

GOLDORO

ELECTRIC BICYCLE

USER MANUAL

Please read this manual carefully before using the product. Please retain this manual for future reference.

INTRODUCTION

This manual is designed to help you get the best performance, comfort, enjoyment and safety when riding your new electric bicycle. The manual describes specific care and maintenance procedures that will help to protect your warranty and ensure years of trouble-free use. Please pay particular attention to the section on battery charging and maintenance.

It is important that you understand the features and operation of your new electric bicycle so that you can get maximum enjoyment with maximum safety. It is also important that your first ride on the electric bicycle is taken under a controlled environment and away from vehicular traffic, obstacles and other cyclists.



Cycling can be a hazardous activity even under the best circumstances. Giving proper maintenance to your electric bicycle is your responsibility as it will help to reduce the risk of injury. This manual contains many Warnings and Cautions concerning the consequences of failure to maintain or inspect your electric bicycle. Many of these Warnings and Cautions say that 'you may lose control and fall' because any fall can result in serious injury or even death. We do not repeat the warning of possible injury or death whenever the risk of falling is mentioned. Please note that these risks are ever present.

As with all mechanical components, the electric bicycle is subjected to wear and high stresses. Different materials and components may react to wear or stress fatigue in different ways. If the design life of a component has been exceeded, it may suddenly fail and possibly cause injury to the rider. Any form of crack, scratch or change of colour in highly stressed areas indicate that the life of the component has been reached and it should be replaced.

Please check brakes, tyres, handlebar and rims frequently.

Please increase braking stopping distance on rainy days.

IMPORTANT SAFETY INFORMATION

Your electric bicycle will provide many years of service, fun and fitness if you take good care of it. Understand the features of your electric bicycle and be aware of the challenges that you will meet on the road. There are many things that you can do to protect yourself while riding. We will offer many recommendations and safety tips throughout this manual. The following are those that we believe are the most important.

ALWAYS WEAR A HELMET

- Helmets significantly reduce the possibility and severity of head injuries. Always wear a helmet that complies with your state laws when riding the electric bicycle. Check your local police for requirements in your community.
- Do not wear loose clothing that can become entangled with moving parts of the electric bicycle.
- Check your state laws concerning other protective wear that may be required when riding the electric bicycle.

KNOW YOUR ELECTRIC BICYCLE

- Your electric bicycle incorporates many features and functions that have never been built into a bicycle before. Read this manual thoroughly to understand how these features enhance your riding pleasure and safety.

RIDE DEFENSIVELY

- One of the most common cycling accidents is that of a driver of a parked car opening the car door into the path of a rider. Another common occurrence is when a car or another cyclist moves suddenly into your path. Always be aware of other vehicles around you.
- Do not assume that drivers or other cyclists can see you. Be prepared to take evasive action or stop suddenly.

MAKE YOURSELF EASILY VISIBLE

- Make yourself more visible by wearing bright reflective clothing.
- Keep your reflectors clean and properly aligned.
- Signal your intentions so that other drivers and cyclists can notice your actions.

KEEP THE ELECTRIC BICYCLE IN SAFE CONDITION

- Follow the inspection and maintenance guidelines in this manual.
- Check critical safety equipment before each and every ride.

IMPORTANT SAFETY INFORMATION

RIDE WITHIN YOUR LIMITS

- Take it slow until you are more familiar with conditions that you encounter. Be especially careful in wet conditions as traction can be greatly reduced and brakes less effective. Never ride faster than conditions warrant or beyond your riding abilities.
- Remember that alcohol, drugs, fatigue and inattention can significantly reduce your ability to make good judgements and ride safely.

KNOW THE LAW

- Cyclists are required to follow traffic rules. Additionally, some communities regulate the use of motorised bicycles regarding minimum age requirements and necessary equipment. Check with local police for specific details.

CORRECT FRAME SIZE

- When selecting a new electric bicycle, the proper frame size is a very important consideration. Most full-sized bicycles come in a range of frame sizes. These sizes usually refer to the distance between the centre of the bottom bracket and the top of the frame seat tube.
- For safe and comfortable riding, there should be a clearance of no less than 300mm between the groin area of the intended rider and the top tube of the bicycle frame, while the rider straddles the bicycle with both feet flat on the ground.
- The ideal clearance will vary between types of bicycles and rider preference. This makes straddling the frame when off the seat easier and safer in situations such as sudden traffic stops. Women can use a men's bicycle to determine the correct size.

