××
Q	Component assembly: Wheels-rims-tyres  • Clean parts  • Check tyres for damage and tread  • Adjust tyre air pressure  • Check front and rear wheel rim for lateral and radial run-out, adjust, if necessary  • Check spoke tension, adjust, if necessary  • Check functioning & bearing play of front wheel hub.  • Demount, clean and lubricate hub	××× ××

No.	Step	inspection
_	Steering head  • Check bearing play of steering head and adjust or replace, if necessary	×
ω	Component assembly: Derailleur system  • Clean and lubricate derailleur mechanism and derailleur.  • Check derailleur system cord and outer shells for state and function, replace, if necessary  • Check derailleur mechanism adjustment, adjust, if necessary  • Check all screws on the derailleur mechanism/derailleur for firm fit	× ××
o	Component assembly: Brake system  Component assembly: Brake system  Check brake pads, replace, if necessary  Check brake pressure, refill brake oil, if necessary  Check brake system for tightness.  Check brake system screws for firm fit	××××
10	Guard plates-luggage rack-side stand-lighting system  Tighten all screws Check lighting system for functioning & setting, adjust, if necessary	××
Ξ	Component assembly: electrical drive system & lock  • Check lines for proper fastening, breakings, chafing, bends, replace, if necessary  • Check plug contacts for corrosion and scaling, clean or replace,	×
	if necessary  Check cable joints for correct connection  Check display for functioning & error codes  Run current software update  Check battery state and charge  Check alignment & state of the battery slide rails, adjust/replace, if necessary  Check locking cylinder on battery slot for functioning, clean and lubricate  Check brake switch/motor stop switch for functioning	××× ×× ×

No.	Step	inspection
<del>-</del>	Component assembly: Frame-handlebars-stem-saddle post-saddle  Check components for cracks and replace, if necessary  Check screws on handlebars/stem/saddle  Clean & lubricate saddle post pipe	***
2	Front fork  • Completely clean suspension fork, espec. sliding surfaces of the standpipes  • Check standpipes for damage, replace, if necessary	× ×
m	Rear wheel slot  Clean TMM4 sensor using air, without demounting it Check firm fit & state of the sensor plate Check axle screws for firm fit	×××
4	Component assembly: Crank - inside bearing-pedal  Clean crank & pedal / lubricate pedal axle  Check sprocket for wear, replace, if necessary  Check crank and pedal fastening for firm fit  Check play of bottom bracket bearing, replace, if necessary  Demount bottom bracket bearing, clean & lubricate casing & thread	***
ω	Component assembly: Chain-cassette-sprocket  Clean all parts.  Check all screws for firm fit  Check components for wear, replace, if necessary  Clean & lubricate chain	××××
ω	Component assembly: Wheels-rims-tyres  • Clean parts  • Check tyres for damage and tread  • Adjust tyre air pressure  • Check front and rear wheel rim for lateral and radial run-out, adjust, if necessary  • Check spoke tension, adjust, if necessary  • Check functioning & bearing play of front wheel hub.	×××× ×××
		<

No.	Step	inspection
7	Steering head  • Check bearing play of steering head and adjust or replace, if necessary	×
ω	Component assembly: Derailleur system  • Clean and lubricate derailleur mechanism and derailleur.  • Check derailleur system cord and outer shells for state and function, replace, if necessary  • Check derailleur mechanism adjustment, adjust, if necessary  • Check all screws on the derailleur mechanism/derailleur for firm fit	×× ××
O	Component assembly: Brake system  • Clean brake bosses.  • Check brake pads, replace, if necessary  • Check brake pressure, refill brake oil, if necessary  • Check brake system for tightness.  • Check brake system screws for firm fit	***
10	Guard plates-luggage rack-side stand-lighting system  Tighten all screws Check lighting system for functioning & setting, adjust, if necessary	××
=	Component assembly: electrical drive system & lock Check lines for proper fastening, breakings, chafing, bends, replace, if necessary Check plug contacts for corrosion and scaling, clean or replace, if necessary Check cable joints for correct connection Check display for functioning & error codes Run current software update Check battery state and charge Check alignment & state of the battery slide rails, adjust/replace, if necessary Check locking cylinder on battery slot for functioning, clean and lubricate Check brake switch/motor stop switch for functioning	× × ××× × ××

Step	inspection
Signature / stamp of the A2B specialist workshop	after 4,000 km
Signature / stamp of the A2B specialist workshop	after 6,000 km
Signature / stamp of the A2B specialist workshop	after 8,000 km
Signature / stamp of the A2B specialist workshop	after 10,000 km
Signature / stamp of the A2B specialist workshop	after 12,000 km
Signature / stamp of the A2B specialist workshop	after 14,000 km
Signature / stamp of the A2B specialist workshop	after 16,000 km
Signature / stamp of the A2B specialist workshop	after 18,000 km
 Signature / stamp of the A2B specialist workshop	after 20,000 km

## 14.0 Owner registration

Battery serial number:

You should immediately fill out and return your owner Note down this additionally important information for your registration card or register online at www.wearea2b.com so future reference: that we can keep you informed of important issues in the Purchase date: future. Thank you. Your A2B and certain important components have unique serial Delivery specialist dealer: numbers. You should note down these number in case you want to report warranty claims later or if you lose your bicycle or it is stolen. Address: City/Postal code: Vehicle serial number is located on the underside of the frame near the pedal crank. Telephone: Vehicle serial number: Vendor: Motor serial number: Record important information in a safe place for future reference. (motor serial number is engraved on the left side of the motor hub)

To adequately protect your A2B against theft, buy a high quality bicycle lock. Lock your A2B to a firmly anchored object each time you park it somewhere unsupervised. Also lock your front and rear wheel as well as the motor to the frame.

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