COMPONENTS

USE ORIGINAL REPLACEMENT PARTS

- Please use original parts or branded parts for replacement as there are hidden dangers if unknown parts are used for riding. Commonly replaced parts include the following:

Tyre: 26 inch

Brakes: Disc brake

Motor: 250W

Charger/Controller: 36V

Battery: 36V 10.4Ah



OPERATION INSTRUCTIONS

Please read and understand these instructions completely before operating your electric bicycle to prevent serious injury to yourself and others, and to prevent damage to your electric bicycle.

IMPORTANT NOTICES

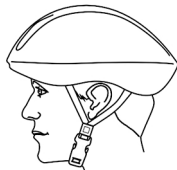
- Always recharge the battery immediately after each use. Failure to do so may damage the battery.
- The charger can remain plugged-in for trickle-charge purposes during long periods of storage.
- When the electric bicycle is unused for one month or longer, the battery should be checked and fully charged before riding.

HELMETS

Always wear a properly-fitted helmet that covers the forehead when riding the electric bicycle. Many states require specific safety devices. It is your responsibility to familiarise yourself with these laws where you ride and to comply with all applicable laws, including properly equipping yourself and your electric bicycle as the law requires.

It is recommended that a properly-fitted electric bicycle safety helmet be worn at all times when riding your electric bicycle. The correct helmet should be:

- Comfortable
- Lightweight
- Have good ventilation
- Fits correctly
- Covers the forehead



REFLECTORS

Reflectors are important safety devices that are designed as an integral part of your electric bicycle. Federal regulations require every bicycle to be equipped with front and rear wheel and pedal reflectors. These reflectors are designed to pick up and reflect street lights and car lights in a way that helps you be seen and recognised as a moving cyclist. Check reflectors and their mounting brackets regularly to make sure that they are clean, straight, undamaged and securely mounted. Replace damaged reflectors and straighten or tighten any that are bent or loose. Your electric bicycle is equipped with one front wheel and one rear wheel reflector and four pedal reflectors.

OPERATION INSTRUCTIONS

Before starting to ride the electric bicycle, be sure to check that all parts of the bicycle are in good condition, such as battery power and tyre pressure. Test all electric functions before riding.

START-UP

Press the button on the battery first, then press and hold the power button for 5 seconds to start up the display. The power display lights should come on to signify that power supply is normal

Start-up via pedal assistance

After turning on the power, you can use the pedals to start the electric bicycle. The speed can be controlled via the throttle or through your pedalling. Faster pedalling will increase the speed, but do not pedal too hard to prevent any damage to components since the electric bicycle is mainly motor-driven.

RIDING SAFELY

WHEN RIDING

- Speed should be increased gradually on start-up so as not to damage electrical components or waste energy. Generally, it is better to start-up with pedal assistance.
- When riding uphill or on steep terrain, it is better to ride with pedal assistance in order to prolong the service life of the battery and the motor.
- While riding safely, try to reduce frequent braking and start-up in order to preserve energy.
- To stop the electric bicycle, release the throttle by turning clockwise. The speed will gradually decrease and stop.
- Do not use the throttle and brakes together while riding. Release the throttle first and then use the brakes. This will help to prevent the motor from overloading and damaging other electrical components.
- The optimum carrying capacity of the electric bicycle is 110kg (including weight of rider). Please do not exceed this limit.
- A rear brake system has been installed on this electric bicycle. When the brake is activated by the brake lever, it will automatically cut off power to the motor and the bicycle will gradually slow down. Finally, the rear brake will stop the bicycle.

WHEN PARKING

- Turn off the power switch after you get off the electric bicycle. This is to prevent any accident caused by inadvertently turning the throttle and starting the electric bicycle abruptly.
- Do not start up the electric bicycle frequently when it is stationary to ensure a longer service life of the battery, motor and power switch.
- Turn off the power switch after parking and remove the key.

BATTERY CHARGING

When the ride is over or the battery is running low, charge the battery immediately. The battery can be charged in two ways. It can be removed to be charged or while it is still on the electric bicycle.

To charge the battery, firstly connect the charger plug to the battery charging port of the electric bicycle and then to the mains socket. Ensure that the power source has a 110V/50-60Hz power supply. The battery charger requires a constant voltage. Fluctuating voltage or power supply of any kind may damage the battery storage cells.

The battery pack provided is partially charged. To ensure full battery capacity, charge the battery pack completely before using it for the first time.

When charging, an LED indicator will light up on the battery charger. The LED shows red when the power is connected and during the charging process. When the LED turns green, this means that the battery is fully charged.

The recommended charging time for the Li-ion battery is between five and six hours. Do not charge continuously for more than 18 hours.

After charging, unplug from the mains socket first, and then unplug the charger plug from the charging port of the electric bicycle.

IMPORTANT NOTE

Please follow the instructions in the manual or on the label of the charger. Always store the battery charger and charging connector in a dry place and avoid contact with any wet surfaces or water. The charger should be cleaned with a dry cloth. Never use a wet cloth or any other liquid to clean the charger.



BATTERY POWER INDICATOR

When the throttle is engaged and the electric bicycle is in motion, the LED lights on the battery level gauge will indicate the instantaneous line voltage as measured at the battery terminals. **Please note that this is not the available energy in the battery pack.**

When riding up a steep incline, the motor will be under a high load and the LED indicators may show a reduced number of light indicators or be displayed in yellow or red.

When the throttle is disengaged (motor has stopped or the electric bicycle is either stationary or cruising), the LED indicators will show the voltage of the battery pack. The voltage of the battery pack will rise when no load is applied to the motor. The best way to check the amount of battery life is to let the electric bicycle cruise along a flat and straight road so that battery is stabilised and provides a much more accurate reading.

BATTERY CARE

Even with proper care, rechargeable batteries do not last forever. Every time the battery is discharged and subsequently recharged, its relative capacity decreases by a small percentage. The battery life can be maximised by following the instructions in this manual. The battery should be fully charged immediately on receiving it to the recommended charging time. **For the Li-ion battery, the recommended charging time is five to six hours.**

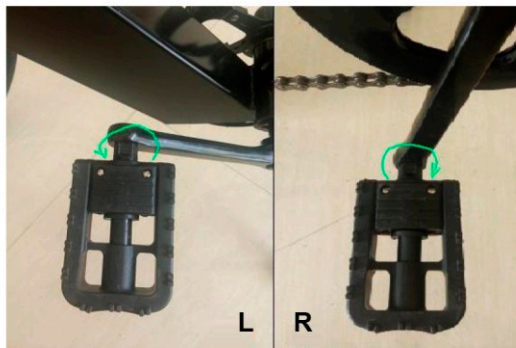
- For a complete 100% charging, leave the battery on the charger for one full hour after the charger indicator lights turn green.
- Never charge the battery for longer than 24 hours.
- Li-ion batteries do not have any 'memory'. Partial discharging/charging will not harm the battery capacity or performance.
- The rated output capacity of a battery is measured at 25°C. Any variation with this temperature will alter the performance of the battery and shorten its expected life. High temperatures will reduce overall battery life and running time.
- Always be sure to turn off the electric bicycle after each use. If you leave the power switch to ON position or the electric bicycle has not been charged for a long period of time, the battery may reach a stage where it will no longer hold a charge.

PEDALS INSTALLATION

The pedals come in a pair of left and right pedals as indicated on them (A). To install the pedals, simply screw them onto their respective crankshafts as shown below (B). Please ensure that they are attached to the correct crankshafts.



A



B

DERAILLEUR SYSTEM

Some electric bicycle models are equipped with a gear or derailleur system. It usually consists of:

- Rear sprocket cluster called a freewheel or cog set
- Front and rear derailleur
- Shifter
- Control cable
- Front sprocket called a chaining
- Drive chain

SHIFTER

There are many types of shifter mechanisms depending on specific applications, ergonomics, performance and price factors.

A downshift is a shift to lower or slower gears which makes it easier to pedal. Likewise, an upshift is a shift to higher or faster gears which makes it harder to pedal.

In most instances, you downshift to a lower gear to make pedalling up a steep incline easier and perform an upshift to a higher gear when you wish to go faster. Whether it is downshifting or upshifting, the derailleur system requires that the drive chain is moving forward and is under at least some tension. A derailleur will shift only when you are pedalling forward.

CAUTION

Never move the shifter when you are pedalling backwards. Plus, do not pedal backwards after moving the shifter. Either of these actions could jam the chain and cause serious damage to the electric bicycle.

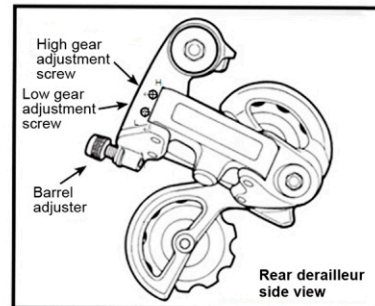
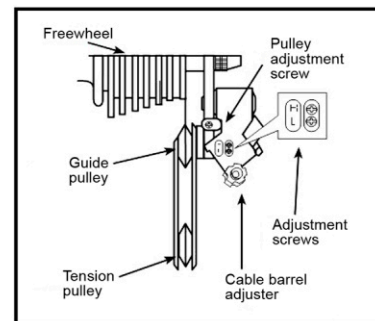
DERAILLEUR SYSTEM

DERAILLEURS

Although the front and rear derailleurs are factory-adjusted, you may need to inspect and adjust the rear derailleur before riding the electric bicycle.

REAR DERAILLEUR ADJUSTMENT

- Before adjusting the rear derailleur, move the shifter to the largest number indicated and loosen the cable from the rear derailleur cable anchor bolt. Then place the chain on the smallest sprocket.
- Adjust the high gear adjustment screw so that the guide pulley and smallest sprocket are lined up vertically.
- Re-tighten the cable and pull out any slack. Then re-tighten the anchor bolt securely.
- Shift through the gears and make sure that each gear is engaged quietly and without hesitation.
- If necessary, use the barrel adjuster to fine tune the cable tension by turning it in the direction where you want the chain to go. For example, turning the barrel adjuster clockwise will loosen the cable tension and move the chain away from the wheel. By turning the barrel adjuster anti-clockwise, it will tighten the cable tension and direct the chain towards the wheel.



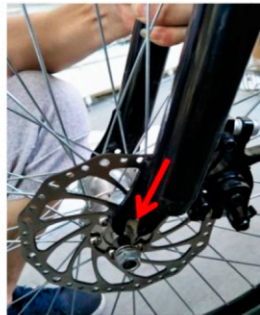
FRONT WHEEL BRAKE INSTALLATION

DISC BRAKE SYSTEM

- Place the front wheel between the fork blades (A).
- Place the fork blades onto the axle (B).
- Align the axle locks with the fork blades (C).
- Tighten the axle locks with a wrench on both the left and right side of the wheel (D). Finally, place the axle bolt caps over the axle bolts.



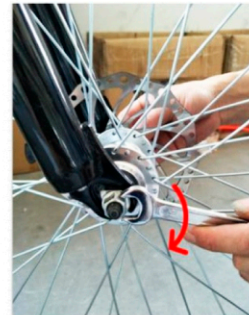
A



B



C



D

BRAKE CABLE INSTALLATION (DISC BRAKE ONLY)

IMPORTANT

The front brake must be positioned on the right hand side of the handlebar.

- Insert the front brake cable into the disc brake unit (1 and 2).
- Tighten the screw using an Allen key (3).
- Adjust the screw 'A' with the Allen key if the brakkes are too loose or too tight (4). Adjust 'B' and 'C' to ensure that the left and right discs are parallel with the wheel (5).



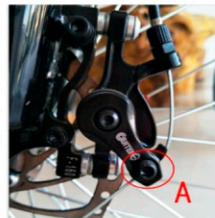
1



2



3



4



5

HANDLEBAR INSTALLATION

The handlebars of your Goldoro e-bike are adjustable to ensure a comfortable riding position. To adjust the handlebars, follow these steps:

Loosen the bolt on the stem clamp using a 5mm Allen wrench.

Adjust the angle of the handlebars to your preferred position.

Tighten the bolt on the stem clamp, making sure it is secure but not overly tight.

Note: Before adjusting the handlebars, make sure the e-bike is securely supported and the front wheel is off the ground to prevent any potential accidents. Also, make sure to tighten the bolt securely to prevent the handlebars from moving while riding.



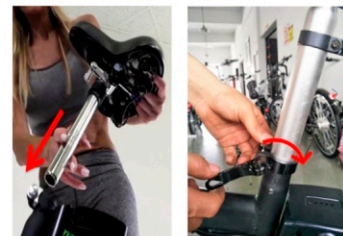
SADDLE INSTALLATION (Applicable to X7, X8)

The correct saddle position is an important factor in getting the best performance and comfort from your electric bicycle. If you find that the saddle position is uncomfortable, there are two ways to adjust it.

HEIGHT ADJUSTMENT

Your leg length will determine the correct saddle height. The correct saddle height is when you can reach the 'lower' pedal with one heel when you are seated on the saddle and with the crank arms parallel to the seat tube. To check for correct saddle height, do the following:

1. Sit in the saddle and place one heel on the pedal.
2. Rotate the crank arm until the pedal with your heel on it is in the down position and the crank arm is parallel to the seat tube. Your leg should be completely straight and just touching the centre of the pedal. If this is not the case, adjust the saddle height accordingly.



IMPORTANT

The minimum seat post position should not be less than the Minimum Insertion level as shown in the photograph.

TILT ADJUSTMENT

Most people prefer a horizontal saddle. However, some riders prefer to have a saddle nose that is tilted slightly up or down. You can adjust the saddle tilt by loosening the saddle quick-release and tilting the saddle to the required positioning. Re-tighten the saddle quick-release to lock the tilt in position so that it will not move or jiggle the saddle.



MAINTENANCE AND CLEANING

IMPORTANT

Technological advances have made the electric bicycle and its components more complex than ever before. This on-going evolution makes it impossible for this manual to provide all information required to properly repair and/or maintain your electric bicycle. In order to help minimise the chances of an accident and possible injury, it is critical that repairs or maintenance that are not specifically described in this manual be carried out by qualified service personnel.

WARNING

The maintenance requirements of each electric bicycle may be determined by factors such as riding style and geographical locations. How much of your electric bicycle service and maintenance that you can do will depend very much on your skills, experience and special tools availability.

Many electric bicycle service and repair tasks require special knowledge and tools. Do not begin any adjustments or service on your electric bicycle if you have the slightest doubt about your ability to properly complete them. Improper adjustment or service may result in damage to the electric bicycle or in an accident that can cause serious injury or death.

Consult qualified service personnel to determine the type of maintenance and repairs needed for your electric bicycle.

INSPECTON AND MAINTENANCE

For your safety and enjoyment and to ensure a longer lifespan for your electric bicycle, inspect and maintain your electric bicycle regularly. Use the following inspection/service schedule as a guide and reference for inspection and maintenance. It is very important that you check certain systems and components before each and every ride. The proper condition and functioning of these systems are critically important for your safety.

INSPECTION/SERVICE SCHEDULE

COMPONENT/CONDITION	INSPECT BEFORE EVERY RIDE	INSPECT FROM TIME TO TIME*	CLEAN AND/OR LUBRICATE	ADJUST OR TIGHTEN	REPLACE OR REPAIR IF NECESSARY
Tyre pressure (60-65psi)	✓			✓	
Tyre wear/damage	✓			✓	
Brake pad adjustment	✓			✓	
Handlebar quick-release adjustment	✓				✓
Controls and displays	✓				
Seat post quick-release adjustment	✓			✓	
Brake pad wear		✓			✓
Brake cable tension/wear		✓		✓	✓
Spoke tension		✓		✓	
Wheels		✓		✓	
Hub bearings		✓	✓	✓	
Chain lubrication		✓	✓		
Derailleur adjustment		✓	✓	✓	
Reflectors		✓	✓	✓	✓
Battery and charger		✓			✓
Headset		✓	✓	✓	
Bottom bracket		✓	✓	✓	
All bolts, nuts and mounting hardware		✓		✓	✓

*Every 5 to 10 rides depending on length and condition of ride.

MAINTENANCE AND CLEANING

SERVICE AND MAINTENANCE SCHEDULE

Some service and maintenance can and should be performed by the owner, and requires no special tools or knowledge beyond what is presented in this manual.

The following are some of the examples of types of service that you can perform on your own. All other types of service, maintenance and repairs should be performed by qualified service personnel in a properly equipped facility using the correct tools and procedures specified by the manufacturer.

BREAK-IN PERIOD

Your electric bicycle will last longer and work better if you break it in before riding it hard. Control cables and wheel spokes may stretch or wear when a new electric bicycle is first used and may require adjustments by the dealer. By doing a mechanical safety check, you will be able to identify some things that need adjustments. Even though everything may seem fine to you, it is best to take your electric bicycle to a service centre for a checkup. The recommended period for a service checkup is 30 days after first use or after 10 to 15 hours of use. If you think that something is not right with the electric bicycle, bring it to the service centre immediately before riding it again.

BEFORE EVERY RIDE

Perform a mechanical safety check of all components.

AFTER A HARD/ LONG RIDE OR EVERY 160KM

In addition to a hard or long ride, these services will also apply if the electric bicycle has been exposed to water or grit.

- Clean the electric bicycle.
- Lightly oil the chain, freewheel cog and rear derailleur pulley bushings. Wipe off excess oil. Lubrication is a function of the climate. Check with service personnel about the best lubricants to use and the recommended lubrication frequency for your area.

MAINTENANCE AND CLEANING

AFTER A HARD/ LONG RIDE OR EVERY 10 TO 20 HOURS OF RIDING

- Squeeze the front barke and rock the electric bicycle forward and back. Does everything feel solid? If you feel a clunk with each forward or backward movement of the electric bicycle, it would probably be a loose headset. Bring it to the service centre for a check.
- Lift the front wheel off the ground and swing it from side to side. Does it feel smooth? If you feel any binding or roughness in the steering, the bicycle mayhave a tight headset. Bring the electric bicycel to the service centre for a check.
- Make sure that all bolts, nits and mounting hardware are securely fastened.

NOTE

Since the right pedal on your electric bicycle folds up, grasp the crank arm when performing this check on the right side of the electric bicycle.

WARNING

Like any mechanical device, an electric bicycle and its components are subhject to wear and tear. Different materials and mechnisms wear at different rates and have different life cycles. If the compoment's life cycle has exceeded, the component can suddenly and catastrophically fail, causing serious injury or death to the rider. Scratches, cracks, fraying and discolouration are signs of stress-caused fatigue and indicate that a part is near its useful life and should be replaced.

TIPS AND ADVICE

- Properly maintain the battery by keeping it fully charged when not in use.
- We do not recommend riding the electric bicycle on water such as damp roads, puddles, rain or streams. Never immerse the electric bicycle in water as the electrcial system could be damaged.
- Periodcially check the wiring and connectors to ensure that there is no damage and that the conenctors maintain good continuity.

BASIC REPAIRS

FLAT TYRE

To repair a flat tyre, follow these steps.

- Remove the wheel and depress the tyre valve to let the air out of the inner tube.
- Remove one bead of the tyre from the rim by grasping the tyre at a point opposite the valve stem with both hands and lifting and peeling off the tyre from the rim. If the bead is too tight to unseat with your hands, use tyre levers to lift the bead carefully over the tyre rim.
- Push the valve stem through the rim and remove the inner tube.
- Carefully check the outside and inside of the tyre for the cause of puncture and remove the cause if it is still there.
- If the tyre is cut, line the inside of the tyre where the cut is with tape, a spare patch and a piece of inner tube to prevent the cut from pinching the inner tube.
- Follow the instructions in the patch kit or use a new inner tube. Re-install the tyre and inner tube.
- Slip one tyre bead over the rim and insert the tube valve through its hole in the rim. Then feed the inner tube carefully into the cavity of the tyre.
- Inflate the inner tube just enough to give it some shape. Then, starting at the valve stem, use your thumbs to seat the tyre bead inside the rim. Work your way around both sides of the wheel until the entire bead is seated in the rim. Be careful not to pinch the tube between the tyre bead and the wheel rim.
- If you have trouble getting the last few centimetres of bead over the edge of the rim with thumb pressure, use a tyre lever and be careful not to pinch the tube.

CAUTION

If you use a screwdriver or any other tool other than a tyre lever, you are likely to puncture the inner tube.

Check to make sure that the tyre is evenly seated around both sides of the rim and that the inner tube is inside the tyre beads. Push the valve stem into the tyre to make sure that its base is seated within the tyre beads. Inflate the tube slowly to the recommended pressure and check that the tyre beads stay seated in the rim. Replace the valve cap and re-install the wheel onto the electric bicycle. **Riding the electric bicycle with a flat or under-inflated tyre can damage the tyre, tube and electric bicycle, and can cause you to lose control and fall.**

BASIC REPAIRS

BROKEN SPOKE

A wheel with a loose or broken spoke is much weaker than a fully-tensioned wheel. If a spoke is broken while on a ride, ride the electric bicycle home slowly and carefully because the weakened wheel could break additional spokes and render the wheel useless.

WARNING

A broken spoke can seriously weaken the wheel and may cause it to wobble and strike the brakes or frame. Riding with a broken spoke can cause you to lose control and fall.

To repair a broken spoke, follow these steps.

- Twist the broken spoke around the spoke next to it to prevent the damaged spoke from flopping around and getting caught between the wheel and the frame.
- Spin the wheel to see if the rim clears the brake pads. If the wheel will not turn because it is rubbing against a brake pad, try turning the brake cable barrel adjuster clockwise to slacken the cable and open up the brakes.
- If the wheel still would not turn freely, open the brake's quick-release and secure any loose parts as best that you can. Walk the electric bike, or if you must, ride it with extreme caution because you now only have one set of working brakes.

BICYCLE STORAGE

- Keep the electric bicycle in a dry location and away from direct sunlight and the weather. Direct sunlight may cause paint to fade or rubber and plastic parts to crack.
- Before storing your electric bicycle for a long period of time, clean and lubricate all components and wax the frame. Deflate all tyres to half pressure and hang the bicycle off the ground.
- Do not cover the electric bicycle in plastic as 'sweating' will occur and cause rusting.

BATTERY STORAGE

When storing the battery for along period of time, perform the following steps:

- Charge the battery every 30 days to avoid capacity loss. The battery will self-discharge slowly when left unused for long period of time. If the battery cells are allowed to reach a critically low voltage, its lifespan and capacity will be permanently reduced.
- Always disconnect the charge from the wall outlet and battery before storing the battery.
- Do not store the battery in locations of extreme temperatures, whether it be hot or cold.
- The battery is best kept in a cool and dry place. Do not allow the battery to accumulate condensation as this could cause it to short circuit or corrode.
- The recommended storage temperature for both SLA and Li-ion batteries is between 0°C and 25°C.
- Avoid exposing the battery to extreme heat (40°C or higher) for long periods of time.

NOTE

- It is normal for the battery to become warm during the recharging process. This is due to an increase in internal resistance and less energy conversion efficiency from electrical to chemical energy.
- Even with proper care, rechargeable batteries do not last forever. Conservatively, an SLA battery will last for about 350 full discharge/charge cycles and an Li-ion battery for about 800 cycles. A partial charge/discharge counts fractionally against those numbers. Running the battery down halfway and then recharging it completely will use up one half of a charge cycle. The end of useful life of a battery refers to the point where the battery can no longer supply 60% of its original rated capacity in ampere-hours. After this point, the battery will need to be replaced.

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
Gear shifts not working properly	<ul style="list-style-type: none"> • Deraillleur cables stuck/stretched/damaged • Front or rear deraillleur improperly adjusted • Indexed shifting improperly adjusted 	<ul style="list-style-type: none"> • Lubricate/tighten/replace cables • Adjust deraillleurs • Adjust indexing
Slipping chain	<ul style="list-style-type: none"> • Excessively worn/chipped chain ring or freewheel sprocket teeth • Chain worn or stretched • Stiff link in chain • Non-compatible chain/chain ring/ freewheel 	<ul style="list-style-type: none"> • Replace chain ring, sprockets and chain • Replace chain • Lubricate or replace link • Consult bicycle repairs shop
Chain slipping off freewheel sprocket or chain ring	<ul style="list-style-type: none"> • Chain ring out of alignment • Chain ring loose • Chain ring teeth bent or broken • Rear or front deraillleur side-by-side travel out of adjustment 	<ul style="list-style-type: none"> • Re-align if possible or replace • Tighten mounting bolts • Repair or replace chain ring/set • Adjust deraillleur travel
Constant clicking noise when pedalling	<ul style="list-style-type: none"> • Stiff chain link • Loose pedal axle/bearings • Chain ring teeth bent or broken • Bent bottom bracket or pedal axle • Loose crank set 	<ul style="list-style-type: none"> • Lubricate chain or adjust chain link • Adjust bearings/axle/nut • Adjust bottom bracket • Replace bottom bracket axle or pedals • Tighten crank bolts

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
Grinding noise when pedalling	<ul style="list-style-type: none"> • Pedal bearings are too tight • Bottom bearings are too tight • Chain fouling derailleurs • Derailleur jockey wheels dirty/bound 	<ul style="list-style-type: none"> • Lubricate/tighten/replace cables • Adjust derailleurs • Adjust indexing
Freewheel does not rotate	<ul style="list-style-type: none"> • Freewheel internal pawl pins jammed 	<ul style="list-style-type: none"> • Lubricate. If problem persists, replace freewheel
Brakes not working effectively	<ul style="list-style-type: none"> • Brake blocks worn down • Brake blocks/rim greasy, wet or dirty • Brake blocks bound/stretched/damaged • Brake levers bound • Brakes out of adjustment 	<ul style="list-style-type: none"> • Replace brake blocks • Clean brake blocks and rim • Clean/adjust/replace cables • Adjust brake levers • Centre brakes
Brakes squeal/squeak when applied	<ul style="list-style-type: none"> • Brake blocks worn down • Brake block toe-in incorrect • Brake blocks/rim dirty or wet • Brake arms loose 	<ul style="list-style-type: none"> • Replace brake blocks • Correct block toe-in • Clean blocks and rim • Tighten mounting bolts
Knocking or shuddering when brakes are applied	<ul style="list-style-type: none"> • Bulge in rim or rim out of shape • Brake mounting bolts loose • Brake out of adjustment • Fork loose in head tube 	<ul style="list-style-type: none"> • Re-adjust wheel or bring to bike shop for repairs • Tighten bolts • Centre brakes and/or adjust brake block toe-in • Tighten headset

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
Wobbling wheel	<ul style="list-style-type: none"> • Axle broken • Wheel out of alignment • Hub comes loose • Headset bound • Hub bearings collapsed • QR mechanism loose 	<ul style="list-style-type: none"> • Replace axle • Align wheel • Adjust hub bearings • Adjust headset • Replace bearings • Adjust QR mechanism
Steering not accurate	<ul style="list-style-type: none"> • Wheels not aligned in frame • Headset loose or bound • Front forks or frame bent 	<ul style="list-style-type: none"> • Align wheels correctly • Adjust/tighten headset • Bring bike to bike shop for possible frame re-alignment
Frequent punctures	<ul style="list-style-type: none"> • Inner tube old or faulty • Tyre tread/casing worn • Tyre unsuitable for rim • Tyre not checked after previous puncture • Tyre pressure too low • Spoke protruding into rim 	<ul style="list-style-type: none"> • Replace inner tube • Replace tyre • Replace with correct tyre • Remove embedded sharp object in tyre • Use correct tyre pressure • File down spoke
Bicycle has reduced range and/or speed	<ul style="list-style-type: none"> • Low power with battery • Faulty or old battery • Low tyre pressure • Brakes rubbing against rim • Riding in hilly terrain, headwind or similar conditions 	<ul style="list-style-type: none"> • Charge battery with recommended time • Replace battery • Inflate tyre to recommended pressure • Adjust brakes and/or rim • Reduced range expected with these types of terrain and/or weather conditions
Hub motor makes clicking noise and has reduced power and/or shuts down	<ul style="list-style-type: none"> • Lower power with battery • Damaged planetary gears 	<ul style="list-style-type: none"> • Charge battery with recommended time • Replace hub motor/wheel

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
No power when the switch is turned on	<ul style="list-style-type: none"> • Blown fuse • Loose connectors • Damaged wires • Faulty switch • Faulty controller 	<ul style="list-style-type: none"> • Replace fuse • Check all connectors • Inspect all wires for damage • Replace switch and re-test • Replace controller and re-test
Bicyc/e operates fine but battery gauge does not light up	<ul style="list-style-type: none"> • Loose connectors • Damaged wires • Faulty battery gauge 	<ul style="list-style-type: none"> • Check throttle and/or battery gauge connectors • Inspect all wires for damage • Replace battery gauge
Battery lights up but bicycle does not operate	<ul style="list-style-type: none"> • Faulty brake inhibitor • Loose motor wire connector 	<ul style="list-style-type: none"> • Replace brake inhibitor(s) and re-test • Check motor wire connector
Bicycle runs at full speed without pedalling	<ul style="list-style-type: none"> • Faulty sensor • Faulty throttle • Faulty controller 	<ul style="list-style-type: none"> • Replace sensor and re-test • Replace throttle and re-test • Replace controller and re-test
Battery indicates full charge when tested at the charge port but bicycle does not operate	<ul style="list-style-type: none"> • Faulty controller • Loose connector • Poor contact between battery terminals 	<ul style="list-style-type: none"> • Replace controller • Check all connectors • Inspect and clean battery terminals
Throttle (if applicable) does not return to neutral position	<ul style="list-style-type: none"> • Hand grip jammed against throttle • Faulty throttle 	<ul style="list-style-type: none"> • Re-position grip so that gap between it and throttle is from 1mm to 2mm • Replace throttle

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
Bicycle has intermittent power	<ul style="list-style-type: none">• Loose connectors• Damaged wires	<ul style="list-style-type: none">• Check all connectors• Inspect all wires for damage
Charge shows full charge in a very short amount of time	<ul style="list-style-type: none">• Faulty charger• Faulty battery	<ul style="list-style-type: none">• Replace charger• Replace battery
Indicator light on charger not illuminated when charger is plugged into wall outlet	<ul style="list-style-type: none">• Wall outlet has no power• Faulty charger	<ul style="list-style-type: none">• Check wall outlet for power• Replace charger
Charger indicator light only flashes red and never changes to green	<ul style="list-style-type: none">• Damaged wire from charger port to battery• Faulty battery	<ul style="list-style-type: none">• Inspect wire and replace• Replace battery



Use approved replacement parts, particularly for safety critical components. Consult qualified service personnel as needed.